Psychosocial and Pharmacologic Interventions for Disruptive Behavior in Children and Adolescents: A Systematic Review

Appendixes

Contents

Appendix A. Methods A-1
PICOTS A-1
Criteria for Inclusion/Exclusion of Studies in the Review A-3
Literature Search Strategy A-3
Inclusion/Exclusion Criteria A-4
Data Extraction and Data Management A-4
Risk of Bias Assessment A-4
Data Synthesis A-5
Grading the Strength of Evidence for Major Comparisons and Outcomes A-6
Peer Review and Public Commentary A-7
Assessing Applicability A-7
Appendix A References A-8
Appendix B. Literature Search Strategies B-1
Appendix C. Literature Flow Diagram C-1
Appendix D. Evidence Tables D-1
Appendix E. Risk of Bias Assessment E-1
Appendix F. Key Question 1: Additional Behavioral Outcomes for Preschool Children F-1
Parent-Only Interventions Versus Treatment as Usual/Waitlist F-1
Incredible Years Versus Treatment as Usual/Waitlist F-2
Incredible Years Versus Other Parent-Only Interventions F-3
Triple P Versus Waitlist F-4
Triple P Versus Another Parent-Only Intervention F-6
Tuning in to Kids Versus TAU or Waitlist F-9
Other Parent-Only Interventions Versus Treatment as Usual/Waitlist F-9
Other Parent-Only Interventions Versus Other Parent-Only Interventions F-10
Parent-Child Interaction Therapy F-12
Other Multicomponent Interventions F-15
Appendix F References F-20
Appendix G. Summary of Common Interventions and Scales G-1
Positive Parenting Program (or Triple P) G-1
Parent Child Interaction Therapy G-2
Helping the Noncompliant Child G-3
Incredible Years G-4
Tuning into Kids G-5
Multisystemic Therapy G-6
Coping Power Program G-7
Collaborative Problem Solving G-8
Appendix G References G-9
Appendix H. Key Question 1: Additional Behavioral Outcomes for School Age Children H-1
Detailed Description of School Age Studies H-1
Parent-Only Parent Management Training Versus Treatment as Usual or Waitlist H-2
Description of Studies H-2
Pooled Results: ECBI Intensity Separated by Treatment: Incredible Years and PMT Using the Oregon Model H-4

ECBI Problem Scores H-5
Parent-Only Parent Management Training Versus Other Active Treatment Interventions or Child-Only Intervention H-5
Parent-only Self-Help Interventions and Mindfulness-Based Interventions H-10
Child-Only Interventions H-12
Child-Only Specific Skills Training H-12
Child-Only CBT-Based Interventions H-15
Child-Only Play Therapy H-15
Child-Only Mindfulness-Based Interventions H-16
Multicomponent Treatment: Parent Management Training Versus Treatment As Usual Or Waitlist H-16
Description of Studies H-16
Pooled Results: CBCL Externalizing, ECBI Intensity, or ECBI Problem Scores H-18
Other Outcomes H-20
Multicomponent Parent Management Versus Controls Other Than TAU/Waitlist H-21
Description of Studies H-21
Pooled Results: CBCL Externalizing, ECBI Intensity, or ECBI Problem Scores H-23
Multicomponent Interventions: Family Therapy H-25
Description of Studies and Detailed Analysis H-25
Multicomponent Interventions: Specific Skills Training H-27
Description of Studies and Detailed Analysis H-28
Multicomponent Interventions: Multisystemic Therapy H-33
Description of Studies H-33
Detailed Analysis H-33
Multicomponent Interventions That Were Multimodal or Modular H-34
Other Multicomponent Interventions for School Age Children H-37
Appendix H References H-42
Appendix I. Key Question 1: Additional Behavioral Outcomes for Adolescents I-1
Description of Included Studies I-1
Interventions That Included a Parent Component and a Child Component I-1
Detailed Analysis I-2
Child-Only Interventions I-6
Detailed Analysis I-6
Appendix I References I-10
Appendix J. Network Meta-Analysis and Indirect Comparisons for Psychosocial Interventions J-1
Preschool J-1
School Age J-2
Comparison of Trials of Preschool Plus School-Age Children With Versus Without A Formal Diagnosis of a Disruptive Behavior Disorder J-3
Appendix K. Key Question 2: Additional Details K-1
Pharmacologic Interventions Versus Placebo K-2
Head-To-Head Trials of Pharmacologic Interventions K-7
Within Class Head-To-Head Trials K-7
Between Class Head-to-Head Trials K-9
Appendix K References K-10

Appendix L. Key Question 5: Additional Details L-1
Appendix L References L-4
Appendix M. Key Question 6: Additional Details M-1
Key Question 6a. Do interventions for disruptive behaviors vary in effectiveness and harms based on patient characteristics, including gender, age (including pubertal changes and use of oral contraceptives), racial/ethnic minority, LGBTQ+ status, English proficiency, health literacy, socioeconomic status, insurance status, rural versus urban, developmental status or delays, family history of disruptive behavior disorders or other mental health disorders, prenatal use of alcohol and drugs (specifically methamphetamine), history of trauma or Adverse Childhood Experiences (ACEs), parental ACEs, access to social supports (neighborhood assets, family social support, worship community, etc.), personal and family beliefs about mental health (e.g. stigma around mental health), or other social determinants of health? M-1
Overall Key Findings M-1
Detailed Analysis M-1
Key Question 6b. Do interventions for disruptive behaviors vary in effectiveness and harms based on clinical characteristics or manifestations of the disorder, including specific disruptive behavior (e.g., stealing, fighting) or specific disruptive behavior disorder (e.g., oppositional defiant disorder, conduct disorder), co-occurring behavioral disorders (e.g., attention deficit hyperactivity disorder, autism spectrum disorder, internalizing disorders), related personality traits and symptom clusters, presence of non-behavioral comorbidities, age of onset, and duration? M-8
Overall Key Findings M-8
Detailed Analysis M-8
Key Question 6c. Do interventions for disruptive behaviors vary in effectiveness and harms based on treatment history of the patient? M-14
Key Question 6d. Do interventions for disruptive behaviors vary in effectiveness and harms based on characteristics of treatment, including setting (e.g., group homes, residential treatment, family setting), duration, delivery, timing, and dose? M-14
Appendix M References M-15
Appendix N. Contextual Questions N-1
Contextual Question 1. What are the disparities in the diagnosis of disruptive behavior disorders (based on characteristics such as gender, race/ethnicity, socioeconomic status, other social determinants of health, or other factors) in children and adolescents? N-1
Contextual Question 2. What are the disparities in the treatment of disruptive behaviors or disruptive behavior disorders (based on characteristics such as gender, race/ethnicity, socioeconomic status, other social determinants of health, or other factors) in children and adolescents? N-3
Contextual Question 3. How do disparities in the diagnosis and treatment of disruptive behaviors or disruptive behavior disorders affect behavioral and functional outcomes (e.g., compliance with teachers, contact with the juvenile justice system, substance abuse)? N-4
Appendix N References N-4
Appendix O. Strength of Evidence Tables O-1
Appendix O References O-30
Appendix P. Included Studies List P-1
Appendix Q. Excluded Studies Q-1

Appendix R. Patient-Centered Outcomes Research Institute (PCORI) Methodology Checklist..... R-1

Tables

Table A-1. PICOTS: Inclusion and exclusion criteria A-1
Table A-2. Criteria for grading the risk of bias of individual studies..... A-5
Table F-1. Additional outcomes: Incredible Years versus treatment as usual or waitlist F-3
Table F-2. Incredible Years parent-only interventions compared with parent-only interventions.....F-4
Table F-3. Additional Triple P outcomes F-6
Table F-4. Results for Triple P versus Triple P interventions F-8
Table F-5. Results of various parent-only interventions versus TAU or waitlist F-10
Table F-6. Results of various parent-only interventions versus other parent-only interventions.....F-11
Table F-7. Additional results of PCIT trials versus TAU/waitlist.....F-14
Table F-8. Results of other multicomponent interventions versus TAU or active control....F-15
Table F-9. Results of multicomponent interventions versus multicomponent interventions F-17
Table H-1. Summary of instrument scores and measures: parent only PMT versus various controls..... H-8
Table H-2. Behavioral outcomes from Singh, et al. 2021[70] comparing MBPBS versus MB alone and PBS alone in school age children H-12
Table H-3. Outcomes from Specific Skills Training interventions versus waitlist H-14
Table H-4. Child-only interventions in school age children: Play Therapy compared to waitlist or control..... H-16
Table H-5. Summary of instrument scores and measures not represented in the SMD plot(s) H-20
Table H-6. Summary of instrument scores and measures not represented in the SMD plots..... H-24
Table H-7. Results from studies comparing Multicomponent Family Therapy versus TAU or another control H-27
Table H-8. School age: Utrecht Coping Power Program or Coping Power Program versus waitlist or TAU H-29
Table H-9. School age: Reciprocal Skill Training versus waitlist, results immediately posttreatment..... H-30
Table H-10. School age: multicomponent interventions (Specific Skill Training versus other therapies)..... H-31
Table H-11. School age: Collaborative Problem Solving versus multicomponent PMT or parent-only PMT..... H-32
Table H-12. Multicomponent interventions in school age children: SNAP versus standard services..... H-34
Table H-13. Multicomponent modular interventions: RCT (Kolko 2009[28]) comparing delivery methods (child's environment versus outpatient clinic) in school age children..... H-36
Table H-14. Multicomponent modular interventions: RCT (Kolko 2014[27]) comparing treatment booster with enhanced treatment as usual in school age children H-37
Table I-1. Results from validated outcomes measures from RCTs comparing MST with TAU I-3

Table I-2. Other behavioral outcomes from RCTs comparing MST with TAU in adolescents I-4
Table I-3. Outcomes from family therapy interventions versus treatment as usual I-6
Table I-4. Outcomes from RCTs comparing family therapies with child-only interventions I-9
Table J-1. Pairwise, network, and indirect comparisons of interventions in preschool children J-1
Table J-2. Pairwise and indirect comparisons of interventions in school-age children J-2
Table K-1. Patient criteria for inclusion in RCTs of pharmacologic interventions K-1
Table K-2. Pharmacologic interventions and comparators K-2
Table K-3. Results of RCTs of antipsychotics versus placebo K-2
Table K-4. Results of RCTs of anticonvulsants versus placebo K-5
Table K-5. Results of RCTs of stimulants versus placebo K-5
Table K-6. Results of RCTs of nonstimulants versus placebo K-6
Table K-7. Results of head-to-head RCTs of antipsychotics K-7
Table L-1. Adverse events in RCTs of pharmacologic interventions for treatment of DBD L-1
Table M-1. Differential effectiveness according to patient characteristics in studies of psychosocial interventions M-4
Table M-2. Differential effectiveness according to clinical characteristics in studies of psychosocial interventions M-11
Table N-1. Proportion of children with clinically relevant CBCL rule-breaking subscale scores and CD diagnosis N-2
Table N-2. Risk of CD or ODD diagnosis based on ACE score N-2
Table N-3. Outpatient treatment disparities among 20,970 adolescents with negative externalizing behaviors N-3
Table N-4. Likelihood of clinically significant improvement following treatment among 14,534 British children and adolescents with mixed mental health problems N-4
Table O-1. Strength of evidence for outcomes in preschool age O-1
Table O-2. Strength of evidence for parent only Parent Management Training versus waitlist or treatment as usual outcomes in school age O-8
Table O-3. School Age: Strength of evidence for Incredible Years parent only Parent Management Training versus child-only intervention O-10
Table O-4. Strength of evidence for parent only Triple P plus sufficient exemplar training versus single session Triple P in school age O-10
Table O-5. Strength of evidence for parent online Triple P versus Triple P self-help workbook in school age O-11
Table O-6. Strength of evidence for parent only Comet (Swedish Parent Management Training) internet versus group delivery in school age O-11
Table O-7. Strength of evidence for parent-only interventions: self-help intervention versus waitlist in school age O-12
Table O-8. Strength of evidence for parent-only interventions: behavioral self-help intervention versus non-behavioral self-help intervention in school age O-13
Table O-9. Strength of evidence for child-only interventions: CBT interventions versus no treatment in school age O-13
Table O-10. Strength of evidence for child-only interventions: Specific Skills Interventions versus waitlist in school age O-13

Table O-11. Strength of evidence for child-only interventions: Specific Skills Interventions versus other child-only interventions in school age O-14
Table O-12. Strength of evidence for child-only interventions: play therapy versus waitlist in school age O-14
Table O-13. Strength of evidence for multicomponent interventions versus waitlist or treatment as usual in school age O-15
Table O-14. Strength of evidence for multicomponent Parent Management Training versus waitlist or treatment as usual in school age O-15
Table O-15. Strength of evidence for multicomponent Parent Management Training versus multicomponent or Parent Management Training in school age O-16
Table O-16. Strength of evidence for multicomponent Parent Management Training (Incredible Years) versus parent only intervention in school age O-17
Table O-17. Strength of evidence for multicomponent Parent Management Training (Incredible Years) versus child only intervention in school age O-17
Table O-18. Strength of evidence for multicomponent interventions: family group psychotherapy (child, parent, and teacher) versus a control group in school age O-18
Table O-19. strength of evidence for multicomponent interventions: Utrecht Coping Power Program/Coping Power Program versus TAU in school age O-18
Table O-20. Strength of evidence for multicomponent interventions: Reciprocal Skills Training versus waitlist in school age O-19
Table O-21. Strength of evidence for multicomponent interventions: Social Competence Training program versus child-only group play in school age O-19
Table O-22. Strength of evidence for multicomponent interventions: Stop Now and Plan (SNAP™) under 12 outreach program vs. standard services in school age O-20
Table O-23. Strength of evidence for multicomponent multimodal or modular interventions in school age O-20
Table O-24. Strength of evidence for multicomponent interventions: manualized psychoanalytic child psychotherapy versus TAU in school age O-21
Table O-25. Strength of evidence for multicomponent interventions: multisystemic therapy versus treatment as usual in adolescents O-22
Table O-26. Strength of evidence for multicomponent interventions: family therapy versus treatment as usual for adolescents O-22
Table O-27. Strength of evidence for multicomponent interventions: family therapy versus child-only interventions in adolescents O-23
Table O-28. Strength of evidence for child-only interventions: Mindfulness-based Intervention versus TAU and another child-only interventions in adolescents O-23
Table O-29. Strength of evidence for child-only interventions: Adolescent Coping With Depression course vs. another child-only intervention in adolescents O-24
Table O-30. KQ2. Strength of evidence for pharmacologic interventions O-24
Table O-31. KQ 3. Strength of evidence for PCIT versus methylphenidate O-26
Table O-32. KQ 4. Strength of evidence for combined psychotherapy + pharmacotherapy versus psychotherapy alone O-26
Table O-33. KQ5. Strength of evidence for pharmacotherapy harms O-27

Figures

Figure C-1. Literature flow diagram C-1

Figure F-1. Parent-only interventions versus treatment as usual/waitlist on ECBI problem scale F-1
Figure F-2. Incredible years versus treatment as usual or waitlist: ECBI intensity and CBCL externalizing scales F-2
Figure F-3. Incredible Years versus treatment as usual or waitlist: ECBI problem scale F-2
Figure F-4. Triple P versus waitlist ECBI intensity scores F-4
Figure F-5. Triple P versus waitlist, ECBI intensity scores, removing Baker 2017 ..... F-5
Figure F-6. Triple P versus waitlist ECBI problem scores F-5
Figure F-7. Triple P versus waitlist, ECBI problem scores, removing Baker 2017 ..... F-5
Figure F-8. TIK versus TAU/waitlist ECBI intensity scores F-9
Figure F-9. PCIT versus TAU or waitlist, ECBI intensity, and CBCL externalizing scores F-12
Figure F-10. Multicomponent PCIT versus TAU or waitlist, ECBI problem scores F-13
Figure H-1. Comparison of parent-only PMT with TAU or waitlist: ECBI Intensity scores, Incredible Years PMT H-4
Figure H-2. Comparison of parent-only PMT with TAU or waitlist: ECBI Intensity scores, Parent Management Training-Oregon Model H-4
Figure H-3. Comparison of parent-only PMT with TAU or waitlist: ECBI Problem score H-5
Figure H-4. Comparison of multicomponent PMT with TAU or waitlist: CBCL externalizing or ECBI Intensity scores H-18
Figure H-5. Comparison of multicomponent Parent Management Training versus TAU or waitlist, stratified by direct parent coaching H-19
Figure H-6. Comparison of multicomponent Parent Management Training with TAU: ECBI Problem Score H-20
Figure H-7. Comparison of multicomponent PMT with TAU or waitlist: proportion of children achieving normal or subclinical scores H-21
Figure H-8. Comparison of multicomponent PMT with multicomponent PMT: CBCL externalizing or ECBI Intensity scores H-23
Figure H-9. Multicomponent Parent Management versus other multicomponent interventions, ECBI Problem score, SMD plot H-23
Figure I-1. Proportion of adolescents with any offense/offending behavior from RCTs comparing MST with TAU I-4
Figure J-1. Network meta-analysis of preschool interventions immediately posttreatment J-1
Figure J-2. Official diagnosis of a DBD versus no official diagnosis in trials of multicomponent interventions versus usual care in preschool and school-age children J-3
Figure J-3. Official diagnosis of a DBD versus no official diagnosis in trials of multicomponent interventions versus usual care in preschool children only J-4
Figure J-4. Official diagnosis of a DBD versus no official diagnosis in trials of multicomponent interventions versus usual care in school-age children only J-4
Figure L-1. Pharmacologic interventions versus placebo, withdrawals due to adverse events L-4

Appendix A. Methods

PICOTS

Table A-1. PICOTS: Inclusion and exclusion criteria

PICOTS	Inclusion	Exclusion
Population	**KQs 1-6.** Children under 18 years of age who are being treated for disruptive behavior or a disruptive behavior disorder that includes oppositional defiant disorder, conduct disorder, and intermittent explosive disorder; children with a co-occurring diagnosis (e.g., ADHD, ASD) provided the disruptive behavior treated is due to a DBD will be included	- Asymptomatic children - At-risk children - Treatment of disruptive behavior secondary to other conditions (e.g., substance abuse, developmental delay, intellectual disability, pediatric bipolar disorder, ADHD)
Interventions	**KQs 1, 3-6.** Psychosocial interventions for child, parents/family or both including: - Social skills training - Functional behavioral interventions - Parent training - Psychotherapy (e.g., cognitive behavior therapy, interpersonal psychotherapy, psychodynamic therapy, dialectical behavior therapy, equine-assisted psychotherapy with mental health provider) - Contingency management methods - Behavior management training **KQs 2-6.** Pharmacologic interventions that are FDA approved medications used on or off label, including the following class of drugs: - Alpha-agonists - Anticonvulsants - Second-generation (i.e., atypical) antipsychotics - Beta-adrenergic blocking agents (i.e., beta-blockers) - Central nervous system stimulants - First-generation antipsychotics - Selective serotonin reuptake inhibitors - Selective norepinephrine reuptake inhibitors - Mood stabilizers - Antihistamines **KQs 4-6.** Combined psychosocial and pharmacologic interventions included for KQs 1-3.	- Preventive interventions for at-risk populations - Preventive interventions for caregiver health - Interventions that do not target disruptive behaviors - Specialized diet or dietary supplements - Speech, occupational, physical therapy - Complimentary and Integrative Health interventions (e.g., acupuncture, herbal remedies) - Exercise programs as the sole intervention - Massage, chiropractic care - Invasive medical interventions (e.g., surgery, deep brain stimulation)
Comparators	- Other included psychosocial and/or pharmacologic interventions - Inactive treatment, including waitlist control, no treatment and placebo	No comparison group, excluded interventions

PICOTS	Inclusion	Exclusion
Outcomes	**KQs 1-4, 6.** Behavioral outcomes: - Aggressive behavior - Temper outbursts (not considered age-appropriate) - Violent behavior - Delinquent behavior - Fighting, property destruction, and rule violations - Compliance with parents, teachers, and institutional rules - Affective or mood elements of DBD - Treatment satisfaction - Other patient-centered outcomes **KQs 1-4, 6.** Functional outcomes: - Family functioning/cohesion - School performance/attendance - Interpersonal/social function and competence/need for special accommodations - Interactions with legal/juvenile justice systems - Out of home placement - Health care system utilization - Substance abuse - Parenting stress - Logistical family outcomes (days of work lost, etc.) - Health-related quality of life (e.g., mental health, physical health) - Other patient-centered outcomes **KQ 5-6.** Adverse effects/harms: - Metabolic effects: weight gain, hyperglycemia and diabetes, hyperlipidemia - Extrapyramidal effects: parkinsonism, acute dystonia, akathisia, tardive dyskinesia - Cardiac adverse effects: prolonged QT/arrhythmias, hypotension, cardiomyopathy - Prolactin-related effects - Neutropenia as a potential adverse effect of atypical antipsychotics - Allergic reaction - Sleep disruption, fatigue - Sudden death - Suicide - Over-medication or inappropriate medication - Negative effects on family dynamics - Acne - Stigma - Harms/barriers to utilization of care related to psychosocial interventions (e.g., time investment, limited access to trained providers, and lower acceptability based on a misperception that family-focused psychosocial interventions carry implicit judgements about the quality of their parenting). - Study withdrawal due to medication adverse effects	Unvalidated outcomes measures
Timing	**KQs 1-6.** Any length of followup	

PICOTS	Inclusion	Exclusion
Setting	**KQs 1-6.** Clinical setting, including medical or psychosocial care that is delivered to individuals by clinical professionals (including telehealth), as well as individually focused programs to which clinicians refer their patients; may include classroom settings when intervention is directed to treat disruptive behavior(s) in a specific child (not the whole class) as part of that child's treatment plan	Exclude school wide or system wide settings (e.g., juvenile justice system) wherein interventions are targeted more widely
Study Design	Randomized controlled trials (no sample size limit), comparative nonrandomized controlled trials that adjust for confounding variables (N≥100), published in English on or after 1994.	Published before 1994

Abbreviations: ADHD = attention-deficit/hyperactivity disorder; ASD = autism spectrum disorder; DBD = disruptive behavior disorder; FDA = US Food and Drug Administration; KQ = Key Question; PICOTS = populations, interventions, comparators, outcomes, timing, setting, study design.

Criteria for Inclusion/Exclusion of Studies in the Review

Sensitivity analyses were conducted to determine if the treatment effect was meaningfully different when studies in children with and without a formal diagnosis of a DBD were analyzed together versus when analyses were limited to studies in children who had a formal DBD diagnosis as defined in the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition, Text Revision (DSM-5-TR).[1] Studies of children and adolescents who exhibited disruptive behaviors that are considered normal for their age (e.g., a study on how to manage a toddler's temper tantrum or an 8-year-old's bedtime resistance) were not included. To be eligible for inclusion, studies must have reported at least one included child outcome. Because children and adolescents may have multiple psychiatric diagnoses, in accordance with the 2015 Agency for Healthcare Research and Quality (AHRQ) review,[2] our review was limited to studies that targeted disruptive behaviors and excluded studies where the intervention targeted a condition other than disruptive behaviors (e.g., a trial of stimulants in children targeting attention-deficit/hyperactivity disorder [ADHD] rather than oppositional defiant disorder [ODD]). We examined the target behavior (e.g., stealing is more likely to be associated with ODD than ADHD) and the motivation behind the behavior (cannot sit still due to hyperactivity versus refusing to stay in seat in defiance of the teacher due to ODD). A best evidence approach was followed [3,4] by focusing on randomized controlled trials (RCTs) when possible. When RCT evidence was lacking, comparative nonrandomized studies of interventions (NRSIs) that adjusted for potential confounding factors (e.g., age, gender, co-occurring mental health conditions) were considered. NRSIs were considered for harms when studies were designed specifically to assess harms. Given that many studies reported eight or more outcomes, child outcomes (e.g., parent's assessment of child behavior, whether the child continued to meet criteria for a DBD, child interactions with the juvenile justice system) were the focus rather than parent outcomes (e.g., parenting stress, parenting self-efficacy, parental depression).

Literature Search Strategy

A research librarian, with expertise conducting searches for systematic reviews, developed the search strategy, which was reviewed by a second research librarian. The literature search includes the terms "aggression" and "violence" as recommended by the Key Informants. Reference lists of included studies and relevant systematic reviews were searched for includable literature. Studies included in the prior review (1994 to 2014) were reviewed for inclusion in this

review. To address the Contextual Questions, an additional search was conducted for trials and other publications that may provide evidence of disparities in diagnosis and treatment of DBDs and the effect of these disparities on behavioral and functional outcomes. All literature database searches will be updated during the draft report public comment period.

Inclusion/Exclusion Criteria

Citations were screened using DistillerSR (*DistillerSR*. Version 2023.5. DistillerSR Inc.; 2023). For all studies, two reviewers independently screened abstracts and full-text articles. Inclusion and exclusion conflicts were resolved by discussion and consensus among team members. Included studies from the prior report were evaluated for inclusion in this review.

Data Extraction and Data Management

Participant psychiatric comorbidities were extracted. If possible, treatment results were reported based on psychiatric diagnoses at baseline for individual studies. If appropriate, results were stratified by co-occurring mental health conditions across studies. Available participant characteristics (e.g., age, gender, race, family history, socioeconomic status [SES] information, history of childhood trauma/violence, mood disorders), clinical characteristics (e.g., specific DBD or problem behaviors, age of onset, duration), treatment history (e.g., previous psychosocial and pharmacologic treatments, whether or not treatments are ongoing, treatment results), and characteristics of current treatment (e.g., treatment setting, provider type, duration of intervention, delivery of intervention, medication dose) were extracted when possible. If studies reported results for multiple time points, data was extracted for the various time points, and where possible, the persistence of treatment effects beyond immediate posttreatment was highlighted.

With thorough data abstraction, we stratified study results and/or conducted sensitivity analyses based on various characteristics to parse out how various participant, clinical, and treatment characteristics along with treatment history may differentially affected the magnitude of benefits and harms of interventions.

Relevant evidence of disparities in diagnosis and treatment of DBDs and the effects on behavioral and functional outcomes were also extracted and presented in the appropriate sections of the review.

Risk of Bias Assessment

For RCTs, criteria included factors such as methods of randomization, concealment of treatment allocation, details of blinding, and analysis based on intention to treat. For NRSIs, criteria included methods of patient selection (e.g., consecutive patients, use of an inception cohort) and appropriate control for confounding of relevant factors.[5,6] Studies were downgraded if they did not provide randomization, allocation, and/or blinding details, had a high rate of study loss to followup, or demonstrate selective reporting or other bias accordingly. These criteria and methods were used in concordance with the approach recommended in the chapter, Assessing the Risk of Bias of Individual Studies When Comparing Medical Interventions,[7] from the AHRQ Methods Guide for Effectiveness and Comparative Effectiveness Reviews.[8] Studies were rated as being "low," "moderate," or "high" risk of bias as described below in **Table A-2**. Each study was dual reviewed for risk of bias by two team members. Disagreements in ratings were resolved with discussion and consensus.

Table A-2. Criteria for grading the risk of bias of individual studies

Rating	Description and Criteria
Low	• Least risk of bias, results generally considered valid • Employ valid methods for selection, inclusion, and allocation of patients to treatment; report similar baseline characteristics in different treatment groups; clearly describe attrition and have low attrition; use appropriate means for preventing bias (e.g., blinding of patients, care providers, and outcomes assessors); and use appropriate analytic methods (e.g., intention-to-treat analysis)
Moderate	• Susceptible to some bias but not enough to necessarily invalidate results • May not meet all criteria for low risk of bias, but no flaw is likely to cause major bias; the study may be missing information making it difficult to assess limitations and potential problems • Category is broad; studies with this rating will vary in strengths and weaknesses; some studies rated moderate risk of bias are likely to be valid, while others may be only possibly valid
High	• Significant flaws that imply biases of various kinds that may invalidate results; "fatal flaws" in design, analysis or reporting; large amounts of missing information; discrepancies in reporting; or serious problems with intervention delivery • Studies are at least as likely to reflect flaws in the study design or execution as the true difference between the compared interventions • Considered to be less reliable than studies rated moderate or low risk of bias when synthesizing the evidence, particularly if discrepancies between studies are present

Data Synthesis

Continuous measures of child behavior problems included Child Behavior Checklist (CBCL) externalizing score, Eyberg Child Behavior Inventory (ECBI) intensity and ECBI problem. CBCL externalizing score and ECBI intensity were considered comparable and combined in the same meta-analysis using standardized mean difference (SMD) as the effect measure. SMD was also used as the effect measure for ECBI problem score when included studies that reported ECBI problem using different scales; otherwise, mean difference (MD) was used if all studies reported raw scores in the same scale. If a study reported both CBCL externalizing and ECBI intensity scores, CBCL externalizing score was chosen over ECBI intensity score. If a study reported both mother and father's scores, the mother's scores were used since the sample size for mother's score often differed from that from father's scores. Additionally, more mothers reported child behavior problem scores than fathers, so the scores with larger sample size were chosen.

Adjusted mean differences between interventions were used if reported; otherwise, MD or SMD was calculated using the followup score if reported and then the change score from the baseline. When the reported measure of dispersion for each intervention group was not specified as standard deviation (SD) or standard error (SE), or implausibly specified (e.g. the reported SD was too small), judgement was made based on the reported p-values for comparing the intervention groups and the magnitude of dispersion measures of similar studies. When the reported SD was implausibly too small, was not reported, or could not be calculated from the reported data, it was imputed using the average coefficient of variation from the other included studies reporting the same outcome.

A random effects model based on the profile likelihood method[9] was used to obtain pooled SMD and MD. When applicable, the primary analyses were stratified by the length of followup: immediate post-intervention, short term (≤24 weeks), intermediate term (25 to 47 weeks), or long term (≥48 weeks). Subgroup analyses were conducted by direct coaching (Yes vs. No) and self-guided (Yes vs. No) whenever data allowed. Additionally, sensitivity analyses were conducted by excluding outlying studies, or studies rated high risk of bias, or to check the judgements made on SD versus SE.

Statistical heterogeneity among the studies was assessed using Cochran's χ^2 test and the I^2 statistic.[10] For analyses with at least 10 trials, funnel plots and the Egger test to detect small sample effects were conducted. To facilitate the interpretation of SMD, we converted SMD back to its original scales of CBCL externalizing or ECBI intensity score based on the average SDs of the same comparison across all time points.

To further evaluate the comparative effectiveness, we planned network meta-analysis (NMA) to compare the four categories of interventions simultaneously. Network consistency was tested by comparing direct and indirect estimates, the node-splitting method, and an overall test from an inconsistency model.[10] Nevertheless, the included trials predominately compared one category of interventions vs. treatment as usual (TAU)/waitlist. In most scenarios, evidence from head-to-head comparisons was too scarce to support a connected network with closed loops, or the network was not consistent. The number of studies that compared an active intervention versus TAU/waitlist also decreased over time. Therefore, multivariate random effects NMAs[10] were only conducted for preschool studies at immediate post intervention time period. Otherwise, indirect comparisons were made of any two active interventions under the assumption of transitivity. Suppose that θ_{AC} and σ_{AC} represents the difference between active intervention *A* (e.g., multicomponent) and TAU/waitlist (*C*) and its SE, and θ_{BC} and σ_{BC} represents the difference between active intervention *B* (e.g., parent only) and TAU/waitlist (*C*) and its SE, then the difference between *A* and *B* through indirect comparison is given by

$$\theta_{AB_{ind}} = \theta_{AC} - \theta_{BC},$$

and its SE is given by

$$\sigma_{AB_{ind}} = \sqrt{\sigma_{AC}^2 + \sigma_{BC}^2}.$$

Grading the Strength of Evidence for Major Comparisons and Outcomes

To ensure consistency and validity of the evaluation of outcomes assessed for strength of evidence, the initial assessment was independently reviewed by at least one other experienced investigator, using the following criteria:

- Study limitations (low, medium, or high level of study limitations)
- Consistency (consistent, inconsistent, or unknown/not applicable)
- Directness (direct or indirect)
- Precision (precise or imprecise)
- Publication bias

The strength of evidence was downgraded when there was a suggestion of publication bias based on the Egger's test ($p<0.05$).

While additional outcomes were reported, the strength of evidence assessment focused on the following primary outcomes: The Eyberg Child Behavior Inventory (problem subscale, intensity subscale) and the Child Behavior Checklist (externalizing score) for psychosocial interventions; and the Strengths and Difficulties Questionnaire, the Overt Aggression Scale, and the Clinical Global Impressions scale for pharmacologic interventions. These outcomes were selected due to their prominence in the 2015 AHRQ review[2] and to facilitate consistency in updating analyses and drawing conclusions across studies.

Where both RCTs and NRSIs were included for a given intervention-outcome pair, we followed the guidance on weighing RCTs over NRSIs, assessing consistency across the two bodies of evidence, and determining a final rating.[8]

Summary tables (**Appendix O**) include ratings for individual strength of evidence domains (risk of bias, consistency, precision, directness) based on the totality of underlying evidence identified. All outcomes were considered direct; therefore, the Directness domain is not shown on the strength of evidence tables.

Peer Review and Public Commentary

Peer reviewers are invited to provide written comments on the draft report based on their clinical, content, or methodological expertise. The Evidence-based Practice Center (EPC) considers all peer review comments on the draft report in preparation of the final report. Peer reviewers do not participate in writing or editing of the final report or other products. The final report does not necessarily represent the views of individual reviewers. The EPC will complete a disposition of all peer review comments. The disposition of comments for systematic reviews and technical briefs will be published 3 months after the publication of the evidence report.

Potential Peer Reviewers must disclose any financial conflicts of interest greater than $5,000 and any other relevant business or professional conflicts of interest. Invited Peer Reviewers may not have any financial conflict of interest greater than $5,000. Peer reviewers who disclose potential business or professional conflicts of interest may submit comments on draft reports through the public comment mechanism.

Assessing Applicability

Applicability refers to the degree to which study participants are similar to real-world patients receiving care for disruptive behavior disorders. Applicability was assessed in accordance with the AHRQ's Methods Guide[8] using the PICOTS framework. If patient, clinical, and intervention characteristics are similar, then it is expected that outcomes associated with the intervention for study participants will likely be similar to outcomes in real-world patients. For example, exclusion of participants with psychiatric comorbidities reduces applicability to clinical practice since many children with DBDs have co-occurring psychiatric diagnoses and may respond differently to treatment than children without other mental health challenges. Multiple factors identified *a priori* that likely impact applicability include characteristics of enrolled patient populations (e.g., gender, age, race/ethnicity), clinical characteristics (e.g., specific DBD diagnosis or clinical threshold scores, severity of disease, age at diagnosis), intervention factors (e.g., setting, duration of treatment, treatment dose) and treatment history. Review of abstracted information on these factors was used to assess situations for which the evidence is available and most relevant and to evaluate applicability to real-world clinical practice in typical U.S. settings.

Appendix A References

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Appendix B. Literature Search Strategies

Database: Ovid MEDLINE(R) ALL 1946 to March 07, 2023

1 "attention deficit and disruptive behavior disorders"/ or conduct disorder/

2 Child Behavior Disorders/ or Problem Behavior/

3 Mental Disorders/

4 exp Aggression/

5 ((disruptive or violen* or unmanage* or uncontroll* or antisocial or opposition* or conduct) adj5 (disorder or diagnosi*)).ti,ab.

6 (aggressi* or violen* or anger or unmanage* or uncontroll* or antisocial).ti,ab.

7 (2 or 3 or 4) and (5 or 6)

8 ("disruptive behavior" or "disruptive behaviour" or "externalizing behavior" or "externalizing behaviour" or "conduct disorder" or "oppositional defiant disorder").ti,ab.

9 1 or 7 or 8

10 exp Behavior Therapy/

11 exp Counseling/

12 exp Psychotherapy/

13 (social skills training or (cognitive adj3 behav*) or (functional adj3 behav*) or ((parent* or dialectical) adj3 (train* or education or therapy)) or CBT or DBT or (contingen* adj3 manage*) or motivational interview* or "equine assisted" or psychotherap* or psychoanaly* or psychosocial or counseling or nonpharmacologic* or "non-pharmacologic*").ti,ab.

14 exp Adrenergic alpha-Agonists/tu, ad

15 exp Anticonvulsants/tu, ad

16 exp Adrenergic beta-Antagonists/tu, ad

17 exp Central Nervous System Stimulants/tu, ad

18 exp Antipsychotic Agents/tu, ad

19 exp Serotonin Uptake Inhibitors/tu, ad

20 exp Adrenergic Uptake Inhibitors/ad, tu

21 (pharmacologi* or alpha agonist* or anticonvulsant* or antipsychotic* or (beta adj3 block*) or ((central nervous system or CNS) adj3 stimulant*) or selective serotonin reuptake inhibitor* or SSRI* or (mood adj3 stabliz*) or antihistamine*).ti,ab.

22 (treatment or intervention* or therap*).ti,ab.

23 ("aberrant behavior checklist" or "adaptive behavior inventory" or "adolescent antisocial behavior checklist" or "adolescent anger rating scale" or "adolescent psychopathology scale" or "adolescent risk taking behavior scale" or "adolescent transitions program" or (anger irritability adj2 questionnaire) or "anger control training" or "aggression questionnaire" or "aggression replacement training" or "antisocial process screening" or "assertive training" or "barratt aggressive acts questionnaire" or "behavior assessment system for children" or "BASC" or "behavior problem inventory" or "behavioral parent training" or "brief strategic family therapy" or "brief problem checklist" or "buss durkee hostility inventory" or "child and adolescent functioning scale" or "child and adolescent needs and strength" or "child

behavior checklist" or "CBCL" or "child behavior inventory" or "childrens aggression scale" or "childrens global assessment scale" or "childrens psychiatric rating scale" or "childrens social behavior scale" or (conners adj3 scale) or "clinical global impressions" or "collaborative problem solving" or "comprehensive behavior rating scales" or "coping power").ti,ab.

24 ("disruptive behavior scale" or "dyadic parent-child interaction coding" or "dynamic appraisal of situational aggression" or "early risers skills for success" or "eyberg child behavior inventory" or "first step to success" or "functional family therapy" or "global clinical judgements scale" or "helping the noncompliant child" or "incredible years" or "interpersonal skills training" or "interview for antisocial behavior" or "inventory of interpersonal problems" or "kiddie disruptive behavior disorders schedule" or "modified overt aggression scale" or "multidimensional family therapy" or "multidimensional treatment" or "multisystemic therapy" or "multi-systemic therapy" or "negative emotions scale" or "nisonger child behavior" or "new york teacher rating scale for disruptive and antisocial behavior" or "overt aggression scale" or "parent management training" or "parent-child interaction" or "parenting scale" or "parenting stress index" or "personality assessment inventory" or "positive parenting program" or "problem solving skills training" or "positive behavioral support system" or "promoting alternative thinking strategies" or "proactive and reactive aggression scale" or "rating of aggression" or "reactive-proactive rating scale" or "schedule for affective disorders and schizophrenia for school-age children" or "second step" or "self-control training" or "teacher-child interaction training").ti,ab.

25 or/10-24

26 9 and 25

27 adolescent/ or exp child/

28 (child* or minor or minors or boy or boys or boyhood or girl or girls or girlhood or schoolage* or school age* or adolescen* or juvenil* or youth* or teen* or prepubescen* or pubescen* or pediatric* or paediatric* or peadiatric* or school).ti,ab.

29 27 or 28

30 26 and 29

31 limit 26 to "all child (0 to 18 years)"

32 30 or 31

33 limit 32 to yr="2014 -Current"

Database: EBM Reviews - Cochrane Central Register of Controlled Trials February 2023

1 "attention deficit and disruptive behavior disorders"/ or conduct disorder/

2 Child Behavior Disorders/ or Problem Behavior/

3 Mental Disorders/

4 exp Aggression/

5 ((disruptive or violen* or unmanage* or uncontroll* or antisocial or opposition* or conduct) adj5 (disorder or diagnosi*)).ti,ab.

6 (aggressi* or violen* or anger or unmanage* or uncontroll* or antisocial).ti,ab.

7 (2 or 3 or 4) and (5 or 6)

8 ("disruptive behavior" or "disruptive behaviour" or "externalizing behavior" or "externalizing behaviour" or "conduct disorder" or "oppositional defiant disorder").ti,ab.

9 1 or 7 or 8

10 exp Behavior Therapy/

11 exp Counseling/

12 exp Psychotherapy/

13 (social skills training or (cognitive adj3 behav*) or (functional adj3 behav*) or ((parent* or dialectical) adj3 (train* or education or therapy)) or CBT or DBT or (contingen* adj3 manage*) or motivational interview* or "equine assisted" or psychotherap* or psychoanaly* or psychosocial or counseling or nonpharmacologic* or "non-pharmacologic*").ti,ab.

14 exp Adrenergic alpha-Agonists/tu, ad

15 exp Anticonvulsants/tu, ad

16 exp Adrenergic beta-Antagonists/tu, ad

17 exp Central Nervous System Stimulants/tu, ad

18 exp Antipsychotic Agents/tu, ad

19 exp Serotonin Uptake Inhibitors/tu, ad

20 exp Adrenergic Uptake Inhibitors/ad, tu

21 (pharmacologi* or alpha agonist* or anticonvulsant* or antipsychotic* or (beta adj3 block*) or ((central nervous system or CNS) adj3 stimulant*) or selective serotonin reuptake inhibitor* or SSRI* or (mood adj3 stabliz*) or antihistamine*).ti,ab.

22 (treatment or intervention* or therap*).ti,ab.

23 ("aberrant behavior checklist" or "adaptive behavior inventory" or "adolescent antisocial behavior checklist" or "adolescent anger rating scale" or "adolescent psychopathology scale" or "adolescent risk taking behavior scale" or "adolescent transitions program" or (anger irritability adj2 questionnaire) or "anger control training" or "aggression questionnaire" or "aggression replacement training" or "antisocial process screening" or "assertive training" or "barratt aggressive acts questionnaire" or "behavior assessment system for children" or "BASC" or "behavior problem inventory" or "behavioral parent training" or "brief strategic family therapy" or "brief problem checklist" or "buss durkee hostility inventory" or "child and adolescent functioning scale" or "child and adolescent needs and strength" or "child behavior checklist" or "CBCL" or "child behavior inventory" or "childrens aggression scale" or "childrens global assessment scale" or "childrens psychiatric rating scale" or "childrens social behavior scale" or (conners adj3 scale) or "clinical global impressions" or "collaborative problem solving" or "comprehensive behavior rating scales" or "coping power").ti,ab.

24 ("disruptive behavior scale" or "dyadic parent-child interaction coding" or "dynamic appraisal of situational aggression" or "early risers skills for success" or "eyberg child behavior inventory" or "first step to success" or "functional family therapy" or "global clinical judgements scale" or "helping the noncompliant child" or "incredible years" or "interpersonal skills training" or "interview for antisocial behavior" or "inventory of interpersonal problems" or "kiddie disruptive behavior disorders schedule" or "modified overt aggression scale" or "multidimensional family therapy" or "multidimensional treatment" or "multisystemic therapy" or "multi-systemic therapy" or "negative emotions

scale" or "nisonger child behavior" or "new york teacher rating scale for disruptive and antisocial behavior" or "overt aggression scale" or "parent management training" or "parent-child interaction" or "parenting scale" or "parenting stress index" or "personality assessment inventory" or "positive parenting program" or "problem solving skills training" or "positive behavioral support system" or "promoting alternative thinking strategies" or "proactive and reactive aggression scale" or "rating of aggression" or "reactive-proactive rating scale" or "schedule for affective disorders and schizophrenia for school-age children" or "second step" or "self-control training" or "teacher-child interaction training").ti,ab.

25 or/10-24

26 9 and 25

27 adolescent/ or exp child/

28 (child* or minor or minors or boy or boys or boyhood or girl or girls or girlhood or schoolage* or school age* or adolescen* or juvenil* or youth* or teen* or prepubescen* or pubescen* or pediatric* or paediatric* or peadiatric* or school).ti,ab.

29 27 or 28

30 26 and 29

31 limit 30 to yr="2014 -Current"

32 "clinical trial protocol".pt.

33 31 not 32

Database: EBM Reviews - Cochrane Database of Systematic Reviews 2005 to March 15, 2023

1 ((disruptive or violen* or unmanage* or uncontroll* or antisocial or opposition* or conduct) adj5 (disorder or diagnosi*)).ti,ab.

2 ("disruptive behavior" or "disruptive behaviour" or "externalizing behavior" or "externalizing behaviour" or "conduct disorder" or "oppositional defiant disorder" or aggression or "aggressive behavior" or "aggressive behaviour").ti,ab.

3 (treatment or intervention* or therap*).ti,ab.

4 (1 or 2) and 3

5 (child* or teen* or youth or adolescen* or "school age*" or schoolage*).ti,ab.

6 4 and 5

Database: APA PsycInfo 1806 to March Week 2 2023

1 exp behavior disorders/

2 mental disorders/

3 aggressive behavior/

4 ((disruptive or violen* or unmanage* or uncontroll* or antisocial or opposition* or conduct) adj5 (disorder or diagnosi*)).ti,ab.

5 (aggressi* or violen* or anger or unmanage* or uncontroll* or antisocial).ti,ab.

6 (2 or 3) and (4 or 5)

7 ("disruptive behavior" or "disruptive behaviour" or "externalizing behavior" or "externalizing behaviour" or "conduct disorder" or "oppositional defiant disorder").ti,ab.

8 1 or 6 or 7

9 exp treatment/

10 exp drug therapy/

11 (social skills training or (cognitive adj3 behav*) or (functional adj3 behav*) or ((parent* or dialectical) adj3 (train* or education or therapy)) or CBT or DBT or (contingen* adj3 manage*) or motivational interview* or "equine assisted" or psychotherap* or psychoanaly* or psychosocial or counseling or nonpharmacologic* or "non-pharmacologic*").ti,ab.

12 (pharmacologi* or alpha agonist* or anticonvulsant* or antipsychotic* or (beta adj3 block*) or ((central nervous system or CNS) adj3 stimulant*) or selective serotonin reuptake inhibitor* or SSRI* or (mood adj3 stabliz*) or antihistamine*).ti,ab.

13 (treatment or intervention* or therap*).ti,ab.

14 ("aberrant behavior checklist" or "adaptive behavior inventory" or "adolescent antisocial behavior checklist" or "adolescent anger rating scale" or "adolescent psychopathology scale" or "adolescent risk taking behavior scale" or "adolescent transitions program" or (anger irritability adj2 questionnaire) or "anger control training" or "aggression questionnaire" or "aggression replacement training" or "antisocial process screening" or "assertive training" or "barratt aggressive acts questionnaire" or "behavior assessment system for children" or "BASC" or "behavior problem inventory" or "behavioral parent training" or "brief strategic family therapy" or "brief problem checklist" or "buss durkee hostility inventory" or "child and adolescent functioning scale" or "child and adolescent needs and strength" or "child behavior checklist" or "CBCL" or "child behavior inventory" or "childrens aggression scale" or "childrens global assessment scale" or "childrens psychiatric rating scale" or "childrens social behavior scale" or (conners adj3 scale) or "clinical global impressions" or "collaborative problem solving" or "comprehensive behavior rating scales" or "coping power").ti,ab.

15 ("disruptive behavior scale" or "dyadic parent-child interaction coding" or "dynamic appraisal of situational aggression" or "early risers skills for success" or "eyberg child behavior inventory" or "first step to success" or "functional family therapy" or "global clinical judgements scale" or "helping the noncompliant child" or "incredible years" or "interpersonal skills training" or "interview for antisocial behavior" or "inventory of interpersonal problems" or "kiddie disruptive behavior disorders schedule" or "modified overt aggression scale" or "multidimensional family therapy" or "multidimensional treatment" or "multisystemic therapy" or "multi-systemic therapy" or "negative emotions scale" or "nisonger child behavior" or "new york teacher rating scale for disruptive and antisocial behavior" or "overt aggression scale" or "parent management training" or "parent-child interaction" or "parenting scale" or "parenting stress index" or "personality assessment inventory" or "positive parenting program" or "problem solving skills training" or "positive behavioral support system" or "promoting alternative thinking strategies" or "proactive and reactive aggression scale" or "rating of aggression" or "reactive-proactive rating scale" or "schedule for affective disorders and schizophrenia for school-age children" or "second step" or "self-control training" or "teacher-child interaction training").ti,ab.

16 or/9-15

17 8 and 16

18 limit 17 to (100 childhood or 200 adolescence)

19 limit 18 to ("0100 journal" or "0110 peer-reviewed journal")

20 limit 19 to "0300 clinical trial"

21 randomized controlled trials/ or exp clinical trials/

22 19 and 21

23 (random* or control* or trial).ti,ab.

24 19 and 23

25 20 or 22 or 24

26 limit 25 to yr="2014 -Current"

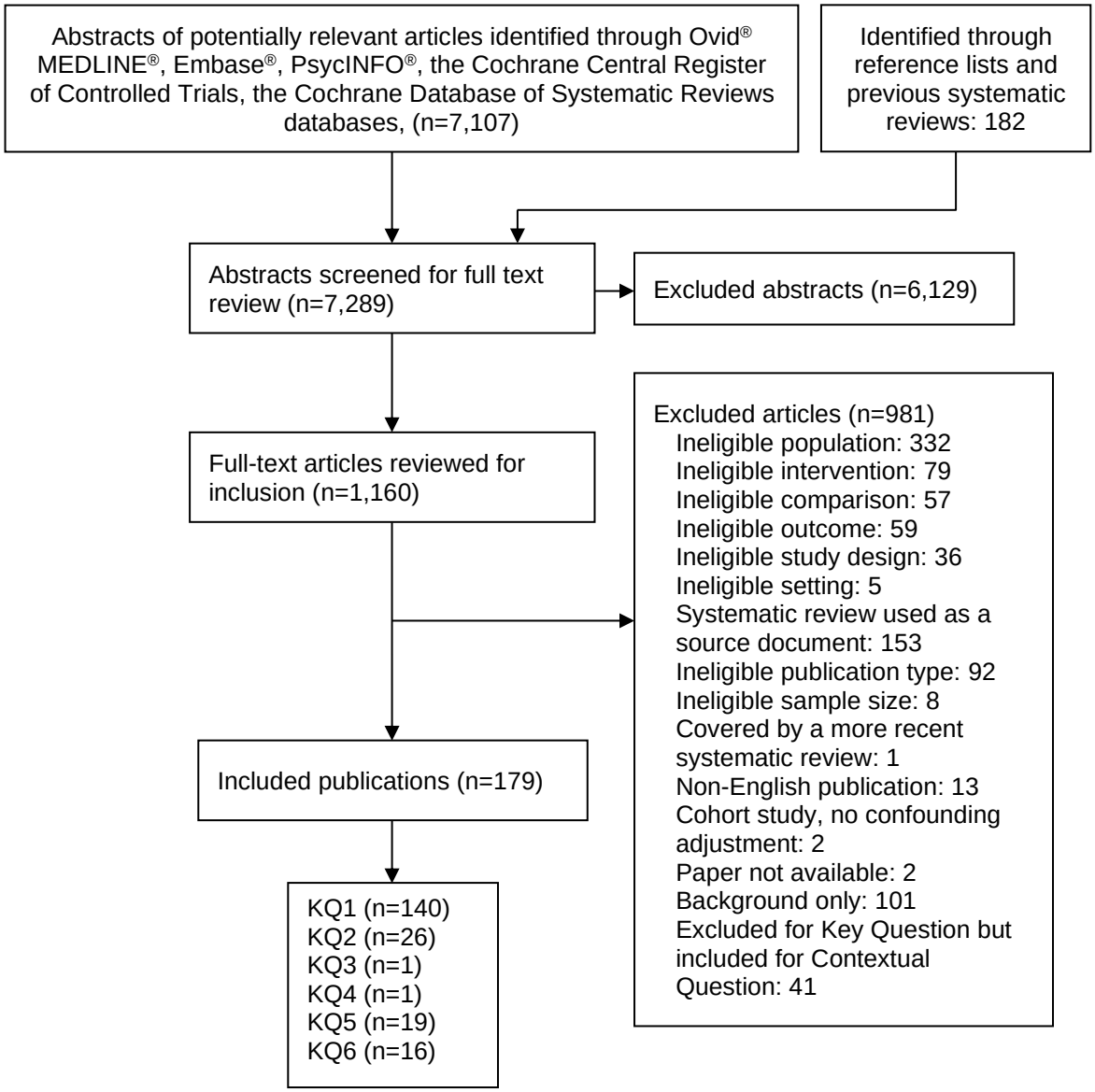
Database: Elsevier Embase through March 21, 2023

('disruptive behavior'/exp OR 'disruptive behavior' OR 'impulse control disorder' OR (('mental disease' OR 'aggression') AND ((disruptive:ti,ab OR violen*:ti,ab OR unmanage*:ti,ab OR uncontroll*:ti,ab OR antisocial:ti,ab OR opposition*:ti,ab OR conduct:ti,ab) AND (disorder:ti,ab OR diagnosi*:ti,ab) OR aggressi* OR violen* OR anger OR unmanage* OR uncontroll* OR antisocial:ti,ab)) OR 'disruptive behavior':ti,ab OR 'disruptive behaviour':ti,ab OR 'externalizing behavior':ti,ab OR 'externalizing behaviour':ti,ab OR 'conduct disorder':ti,ab OR 'oppositional defiant disorder':ti,ab) AND ('therapy' OR 'drug therapy' OR ((social:ti,ab AND skills:ti,ab AND training:ti,ab OR (cognitive:ti,ab AND adj3:ti,ab AND behav*:ti,ab) OR (functional:ti,ab AND adj3:ti,ab AND behav*:ti,ab) OR ((parent*:ti,ab OR dialectical:ti,ab) AND adj3:ti,ab AND (train*:ti,ab OR education:ti,ab OR therapy:ti,ab)) OR cbt:ti,ab OR dbt:ti,ab OR (contingen*:ti,ab AND adj3:ti,ab AND manage*:ti,ab) OR motivational:ti,ab) AND interview*:ti,ab) OR 'equine assisted':ti,ab OR psychotherap*:ti,ab OR psychoanaly*:ti,ab OR psychosocial:ti,ab OR counseling:ti,ab OR nonpharmacologic*:ti,ab OR 'non-pharmacologic*':ti,ab OR (((pharmacologi*:ti,ab OR alpha:ti,ab) AND agonist*:ti,ab OR anticonvulsant*:ti,ab OR antipsychotic*:ti,ab OR (beta:ti,ab AND adj3:ti,ab AND block*:ti,ab) OR ((central:ti,ab AND nervous:ti,ab AND system:ti,ab OR cns:ti,ab) AND adj3:ti,ab AND stimulant*:ti,ab) OR selective:ti,ab) AND serotonin:ti,ab AND reuptake:ti,ab AND inhibitor*:ti,ab) OR ssri*:ti,ab OR (mood:ti,ab AND adj3:ti,ab AND stabliz*:ti,ab) OR antihistamine*:ti,ab OR treatment:ti,ab OR intervention*:ti,ab OR therap*:ti,ab OR 'aberrant behavior checklist':ti,ab OR 'adaptive behavior inventory':ti,ab OR 'adolescent antisocial behavior checklist':ti,ab OR 'adolescent anger rating scale':ti,ab OR 'adolescent psychopathology scale':ti,ab OR 'adolescent risk taking behavior scale':ti,ab OR 'adolescent transitions program':ti,ab OR 'anger irritability questionnaire':ti,ab OR 'anger control training':ti,ab OR 'aggression questionnaire':ti,ab OR 'aggression replacement training':ti,ab OR 'antisocial process screening':ti,ab OR 'assertive training':ti,ab OR 'barratt aggressive acts questionnaire':ti,ab OR 'behavior assessment system for children':ti,ab OR 'basc':ti,ab OR 'behavior problem inventory':ti,ab OR 'behavioral parent training':ti,ab OR 'brief strategic family therapy':ti,ab OR 'brief problem checklist':ti,ab OR 'buss durkee hostility inventory':ti,ab OR 'child and adolescent functioning scale':ti,ab OR 'child and adolescent needs and strength':ti,ab OR 'child behavior checklist':ti,ab OR 'cbcl':ti,ab OR 'child behavior inventory':ti,ab OR 'childrens aggression scale':ti,ab OR 'childrens global assessment scale':ti,ab OR 'childrens psychiatric rating scale':ti,ab OR 'childrens social behavior scale':ti,ab OR 'conners scale':ti,ab OR 'clinical global

impressions':ti,ab OR 'collaborative problem solving':ti,ab OR 'comprehensive behavior rating scales':ti,ab OR 'coping power':ti,ab OR 'disruptive behavior scale':ti,ab OR 'dyadic parent-child interaction coding':ti,ab OR 'dynamic appraisal of situational aggression':ti,ab OR 'early risers skills for success':ti,ab OR 'eyberg child behavior inventory':ti,ab OR 'first step to success':ti,ab OR 'functional family therapy':ti,ab OR 'global clinical judgements scale':ti,ab OR 'helping the noncompliant child':ti,ab OR 'incredible years':ti,ab OR 'interpersonal skills training':ti,ab OR 'interview for antisocial behavior':ti,ab OR 'inventory of interpersonal problems':ti,ab OR 'kiddie disruptive behavior disorders schedule':ti,ab OR 'modified overt aggression scale':ti,ab OR 'multidimensional family therapy':ti,ab OR 'multidimensional treatment':ti,ab OR 'multisystemic therapy':ti,ab OR 'multi-systemic therapy':ti,ab OR 'negative emotions scale':ti,ab OR 'nisonger child behavior':ti,ab OR 'new york teacher rating scale for disruptive and antisocial behavior':ti,ab OR 'overt aggression scale':ti,ab OR 'parent management training':ti,ab OR 'parent-child interaction':ti,ab OR 'parenting scale':ti,ab OR 'parenting stress index':ti,ab OR 'personality assessment inventory':ti,ab OR 'positive parenting program':ti,ab OR 'problem solving skills training':ti,ab OR 'positive behavioral support system':ti,ab OR 'promoting alternative thinking strategies':ti,ab OR 'proactive and reactive aggression scale':ti,ab OR 'rating of aggression':ti,ab OR 'reactive-proactive rating scale':ti,ab OR 'schedule for affective disorders and schizophrenia for school-age children':ti,ab OR 'second step':ti,ab OR 'self-control training':ti,ab OR 'teacher-child interaction training':ti,ab) AND ([adolescent]/lim OR [child]/lim OR [preschool]/lim OR [school]/lim) AND ('randomized controlled trial' OR 'controlled clinical trial') AND [2014-2023]/py AND [embase]/lim

Appendix C. Literature Flow Diagram

Figure C-1. Literature flow diagram



Abbreviations: KQ = Key Question.

Appendix D. Evidence Tables

Shown in associated Excel file.

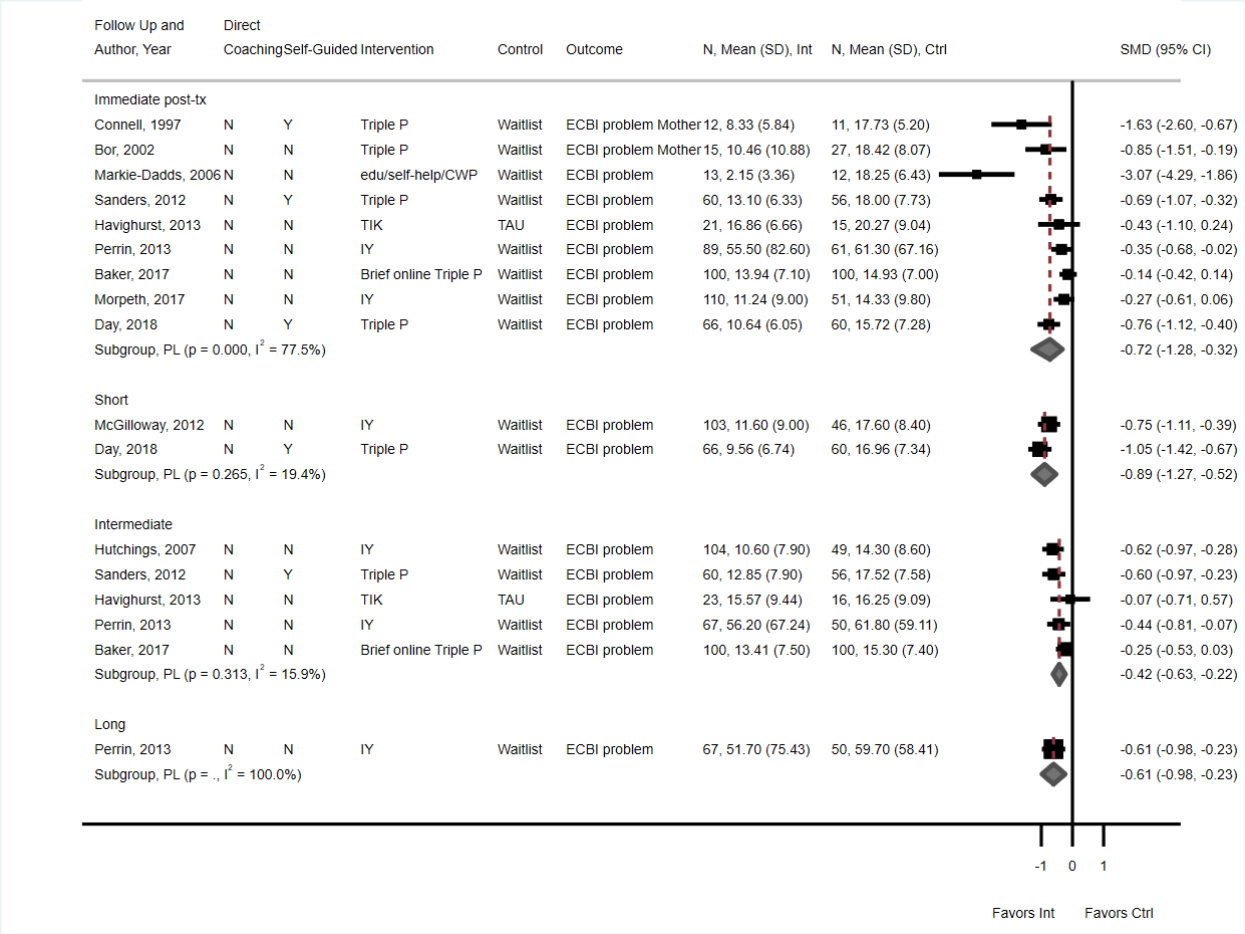
Appendix E. Risk of Bias Assessment

Shown in associated Excel file.

Appendix F. Key Question 1: Additional Behavioral Outcomes for Preschool Children

Parent-Only Interventions Versus Treatment as Usual/Waitlist

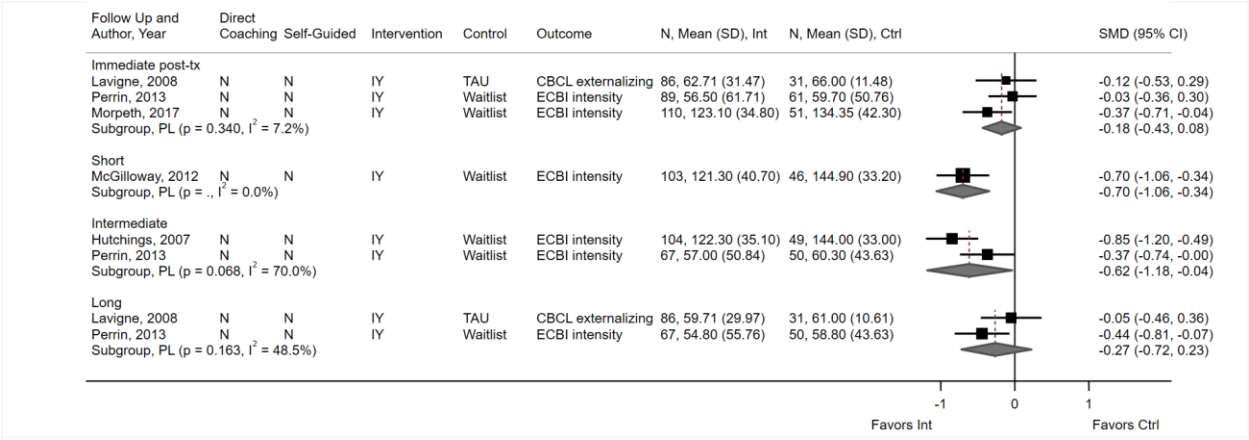
Figure F-1. Parent-only interventions versus treatment as usual/waitlist on ECBI problem scale



Abbreviations: CBCL = Child Behavior Checklist; CI = confidence interval; ECBI = Eyberg Child Behavior Inventory; IY = Incredible Years; N = no; PL = profile likelihood; SD = standard deviation; SMD = standard mean difference; TAU = treatment as usual; TIK = Tuning in to Kids; Y = yes

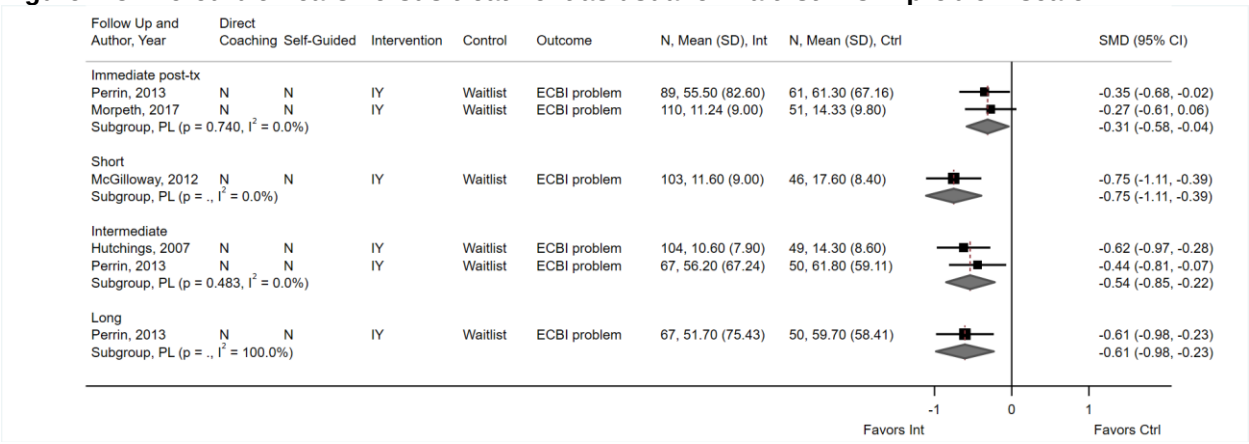
Incredible Years Versus Treatment as Usual/Waitlist

Figure F-2. Incredible years versus treatment as usual or waitlist: ECBI intensity and CBCL externalizing scales



Abbreviations: CBCL = Child Behavior Checklist; CI = confidence interval; ECBI = Eyberg Child Behavior Inventory; IY = Incredible Years; N = no; PL = profile likelihood; SD = standard deviation; SMD = standard mean difference; TAU = treatment as usual; TIK = Tuning in to Kids

Figure F-3. Incredible Years versus treatment as usual or waitlist: ECBI problem scale



Abbreviations: CBCL = Child Behavior Checklist; CI = confidence interval; ECBI = Eyberg Child Behavior Inventory; IY = Incredible Years; N = no; PL = profile likelihood; SD = standard deviation; SMD = standard mean difference; TAU = treatment as usual; TIK = Tuning in to Kids

One study reported lower scores on the Preschool and Kindergarten Behavior Scales oppositional/explosive subscale than waitlist (p=0.03), although analysis of endpoint scores was not statistically significant (mean difference [MD] -1.56, 95% confidence interval [CI] -3.30 to 0.18, p=0.08);[1] in the same trial analysis of Preschool and Kindergarten Behavior Scales antisocial/aggressive subscale endpoint scores were similar 12 weeks posttreatment (MD -1.07, 95% CI -3.93 to 1.79) (**Table F-1)**. Another study reported lower SDQ conduct scores and Preschool and Kindergarten Behavior Scales with Incredible Years versus waitlist **(Table F-1)**.[2] Pooled analysis of two trials that reported Strengths and Difficulties Questionnaire (SDQ) total difficulties at 13 weeks indicated slightly more improved scores with Incredible Years than waitlist (2 RCTs, N=310, standardized mean difference [SMD] -0.41, 95% CI -0.65 to -0.16, I^2=0%).[3,4] One additional Incredible Years-based study versus waitlist control (not in table) reported only correlation coefficients between Eyberg Child Behavior

Inventory [ECBI problem] scores and parent and child characteristics and found that ECBI Problem postintervention scores were associated with being a teen parent and that observed child deviant behavior was associated with negative parenting.[5]

Table F-1. Additional outcomes: Incredible Years versus treatment as usual or waitlist

Outcome	Author, Year	Followup Posttreatment	Incredible Years Mean (SD), N	TAU/Waitlist mean (SD), N	MD (95% CI) or SMD (95% CI)
SDQ total difficulties	McGilloway, 2012[3]	13 weeks	13.5 (6.8) N=103	16.7 (6.3) N=46	**MD 2.2 (0.6 to 3.9)**
	Morpeth, 2017[4]	13 weeks	15.44 (6.0) N=110	17.60 (7.3) N=51	**MD 2.23 (0.13 to 4.34)**
	Pooled analysis 2 trials above	13 weeks	N=213	N=97	**SMD -0.41 (-0.65 to -0.16**
SDQ conduct	Hutchings, 2007[6]	26 weeks	4.1 (2.3) N=104	4.7 (2.1) N=49	MD 1.52 (-0.24 to 3.28)
	Morpeth, 2017[4]	13 weeks	3.62 (2.1) N=110	4.43 (2.7) N=51	**MD 0.78 (0.05 to 1.51)**
	Seabra-Santos, 2016[2]	Posttreatment	4.40 (3.32) N=65	5.35 (1.93) N=49	**MD -0.95 (-1.73 to -0.17)**
PKBS externalizing	Seabra-Santos, 2016[2]	Posttreatment	44.34 (14.77) N=64	52.20 (10.76) N=45	**MD -7.86 (-12.65 to -3.07)**
PKBS oppositional/ explosive	Homem, 2015[1]	12 weeks	18.69 (4.34) N=42	20.25 (3.55) N=37	MD -1.56 (-3.30 to 0.18)[a]
PKBS antisocial/ aggressive	Homem, 2015[1]	12 weeks	14.21 (7.16) N=42	16.56 (5.41) N=37	MD -1.07 (-3.93 to 1.79)

Abbreviations: CI = confidence interval; MD = mean difference; PKBS = Preschool and Kindergarten Behavior Scales; SDQ = Strength and Difficulties Questionnaire; SD = standard deviation; SMD = standardized mean difference

[a] Study authors reported a p-value of change scores to be statistically significant (p=0.03)

Note: Bolded results indicate statistical significance.

Incredible Years Versus Other Parent-Only Interventions

One trial compared a nurse-led Incredible Years intervention versus a psychologist-lead Incredible Years intervention;[7] another trial compared an advanced Incredible Years-based intervention consisting of 26 to 27 sessions with a therapist (16 video tapes with 310 parent-child vignettes) with a basic Incredible Years intervention (12 to 13 sessions with a therapist and 10 videotapes with approximately 250 parent-child vignettes).[8] In general, there were little differences in outcomes between parent-only interventions when both treatment arms included an Incredible Years-based intervention (**Table F-2**). One trial also reported that of 100 percent abnormal ECBI scores at baseline, 53 percent of 77 children no longer had abnormal scores after one or more parents received the Advanced Incredible Years intervention but did not report how many students whose parents received the basic Incredible Years intervention no longer had abnormal scores.[8] Due to only one trial of each comparison and small sample sizes, the evidence is insufficient to definitively conclude that there are no differences in scores between Incredible Years interventions.

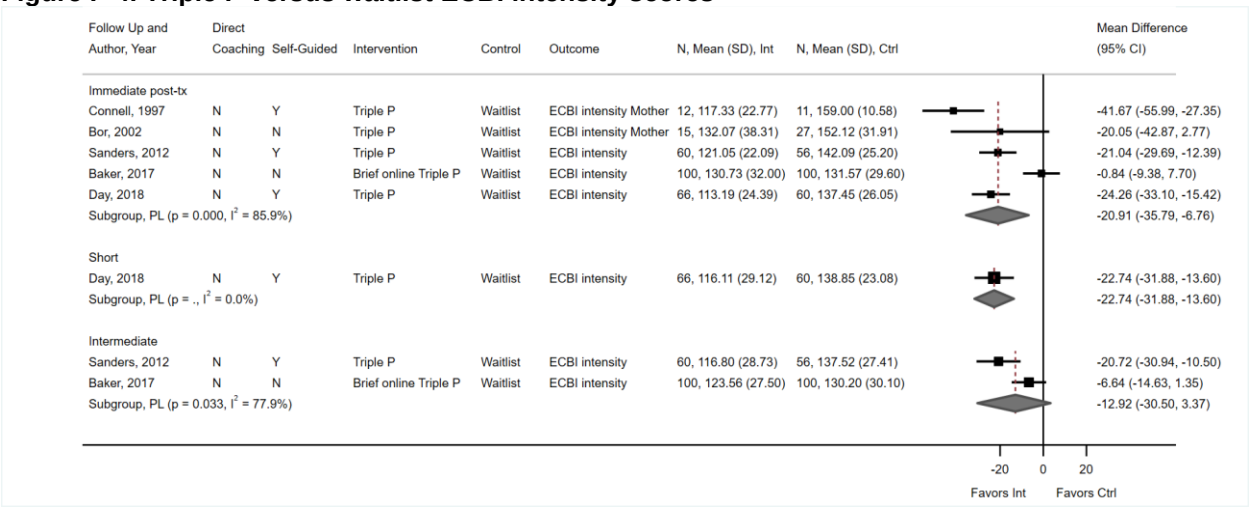
Table F-2. Incredible Years parent-only interventions compared with parent-only interventions

Outcome	Author, Year	Followup	Incredible Years mean (SD), N	Incredible Years mean (SD), N	MD (95% CI) or SMD (95% CI) or P-value
CBCL externalizing	Lavigne, 2008[7]	Posttreatment	Nurse-led IY 64.00 (32.11) N=49	Psychologist-led IY 61.00 (17.81) N=31	MD 3.00 (-7.96 to 13.96)
	Lavigne, 2008[7]	52 weeks	61.00 (30.61) N=49	58.00 (16.94) N=31	MD 3.00 (-7.44 to 13.44)
	Webster-Stratton, 1994[8]	Posttreatment	Advanced IY 58.58 (10.12) N=37	Standard IY 57.82 (9.60) N=39	MD 0.76 (-3.68 to 5.20)
	Webster-Stratton, 1994[8]	"short-term"	57.48 (11.05) N=37	55.94 (8.69) N=39	MD 1.54 (-2.95 to 6.03)
ECBI problem	Webster-Stratton, 1994[8]	Posttreatment	Advanced IY 12.16 (5.88) N=37	Standard IY 12.46 (6.45) N=39	MD -0.05 (-0.50 to 0.40)
	Webster-Stratton, 1994[8]	"short-term"	8.74 (6.37) N=37	10.54 (7.14) N=39	MD -0.26 (-0.71 to 0.19)

Abbreviations: CI = confidence interval; CBCL = Child Behavior Checklist; ECBI = Eyberg Child Behavior Inventory; IY = Incredible Years; MD = mean difference; SD = standard deviation; SMD = standardized mean difference

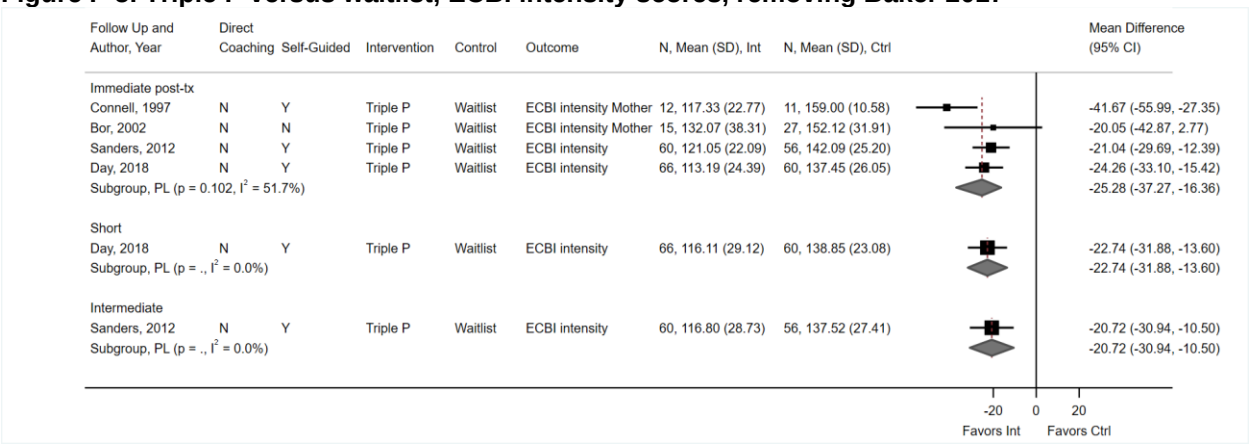
Triple P Versus Waitlist

Figure F-4. Triple P versus waitlist ECBI intensity scores



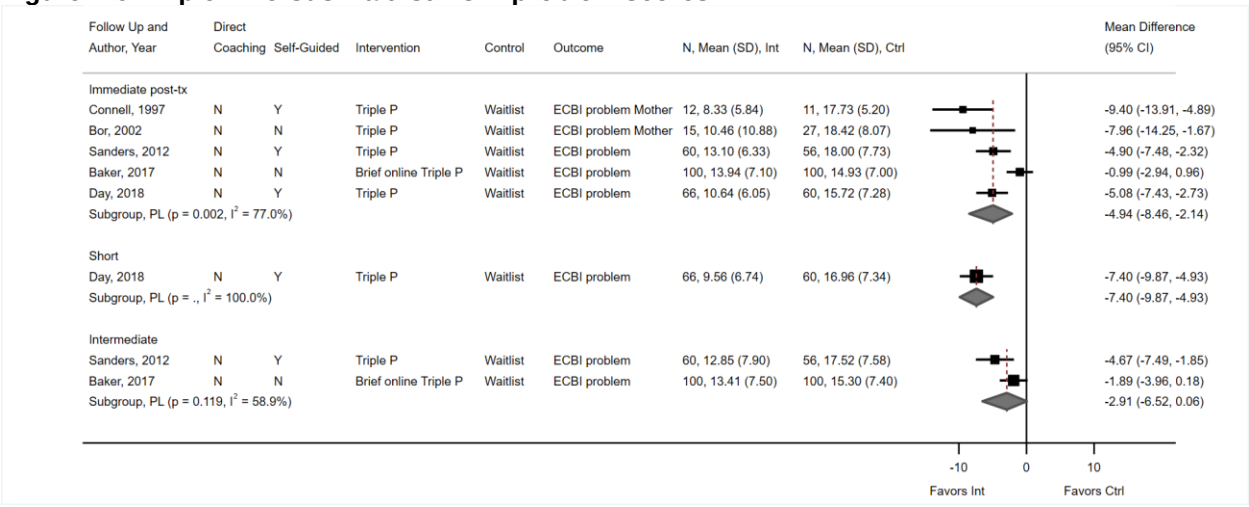
Abbreviations: CI = confidence interval; Ctrl = control; ECBI = Eyberg Child Behavior Inventory; Int = intervention; N = no; SD = standard deviation; Y = yes

Figure F-5. Triple P versus waitlist, ECBI intensity scores, removing Baker 2017



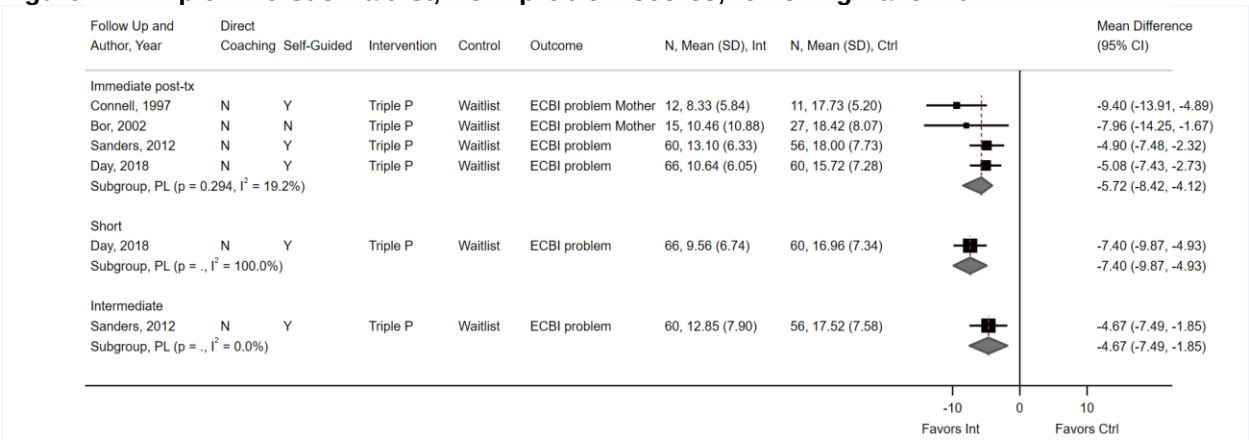
Abbreviations: CI = confidence interval; ECBI = Eyberg Child Behavior Inventory; Int = intervention; N = no; SD = standard deviation; Y = Yes

Figure F-6. Triple P versus waitlist ECBI problem scores



Abbreviations: CI = confidence interval; Ctrl = control; ECBI = Eyberg Child Behavior Inventory; Int = intervention; N = no; SD = standard deviation; Y = yes

Figure F-7. Triple P versus waitlist, ECBI problem scores, removing Baker 2017



Abbreviations: CI = confidence interval; ECBI = Eyberg Child Behavior Inventory; Int = intervention; N = no; SD = standard deviation; Y = Yes

Table F-3. Additional Triple P outcomes

Outcome	Author, Year	Followup	Triple P Mean (SD), N or % (n/N)	Internet as Usual Mean (SD), N or % (n/N)	RR (95% CI) or P-value
SDQ conduct	Sanders, 2012[9]	Posttreatment	2.25 (1.57) N=57	3.23 (1.79) N=50	**P=0.002**
	Sanders, 2012[9]	26 weeks	2.36 (1.69) N=52	3.12 (1.87) N=48	P>0.05
SDQ conduct no longer in clinical range	Sanders, 2012[9]	Posttreatment	40% (17/43)	17% (7/41)	**RR 2.32 (1.07 to 5.00)**
ECBI problem no longer in clinical range	Sanders, 2012[9]	Posttreatment	60% (34/57)	29% (14/49)	**RR 1.49 (1.02 to 2.17)**
ECBI intensity no longer in clinical range	Sanders, 2012[9]	Posttreatment	65% (34/52)	17% (8/46)	**RR 3.76 (1.94 to 7.28)**

Abbreviations: CI = confidence interval; ECBI = Eyberg Child Behavior Inventory; RR = relative risk; SD = standard deviation; SDQ = Strengths and Difficulties Questionnaire

Triple P Versus Another Parent-Only Intervention

Strength of evidence for studies at all timepoints was considered insufficient due to single studies, small Ns, and imprecise estimates with the exception of one trial.[10]

One randomized controlled trial (RCT) (N=334) randomized parents of children aged 3 to 7 years to online Triple P that comprised eight online modules (45 to 60 minutes each) or staff-directed Triple P comprised of 10 sessions (60 to 75 minutes each) of standard level 4 Triple P and found no differences between interventions immediately posttreatment and at 35 weeks **(Table F-4)**.[10]

One RCT of 305 families that included a child aged 36 to 48 months, were randomized to enhanced Triple P, standard Triple P, self-help Triple P or waitlist.[11,12] Parents in the enhanced intervention participated in 12 sessions (14 hours), whereas parents in the standard Triple P intervention participated in 10 sessions (10 hours). Parents in the enhanced intervention completed additional modules concerning marital conflict and parental depression. Parents who engaged in self-help Triple P were exposed to a self-directed program and given a workbook, covering 17 core child management strategies concerning competence, development, and management of child misbehavior. Only results for individuals who completed the 3-year followup were reported (approximately 58 percent of families who were randomized to an active treatment), resulting in a high risk of bias rating. Of those who completed an active treatment, there was no statistically significant differences between the three interventions at any timepoint and all estimates were imprecise **(Table F-4)**.[12] The proportion of children who met criteria for oppositional defiant disorder (ODD) dropped from 81 percent at baseline to 37 percent after 1 year and 30 percent after 3 years when parents received the enhanced Triple P; 80 percent at baseline, 38 percent at 1 year and 42 percent at 3 years when parents received standard Triple P; and 75 percent at baseline and 40 percent at 1 year and 27 percent at 3 years with self-help Triple P. The proportion of children who met criteria for conduct disorder was 32 percent at baseline, 12 percent at 1 year, and 11 percent at 3 years with enhanced triple P; 32 percent at baseline, 19 percent at 1 year and 16 percent at 3 years with standard Triple P, and 37 percent at baseline and 13 percent at 1 year and 17 percent at 3 years with self-help Triple P. Comparative analysis of these proportions was not performed.

Analysis of a small subset of the 305 children in the trial reported above, those with co-occurring attentional and hyperactivity (N=36), was included in a separate publication,[11] which showed no additional benefit of enhanced Triple P over standard Triple P on ECBI intensity or problem scores (MD 15.21, 95% CI -8.94 to 39.36; MD 0.65, 95% CI -5.78 to 7.78, respectively) **(Table F-4)**.

One trial (N=183) of parents of children between 1 and 8 years of age with disruptive behavior plus the family had at least one area of disadvantage or family difficulty (e.g., single parent, unemployed parent, parent in low education bracket, parents conflicted on parenting methods), compared different levels of parental support with an online version of Triple P—self-directed online Triple P or telephone-supported online (enhanced) Triple P, or waitlist.[13] Enhanced Triple P was associated with greater improvement in ECBI intensity and problem scores compared with self-directed Triple P **(Table F-4)**.

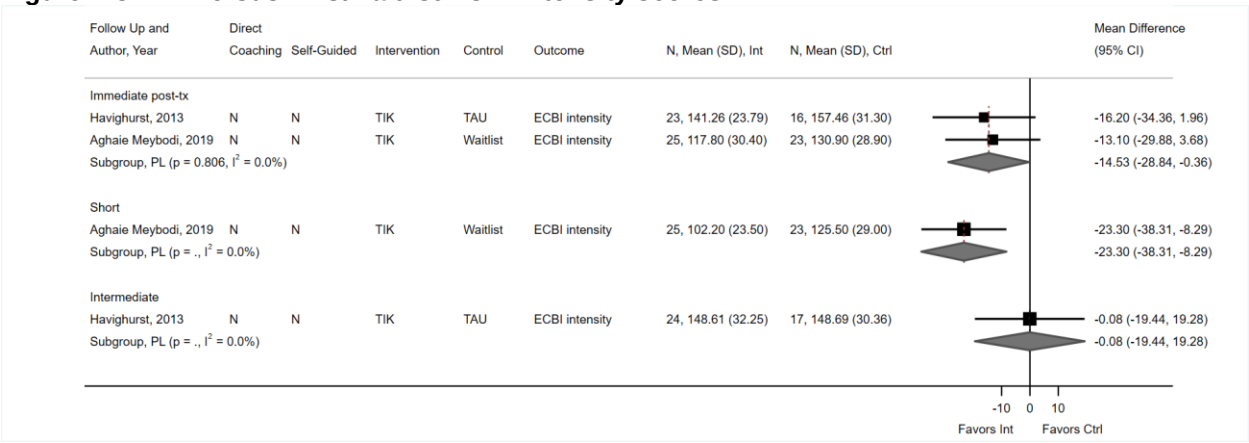
Table F-4. Results for Triple P versus Triple P interventions

Outcome	Author, Year	Followup	Intervention, Mean (SD), N or % (n/N)	Intervention Mean (SD), N or % (n/N)	MD (95% CI) or P-value
ECBI Intensity	Sanders, 2007[12]	Posttreatment	Enhanced Triple P 110.91 (30.06) N=44	Standard Triple P 107.50 (23.13) N=48	MD 3.41 (-7.62 to 14.44)
	Sanders, 2007[12]	52 weeks	116.59 (30.11) N=44	112.02 (27.12) N=48	MD 4.57 (-7.18 to 16.32)
	Sanders, 2007[12]	156 weeks	109.43 (35.21) N=44	108.58 (24.94) N=48	MD 0.85 (-11.72 to 13.42)
	Sanders, 2007[12]	Posttreatment	Enhanced Triple P 110.91 (30.06) N=44	Self-help Triple P 113.68 (27.07) N=34	MD -2.77 (-15.49 to 9.45)
	Sanders, 2007[12]	52 weeks	116.59 (30.11) N=44	121.24 (31.89) N=34	MD -4.65 (-18.58 to 9.28)
	Sanders, 2007[12]	156 weeks	109.43 (35.21) N=44	103.62 (26.73) N=34	MD 5.81 (-7.94 to 19.56)
	Sanders, 2007[12]	Posttreatment	Standard Triple P 107.50 (23.13) N=48	Self-help Triple P 113.68 (27.07) N=34	MD -6.18 (-17.56 to 5.20)
	Sanders, 2007[12]	52 weeks	112.02 (27.12) N=48	121.24 (31.89) N=34	MD -9.22 (-22.60 to 4.16)
	Sanders, 2007[12]	156 weeks	108.58 (24.94) N=48	103.62 (26.73) N=34	MD 4.96 (-6.66 to 16.58)
	Bor, 2002 (subgroup analysis in children with co-occurring ADHD)	Posttreatment	Enhanced Triple P 132.07 (38.31) N=15	Standard Triple P 116.86 (33.68) N=21	MD 15.21 (-8.94 to 39.36)
	Day, 2018[13]	Posttreatment	Enhanced online Triple P 113.19 (24.39) N=66	Self-directed online Triple P 122.97 (28.78) N=57	**MD -9.78 (-19.29 to -0.27)**
	Day, 2018[13]	22 weeks	116.11 (29.12) N=66	125.96 (25.49) N=57	**MD -9.85 (-19.50 to -0.20)**
	Prinz, 2022[10]	Posttreatment	Online Triple P 133.00 (35.90) N=168	Self-directed Triple P 127.00 (34.63) N=167	MD 6.00 (-1.55 to 13.55)
	Prinz, 2022[10]	35 weeks	128.00 (37.07) N=168	129.00 (36.18) N=167	MD -1.00 (-8.84 to 6.84)
ECBI Problem	Bor, 2002[11]	Posttreatment	Enhanced Triple P 10.46 (10.88) N=15	Standard Triple P 12.47 (10.15) N=21	MD 0.65 (-5.78 to 7.78)
	Day, 2018[13]	Posttreatment	Enhanced online Triple P 10.64 (6.05) N=66	Self-directed online Triple P 10.27 (7.31) N=57	MD 0.37 (-2.02 to 2.76)
	Day, 2018[13]	22 weeks	9.56 (6.74) N=66	12.34 (7.92) N=57	**MD -2.78 (-5.40 to -0.16)**

Abbreviations: ADHD = attention-deficit/hyperactivity disorder; CI = confidence interval; ECBI = Eyberg Child Behavior Inventory; MD = mean difference; SD = standard deviation

Tuning in to Kids Versus TAU or Waitlist

Figure F-8. TIK versus TAU/waitlist ECBI intensity scores



Abbreviations: CI = confidence interval; Ctrl = control; ECBI = Eyberg Child Behavior Inventory; Int = intervention; N = no; SD = standard deviation; TAU = treatment as usual; TIK = Tuning in to Kids; Y = yes

Other Parent-Only Interventions Versus Treatment as Usual/Waitlist

One RCT (N=80) enrolled parents of children aged 3 to 7 with ODD who received a telephone-based Strongest Families intervention or treatment as usual (TAU).[14] Strongest Families consisted of handbooks and videos along with weekly telephone coaching sessions to reinforce positive parenting (e.g., building a good relationship with the child, ignoring whining and complaining, positive reinforcement of good behavior). Authors did not report the length of treatment but reported that booster calls were provided at 2 and 4 months after the conclusion of treatment. The primary outcome was no longer meeting criteria for ODD and was assessed at 120, 240, and 365 days after randomization and strongly favored Strongest Families over TAU (**Table F-5**). One limitation of the trial is that the proportion of male children was higher in the Strongest Families intervention versus TAU (34/39 87.2% vs. 28/41 68.3%) which may play a role in study findings.

One trial (N=41) enrolled parents of children aged between 2 and 6 years and found an enhanced self-directed intervention (10-unit program where parents made their way through a workbook with up-to-30 minutes weekly telephone contact with researchers) substantially lower ECBI intensity scores versus waitlist in the intermediately posttreatment (MD -46.23, 95% CI -59.14 to -33.32).[15] Similar results were found for ECBI problems scores, with substantially lower scores after the enhanced self-directed intervention (MD -16.10, 95% CI -20.17 to -12.03, large effect) (**Table F-5**). The goals of the program were to help parents provide a safe and interesting learning environment for the child where parents observed and were available to the child, to use assertive discipline when needed, to have realistic expectations of themselves and the child and to practice self-care as a parent. The purpose of the weekly phone calls with parents was to facilitate parent's problem solving.

Another trial (N=85) enrolled New Zealand and Australian parents of preschool children aged 3 to 5 years who demonstrated noncompliant behavior.[16] Most children had 2 parents who were well-educated. The intervention was a 2-hour presentation followed by discussion in a group setting on managing disobedient children led by a psychologist facilitator and covered ways parents reinforce noncompliance in their children, the use of praise and attention and assertive discipline; children did not attend the session. Parents also received a workbook that covered the content and group exercises. The brief

parenting intervention resulted in slightly lower ECBI intensity scores than waitlist immediately posttreatment (MD -13.73, 95% CI -24.30 to -3.16) (**Table F-5**).

One RCT (N=90) enrolled parents of preschool-aged children (mean age 53 months) and allocated parents to one of three groups: parent self-efficacy group, parent self-efficacy plus parent emotion coaching practices group, and waitlist.[17] The interventions consisted of weekly group sessions over 8 weeks and included brainstorming, role playing, feedback on parent-child interactions and homework and telephone calls between sessions with the goals of empowering parents by removing parental feelings of guilt and learning concrete practices to improve parent-child interactions. For this analysis, the two active intervention groups were combined and analyzed versus waitlist. CBCL externalizing scores were slightly lower than waitlist immediately posttreatment (MD -2.61, 95% CI -5.17 to -0.05) (**Table F-5**).

Table F-5. Results of various parent-only interventions versus TAU or waitlist

Outcome	Author, Year	Followup	Intervention, mean (SD), N or % (n/N)	TAU/Waitlist (SD), N or % (n/N)	MD (95% CI) or (95% CI)
ECBI intensity	Markie-Dadds, 2006[15]	Posttreatment	Enhance self-directed intervention 100.69 (17.41) N=13	Waitlist 146.92 (15.53) N=12	**MD -46.23 (-59.14 to -33.32)**
	Dittman, 2016[16]	Posttreatment	Brief parenting intervention 115.10 (24.44) N=45	Waitlist 128.83 (25.13) N=40	**MD -13.73 (-24.30 to -3.16)**
ECBI problem	Markie-Dadds, 2006[15]	Posttreatment	Enhance self-directed intervention 2.15 (3.36) N=13	Waitlist 18.25 (6.43) N=12	**MD -16.10 (-20.17 to -12.03**)
CBCL externalizing	Loop, 2017[17]	Posttreatment	Parent therapy 23.29 (6.37) N=45	Waitlist 25.90 (6.00) N=45	**MD -2.61 (-5.17 to -0.05)**
Treatment success (no longer met criteria for ODD)	McGrath, 2011[14]	120 days post randomization	Strongest Families N=39	TAU N=41	**OR 4.35 (1.41 to 13.46)**
	McGrath, 2011[14]	240 days post randomization	N=39	N=41	**OR 2.93 (1.04 to 8.20)**
	McGrath, 2011[14]	365 days post randomization	N=39	N=41	OR 2.13 (0.81 to 5.65)

Abbreviations: CBCL = Child Behavior Checklist; CI = confidence interval; ECBI = Eyberg Child Behavior Inventory; MD = mean difference; ODD = oppositional defiant disorder; OR = odds ratio; SD = standard deviation

Other Parent-Only Interventions Versus Other Parent-Only Interventions

One trial enrolled parents of children aged between 2 and 6 years of age and found an enhanced self-directed intervention (10-unit program where parents made their way through a workbook with up to 30 minutes weekly telephone contact with researchers) was associated with substantially lower ECBI intensity scores versus a self-help intervention (same workbook but no telephone calls) alone intermediately posttreatment (MD -29.18, 95% CI -49.32 to -9.04, large effect) but not in the intermediate term (MD -5.95, 95% CI -20.48 to 8.58) (**Table F-6)**.[15] ECBI problem scores were substantially lower with enhanced self-directed intervention over the nonenhanced intervention (no

telephone calls) immediately posttreatment an at 26 weeks (MD -10.32, 95% CI -15.77 to -4.87; MD -4.77, 95% CI -8.28 to -1.26, respectively).

Another RCT (N=90), mentioned above, enrolled parents of preschool-aged children (mean age 53 months) and allocated parents to one of three groups: parent self-efficacy group, parent self-efficacy plus parent emotion coaching practices group, and waitlist.[17] Parental self-efficacy belief focused on positive experiences with the child but did not directly guide the parents on how to interact with the child; emotion coaching practices focused on parent words and actions toward the child based on the child's emotions. There was no difference on CBCL externalizing scores between the self-efficacy intervention and the self-efficacy plus emotional coaching immediately posttreatment (**Table F-6**), but favored the self-efficacy without the emotional coaching in the short term (MD -3.86, 95% CI -7.04 to -0.68).

One nonrandomized study (N=198) compared an in-person behavioral parent training intervention (Helping our Toddlers, Developing Our Children's Skills or HOT DOCS) with internet-based HOT DOCS. Initially delivered in an in-person group format due to COVID-19, HOT DOCS was subsequently delivered through an online meeting platform, keeping the group format.[18] HOT DOCS introduced parents to the "function" of child disruptive behaviors in order to help parents help children choose a more appropriate replacement action to gain attention, for example. Parents or caregivers of children aged 2 to 5 years were eligible to participate. There was no meaningful difference between in-person parent training and online parent training on child ECBI scores (p=0.59) after six, 2-hour sessions.

Table F-6. Results of various parent-only interventions versus other parent-only interventions

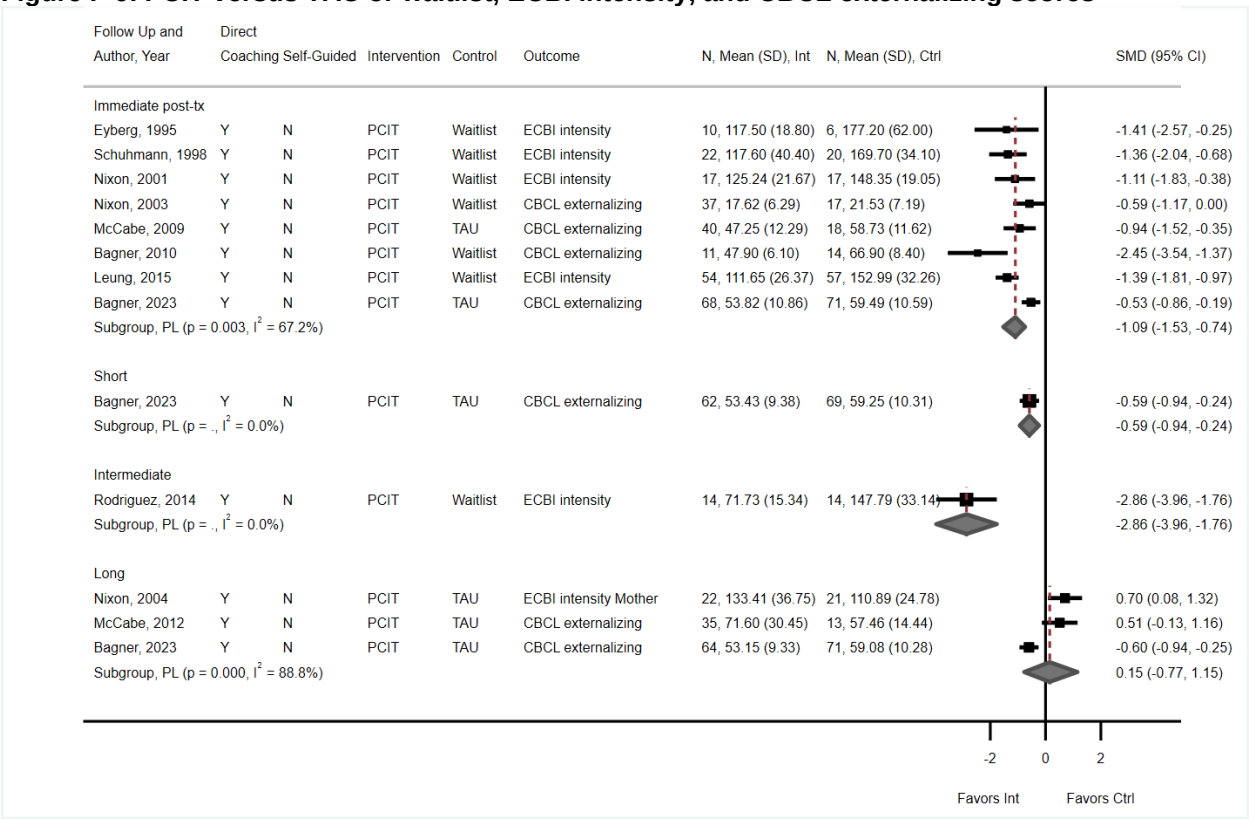
Outcome	Author, Year	Followup	Intervention, mean (SD), N or (n/N)	Intervention, (SD), N or (n/N)	MD (95% CI) or (95% CI)
CBCL externalizing	Sourander, 2016[19]	15 weeks	Strongest Families Website 14.00 (7.62) N=232	Education control 16.00 (7.62) N=232	**MD -2.00 (-3.39 to -0.61)**
	Sourander, 2016[19]	41 weeks	13.00 (9.14) N=232	15.30 (7.62) N=232	**MD -2.30 (-3.83 to -0.77)**
	Sourander, 2018[20]	93 weeks	12.2 (SE 0.5) N=232	13.5 (SE 0.5) N=232	**MD -1.8, p<0.001**
	Loop, 2017[17]	Posttreatment	Self-efficacy beliefs 24.00 (6.81) N=19	Self-efficacy beliefs + emotion coaching 22.77 (6.02) N=26	MD 1.23 (-2.61 to 5.07)
	Loop, 2017[17]	Short term	19.37 (5.39) N=19	23.23 (5.34) N=26	**MD -3.86 (-7.04 to -0.68)**
ECBI Intensity	Markie-Dadds, 2006[15]	Posttreatment	Enhanced self-help 100.69 (17.41) N=13	Self-help (no phone calls) 129.87 (35.12) N=15	**MD -29.18 (-49.32 to -9.04)**
	Markie-Dadds, 2006[15]	26 weeks	101.62 (12.69) N=13	107.57 (25.26) N=15	MD -5.95 (-20.48 to 8.58)

Outcome	Author, Year	Followup	Intervention, mean (SD), N or (n/N)	Intervention, (SD), N or (n/N)	MD (95% CI) or (95% CI)
ECBI Problem	Markie-Dadds, 2006[15]	Posttreatment	Enhanced self-help 2.15 (3.36) N=13	Self-help (no phone calls) 12.47 (10.15) N=15	**MD -10.32 (-15.77 to -4.87)**
	Markie-Dadds, 2006[15]	26 weeks	3.23 (3.61) N=13	8.00 (5.76) N=15	**MD -4.77 (-8.28 to -1.26)**

Abbreviations: CBCL = Child Behavior Checklist; CI = confidence interval; ECBI = Eyberg Child Behavior Inventory; MD = mean difference; SD = standard deviation; SE = standard error

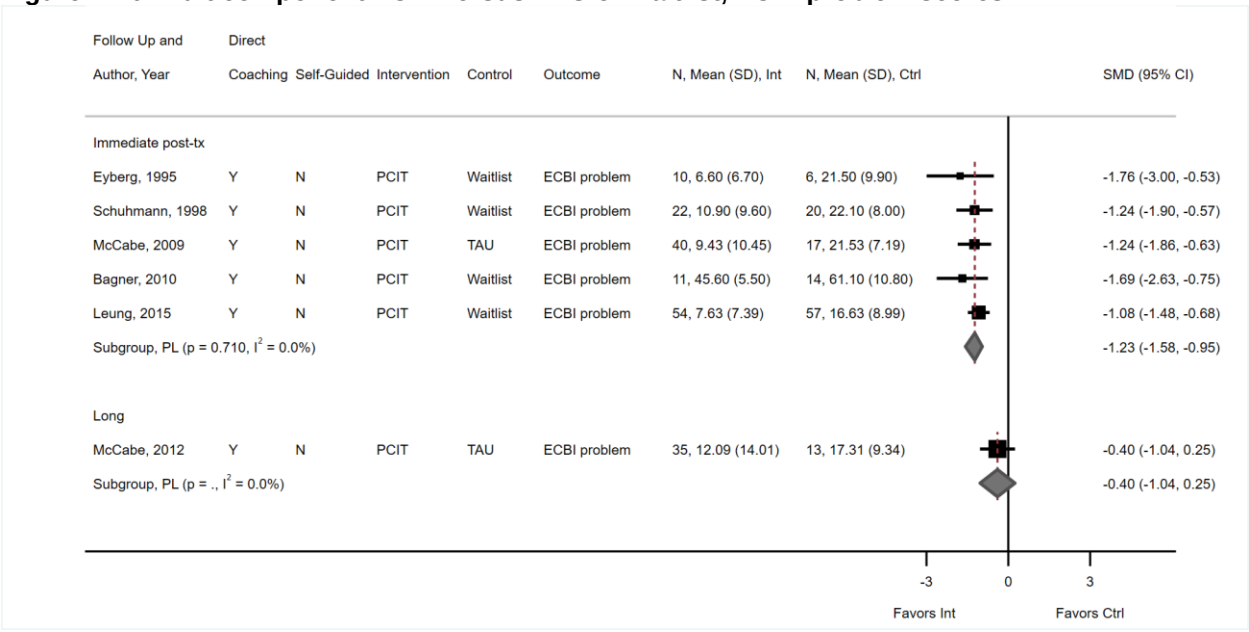
Parent-Child Interaction Therapy

Figure F-9. PCIT versus TAU or waitlist, ECBI intensity, and CBCL externalizing scores



Abbreviations: CBCL = Child Behavior Checklist; CI = confidence interval; Ctrl = control; ECBI = Eyberg Child Behavior Inventory; Int = intervention; N = no; PCIT = Parent-Child Interaction Therapy; Post-tx = posttreatment; SD = standard deviation; SMD = standardized mean difference; TAU = treatment as usual; Y = yes

Figure F-10. Multicomponent PCIT versus TAU or waitlist, ECBI problem scores



Abbreviations: CI = confidence interval; Ctrl = control; ECBI = Eyberg Child Behavior Inventory; Int = intervention; N = no; PCIT = Parent-Child Interaction Therapy; Post-tx = posttreatment; SD = standard deviation; SMD = standardized mean difference; TAU = treatment as usual; Y = yes

Table F-7. Additional results of PCIT trials versus TAU/waitlist

Outcome	Author, Year	Followup	Intervention, mean (SD), N or % (n/N)	TAU/Waitlist (SD), N or % (n/N)	MD (95% CI) or RR (95% CI)
ECBI intensity	Nixon, 2003[21]	Posttreatment	Standard PCIT 125.24 N=17	Waitlist 148.35 (19.05) N=17	**MD -23.11 (-36.83 to -9.39)**
	Nixon, 2003[21]	Posttreatment	Abbreviated PCIT 126.60 (18.38 N=20	Waitlist 148.35 (19.05) N=17	**MD -21.75 (-34.34 to -9.16)**
	McCabe, 2009[22]	Posttreatment	Culturally sensitive PCIT 84.3 (34.40) N=21	TAU 118.5 (48.34) N=18	**MD -34.20 (-60.94 to -7.46)**
	McCabe, 2009[22]	Posttreatment	Standard PCIT 95.44 (45.20) N=19	TAU 118.5 (48.34) N=18	MD -23.06 (-53.26 to 7.14)
	McCabe, 2012[23]	104 weeks	Culturally sensitive PCIT 97.35 (28.70) N=20	TAU 125.46 (39.95) N=13	**MD -28.11 (-53.21 to -3.01)**
	McCabe, 2012[23]	104 weeks	Standard PCIT 100.93 (45.33) N=15	TAU 125.46 (39.95) N=13	**MD -24.53 (-56.12 to 7.06)**
	Bagner, 2010[24]	Posttreatment	PCIT 43.00 (4.3) N=11	Waitlist 64.6 (9.5) N=14	**MD -21.6 (-27.19 to -16.01)**
ECBI problem	McCabe, 2009[22]	Posttreatment	Culturally sensitive PCIT 7.35 (9.86) N=21	TAU 15.38 (8.98) N=13	**MD -8.03 (-14.48 to -1.58)**
	McCabe, 2009[22]	Posttreatment	Standard PCIT 11.72 (11.06) N=19	TAU 15.38 (8.98) N=13	MD -3.66 (-10.63 to 3.31)
	McCabe, 2012[23]	104 weeks	Culturally sensitive PCIT 10.30 (8.36) N=20	TAU 17.31 (9.34) N=13	**MD -7.01 (-13.27 to -0.75)**
	McCabe, 2012[23]	104 weeks	Standard PCIT 14.47 (19.10) N=15	TAU 17.31 (9.34) N=13	MD -2.84 (-13.76 to 8.08)
No longer in ECBI clinical range	Nixon, 2003[21]	Posttreatment	Standard PCIT 12/17	Waitlist 2/17	**RR 6.00 (1.57 to 22.86)**
	Nixon, 2003[21]	Posttreatment	Abbreviated PCIT 8/20	Waitlist 2/17	RR 3.40 (0.83 to 13.90)
No longer in ECBI intensity clinical range	Leung, 2015[25]	Posttreatment	PCIT 47/54	Waitlist 13/57	**RR 3.82 (2.34 to 6.22)**
No longer in ECBI problem clinical range	Leung, 2015[25]	Posttreatment	PCIT 32/38	Waitlist 19/46	**RR 2.04 (1.41 to 2.96)**

Abbreviations: CI = confidence interval; ECBI = Eyberg Child Behavior Inventory; MD = mean difference; PCIT = Parent-Child Interaction Therapy; RR = relative risk; SD = standard deviation; SMD = standardized mean difference; TAU = treatment as usual

Other Multicomponent Interventions

Other multicomponent interventions versus TAU/waitlist. One UK-based RCT (N=300) enrolled parents of children aged 12 to 36 months and randomized participants to a Healthy Start, Happy Start home-based positive parenting and sensitive discipline video-feedback intervention or to TAU.[26] A trained health professional visited the home every 2 weeks for 6 sessions. Parents and children were videotaped interacting for about 10 minutes each visit and then feedback was provided to the parent to increase parents' sensitivity and to learn how to respond to the child more appropriately when faced with challenging behavior. There were no differences between treatments on CBCL externalizing scores immediately posttreatment or after 83 weeks (MD -3.24, 95% CI -7.16 to 0.68, MD -2.82, 95% CI -7.44 to 1.80), respectively (**Table F-8**). Results were not different between video feedback Healthy Start, Happy Start intervention compared with TAU on the SDQ total score for both the primary caregiver, as well as the teacher immediately posttreatment or after 83 weeks.[26,27]

One small RCT (N=20) of Head Start teachers compared teacher child relationship training that taught teachers more effective ways to respond to a child's behavioral and emotional needs through a 10-session play-based intervention versus an active control intervention (conscious discipline that focused on classroom management skills).[28] Posttreatment Teacher Report Form externalizing problem scores favored teacher child relationship training, but the differences was not statistically significant **(Table F-8)**.

Table F-8. Results of other multicomponent interventions versus TAU or active control

Outcome	Author, Year	Followup	Intervention, mean (SD), N or % (n/N)	TAU/Active Control (SD), N or % (n/N)	MD (95% CI) or (95% CI)
CBCL externalizing	O'Farrelly, 2021[26]	Posttreatment	Video feedback 32.50 (20.60) N=140	TAU 37.20 (21.00) N=145	MD -3.24 (-7.16 to 0.68)
	O'Farrelly, 2021[27]	83 weeks	30.60 (23.40) N=141	35.30 (23.70) N=144	MD -2.82 (-7.44 to 1.80)
SDQ total (primary care giver)	O'Farrelly, 2021[26]	Posttreatment	Video feedback 11.3 (5.1) N=140	TAU 12.2 (5.2) N=145	MD 0.93 (-0.003 to 1.9)
	O'Farrelly, 2021[27]	83 weeks	10.4 (5.4) N=141	10.9 (5.8) N=144	MD 0.35 (-0.78 to 1.47)
SDQ total (teacher)	O'Farrelly, 2021[27]	83 weeks	Video feedback 7.1 (6.0) N=106	TAU 7.8 (5.7) N=104	MD 0.10 (-0.18 to 0.37)
Teacher Report Form Externalizing problem scale	Gonzales-Ball, 2019[28]	Posttreatment	CTRT 59.34 (8.72) N=11	Active control 66.89 (11.42) N=9	MD -7.55 (-16.62 to 1.52)

Abbreviations: CBCL = Child Behavior Checklist; CI = confidence interval; CTRT = Child-Teacher Relationship Training; MD = mean difference; OR = odds ratio; SD = standard deviation; SDQ = Strength and Difficulties Questionnaire; TAU = treatment as usual

Multicomponent interventions versus parent-only interventions. One RCT compared a multicomponent intervention with a parent only intervention.[29] The multicomponent intervention was a psychodynamic supportive expressive therapy delivered according to a manual (i.e., manualized) over 16 sessions with the child that began with a 20 minute parent-child play session followed by a 50 minute parent-therapist session to help the parent understand their and the child's states of mind, the parent's perceptions and attributions and how the parent's behavior affects the child. The parent-only intervention was Incredible Years and consisted of 12-14 weekly 2-hour group sessions of 6-12 parents

that covered play, praise, limit setting and dealing with child misbehavior. See **Appendix G** for a description of Incredible Years. Psychodynamic supportive expressive therapy resulted in similar CBCL externalizing scores as Incredible Years immediately posttreatment and in the long term (N=35, MD -2.25, 95% CI -8.18 to 3.68; N=32, MD -1.69, 95% CI -7.29 to 3.91, respectively). ECBI intensity T-scores were also similar between supportive expressive therapy and Incredible Years immediately posttreatment and in the long term (N=35, MD 0.98, 95% CI -4.09 to 6.05; N=32, MD -0.31, 95% CI -5.18 to 5.19, respectively).

Multicomponent interventions versus other multicomponent interventions. Twelve RCTs compared a multicomponent intervention versus another multicomponent intervention.[21-23,30-40] One trial compared Incredible Years-based interventions,[33] one trial compared Helping the Noncompliant Child-based interventions,[36] one trial compared Triple P-based interventions,[38] one trial compared a New Forest Parent Program with Helping the Noncompliant Child,[40] and the remaining trials compared PCIT-based interventions. See **Appendix G** for a description of the more commonly used interventions. See **Table F-9** for trial results.

Parent-child Interaction Therapy (PCIT)-based comparisons included standard PCIT versus: abbreviated PCIT (5 face-to-face sessions with a therapist plus 5, 30 minute phone calls),[21,30] culturally-sensitive PCIT (for Mexican Americans),[22,23] group PCIT (3-7 parent-child pairs),[31] internet-delivered PCIT (using a webcam and Bluetooth),[32] PCIT plus a community helper who made home visits and helped address barriers to care (patient population largely Hispanic and African American),[35] and PCIT with a focus on callous-unemotional traits (all children demonstrated callous-unemotional traits for study entry).[39] One RCT compared intensive PCIT (5 daily 60 to 90 minute sessions per week for 2 weeks) compared with time-limited PCIT delivered 1 day per week for 10 weeks.[34] One trial evaluated the effects of maintenance PCIT over 2 years versus no maintenance PCIT in families with a child with ODD where all families had previously participated in standard PCIT.[37]

Other multicomponent comparisons reported in **Table F-9** included: Incredible Years with home parent support (10, 1-hour session provided by therapists in families homes in addition to Incredible Years) versus Incredible Years without home parent support,[33] a technology-enhanced Helping the Noncompliant Child (HNC) (HNC plus an interactive, mobile application that allowed therapist to monitor parent progress and tailor treatment versus standard Helping the Noncompliant Child,[36] and a cognitive Triple P intervention versus standard Triple P in a study where all mothers were diagnosed with major depression.[38] In general, results tended to slightly favor the interventions with modified or enhanced treatments over standard treatments, although these differences often did not reach statistical significance. Additionally, many of the trials were small and estimates were imprecise.

Table F-9. Results of multicomponent interventions versus multicomponent interventions

Outcome	Author, Year	Followup	Intervention, mean (SD), N or % (n/N)	Intervention (SD), N or % (n/N)	MD (95% CI) or RR (95% CI)
CBCL externalizing	Nixon, 2003[21]	Posttreatment	Standard PCIT 17.59 (6.54) N=17	Abbreviated PCIT 17.65 (6.06) N=20	MD -0.06 (-4.15 to 4.03)
	Nixon, 2003[21]	26 weeks	15.24 (7.77 N=17	15.90 (7.33) N=20	MD -0.66 (-5.56 to 4.24)
	Nixon, 2004[30]	104 weeks	54.7 (11.42) N=22	62.11 (8.58) N=27	**MD -7.41 (-13.18 to -1.64)**
	McCabe, 2009[22]	Posttreatment	Culturally sensitive PCIT 45.83 (11.28) N=21	Standard PCIT 48.82 (13.31) N=19	MD -2.99 (-10.68 to 4.70)
	Comer, 2017[32]	Posttreatment	Internet PCIT 55.7 (10.60) N=20	Clinic PCIT 55.50 (11.90) N=20	MD 0.20 (-6.78 to 7.18)
	Comer, 2017[32]	26 weeks	54.20 (17.80) N=20	54.30 (13.30) N=20	MD -0.10 (-9.84 to 9.64)
	Eyberg, 2014[37]	52 weeks	PCIT + PCIT maintenance 56.78 (11.61) N=23	PCIT with no maintenance 52.14 (7.06) N=21	MD 4.64 (-0.98 to 10.26)
	Eyberg, 2014[37]	104 weeks	55.59 (9.84) N=17	54.81 (11.54) N=16	MD 0.78 (-6.56 to 8.12)
CBCL total	Sanders, 2000[38]	Posttreatment	Cognitive Triple P 60.21 (12.70) N=19	Standard Triple P 67.63 (10.63) N=18	MD -7.42 (-14.95 to 0.11)
	Sanders, 2000[38]	26 weeks	55.35 (13.33) N=17	58.00 (10.71) N=17	MD -2.65 (-10.78 to 5.48)
ECBI intensity	Nixon, 2003[21]	52 weeks	Standard PCIT 133.41 (36.75) N=22	Abbreviated PCIT 136.42 (29.52) N=27	MD -3.01 (-21.98 to 15.96)
	McCabe, 2009[22]	Posttreatment	Culturally sensitive PCIT 84.30 (34.40) N=21	Standard PCIT 95.44 (45.20) N=19	MD -11.14 (-36.23 to 13.95)
	McCabe, 2012[23]	104 weeks	Culturally sensitive PCIT 97.35 (28.70) N=20	Standard PCIT 100.93 (45.33) N=15	MD -3.58 (-29.74 to 22.58)
	Niec, 2016[31]	Posttreatment	Group PCIT 129.03 (40.00) N=39	Individual PCIT 134.55 (41.93) N=42	MD -5.52 (-23.36 to 12.32)
	Niec, 2016[31]	26 weeks	123.90 (38.12) N=39	137.36 (36.68) N=42	MD -13.46 (-29.78 to 2.86)
	Comer, 2017[32]	Posttreatment	Internet PCIT 90.40 (28.80) N=20	Clinic PCIT 86.80 (15.30) N=20	MD 3.60 (-10.69 to 17.89)
	Comer, 2017[32]	26 weeks	81.60 (34.80) N=20	77.10 (30.30) N=20	MD 4.50 (-15.72 to 24.72)

Outcome	Author, Year	Followup	Intervention, mean (SD), N or % (n/N)	Intervention (SD), N or % (n/N)	MD (95% CI) or RR (95% CI)
ECBI intensity, Continued	Lees, 2019[33]	Posttreatment	IY with home parent support 112.24 (34.47) N=63	Standard Incredible Years 117.83 (34.47) N=63	MD -5.59 (-17.63 to 6.45)
	Lees, 2019[33]	26 weeks	106.43 (32.32) N=63	113.30 (32.32) N=63	MD -6.87 (-18.16 to 4.42)
	Graziano, 2020[34]	Posttreatment	Intensive PCIT 51.22 (6.55) N=25	Time-limited PCIT 59.93 (6.55) N=25	**MD -8.71 (-12.34 to -5.08)**
		26-39 weeks	57.84 (8.50) N=23	52.66 (8.40) N=20	MD 5.18 (0.12 to 10.24)
	Garcia, 2022[35]	Posttreatment	PCIT with community helper 89.55 (39.04) N=51	Standard PCIT 96.00 (38.32) N=30	MD -6.45 (-23.85 to 10.95)
	Parent, 2022[36]	Posttreatment	Technology enhanced HNC 103.84 (23.70) N=47	Standard HNC 110.25 (23.60) N=54	MD -6.41 (-15.66 to 2.84)
	Parent, 2022[36]	13 weeks	101.3 (24.20) N=47	115.60 (26.90) N=54	**MD -14.30 (-24.27 to -4.33)**
	Parent, 2022[36]	26 weeks	102.37 (30.10) N=47	118.35 (35.39) N=54	**MD -15.98 (-28.75 to -3.21)**
ECBI problem	McCabe, 2009[22]	Posttreatment	Culturally sensitive PCIT 7.35 (9.86) N=21	Standard PCIT 11.72 (11.06) N=19	MD -4.37 (-10.89 to 2.15)
	McCabe, 2012[23]	104 weeks	Culturally sensitive PCIT 10.30 (8.36) N=20	Standard PCIT 14.47 (19.10) N=15	MD -4.17 (-14.51 to 6.17)
	Lees, 2019[33]	Posttreatment	IY with home parent support 9.52 (7.90) N=63	Incredible Years 10.16 (7.90) N=63	MD -0.64 (-3.40 to 2.12)
	Lees, 2019[33]	26 weeks	6.65 (7.25) N=63	10.13 (7.25) N=63	**MD -3.48 (-6.01 to -0.95)**
	Comer, 2017[32]	Posttreatment	Internet PCIT 11.70 (7.30) N=20	Clinic PCIT 11.20 (9.60) N=20	MD 0.50 (-4.79 to 5.79)
		26 weeks	10.50 (9.30) N=20	9.70 (8.80) N=20	MD 0.80 (-4.81 to 6.41)
	Garcia, 2022[35]	Posttreatment	PCIT with community helper 9.03 (8.70) N=51	Standard PCIT 7.79 (8.96) N=30	MD 1.24 (-2.76 to 5.24)

Outcome	Author, Year	Followup	Intervention, mean (SD), N or % (n/N)	Intervention (SD), N or % (n/N)	MD (95% CI) or RR (95% CI)
ECBI problem, continued	Parent, 2022[36]	Posttreatment	Technology enhanced HNC 12.39 (7.90) N=47	Standard HNC 13.65 (6.60) N=54	MD -1.26 (-4.12 to 1.60)
	Parent, 2022[36]	13 weeks	9.72 (7.60) N=47	13.29 (6.60) N=54	**MD -3.57 (-6.37 to -0.77)**
	Parent, 2022[36]	26 weeks	10.01 (9.07) N=47	13.72 (9.60) N=54	**MD -3.71 (-7.35 to -0.07)**
No longer in ECBI clinical range	Nixon, 2003[21]	Posttreatment	Standard PCIT 12/17	Abbreviated PCIT 8/20	RR 1.77 (0.95 to 3.28)
No longer in ECBI intensity clinical range	Fleming, 2022[39]	Posttreatment	PCIT focused on callous unemotional traits 9/17	Standard PCIT 9/17	RR 1.00 (0.53 to 1.89)
	Fleming, 2022[39]	13 weeks	8/17	9/17	RR 0.89 (0.45 to 1.75)
No longer in ECBI problem clinical range	Fleming, 2022[39]	Posttreatment	PCIT focused on callous unemotional traits 11/17	Standard PCIT 11/17	RR 1.00 (0.61 to 1.64)
	Fleming, 2022[39]	13 weeks	9/17	7/17	RR 1.29 (0.62 to 2.65)
No longer in CBCL externalizing clinical range	Fleming, 2022[39]	Posttreatment	PCIT focused on callous unemotional traits 10/17	Standard PCIT 8/17	RR 1.25 (0.66 to 2.38)
	Fleming, 2022[39]	13 weeks	7/17	8/17	RR 0.88 (0.41 to 1.87)

Abbreviations: CBCL = Child Behavior Checklist; CI = confidence interval; ECBI = Eyberg Child Behavior Inventory; IY = Incredible Years; MD = mean difference; PCIT = Parent-Child Interaction Therapy; RR = relative risk; SD = standard deviation; SMD = standardized mean difference; TAU = treatment as usual

In addition to the multicomponent trials reported above, another study, not in **Table F-9,** in children with attention-deficit/hyperactivity disorder (ADHD) aged 3 to 4 years compared a New Forest Parenting Program (a behavioral parent training program that focused on child self-regulation abilities and was specifically designed for ADHD) and Helping the Noncompliant Child, a behavioral parent training program focusing on improving child compliance through positive, prosocial interaction with the child specifically designed for ODD.[40] In this study 44.6 percent of children were also diagnosed with ODD. The authors report that "when there was a comorbid ODD diagnosis, HNC was associated with less disruptive behavior than [New Forest Parenting Programme] [(NFPP)]." Because it is unclear how many children with ODD were enrolled in each intervention, comparative statistics are not presented.

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Appendix G. Summary of Common Interventions and Scales

Positive Parenting Program (or Triple P)

Positive Parenting Program,[1] commonly referred to as Triple P, is a multi-tiered, evidence-based parenting program. Similar to most parent management training programs, Triple P is based on social learning and cognitive-behavioral principles, and emphasizes care delivered directly to parents/caregivers of children ages birth through 16 years. The overarching goal of Triple P is to "prevent severe behavioral, emotional, and developmental problems in children and adolescence by enhancing the knowledge, skills, and confidence of parents."[2] Using a 5-level format (which increase in intensity of intervention delivery), Triple P can be delivered via individual, group, and self-directed delivery systems and thus is designed to have graded reach and intensity. The 5 levels and their general emphases are:

Universal Triple P (Level 1): This level involves execution of public health campaigns regarding evidence-based parenting strategies to promote child emotional and behavioral development in an accessible format, and to increase the likelihood that parents will seek out additional, higher-level support as needed.

Selected Triple P (Level 2): Parenting support offered at this level is delivered via one of two methods i.) brief consultation to parents (i.e., two, 20-minute consultations) or ii.) parenting seminars open to a larger group (i.e., three, 90 minute seminars). Regardless of format, Selected Triple P focuses on relatively minor and discrete child behavior problems that do not warrant more intensive intervention, and primarily utilizes providing information as the intervention method.

Primary Triple P (Level 3): Similar to Level 2, this level emphasizes care for relatively focused child behavioral challenges in the absence of more complex difficulties or family dynamics. Level 3 is distinguished from Level 2 by going beyond information provision to including active skills teaching specific parenting skills and approaches (e.g., advise, rehearsal, promoting self-evaluation). Care is delivered via a series of four, 20 min consultations that involves active skills teaching. Primary Triple P is delivered either individually to parents or in group settings.

Standard Triple P (Level 4): This level of intervention focuses on children and adolescents with notable behavioral problems which may or may not meet criteria for a specific diagnosis, and for parents experiencing parenting struggles. As such, it has a broader focus on improving parent-child interactions and addressing a broader range of targeted child behaviors. It emphasizes specific parenting skills and practices and uses active teaching approaches (e.g., role plays, specific generalization strategies). This level can be delivered either individually or in a group format.

Enhanced Triple P (Level 5): Designed as an augmentation of Level 4, Enhanced Triple P is used to support families with comorbid risk factors (e.g., poor partner communication, ineffective parent stress and coping skills, parents at risk of engaging in child abuse). As with Level 4, active teaching strategies are used to promote skills acquisition.

Parent Child Interaction Therapy

Drawing from attachment and social learning theories, Parent Child Interaction Therapy (PCIT)[3-5] is an evidence-based parent management training designed to improve parenting practices and child behavioral challenges of young children with clinically elevated conduct problems. PCIT emphasizes improving parent-child relationship and changing parent-child interactions by teaching parents a specific set of specialized skills that are practiced via structured parent-child interactions in a controlled setting before generalization to more naturalistic environments. Children and parents/care givers are seen together throughout PCIT. Blending didactic instruction with in-session practice and coaching using clinician observation behind a one-way mirror (or video feed) and a "bug-in-the ear" system to allow clinicians to communicate with caregivers in real time, PCIT is organized into two distinct phases:

- Child Directed Interactions (CDI): This phase of intervention emphasizes caregiving skills designed to enhance parent-child relationships (e.g., describing child prosocial behavior, using labeled praise for desired behavior, ignoring minor misbehaviors). After an initial didactic session, parents are coached in the use of these skills in session while interacting with their child during play. Further, parents and children are instructed to complete 5-minute, semi-structured daily playtime during which parents practice use of these skills. Use of caregiving skills is tracked in weekly sessions, with demonstration mastery of relationship enhancing skills to threshold expected before moving to phase two.
- Parent Directed Interactions (PDI): During this phase of treatment, parents are taught skills for promoting child compliance with adult instructions and expectations, as improvement in this is seen as a pivotal improvement that helps children behave better across environments. Specifically, parents are taught and practice specific, evidence-based approaches to issuing instructions and a structured time out procedure to follow based on non-compliance. As in CDI, following an initial didactic session, parents and children engage in structured in-session play during which parents are coached on the use of these skills before generalizing their use to home and eventually community settings. Further, during this phase, care emphasizes effective methods of setting and following through on house rules as well as relapse prevention. Intervention is completed when parents demonstrate mastery of skills and children's behavior is within normal limits.

Helping the Noncompliant Child

Developed in the early 1970s, Helping the Noncompliant Child (HNC) [6,7] is an evidence-based skills-based parent management training program targeting children ages 3 to 8 with clinically significant disruptive behavior problems and their families. Care is delivered to individual families (though HNC has been adapted for group delivery), with the child attending all sessions. HNC focuses on a) disrupting negative/coercive parent-child interactions patterns by establishing more positive, prosocial interactions and b) increasing child prosocial behaviors and decreasing conduct problems; particular emphasis is on improving child compliance as this is viewed as a cornerstone behavior associated with other disruptive behavior challenges. HNC blends didactic instruction in specific skills, in session practice (including coaching and feedback), and between-session prescribed activities designed to promote use of skills in non-clinical settings. Ideally sessions are conducted in therapy rooms with a one-way mirror and a one-way radio device to allow clinicians to offer guidance and real-time feedback regarding parents' use of skills taught. Progression from one skill to the next is based on demonstration of proficiency by the parent in session. The program is organized into two distinct phases:

- Differential Attention (DA): In this phase of care, parents are taught specific approaches to increase positive attention for appropriate child behavior and to ignore minor misbehavior (e.g., whining, fussing). In addition to practicing the use of these skills in session during parent-child play, families are instructed to engage in 10-15 minutes of child-oriented plan each day between sessions (i.e., "Child's Game") to enhance skills use and strengthen parent-child relationship. Parents are also encouraged to use DA skills outside of the Child's Game to strengthen child's desired behavior.
- Compliance Training (CT): During this phase, parents are taught a specific sequence of issuing instructions as well as methods to respond to both compliance (e.g., labeled praise for complying) and noncompliance (e.g., time out). Families are also taught evidence-based approaches to establishing and enforcing house rules, to address behavior unrelated to compliance situations. Families first implement these skills in session, then in home during structured activities, then anytime while at home, and then finally in situations outside the home.

Incredible Years

The Incredible Years[8-10] is a set of evidence-based early intervention programs for caregivers who work with children ages 0-12; note, while Incredible Years has programs that focus on teachers and child care providers, this summary emphasizes the Incredible Years BASIC (Baby, Toddler, Preschool/Early Childhood, Early School-Age, and Preadolescent) parenting programs given the emphasis of this review. BASIC programs focus on parent/caregiver knowledge and skills and address a range of topics (e.g., playing with your child, use of parental attention and praise to strengthen desired prosocial child behavior, limit setting, time outs and consequences for misbehavior) delivered in a developmentally focused manner. Care is typically delivered in a group format to parents/caregivers across 8 to 20 weekly sessions ranging in length from 60-90 minutes. Strategies used to promote skill development include psychoeducation, review and discussion of videotaped vignettes demonstrating targeted skills, in session role plays with feedback, and discussion of implementation of skills with one's children with feedback and observations provided by clinicians and participating parents/caregivers.

In addition to the BASIC parenting programs, Incredible Years includes the Dina Dinosaur Child Training Program (Dinosaur School). This approximately 22-week prevention program targets children ages 4 to 8 years and is implemented in classrooms or as a clinic-based, small-group treatment. Using video and puppet demonstrations as modeling of appropriate child behavior, role playing, art, and music, the program targets a range of topics such as making friends, following school rules, problem solving, and manners.

Trials of Incredible Years may include parent/caregiver only programs or may simultaneously also include Dinosaur School; those referenced as "multicomponent" in this review included both.

Tuning into Kids

Tuning into Kids[11,12] is a group-based parenting program focused on strengthening parent/caregiver ability to coach preschool children in emotion recognition and regulation strategies as an approach to addressing disruptive behavior and emotional challenges in children and adolescents. Given that children with disruptive behavior problems show more negative emotion than their peers, Tuning into Kids focuses on "parental emotion socialization practices with the expectation that children's emotional knowledge, regulation, and behavior would improve as a result."[13] Delivered via 2-hour per week group sessions that typically occur over 6 weeks, parents are taught five steps of emotion coaching (i.e., awareness of child's emotion, recognition of child emotional express as a moment for intimacy and teaching, listening with empathy and validation of child's emotion, helping child learn to label emotions with words, setting limits when helping child solve problems or deal with upsetting situations appropriately.[14,15] Specific strategies to promote knowledge and skill acquisition include via psychoeducation, exercises, role plays, and review and discussion of videotaped discussion of vignettes. Sessions 1-3 emphasize attending to children's lower intensity emotions, and encourage parents to reflect, label, and empathize with those emotions. Session 4 addresses anxiety and problems solving, while sessions 5-6 focus on more intense emotions (e.g., anger) and emotion regulation strategies (e.g., slow breathing, relaxation, self-control strategies). Content also includes helping parents/caregivers notice and regulate their own emotions effectively.

Multisystemic Therapy

Multisystemic Therapy (MST)[16] is an intensive family and community-based intervention approach for adolescents with serious clinical problems (e.g., substance abuse, violence, severe criminal behavior) and their families. MST emphasizes the goals of reducing criminal behavior and out-of-home placement (e.g., juvenile justice, residential treatment). The program targets youth ages 12 to 17 years and their families. MST therapists are available to youth and families 24 hours per day, 7 days per week; care is delivered at a time and in a setting that is convenient to families. By addressing challenges in naturalistic sessions, MST targets affecting the systems and ecology that for the basis for their problem behavior.

MST provides a framework through which treatment occurs based on nine core principles (i.e., finding the fit between youth problem behavior and the broader context; focusing on positives and strengths; increasing responsibility; using interventions that are present-focused, action-oriented, targeting specific problems; targeting sequences of behavior within or between multiple systems; using developmentally appropriate approaches; evaluation and accountability; generalization[17]). Rather than a prescribed number and/or frequency of therapeutic contacts (e.g., sessions), MST is intentionally comprehensive and flexible to meet the youth and family needs based on their identified goals and challenges. MST therapists typically have multiple contacts with youth and families in any given week. Further, while on average care lasts for 4 months, there is no prescribed duration of intervention.

MST therapists emphasize several domains. First, they work to empower parents/caregivers and improve their effectiveness via identifying strengths and utilizing existing or developing natural support systems (e.g., extended family, friends, church members). Parent-oriented care also emphasizes reducing barriers to parenting success by addressing any number of pertinent variables (e.g., parental substance abuse, poor partner relationships, high stress), through either direct intervention or by facilitating access to appropriate care or services. Seconds, MST therapists incorporate any number of evidence-based or evidence-informed interventions matched to the youth and family needs including, but not limited to parent management training, anger management treatment, and family communication training. Therapists blend skills teaching, coaching, and feedback to help strengthen youth and parent/caregiver use of approaches identified as effective via care.

Coping Power Program

Coping Power Program (CPP)[18,19] is a multicomponent, evidence-based intervention program targeting children with elevated aggression and their parents/caregivers. CPP integrates several evidence-based interventions for aggressive behavior based on social-cognitive, emotional, and neuropsychological processes contributing to child aggressing, as well as integration of familial and personal factors associated with risk of childhood aggression.

CPP is divided into both a child component and a parent component. The child component, called Coping Power, is a 34-session program delivered over approximately 15 months; each session is 45-60 minutes in length. The program is often school-based in delivery and can occur with either a small group of youth (e.g., 4 to 6 youth) or with individuals. Sessions focus on a variety of skills including goal setting and progress monitoring, organization and study skills, developing and using prosocial coping strategies, perspective-taking skills, social problem solving, resisting peer pressure, and skills for joining positive peer groups. Therapists promote engagement and learning of skills via interactive games, role playing, and activities to practice use of skills. Further, to facilitate generalization, youth are guided in setting weekly personal goals to address between sessions, and teachers are asked to give feedback on child success with achieving those goals.

The Coping Power Parent Component is a parent management training component that includes twice-monthly, 16 group sessions that occur separately from the child sessions; these occur across the 15-month period of the Coping Power and each session is typically 90 minutes. Sessions largely focus on parent skills training including stress management skills, methods for identifying prosocial and disruptive behavior targets for children in operational terms, methods for encouraging and rewarding appropriate child behavior, approaches for giving effective instructions/commands, establishing age-appropriate expectations and rules, and learning and establishing effective family communication and problem-solving approaches. Parents/caregivers also learn skills and strategies children targeted via Coping Power, including ways to support youth in their use of skills learned. Parent sessions are highly interactive through group discussion, role plays, and homework assignments.

Utrecht CPP[20] is an adaptation of the program targeting youth with more significant emotional and behavioral difficulties and their parent/caregivers. Adaptations occurred for the child component and included fewer sessions (23 versus 34) and longer session length (90 minutes), as well as more varied session structure with less time spent in discussion and more time in activities. The parent component is the same as originally described, with the exception that the same clinician facilitated both the child and parent groups, to facilitate integration and information sharing across sessions.

Collaborative Problem Solving

Collaborative Problem Solving (CPS)[21] is a family-based intervention approached designed to address externalizing behavior problems of children. Theoretically, CPS is grounded in the premise that children who display clinically relevant disruptive behavior problems have lagging cognitive skills (e.g., flexibility, social perception/interpretation, frustration tolerance) that adversely impact their ability to copy with parental and daily expectations. Intervention, therefore, involves helping parents identify specific skills deficits associated with behavioral challenges and then addressing those lagging skills using a specific approach problem solving. After identifying specific situations or events that reliably trigger problematic child behavior, parents are first guided in deciding which of three ways to respond, called Plan A, Plan B, and Plan C.

Plan A is the current approached used by parents/caregivers, which is to attempt to continue to enforce rules and expectations despite knowing there is a high likelihood of child behavioral reaction. Plan C involves relaxing or pausing expectations in the short term. This is viewed as a preventative strategy as a means of reducing overall parent-child conflict and child behavioral disruption. Finally, Plan B involves use of specific collaborative problem-solving strategies with multiple components. First, the parent seeks to understand the problem from the child's perspective, and then the parent shares concern from their perspective. The goal of these first two steps is to gain a shared definition and understanding of the problem. Next, the child and parent brainstorm possible solutions to the problem without judgment, followed by then jointly analyzing each possible solution to arrive at the strategy to attempt that is jointly agreeable. Parents and youth are then guided through implementation of the agreed upon strategy, as well as approaches to monitor whether it is helpful. If not, then the process is revisited to either modify the initial strategy or select another to attempt. Lagging child skills is thought to be taught implicitly by repeatedly engaging in Plan B.

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Appendix H. Key Question 1: Additional Behavioral Outcomes for School Age Children

Detailed Description of School Age Studies

Multicomponent interventions included Parent Management Training (PMT),[1-13] Family Therapy,[14-16] Specific Skills Training,[17-21] Multisystemic Therapy (MST),[22,23] Collaborative Problem Solving (CPS),[6,24-26] and Modular interventions.[27-29] Seven randomized controlled trials (RCTs) included comparisons that were considered stand-alone.[30-37]

Interventions with only a child component. Child-only interventions included cognitive behavioral therapy (CBT),[38-40] Play Therapy,[41-43] Specific Skills Training,[9,37,44-46] and Mindfulness-based Interventions.[47]

Interventions with only a parent component. Parent-only interventions included PMT,[9,10,37,48-66] Self-guided Interventions,[67-69] and Mindfulness-based Interventions.[70]

Nonrandomized studies of interventions. Six nonrandomized studies of interventions (NRSIs) (in 9 publications)[71-80] assessed behavioral interventions for disruptive behavior disorder (DBD) in school age children. One study enrolled only children with DBD (100%),[75] and one only enrolled children with either conduct disorder (CD) or oppositional defiant disorder (ODD)[73,74] but did not report the proportion of children with either diagnosis. Three studies[72,77,78,80] enrolled children where a proportion had a DBD: CD (range 26.2% to 32%) and ODD (range 68% to 73.8%). Another study included children with clinical levels of disruptive behavior as measured by the OHIO problem severity and functioning scales and reported that 40 percent of children had a "behavioral mental health diagnosis".[79] Three studies[72,77,78,80] reported comorbid attention-deficit/hyperactive disorder (ADHD) (range 19.13% to 30%); no study reported enrolling children with autism spectrum disorder (ASD). One study[71] enrolled some children who had experienced police contact (30%).

Interventions that included a parent component and a child component. Seven NRSIs (in 8 publications[71-73,75,77-80]) compared multicomponent interventions with one or more of the following: treatment as usual or waitlist,[71,73,75,77,78,80] or multicomponent or child-only interventions.[72,77]

Multicomponent interventions included Family Therapy,[73,75] Specific Skills Training,[77,78,80] Multisystemic Therapy,[71] and Modular interventions.[72] Two NRSIs[77,79] included comparisons that were considered stand alone.

Interventions with only a child component. One NRSI[78] compared a child-only intervention using Specific Skills Training against treatment as usual.

Interventions with only a parent component. No studies that met inclusion criteria evaluated a parent-only intervention for the treatment of disruptive behaviors in school age children.

Parent-Only Parent Management Training Versus Treatment as Usual or Waitlist

Description of Studies

Incredible Years parent training versus waitlist. Six RCTS compared Incredible Years (IY) with waitlist[9,10,37,48,50,51] and one RCT compared IY with treatment as usual (TAU).[49] Four trials provided 12 to 18, 2-hour group sessions to parents while two RCTs from the same author group[9,37] provided 22 to 24, 2-hour sessions in a group format. An additional RCT that predominately enrolled children with ODD (58%) added a child literacy program to IY.[52] The literacy component followed a manual (i.e., delivery was manualized) and assisted parents in reading with their children, and included helping children with unknown words by providing prompts and praise when the child complied. It included role-play and homework, family literacy workshops and two home visits. IY was delivered over 28 weeks and was compared to TAU. Attrition was high in most trials.

PMT-Oregon model versus treatment as usual. Three RCTs (in four publications) compared the Parent Management Training Program-Oregon Model (PMTO) with TAU.[53-56] PMTO is a manualize program (i.e., it follows a manual) that focuses on changing dysfunctional coercive parenting patterns by teaching the following five parenting practices: (1) encouragement of the child (stimulation of prosocial behaviors and positive reinforcement), (2) effective discipline (consistent, use of mild sanctions), (3) monitoring (keeping track of activities, child's friends), (4) problem-solving situations related to rule breaking and settling arguments with the child, and (5) positively interacting with the child (e.g., loving, warm attention, fun activities with the child). Parents are guided to identify and regulate emotion, enhance communication, provide clear directions, and track behavior. Trials provided 15 to 26 parent sessions (session duration was not reported), usually weekly with the number of sessions depending on family needs and therapy progress. Sessions included role-playing, modeling exercises and problem-solving discussions.

Other parent-only parent management training programs versus waitlist or treatment as usual. Five RCTs[57-61] reported on other parent-only PMT interventions. A pilot trial compared individual delivery of Tuning into Kids (TIK) to parents with waitlist.[61] TIK is generally delivered in a group setting as described in **Appendix G**. The comparison reported was part of a larger trial (no citation available). Parents received eight, 1-hour sessions to assist them with developing emotional coaching skills for use with the child and emotional self-care to facilitate their own emotional regulation. The one-to-one format allowed some tailoring of sessions to the parent's specific circumstances and needs. Information on demographics or comorbidities/concomitant diagnoses was not provided.

One RCT compared PMT delivered at home with both waitlist and TAU.[57] The home-based PMT was a manualized cognitive-behavioral program that included psychoeducation and cognitive interventions as well as parenting skills training related to providing structure, communication, praise, reward and punishment and playtime to enhance the parent-child relationship. Therapist feedback on video recordings of skills practice was provided. The program included principles of Parent-Child Interaction Therapy (PCIT) and Helping the Noncompliant Child which are described in **Appendix G**. The program was delivered over 4 months in 14 to 16 weekly sessions of 90 to 120 minutes. The trial

enrolled children with a diagnosis ADHD with most receiving related pharmacotherapy (93%) and having a DBD diagnosis was common (ODD [47%] and CD [8%]).

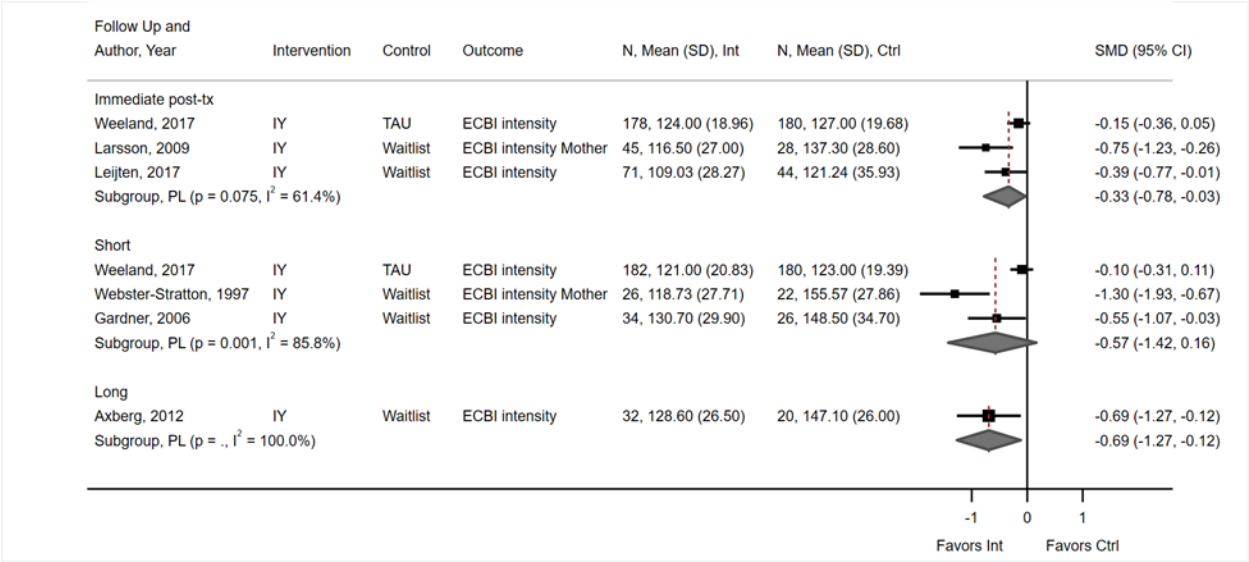
One trial, conducted in South Africa, compared a Parenting for Lifelong Health for Young Children PMT program, which was designed to reduce harsh parenting and enhance positive parenting, with TAU.[58] The program is part of a suite of low-cost open-access parenting programs developed by the World Health Organization in collaboration with academic institutions and the United Nations International Children's Emergency Fund (UNICEF).[81] This group-based program was delivered in 12, 3-hour sessions by trained paraprofessional community-based facilitators with a high school education. Initial sessions focused on building positive parent-child relationships including reinforcement of desirable behaviors and one-on-one time between the child and parent. Setting limits, giving instructions, use of non-violent discipline techniques and consequences for decreasing undesirable behavior are subjects in later sessions. Sessions included role-playing and group discussion on home-practice of new skills to facilitate group problem-solving and reinforce effective parenting strategies. Information on child diagnoses or comorbidities at baseline was not reported.

A brief PMT program, which consisted of 3 weekly, 2-hour group sessions and two digital video discs (DVD)s, called 1-2-3 Magic, with waitlist was compared in one RCT.[59] The DVDs focused on strategies for reducing disruptive and non-compliant child behaviors. They included parenting technique explanations, role-playing vignettes and examples of corrective, adaptive parent-child interactions. All were geared toward controlling unwanted behavior, encouraging desirable behavior and strengthening the parent-child relationship.

One trial compared two ways of delivering the Swedish PMT program (Comet PMT) to waitlist.[60] Participants were randomized to receive the group program from trained staff members (11, 2.5-hour sessions), or to a self-administered version of the program which consisted of a 7-hour instructional workshop which included instructions on implementing the program on their own without staff support beyond the workshop or to a waitlist. The same written material and homework schedules were provided to both active treatment groups. Content for the PMT program included positive interaction self-directed play, pre-activity preparation, effective commands, rewards, extinction of negative behaviors, behavioral contracts, structured problem solving and relapse prevention as well as teacher involvement via home notes. For analyses that compared the program to waitlist, the two active arms were combined.

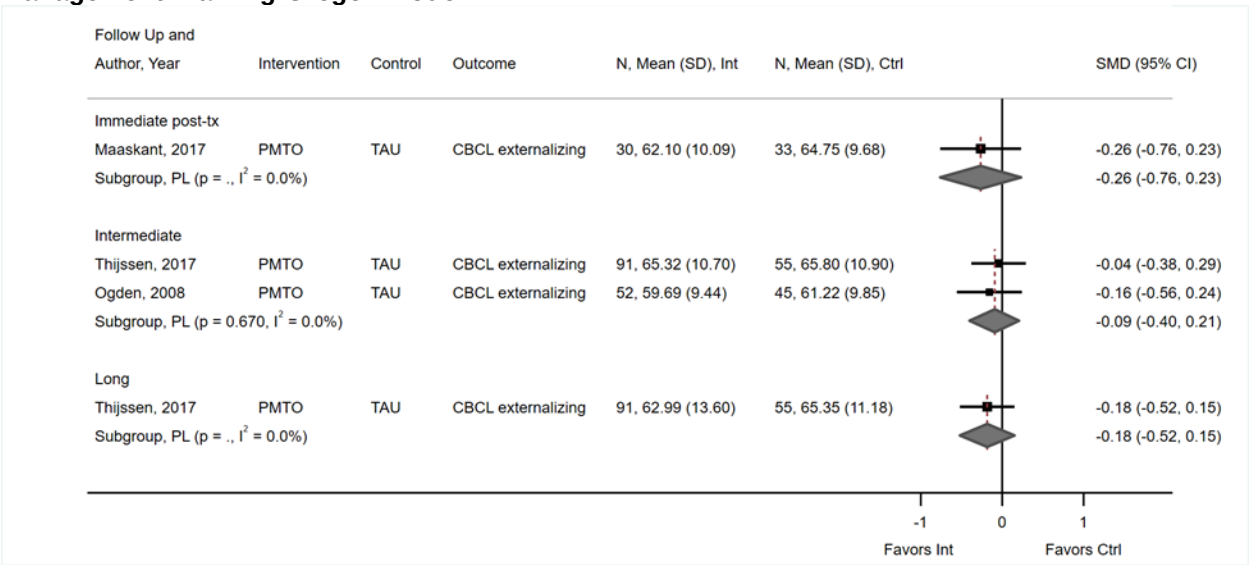
Pooled Results: ECBI Intensity Separated by Treatment: Incredible Years and PMT Using the Oregon Model

Figure H-1. Comparison of parent-only PMT with TAU or waitlist: ECBI Intensity scores, Incredible Years PMT



Abbreviations: Ctrl = control; ECBI = Eyberg Child Behavior Inventory; IY = Incredible Years; Int = intervention; SD = standard deviation; SMD = standardized mean difference; TAU = treatment as usual

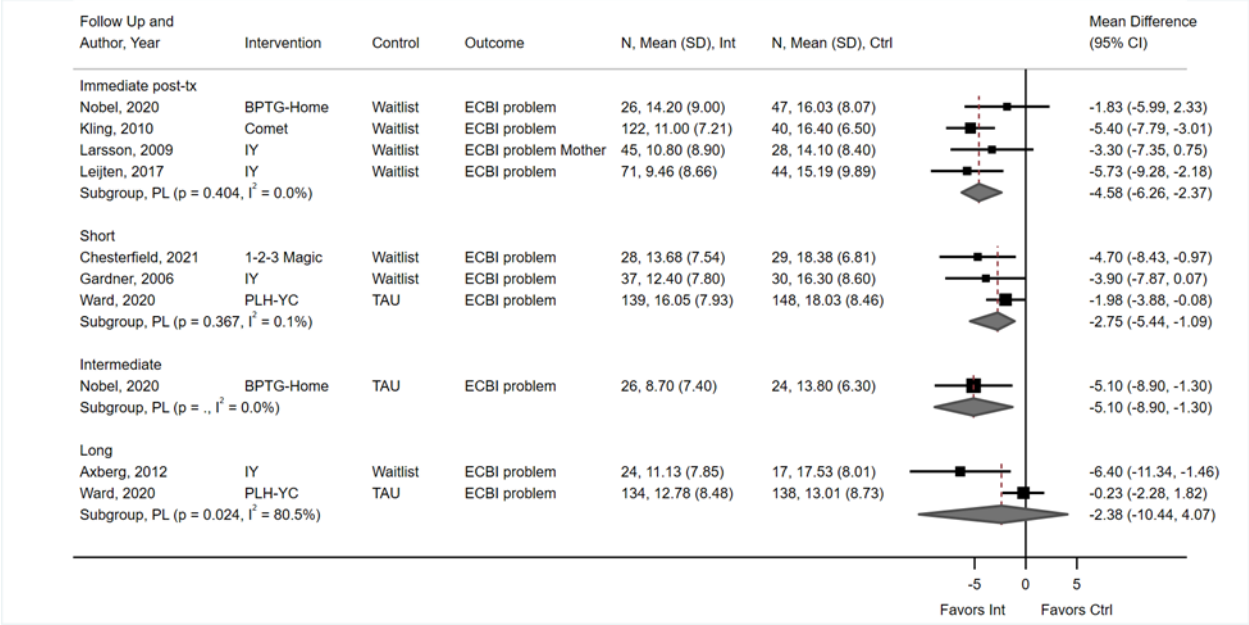
Figure H-2. Comparison of parent-only PMT with TAU or waitlist: ECBI Intensity scores, Parent Management Training-Oregon Model



Abbreviations: Ctrl = control; CBCL = Child Behavior Checklist; Int = intervention; PMTO = Parent Management Training-Oregon Model; SD = standard deviation; SMD = standardized mean difference; TAU = treatment as usual

ECBI Problem Scores

Figure H-3. Comparison of parent-only PMT with TAU or waitlist: ECBI Problem score



Abbreviations: BPTG-Home = Behavioral Parent Training Groningen at Home; Ctrl = control; CBCL = Child Behavior Checklist; ECBI = Eyberg Child Behavior Inventory; IY= Incredible Years; Int = intervention; PLH-YC = Parenting for Lifelong Health for Young Children; SD = standard deviation; SMD = standardized mean difference; TAU = treatment as usual

Other outcomes. Two RCTs were not represented in pooled estimates described above. One RCT that compared IY with waitlist found no difference between these groups in the proportion of children who demonstrated clinically significant improvement posttreatment (42.9% vs. 40.0%) among those whose Eyberg Child Behavior Inventory (ECBI) Intensity score at baseline was >142.[37] Movement of scores to below the baseline threshold value was considered clinically significant. For the trial of IY that included a literacy component,[52] the proportion of children who no longer met Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV) criteria for ODD was 17/35 (49%) with IY compared with 2/29 (7%) with TAU (relative risk [RR] 7.04, 95% confidence interval [CI] 1.77 to 28.0); however, the estimate is imprecise.

Parent-Only Parent Management Training Versus Other Active Treatment Interventions or Child-Only Intervention

Incredible Years: parent only vs. child only. Two RCTS from the same author group compared parent-only IY with delivery of IY to the child only.[9,37] These trials enrolled only children with ODD. Participants received 22 to 24, 2-hour sessions in a group format. Incredible Years is described in **Appendix G**.

ECBI Intensity raw scores, were similar for the parent only and child only IY interventions short-term and long term in one of the trials. (**Table H-1**).[9] In the other RCT, the proportion of children who demonstrated clinically significant improvement was greater in the child-only group posttreatment (42.9% vs. 63.2%) and short term (42.9% vs. 66.7%) among those whose ECBI Intensity score at baseline was >142; data was insufficient to calculate a relative risk or determine statistical

significance.[37] Movement of scores to below the baseline threshold value was considered clinically significant.

Triple P: comparisons of intervention delivery. Two RCTs compared different methods for delivering group, parent-only Triple-P.[64,65] One trial combined Triple P Discussion Groups with sufficient exemplar training (SET) delivered in four weekly 2-hour sessions and compared it to a single-session, 2-hour Triple P Dealing with Disobedience Discussion Group.[64] Authors described both strategies as low intensity as they focused on a narrow range of specific parenting strategies and child problems. Both strategies were conducted in group settings and the intervention was consistent with Triple-P Level 3 (See **Appendix D**). SET provides several diverse examples and illustrations (exemplars) of core positive parenting skills and management strategies to facilitate learning of parenting skills and applying them to a broader range of behaviors and situations versus teaching a single exemplar. Parents who received Triple P-SET did not receive more informational content, but rather core parenting skills and strategies were taught in each session and applied to different, specific behaviors. Parents who received single session Triple-P group focused on skills to encourage cooperation and manage disobedience.

Another RCT compared online delivery of Triple P with provision of the Every Parent's Self-help Workbook based on Triple-P.[65] Online Triple-P consisted of modules and included video demonstrations, worksheets, methods for reviewing information or to gain additional information as desired, probes and exercises to evaluate mastery, podcast access and a printable notebook for logging goals and responses to exercises. The workbook contained a series of 10 weekly sessions that included readings, activities, and suggested homework.

Triple-P with SET was associated with slight lowering of ECBI Intensity Scores immediately posttreatment and at intermediate term and with a substantial decrease in ECBI problem scores immediately posttreatment which did not persist to intermediated term compared with single-session Triple P compared with single session Triple P, however estimates were imprecise (**Table H-1**). Strength and Difficulties Questionnaire (SDQ)-Total scores were similar between intervention groups at both times.[64] In the other trial, no differences between the online and self-help versions of Triple P were seen on ECBI Intensity Scores or ECBI Problem Scores immediately posttreatment or at intermediate term (**Table H-1**).[65]

Comet Parent Management Training. The Swedish PMT program (Comet PMT) was evaluated in two RCTs. One trial compared internet and group delivery of the program[62] and the other compared internet Comet delivery to a modification of PMTO that included Motivational Interviewing.[63] Content for the Comet program included positive interaction, self-directed play, pre-activity preparation, effective commands, rewards, extinction of negative behaviors, behavioral contracts, structured problem solving and relapse prevention, as well as teacher involvement via home notes. Group Comet consisted of a manualized program delivered in 10, 2.5-hour group sessions.[62] In both trials, internet delivery included seven sessions to be completed during 10 weeks. In addition to textual content, videos of parent-child interaction, questions about content with feedback on answers, homework and followup on homework were included.[62,63] Three individual support sessions were offered to parents in the online group in one trial.[62] PMTO with Motivational Interviewing included an assessment phase followed by tailored parent training interventions encompassing three general skills, namely supporting positive behavior, setting healthy limits and building family relationships.[63] Authors did not describe the length or number of sessions.

In one trial there were no differences in ECBI Intensity raw scores, between internet and group delivery of Comet at short or intermediate term, however group delivery was associated with slightly

lower scores long term (**Table H-1**).[62] ECBI Problem Scores were similar between internet and group delivery methods at all time points, however group delivery was associated with a small decrease in SDQ-Conduct scores short-term (**Table H-1**).

In the other trial,[63] there were no differences in SDQ-Conduct scores between internet delivery of Comet and PMTO with Motivational Interviewing immediately posttreatment or at two long-term timeframes. Similarly, there were no differences between these groups in SDQ-Total Scores posttreatment or the first long-term followup but PMTO with motivational interviewing was associated with slightly lower scores compared with internet delivery of Comet (**Table H-1**). Substantial loss to followup and differential attrition are noted in this trial; more participants in the internet group dropped out before the start of the intervention and failed to complete the program.[63]

Other PMT programs and outcomes. One publication reported data for two RCTs that randomized families to either (face-to-face) delivery of a manualized parent-only PMT program[82] or to internet delivery of the program with one RCT in an urban setting and the other in a rural setting.[66] The program consisted of six modules and related handouts: psychoeducation about behavioral problems, rewarding desirable behavior, managing misbehavior, improving parent wellbeing and partner support and relapse prevention. Sessions included skills training, modeling, rehearsal, and feedback to teach parenting strategies. In-person PMT was clinic-based with most families scheduled for four 1.5-hour sessions followed by a phone call 2 to 4 weeks following treatment. Internet delivery was based on the same manual and consisted of six pre-recorded interactive and educational video modules (1 hour, 14 minutes total) in addition to 6 to 10 weekly, individualized 50 to 60-minute videoconferences. In the RCT conducted in a rural setting, support for travel and accommodations for a 1-week period for assessment and intensive treatment was provided. There were baseline differences between the in-person and internet groups in the rural sample including ODD or CD diagnosis (80% vs. 73%), concurrent ADHD diagnosis (32% vs. 49%) and use of stimulant medications (37% vs. 46%), and mean rurality index (mean 9 ± 13.63 vs. 3 ± 4.47), which was not described. Overall attrition in this sample was 78 percent. In the urban sample, there were baseline differences in ODD/CD diagnoses between intervention groups (61% vs. 74%). There was also greater attrition with PMT than with internet (76% vs. 91%).

Authors did not report the primary outcomes of interest for this trial. SDQ-Total Scores were similar between in-person and internet PMT delivery immediately posttreatment and short term in both the rural and the urban samples (**Table H-1**). Similarly, there were no differences between the intervention groups on the IOWA Conners ODD scales in either rural or urban sample posttreatment or at short-term.

Table H-1. Summary of instrument scores and measures: parent only PMT versus various controls

Outcome	Author, Year	Followup	PMT % (n/N) or mean (SD), n	Control % (n/N) or mean (SD), n	MD (95% CI)
ECBI Intensity scores	Webster-Stratton, 1997[9]	Short-term	**IY Parent 118.73 (27.71) (n=26)**	**IY Child** 121.70 (22.96) (n=27)	-2.97 (-16.98 to 11.04)
	Webster-Stratton, 1997[9]	Long-term	**IY Parent** 119.28 (31.69) (n=26)	**IY Child** 117.73 (32.93) (n=24)	1.55 (-16.83 to 19.93)
	Palmer, 2019[64]	Immediate Posttreatment	**Triple P + SET** 114.50 (19.25) (N=34)	**Triple P Single Session** 133.49 (27.01) (N=28)	**-18.99 (-30.90 to -7.08)**
	Palmer, 2019[64]	Intermediate term	**Triple P + SET** 115.75 (24.22) (n=33)	**Triple P Single Session** 131.46 (33.23) (n=24)	**-15.71 (-31.36 to -0.06)**
	Sanders, 2014[65]	Immediate Posttreatment	**Triple P Online** 114.17 (23.77) (n=86)	**Triple P Self-help Workbook** 114.99 (25.73) (n=88)	-0.82 (-8.24 to 6.60)
	Sanders, 2014[65]	Intermediate term	**Triple P Online** 117.22 (26.35) (n=78)	**Triple P Self-help Workbook** 120.45 (28.74) (n=81)	-3.23 (-11.88 to 5.42)
	Engelbrektsson, 2023[62]	Short-term	**Comet Internet** 128.44 (26.82) (n=75)[a]	**Comet Group** 120.34 (28.6) (n=86)[a]	8.10 (-0.47 to 16.67)
	Engelbrektsson, 2023[62]	Intermediate term	**Comet Internet** 124.45 (29.21) (n=75)[a]	**Comet Group** 115.68 (31.47) (n=86)[a]	8.77 (-0.61 to 18.15)
	Engelbrektsson, 2023[62]	Long-term	**Comet Internet** 128.71 (27.49) (n=75)[a]	**Comet Group** 116.8 (31.52) (n=86)[a]	**11.92 (2.80 to 21.04)**
ECBI Problem Score (scale 0-36)	Palmer, 2019[64]	Immediate Posttreatment	**Triple P + SET** 12.14 (5.66) (n=34)	**Triple P Single Session** 15.96 (7.43) (n=28)	**-3.82 (-7.13 to -0.51)**
	Palmer, 2019[64]	Intermediate term	**Triple P + SET** 11.88 (6.67) (n=33)	**Triple P Single Session** 15.48 (8.17) (n=24)	-3.60 (-7.58 to 0.38)
	Sanders, 2014[65]	Immediate Posttreatment	**Triple P Online** 10.92 (7.50) (n=86)	**Triple P Workbook** 10.91 (7.62) (n=88)	0.01 (-2.25 to 2.27)
	Sanders, 2014[65]	Intermediate term	**Triple P Online** 10.22 (7.13) (n=78)	**Triple P Workbook** 11.63 (7.82) (n=81)	-1.41 (-3.76 to 0.94)
	Engelbrektsson, 2023[62]	Short-term	**Comet Internet** 13.09 (6.4) (n=75)[a]	**Comet Group** 12.87 (7.14) (n=86)[a]	0.22 (-1.87 to 2.31)
	Engelbrektsson, 2023[62]	Intermediate term	**Comet Internet** 11.92 (7.53) (n=75)[a]	**Comet Group** 11.36 (7.98) (n=86)[a]	0.56 (-1.84 to 2.96)
	Engelbrektsson, 2023[62]	Long-term	**Comet Internet** 12.80 (7.01) (n=75)[a]	**Comet Group** 10.80 (7.95) (n=86)[a]	2.00 (-0.31 to 4.31)

Outcome	Author, Year	Followup	PMT % (n/N) or mean (SD), n	Control % (n/N) or mean (SD), n	MD (95% CI)
Other Outcomes: SDQ-conduct	Engelbrektsson, 2023[62]	Short-term	**Comet Internet** 3.30 (1.70) (n=75)	**Comet Group** 2.75 (1.56) (n=86)	**0.55 (0.04 to 1.06)**
	Engelbrektsson, 2023[62]	Long-term	**Comet Internet** 3.41 (1.81) (n=75)	**Comet Group** 2.88 (1.86) (n=86)	0.53 (-0.04 to 1.10)
	Ghaderi, 2018[63]	Immediate Posttreatment	**Comet Internet** 3.07 (2.07)[b] (n=109)[a]	**PMTO + MI** 2.72 (1.66)[b] (n=122)[a]	0.35 (-0.13 to 0.83)
	Ghaderi, 2018[63]	Long-term (52 weeks)	**Comet Internet** 2.72 (1.92)[b] (n=109)[a]	**PMTO + MI** 2.55 (1.50)[b] (n=122)[a]	0.17 (-0.27 to 0.61)
	Ghaderi, 2018[63]	Long-term (104 weeks)	**Comet Internet** 2.61 (1.80)[b] (n=109)[a]	**PMTO + MI** 2.38 (1.47)[b] (n=122)[a]	0.23 (-0.19 to 0.65)
Other Outcomes: SDQ-Total (Scale 0 to 40)	Palmer, 2019[64]	Immediate Posttreatment	**Triple P + SET** 12.26 (4.91) (n=34)	**Triple P Single Session** 11.80 (5.87) (n=28)	0.46 (-2.28 to 3.20)
	Palmer, 2019[64]	Intermediate term	**Triple P + SET** 13.60 (5.92) (n=33)	**Triple P Single Session** 12.72 (7.10) (n=24)	0.88 (-2.58 to 4.34)
	Ghaderi, 2018[63]	Immediate Posttreatment	**Triple P + SET** 13.45 (7.53)[b] (n=109)[a]	**Triple P Single Session** 12.39 (6.90)[b] (n=122)[a]	1.06 (-0.81 to 2.93)
	Ghaderi, 2018[63]	Long-term (52 weeks)	**Triple P + SET** 12.26 (7.58)[b] (n=109)[a]	**Triple P Single Session** 11.77 (6.81)[b] (n=122)[a]	0.49 (-1.38 to 2.36)
	Ghaderi, 2018[63]	Long-term (104 weeks)	**Triple P + SET** 13.18 (7.56)[b] (n=109)[a]	**Triple P Single Session** 11.05 (6.96)[b] (n=122)[a]	**2.13 (0.25 to 4.01)**
	Dadds, 2019[66]	Immediate Posttreatment	**Rural Face to Face** 17.22 (5.52) (n=46)	**Rural Internet** 18.36 (5.25) (n=45)	-1.14 (-3.38 to 1.10)
	Dadds, 2019[66]	Short-term	**Rural Face to Face** 16.97 (5.57) (n=46)	**Rural Internet** 18.49 (6.92) (n=45)	-1.52 (-4.13 to 1.09)
	Dadds, 2019[66]	Immediate Posttreatment	**Urban Face to Face** 14.00 (6.90) (n=24)	**Urban Internet** 14.81 (4.84) (n=27)	-0.81 (-4.13 to 2.51)
	Dadds, 2019[66]	Short-term	**Urban Face to Face** 12.39 (4.91) (n=24)	**Urban Internet** 14.96 (5.83) (n=27)	-2.57 (-5.62 to 0.48)

Outcome	Author, Year	Followup	PMT % (n/N) or mean (SD), n	Control % (n/N) or mean (SD), n	MD (95% CI)
Other Outcomes: IOWA Conners ODD (Scale NR)	Dadds, 2019[66]	Immediate Posttreatment	**Rural Face to Face** 9.65 (3.60) (n=46)	**Rural Internet** 9.00 (3.61) (n=45)	0.65 (-0.85 to 2.15)
	Dadds, 2019[66]	Short-term	**Rural Face to Face** 9.78 (4.11) (n=46)	**Rural Internet** 9.44 (4.01) (n=45)	0.34 (-1.35 to 2.03)
	Dadds, 2019[66]	Immediate Posttreatment	**Urban Face to Face** 7.33 (4.12) (n=24)	**Urban Internet** 8.59 (4.11) (n=27)	-1.26 (-3.58 to 1.06)
	Dadds, 2019[66]	Short-term	**Urban Face to Face** 7.38 (4.15) (n=24)	**Urban Internet** 9.70 (4.16) (n=27)	-2.32 (-4.66 to 0.02)

Abbreviations: CBCL = Child Behavior Checklist; CI = confidence interval; CCP = Child Centered Play; ECBI = Eyberg Child Behavior Inventory; EE = Emotional Engagement; FCT = Family Creative Therapy; IY = incredible years; MD = mean difference; NR = not reported; ODD = oppositional defiant disorder; PCIT= Parent–Child Interaction Therapy; PMT = Parent Management Training; PMTO = Parent Management Training – Oregon Model; PPP = Positive Parenting Program; SD = standard deviation; SE = Standard error; SET = Sufficient exemplar training; SDQ = Strength and Difficulties Questionnaire; SMD = standardized mean difference; TAU = treatment as usual; TIK = Tuning in to Kids

[a] Based on authors report of intention-to-treat analysis.

[b] SDs were calculated from SEs.

Parent-only Self-Help Interventions and Mindfulness-Based Interventions

Self-help interventions. Two RCTs (in 3 publications)[67-69] (total N=259 randomized) evaluated self-help programs for parents of school age children with primarily ODD and comorbid ADHD.

Self-help intervention versus waitlist control. One RCT[67] compared a psychoeducation plus behavioral parent training self-help intervention with a waitlist control group for parents of children diagnosed with ODD (80% clinical, 15% subclinical) and comorbid ADHD (78% clinical, 21% subclinical). The intervention was comprised of a manual and 11 online modules that detailed a particular technique (e.g., providing structure, praising appropriate and ignoring unwanted behavior, applying mild punishment) and was self-guided by the parent over 15 weeks. Parents in the intervention group were initially randomized to receive biweekly telephone support or no telephone support, however, the main analyses combine both conditions into one intervention group. Children whose parents received the self-help intervention showed a larger improvement (i.e., decrease) in ECBI intensity scores (N=101, mean difference (MD) -9.50, 95% confidence interval (CI) -17.45 to -1.55) posttreatment compared with those randomized to waitlist but the difference may not be clinically significant. In an exploratory analysis conducted by the authors, results showed that there were no significant differences between the telephone support and no telephone support conditions of the intervention.

Behavioral self-help intervention versus nonbehavioral self-help intervention. One RCT (in two publications)[68,69] compared two self-guided interventions, behavioral parent training versus non-behavioral parent training, for parents of children with externalizing behavior disorders (diagnoses

included ODD and comorbid ADHD in 55%, ODD only in 25% and ADHD only in 20%). Behavioral parent training consisted of behavior modification techniques (e.g., establishing rules, effective commands, positive and negative consequences) based on social learning principles and cognitive behavioral therapy; the therapist assumed a directive problem-solving role during sessions. Nonbehavioral parent training taught communication skills (e.g., empathic listening, not interrupting), conflict resolution methods, respect for others, democratic parenting, and child-centered cognitions based on humanistic psychology and nondirective therapy; the therapist assumed a nondirective role with a focus on congruence, unconditional positive regard, and empathy. Both interventions employed eight self-help booklets and 10 counseling phone calls (20 to 30 minutes durations) over 5 months and two booster calls within 3 months of completion of the initial program. Participants in the self-guided behavioral parent training group reported greater improvement (i.e., a larger decrease) in CBCL externalizing scores posttreatment compared with those who received nonbehavioral parent training (N=110, MD -3.74, 95% CI -7.20 to -0.28);[68] it is unclear whether this difference is clinically meaningful.

Mindfulness-based interventions. One RCT[70] compared a Mindfulness-Based Positive Behavior Support protocol, versus each component of that intervention alone, for parents of primarily male (83%) school-age children with autism and disruptive and aggressive behaviors. Mothers in the Mindfulness-Based Positive Behavior Support group received both mindfulness-based training (i.e., mindfulness training and related mediation practices) and positive behavior support training (e.g., skills training, function-based modification, development and implementation of a behavioral plan) while those in the Mindfulness-Based Training group received only the mindfulness and mediation practice component and those in the Positive Behavior Support group received only the positive behavior support training component of the protocol. Mothers in the combined and mindfulness-based only groups were encouraged to mediate for at least 20 minutes a day. All three interventions were delivered via a 3-day-long training after which the mothers implemented what they learned over a 30-week period and were required to keep a daily log via a smartphone app. Immediately posttreatment, children of mothers in all three treatment groups showed similar reductions in the mean number of daily disruptive behavior events and aggressive events (**Table H-2**). Over long-term followup (52-, 104- and 156-weeks posttreatment), according to the authors, Mindfulness-Based Positive Behavior Support and Mindfulness-Based Training alone continued to show a similar reduction in disruptive behavior and aggressive events, but Mindfulness-Based Positive Behavior Support was associated with a larger reduction in both types of events compared with Positive Behavior Support alone (**Table H-2**). Across both measures and all time points, estimates were imprecise. Disruptive and/or aggressive behaviors were eliminated only in children whose mothers received the Mindfulness-Based Positive Behavior Support protocol. Authors note that greater decreases in disruptive and aggressive behavior events were correlated with increasing meditation practice by the mothers.

Table H-2. Behavioral outcomes from Singh, et al. 2021[70] comparing MBPBS versus MB alone and PBS alone in school age children

Outcome[a]	MBPS vs. MB or PBS	Immediately Posttreatment or Followup Time	MBPS Mean (SD), n	MB or PBS Mean (SD), n	MD (95% CI)[b]
Mean number of daily disruptive behavior events (mother daily log)[c]	MBPS vs. MB	Posttreatment	8.69 (42.22) (n=60)	13.21 (36.49) (n=59)	-4.52 (-18.86 to 9.82)
	MBPS vs. MB	52 weeks	1.85 (43.15) (n=60)	7.88 (34.72) (n=59)	-6.03 (-20.26 to 8.20)
	MBPS vs. MB	104 weeks	0 (n=60)	3.82 (35.64) (n=59)	NC, p=NR
	MBPS vs. MB	156 weeks	2.09 (41.29) (n=60)	4.75 (36.49) (n=59)	-2.66 (-16.82 to 11.50)
	MBPS vs. PBS	Posttreatment	8.69 (42.22) (n=60)	14.25 (22.60) (n=56)	-5.56 (-18.15 to 7.03)
	MBPS vs. PBS	52 weeks	1.85 (43.15) (n=60)	15.99 (24.32) (n=56)	**-14.14 (-27.15 to -1.13)**
	MBPS vs. PBS	104 weeks	0 (n=60)	19.12 (22.60) (n=56)	NC, p=NR
	MBPS vs. PBS	156 weeks	2.09 (41.29) (n=60)	14.95 (23.42) (n=56)	**-12.86 (-25.33 to -0.39)**
Mean number of daily aggressive events (mother daily log)[d]	MBPS vs. MB	Posttreatment	2.88 (17.12) (n=60)	5.96 (15.98) (n=59)	-3.08 (-9.10 to 2.94)
	MBPS vs. MB	52 weeks	0 (n=60)	2.08 (15.90) (n=59)	NC, p=NR
	MBPS vs. MB	104 weeks	0 (n=60)	1.11 (15.36) (n=59)	NC, p=NR
	MBPS vs. MB	156 weeks	0 (n=60)	3.05 (15.90) (n=59)	NC, p=NR
	MBPS vs. PBS	Posttreatment	2.88 (17.12) (n=60)	4.86 (8.98) (n=56)	-1.98 (-7.06 to 3.10)
	MBPS vs. PBS	52 weeks	0 (n=60)	7.07 (8.98) (n=56)	NC, p=NR
	MBPS vs. PBS	104 weeks	0 (n=60)	5.12 (8.31) (n=56)	NC, p=NR
	MBPS vs. PBS	156 weeks	0 (n=60)	6.1 (8.76) (n=56)	NC, p=NR

Abbreviations: CI = confidence interval; MB = Mindfulness-Based training; MBPS = Mindfulness-Based Positive Behavior Support; MD = mean difference; NC = not calculable; NR = not reported; PBS = Positive Behavior Support; SD = standard deviation.

[a] Data was estimated from graphs in article.

[b] Bold indicates statistically significant difference.

[c] Disruptive behaviors/events were eliminated in children in the MBPS group at 104 weeks compared with MB and PBS groups; at 52 and 156 weeks there were only around 2 events per day in the MBPS group.

[d] Aggressive behaviors/events were eliminated in children in the MBPS group at 52, 104, and 156 weeks compared with MB and PBS group.

Child-Only Interventions

Child-Only Specific Skills Training

Description of Studies

Four RCTs (N=312)[9,37,44,45] compared child-only Specific Skills Training interventions with waitlist controls. Specific interventions included: (1) the child-training program (i.e., Dinosaur School)

component of the Incredible Years intervention, a performance-based program that uses both videotape modeling (i.e., vignettes) and real life modeling (i.e., fantasy play) to teach social skills, conflict resolution skills, and empathy and to address loneliness and negative attributions and problems at school (2 RCTs);[9,37] (2) Social Cognitive Intervention Program, a cognitive behavioral treatment comprised of social information processing, problem-solving abilities, social cognitive skills, and self-control techniques (1 RCT);[44] (3) Social Skills Training program that used behavioral techniques such as modeling, role-play, prompts, and reinforcement to teach various social skills and to improve interactions with peers (1 RCT);[44] and (4) Self-management Training and Regulation Strategy, a targeted behavior support program that integrated proven techniques from established behavioral interventions (i.e., teacher monitoring strategies and continuous feedback and daily guidance from trusted adults within the school environment) along with the addition of: direct instruction in social emotional learning skills, instructional strategies organized around a SAFE instructional framework (i.e., Sequenced training, Active learning modalities, Focused and sufficient exposure, Explicitly defined behaviors), and supportive opportunities for children to practice using the skills during a self-monitoring phase (1 RCT).[45] The intervention in the latter trial, Self-management Training and Regulation Strategy, was conducted at the school, classroom and student level; children received both group and individual sessions over 7 to 8 weeks (1 session per day for 9 days followed by 1 session per week for 6 weeks). Across the other interventions, children received weekly outpatient sessions (range 11 to 22 sessions, duration ranged from 70 to 120 minutes) in a group format (range 4 to 7 children).

Two RCTs[44,46] compared a child-only Specific Skills Training intervention with a different child-only intervention. One trial[44] compared Social Cognitive Intervention Program versus Social Skills Training; this trial also included a waitlist arm and details of the two Specific Skills Training interventions are described above. Children in this trial received 11 weekly sessions (70 minutes duration) in groups of four. The second trial[46] compared a social skills training program that uses computer assistance in addition to therapist-led individual therapy, versus a supportive, solution- and resource-activation treatment, which did not use computer assistance. Children who received the computer-assisted intervention learned problem-solving skills through a combination of different cognitive behavioral methods (e.g., modeling via video sequences and animated cartoon characters, role plays with therapist feedback, homework assignments); its main elements were video vignettes of five peer-related conflict situations. Children randomized to the intervention without computer assistance received treatment based on four different modules: psychoeducation, rapport building, and goal setting; self-discovery and exercises to boost self-esteem, confidence and acceptance; solution-oriented use of one's own resources to achieve individual goals in daily-life situations, with mindfulness techniques; and strengthening resources through therapist support, family involvement, and solution-oriented exercises. Children in this trial received 16 weekly individual 50-minute sessions.

Detailed Analysis

Specific skills training versus waitlist. Each RCT reported a different measure of disruptive behavior (**Table H-3**). One trial found that Incredible Years Child Training was associated with a moderate improvement in ECBI intensity scores compared with waitlist over the short term.[9] Children who received Self-management Training and Regulation Strategy showed greater short-term improvement in Elementary School Success Profile-Teacher-rated disruptive behavior subscale scores versus waitlist in a second trial, but it is unclear if the difference is clinically meaningful.[45] The third RCT reported similar Child Behavior Checklist (CBCL) externalizing scores posttreatment for children who received Social Cognitive Intervention Program and Social Skills Training compared with those in a waitlist

control.[44] Long-term, children in the intervention groups continued to show similar improvement, however, there was no comparison with the children in the control group at this timepoint. Two RCTs that compared Incredible Years Child Training with a waitlist control reported that similar proportions of children in both groups scored in the non-clinical range (i.e., "recovered") on the CBCL externalizing and ECBI intensity scales at followup (**Table H-3**).

Table H-3. Outcomes from Specific Skills Training interventions versus waitlist

Outcome	Author, Year	SST Intervention	Immediately Posttreatment or Followup time	SST mean (SD), n; or % (n/N)	TAU/WL mean (SD), n; or % (n/N)	MD (95% CI) or RR (95% CI)
CBCL Externalizing (T-scores)	van Manen, 2004[44]	SCIP	Posttreatment	63.31 (10.75) (n=42)	63.71 (7.06) (n=15)	MD -0.40 (-6.39 to 5.59)
	van Manen, 2004[44]	SCIP	52 weeks	58.76 (10.81) (n=42)	NR	NA
	van Manen, 2004[44]	Social Skills Training	Posttreatment	61.6 (8.41) (n=40)	63.71 (7.06) (n=15)	MD -2.10 (-7.01 to 2.79)
	van Manen, 2004[44]	Social Skills Training	52 weeks	59.4 (10.67) (n=40)	NR	NA
ECBI Intensity scores (range, 36 to 252)	Webster-Stratton, 1997[9]	IY Child Training	8 weeks	121.7 (22.96) (n=27)	155.57 (27.86) (n=22)	MD -33.87 (-48.47 to -19.27)
	Webster-Stratton, 1997[9]	IY Child Training	60 weeks	117.73 (32.93) (n=27)	NR	NA
ESSP-T, Behavior at Schools Subscales (scale NR)	Thompson, 2014[45]	STARS	Posttreatment	0.714 (0.145) (n=60)	0.647 (0.141) (n=48)	Adjusted MD[a] 0.12 (0.04 to 0.20)
T-score <60 on CBCL externalizing (i.e., score in nonclinical range)	Webster-Stratton, 1997[9]	IY Child Training	8 weeks	37.0% (10/27)	27.3% (6/22)	RR 1.36 (0.59 to 3.15)
Nonclinical range: scores <142 on ECBI (i.e., score in nonclinical range)	Webster-Stratton, 2004[37]	IY Child Training	Posttreatment	63.2% (NR)	40.0% (NR)	p=NS per authors
	Webster-Stratton, 2004[37]	IY Child Training	52 weeks	66.7% (NR)	NR	NA

Abbreviations: CBCL = The Child Behavior Checklist; CI = confidence interval; ECBI = Eyberg Child Behavior Inventory; EESP-T = Elementary School Success Profile-Teacher; MD = mean difference; NA = not applicable; NR = not reported; SCIP = Social Cognitive Intervention Program; SD = standard deviation; SST = Specific Skills Training; STARS = Self-Management Training and Regulation Strategy; IY = Incredible Years.

[a] As reported by authors; scores adjusted for baseline and student characteristics (not specified).

[b] Out of those who were clinical (>142) at baseline, sample sizes unclear.

Specific skills training versus other child-only interventions. One trial compared Social Cognitive Intervention Program versus Social Skills Training[44] and reported similar CBCL externalizing T-scores for children in both groups posttreatment (N=82, MD 1.71, 95% CI -2.55 to 5.97) and long term at 52 weeks (N=82, MD -0.64, 95% CI -5.36 to 4.08). The proportion of children no longer meeting diagnostic criteria for CD, ODD or DBD-not otherwise specified based on the parent weekly report was also similar between those who received Social Cognitive Intervention Program versus Social Skills Training (61.5% [24/39] vs. 50% [16/32], relative risk [RR] 1.23, 95% CI 0.80 to 1.88).

One RCT[46] compared a computer-assisted social skills training program versus a resource-activation treatment that did not use computer assistance, reported similar improvement in parent-rated CBCL total

scores (N=100, MD -0.05, 95% CI -0.13 to 0.03) and Symptom Checklist for Disruptive Behavior Disorders total scores (N=100, MD -0.09, 95% CI -0.21 to 0.03) posttreatment for children in both groups, respectively. The likelihood of clinical improvement (i.e., a shift from clinical to nonclinical range) was similar for children who received the social skills training program versus the resource activation treatment based on normative comparisons for the Symptom Checklist for Disruptive Behavior Disorders total score (42% [20/48] vs. 28% [14/50]; RR 1.49, 95% CI 0.85 to 2.60).

Child-Only CBT-Based Interventions

Description of Studies

Three RCTs[38-40] (total N=450) compared child-only CBT-based interventions versus waitlist or no intervention for the treatment of disruptive disorders in school age participants. One trial indicated that participants met a DSM diagnosis for disruptive behaviors.[38] Specific CBT-based interventions included self-determination training (i.e., Field and Hoffman's model comprised of five components: know yourself, value yourself, plan, act, and experience outcomes and learn),[39] Tuning Your Temper (a brief CBT program focused on emotional regulation and based on strategies such as arousal reduction, problem solving and perspective taking),[40] and a culturally sensitive CBT protocol specifically adapted to the Puerto Rican culture.[38] The number of treatment sessions ranged from 6 to 16 (range, 50-90 minutes duration); CBT was delivered weekly in a group setting.

Each RCT reported a different measure of disruptive behavior. One RCT[39] reported lower (i.e., improved) CBCL externalizing scores immediately postintervention for children who received self-determination training compared with no treatment (scale unclear, N=30, MD -7.60, 95% CI -12.44 to -2.76). Across the other two trials, scores were similar between children who received the treatment versus the waitlist condition on SDQ conduct subscales scores immediately posttreatment for Tuning Your Temper (1 RCT, N=125, MD -2.65, 95% CI -7.19 to 1.88)[40] and Bauermeister School Behavior Inventory Irritability/Hostility subscale scores 1 week after the end of culturally sensitive CBT (1 RCT, N=204, p=0.51 for boys and p=0.63 for girls for group by time interactions).[38]

Child-Only Play Therapy

Description of Studies

Two RCTs[41,42] evaluated Play Therapy for school-age children diagnosed with ODD (2 RCTs)[42] or with clinical-level symptoms of ODD or CD.[41] Children with intellectual disabilities were excluded and authors did not specify comorbid diagnoses. One RCT[42] randomized children to 8 weekly sessions of play therapy delivered individually, play therapy delivered in a group setting or to an undefined control group. Play therapy was identical in both groups (other than delivery format) and consisted of collaboration, playing with toys, family art, role playing, identifying emotions, puppet shows, emotion training and management, and games. The second RCT[41] compared 12, weekly sessions of individual sandplay therapy versus a waitlist control. Sandplay therapy was not further described.

Detailed Analysis

Play therapy versus waitlist or an unspecified control group. Children who received play therapy (individual, group and sandplay) showed substantially greater improvement in CBCL scores compared

with control groups posttreatment and at short-term followup across the trials (**Table H-4**). However, trials were very small and results should be interpreted cautiously.

Table H-4. Child-only interventions in school age children: Play Therapy compared to waitlist or control

Outcome	Author, Year	Play Therapy	Immediately posttreatment or followup time	Play Therapy mean (SD), n	WL/control mean (SD), n	MD (95% CI)
CBCL – ODD symptoms subscale (parent) (scale 0-10)	Morshed, 2019[42]	Individual play therapy	Posttreatment	2.87 (0.91) (n=15)	7.07 (2.34) (n=15)	**-4.20 (-5.53 to -2.87)**
	Morshed, 2019[42]	Individual play therapy	8 weeks	3.36 (1.44) (n=15)	6.53 (2.29) (n=15)	**-3.17 (-4.60 to -1.74)**
	Morshed, 2019[42]	Group play therapy	Posttreatment	2.00 (0.65) (n=15)	7.07 (2.34) (n=15)	**-5.07 (-6.35 to -3.79)**
	Morshed, 2019[42]	Group play therapy	8 weeks	3.13 (1.12) (n=15)	6.53 (2.29) (n=15)	**-3.40 (-4.75 to -3.05)**
CBCL – Externalizing scale (scale NR)	Chalfon, 2022[41]	Sandplay therapy	Posttreatment	12.28 (7.87) (n=18)	23.84 (4.78) (n=20)	**-11.56 (-15.79 to -7.33)**

Abbreviations: CBCL = Child Behavior Checklist; CI = confidence interval; MD = mean difference; ODD = oppositional defiant disorder; SD = standard deviation; SDQ = Strengths and Difficulties Questionnaire.

Individual play therapy versus group play therapy. One RCT[42] compared Play Therapy delivered in two different formats: individual and group. This trial also included an unspecified control group and details of the play therapy interventions are described above; other than the format, the interventions were identical. Children who received individual group therapy showed slightly less improvement in CBCL ODD subscale scores immediately posttreatment (N=30, MD 0.87, 95% CI 0.29 to 1.46) but by 8 weeks the scores between groups were similar (N=30, MD 0.23, 95% CI -0.73 to 1.19).

Child-Only Mindfulness-Based Interventions

Description of Studies and Detailed Analysis

One RCT[47] (N=30) evaluated a mindfulness-based intervention, “Mindfulness Matters", for the treatment of externalizing disorders in school age boys. The authors did not indicate that children had a DSM diagnosis for disruptive behaviors, but all were in the clinical range on the CBCL at baseline. Mindfulness Matters was comprised of eight, 1-hour sessions that covered the following themes: attention, body awareness and conscious movement, use of multiple senses to understand the world, feeling and accepting feelings (of self and others), and being nice (practicing loving kindness). The treatment was delivered weekly for 8 weeks in groups of four to six boys. A waitlist condition was used for the control group. At end of treatment, boys who received Mindfulness Matters showed a larger improvement on both the CBCL rule breaking behaviors scale (N=24, MD -3.57, 95% CI -4.72 to -2.42) and CBCL aggressive behaviors scale (N=24, MD -3.17, 95% CI -5.07 to -1.27) versus those in the waitlist group.

Multicomponent Treatment: Parent Management Training Versus Treatment As Usual Or Waitlist

Description of Studies

Project support parent management training versus treatment as usual. In two small (Ns=36 and 66 families) trials[1,2] conducted by the same author group, mother/child pairs were recruited from

women's domestic violence centers. The Project Support PMT intervention focused on teaching child management skills to mothers who had experienced intimate partner violence and providing them with instrumental and emotional support with the goals of improving child conduct and reducing maternal psychiatric symptoms. Project Support was provided via approximately weekly sessions (1 to 1.5 hours) in the family's post-shelter residence for up to 8 months. In the smaller trial (N=36), the child's mean age was 5.7 years but was not reported in the larger (N=66).

PCIT parent training versus treatment as usual or waitlist. Three RCTs (N range 23 to 81, total 159) evaluated PCIT versus TAU (details not provided)[3,4] or waitlist.[5] PCIT sessions were conducted weekly for 60-90 minutes; one trial specified 16 sessions,[5] another reported that average of 21 sessions were completed during the study[4] and the third trial did not specify the number of sessions.[3] Children in the three RCTs were predominantly male (50% to 89%) and in two trials reporting ethnicity, predominantly white (65% and 89%).[3,5] Differences between active treatment versus TAU/waitlist is noted in the larger of these RCTs for white (56% vs. 76%) and Black participants (23% vs. 8%).[3] Child age varied; one trial reported a mean of 5.8 years,[4] another a mean of 7 years[3] and the third provided a range of 2.5 to 7 years.[5] Two trials were in children with ASD[3,5] and the third excluded children with ASD. In one trial of children with ASD, 54 percent of children were prescribed medications (not specified) for behavioral issues at baseline.[4]

Incredible years parent training versus waitlist. Two multi-arm RCTs compared multicomponent (i.e., parent and child) Incredible Years parent management training with waitlist, as well as to a parent-only and a child-only intervention[9] or parent-only interventions.[10] Comparisons of the multicomponent with the parent- or child-only interventions are described in other sections. One trial (N=44)[9] enrolled children scoring ≥2 standard deviations above the mean on the ECBI, who met DSM-III-R criteria for ODD and for CD and had ≥ 6 month history of misconduct problems. In the other trial (N=85)[10] most children had an ODD diagnosis (82%) and 35 percent had a diagnosis of ADHD. Incredible Years was delivered in 2 hour sessions for 12-14 weeks[10] or 22 to 24 weeks[9] via group sessions for parents and group sessions for children.

Other parent management training versus waitlist. Three RCTs compared various types of PMT to waitlist or compared PMT to TAU.[6-8]

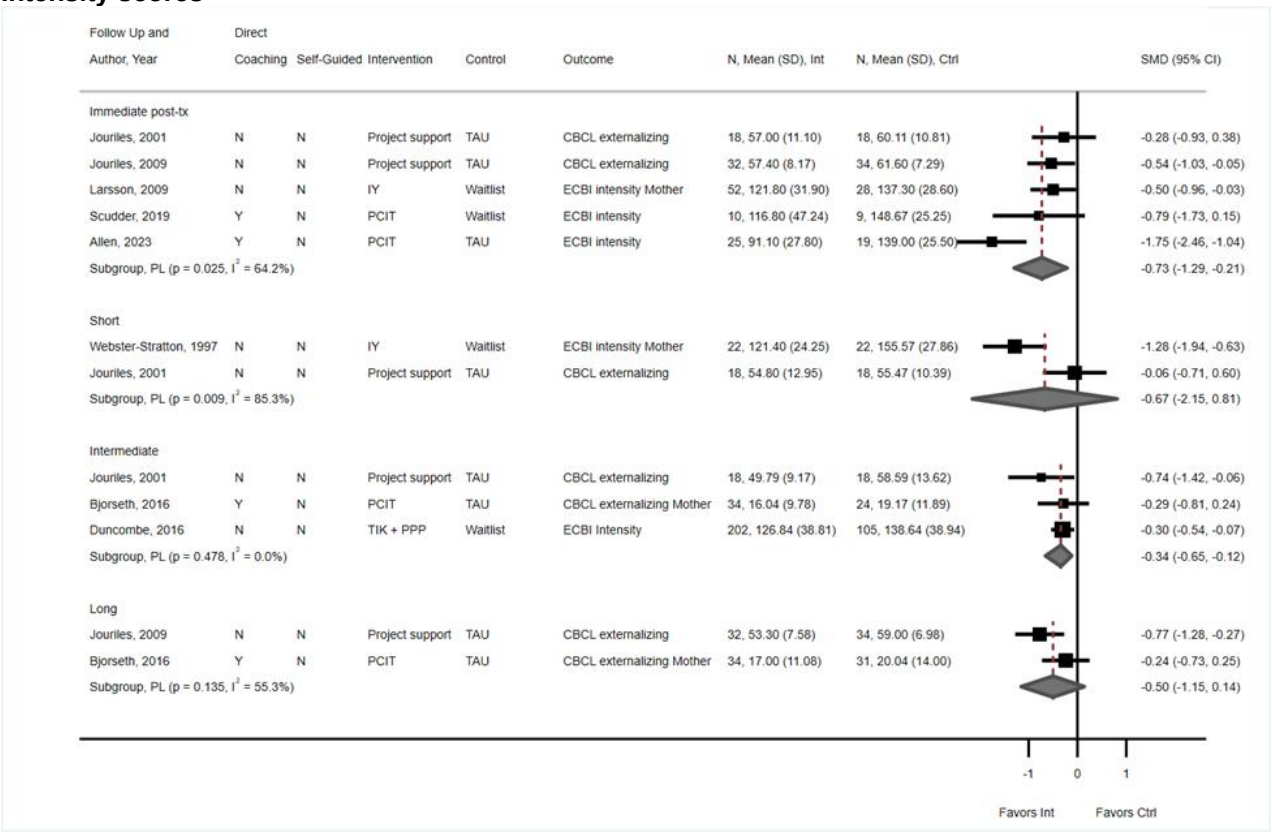
One RCT (N=134)[6] in children at a mean age of 10 years with diagnosed ODD compared manualized PMT with waitlist. PMT consisted of 12, 75-minute sessions involving both parent and child and one followup session. Most children also had a diagnosis of ADHD (68%) and anxiety disorder (63%); 25 percent were on stable doses of ADHD stimulant medications. Attrition was substantial with posttreatment data available for 66 percent of participants and for 43 percent at 6 months.

A three-arm, cluster RCT[7] randomized schools to one of two multisystemic PMT programs, Triple P or TIK or to waitlist. Children with a Z-score of ≥1 on the parent and teacher report of the Conduct Problems Risk Screen were deemed to be at risk and were eligible; baseline scores on the ECBI intensity scale were >140 for all groups. Baseline assessment of 373 children across 41 schools was done with 320 participants allocated to one of the three arms. Both the Triple P and TIK involved eight 2-hour weekly parenting group sessions and home activities. All children participated in eight 90-minute sessions. Large proportions of children randomized to Triple P and TIK did not receive allocated treatments (22% and 24%) and loss to followup (questionnaires were not returned) in all arms was substantial (34%, 25% and 37% for Triple P, TIK and waitlist respectively). Authors used imputation for intention to treat analyses.

Another cluster RCT from the same author group[8] randomized 37 schools to an expanded TIK or waitlist. TIK was expanded to include one of two universal school programs depending on the school's choice or program availability with the goal of maximizing the school's capacity to work with at-risk children. One curriculum-based program delivered by teachers to all students in their classes included materials related to emotional understanding, social-cognitive skills and self-control. The other program used a series of topics (e.g., building student-teacher relationship, managing behaviors, responding in emotionally responsive ways) with the goal of enhancing teacher's knowledge of social and emotional development. Baseline assessment was done in 231 children, however 22 of the 113 children (19%) in the TIK group did not receive the intervention and attrition across both groups was substantial (26% for TIK, 36% for waitlist). Authors imputed scores for intention to treat analyses.

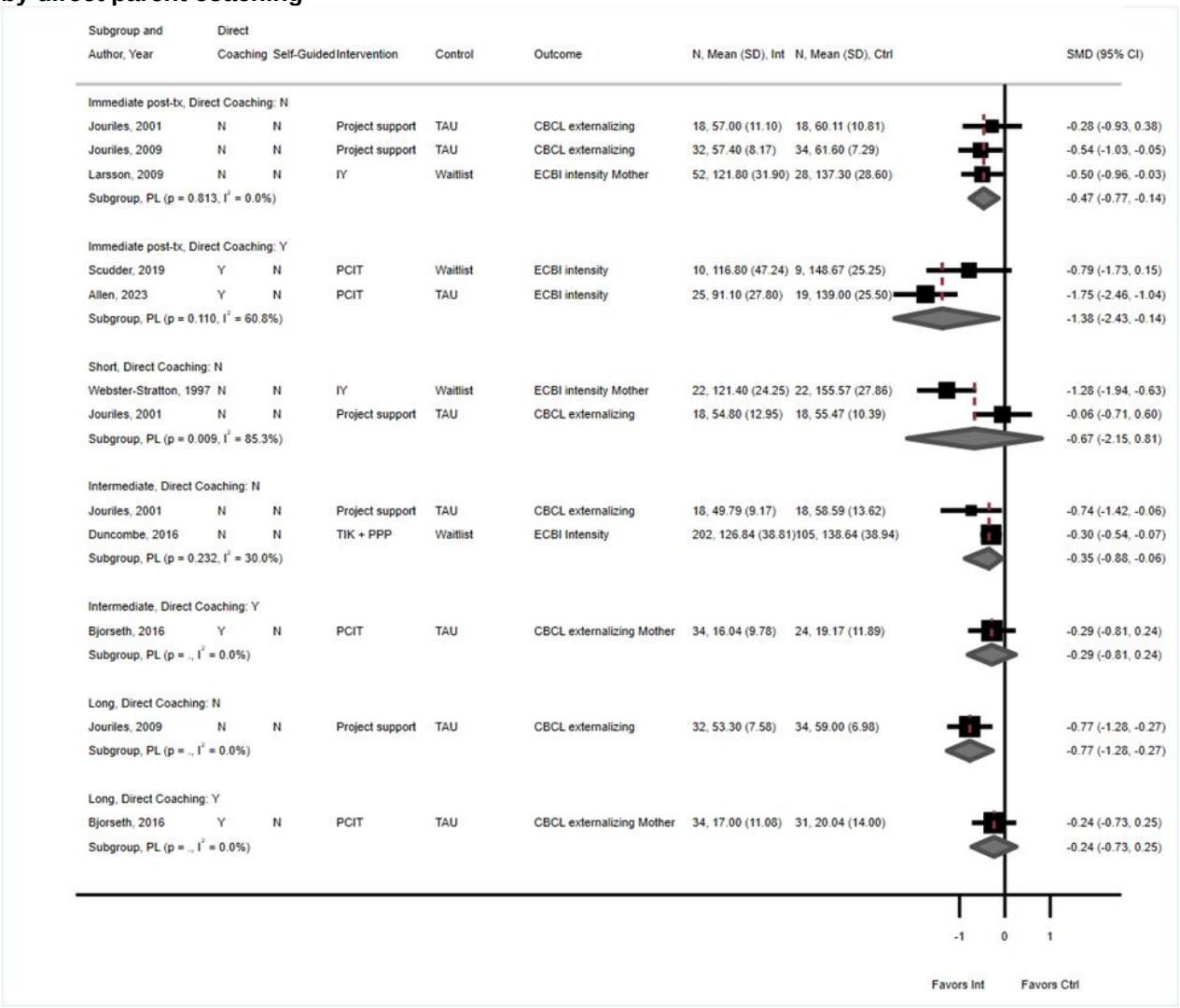
Pooled Results: CBCL Externalizing, ECBI Intensity, or ECBI Problem Scores

Figure H-4. Comparison of multicomponent PMT with TAU or waitlist: CBCL externalizing or ECBI Intensity scores



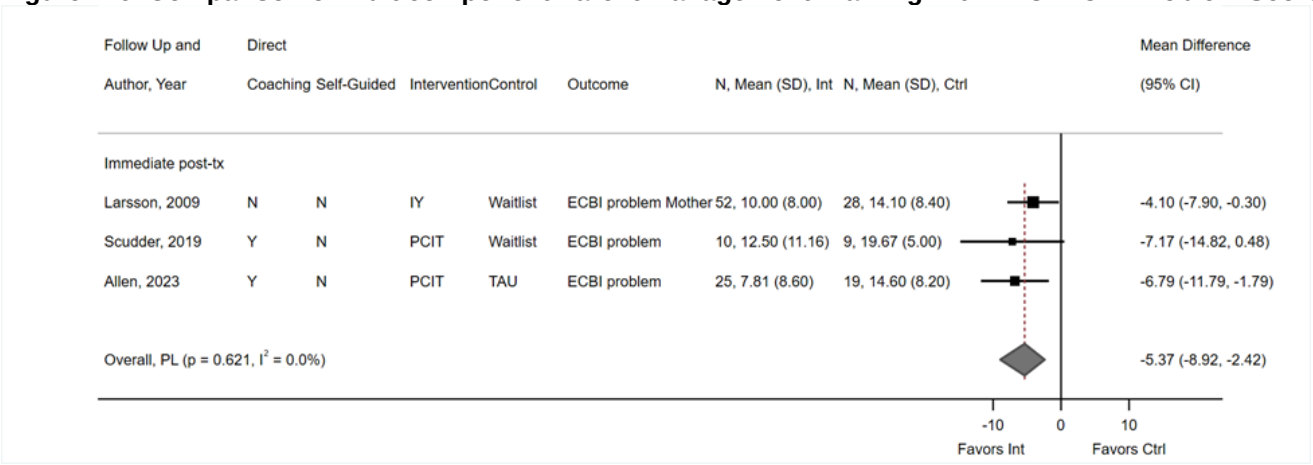
Abbreviations: CBCL = Child Behavior Checklist; CI = confidence interval; Ctrl = control; ECBI = Eyberg Child Behavior Inventory; Int = intervention; IY = Incredible Years; PCIT = Parent–Child Interaction Therapy; PMT = Parent Management Training; PPP = Positive Parenting Program; SD = standard deviation; SMD = standardized mean difference; TAU = Treatment as Usual; TIK = Tuning into Kids

Figure H-5. Comparison of multicomponent Parent Management Training versus TAU or waitlist, stratified by direct parent coaching



Abbreviations: CBCL = Child Behavior Checklist; CI = confidence interval; Ctrl = control; ECBI = Eyberg Child Behavior Inventory; Int = intervention; IY = Incredible Years; PCIT = Parent–Child Interaction Therapy; PPP = Positive Parenting Program; SD = standard deviation; SMD = standardized mean difference; TAU = Treatment as Usual; TIK = Tuning into Kids

Figure H-6. Comparison of multicomponent Parent Management Training with TAU: ECBI Problem Score



Abbreviations: CI = confidence interval; Ctrl = control; ECBI = Eyberg Child Behavior Inventory; Int = intervention; IY = Incredible Years; PCIT = Parent–Child Interaction Therapy; SD = standard deviation; SMD = standardized mean difference; TAU = Treatment as Usual

Other Outcomes

Table H-5. Summary of instrument scores and measures not represented in the SMD plot(s)

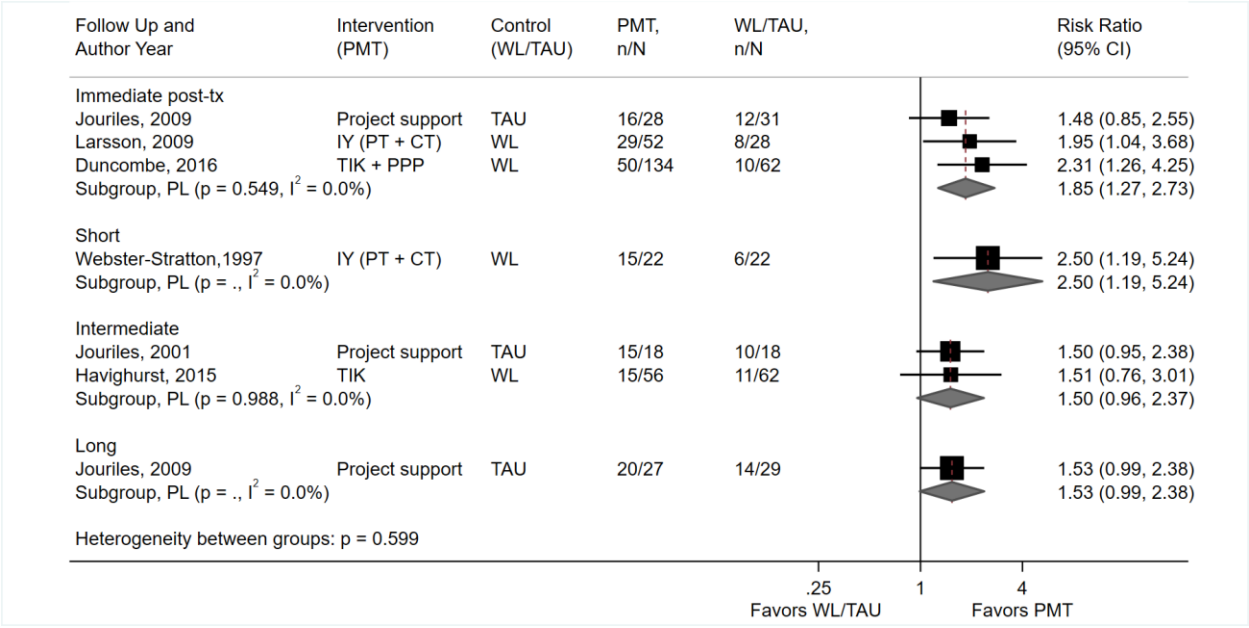
Outcome	Author, Year	Followup	PMT % (n/N) or mean (SD), n	TAU, Waitlist % (n/N) or mean (SD), n	MD (95% CI)
ECBI Intensity raw scores	Jouriles, 2009[2]	Immediate Posttreatment	102.5 (NR) (n=32)	102.7 (NR) (n=34)	MD -0.2 (IC) p<0.05
	Bjorseth, 2016[4]	Intermediate term	122.65 (11.51) (n=34)	132.38 (32.78) (n=24)	MD -9.73 (-21.90 to 2.44)
	Bjorseth, 2016[4]	Long term	120.50 (30.82) (n=34)	136.21 (29.80) (n=31)	**MD -15.71 (-30.77 to -0.65)**
	Jouriles, 2009[2]	Long term	82.8 (NR) (n=27)	103.8 (NR) (n=29)	MD -21 (IC) p<0.05
CBCL Aggression	Larsson, 2009[10]	Immediate Posttreatment	13.7 (8.6) (n=52)	17.2 (8.2) (n=28)	-3.50 (-7.45 to 0.45)
	Larsson, 2009[10]	Long-term	12.7 (7.4) (n=48)	NR	NR/incalculable
CBCL Total Problems	Webster-Stratton, 1997[9]	Short-term	57.05 (7.66) (n=20)	66.41 (7.21) (n=22)	**-9.36 (-13.99 to -4.72)**
	Webster-Stratton, 1997[9]	Long-term	112.15 (32.93) (n=22)	NR	NR/incalculable
BASC-2 externalizing (t-score)	Allen, 2023[3]	Immediate Posttreatment	16.04 (9.78) (n=34)	19.17 (11.89) (n=24)	MD -3.13 (-8.91 to 2.65)
BASC-2 aggression	Ollendick, 2016[6]	Immediate Posttreatment	57.86 (11.91) (n=63)	72.40 (10.85) (n=11)	**MD -14.54 (-22.20 to -6.88)**
SDQ-conduct	Duncombe, 2016[7a]	Intermediate term	TIK 2.88 (2.69) (n=107	3.64 (2.29) (n=91)	**MD -0.76 (-1.47 to -0.05)**
	Duncombe, 2016[7a]	Intermediate term	PPP 2.99 (2.38) (n=107)	3.64 (2.29) (n=91)	**MD -0.65 (-1.31 to -0.01)**
SDQ-total (teacher)	Havighurst, 2015[8]	Immediate Posttreatment	14.32 (7.44) (n=91)	15.88 (8.29) (n=113)	MD -1.56 (-3.76 to 0.64)

Abbreviations: CBCL = Child Behavior Checklist; CI = confidence interval; ECBI = Eyberg Child Behavior Inventory; MD = mean difference; PPP = Positive Parenting Program; SD = standard deviation; SMD = standardized mean difference; TAU = Treatment as Usual; TIK = Tuning in to Kids

[a]Duncombe had three arms and compared TIK and PPP with waitlist.

Proportion of children with scores in nonclinical/normal range following treatment. Six RCTs reported the proportions of children whose CBCL or ECBI scores were within normal range or below the clinical threshold.[1,2,7-10] The likelihood of achieving normal or subclinical scores was moderately higher for multicomponent PMT participants compared with waitlist or TAU immediately posttreatment (3 RCTs, N=335, 44% vs. 25%, RR 1.85, 95% CI 1.27 to 2.73),[2,7,10] in the short term (1 RCT, N= 44, 68% vs. 27%, RR 2.5, 95% CI 1.19 to 5.24),[9] intermediate term (2 RCTs, N= 154, 41% vs. 26%, RR 1.50 (95% CI 0.96 to 2.37)[1,8] and long term (1 RCT, N=56, 74% vs. 48%, RR 1.53, 95% CI 0.99 to 2.38) (**Figure H-7**).[2]

Figure H-7. Comparison of multicomponent PMT with TAU or waitlist: proportion of children achieving normal or subclinical scores



Abbreviations: CI = confidence interval; IY = Incredible Years; PCIT = Parent–Child Interaction Therapy; PMT = Parent Management Training; PPP = Positive Parenting Program; SD = standard deviation; TAU = Treatment as usual; TIK = Tuning into Kids; WL = waitlist

Multicomponent Parent Management Versus Controls Other Than TAU/Waitlist

Description of Studies

One trial (N=45) compared PCIT with Family Creative Therapy,[11] which involves parent, child and siblings with a focus on interaction and communication in the family as a whole across six phases, namely motivation, activation, stimulation, practicing skills, insight and stabilization. Family Creative Therapy emphasized non-verbal interaction and cooperation and required more parental input in formulating specific treatment goals versus PCIT. Family Creative Therapy consisted of 10, 1-hour sessions with a potential extension up to 15 sessions, while the number of 1-hour sessions for PCIT varied based on parent's mastery of Child-Directed Interaction (CDI) and Parent-Directed Interaction (PDI) skills. Therapist consultation and support were provided to parents during therapy sessions. For PCIT, parents were coached real time via wireless handset. For Family Creative Therapy sessions, a therapist perhaps consulted with or provided extra support to a parent while family members were working on tasks.

Two trials compared forms of technologically enhanced PMT with more traditional PMT delivery. One of these trials[83] compared technology-enhanced Helping the Noncompliant Child (HNC) with traditionally delivered HNC in families meeting criteria for low income (<150% of the Federal poverty level). Enhanced HNC consisted of parent support via smartphones to deliver skills videos, daily surveys of skill practice and progress, recording of home practice for review and feedback and mid-week video check-in in addition to session reminders and other messages. In the second trial,[12] enhanced PCIT consisted of a multimedia e-book that included imbedded videos and interactive features consistent with the CDI phase of PCIT, including practical examples of positive parenting skills, written and video content regarding the importance of treatment. Therapists suggested specific portions of the ebook to caregivers based on session observations to tailor caregiver learning and assist with skill practice.

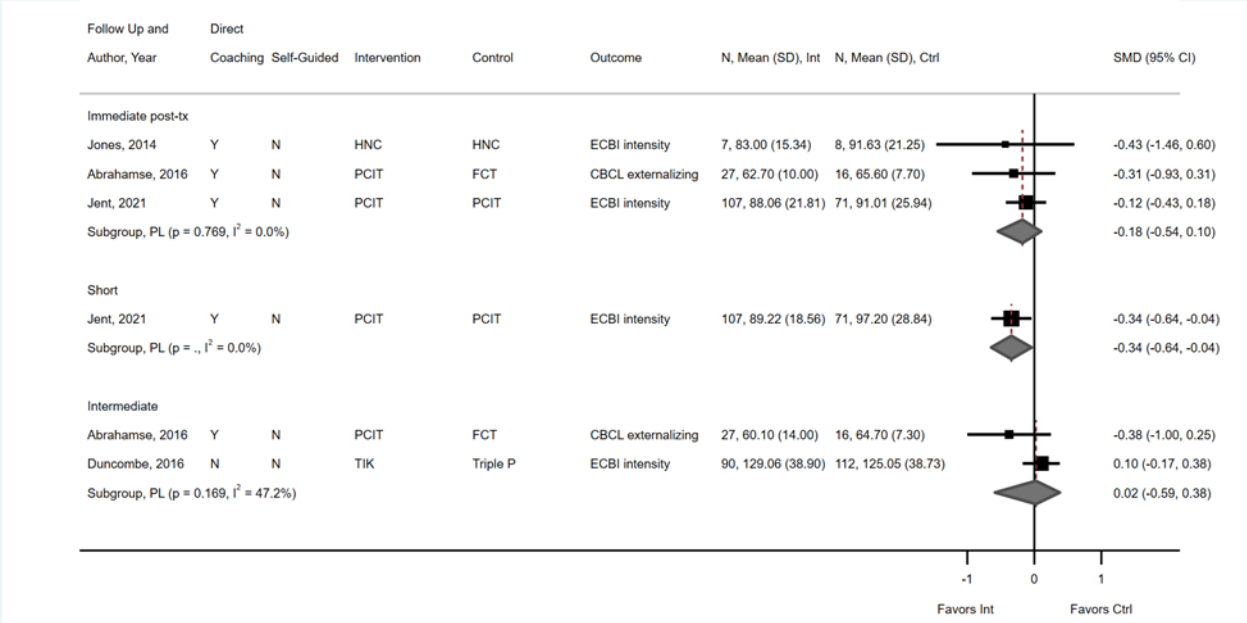
One trial[13] in children with conduct problems and high levels of callous-unemotional traits compared PMT plus a novel emotional engagement strategy involving reciprocated eye gazing between parent and child to PMT plus child-centered play. Therapy consisted of ten, approximately weekly, 1.5-hour sessions for both groups. After the first two sessions, the adjunctive therapies (emotional engagement and child-centered play) were woven into the remaining eight sessions.

A three-arm RCT cluster-randomized trial compared two multisystemic interventions; one to represent a more emotionally based approach (TIK) and the other to represent a more behavior-focused approach (Triple P) as well as to waitlist in children deemed at risk for conduct disorder.[7] Authors defined multisystemic interventions as those that included parent, child, and teacher. Only the parent management components/programs (Triple P, TIK) are reported here. Both Triple P and TIK involved eight, 2-hour weekly parenting group sessions and home activities. All children participated in eight 90-minute sessions. Large proportions of trial participants did not receive allocated treatments (Triple P 22% and TIK 24%) and loss to followup (questionnaires were not returned) was substantial (34% and 25%, respectively).

Two trials[9,10] compared multicomponent Incredible Years (parent and child) to delivery of Incredible Years to the parent only; one of these trials also compared multicomponent Incredible Years with Incredible Years delivered to the child only and to the parent only.[9] The number of 2-hour sessions ranged from 12 to 22 across these studies. A description of Incredible Years can be found in **Appendix G**.

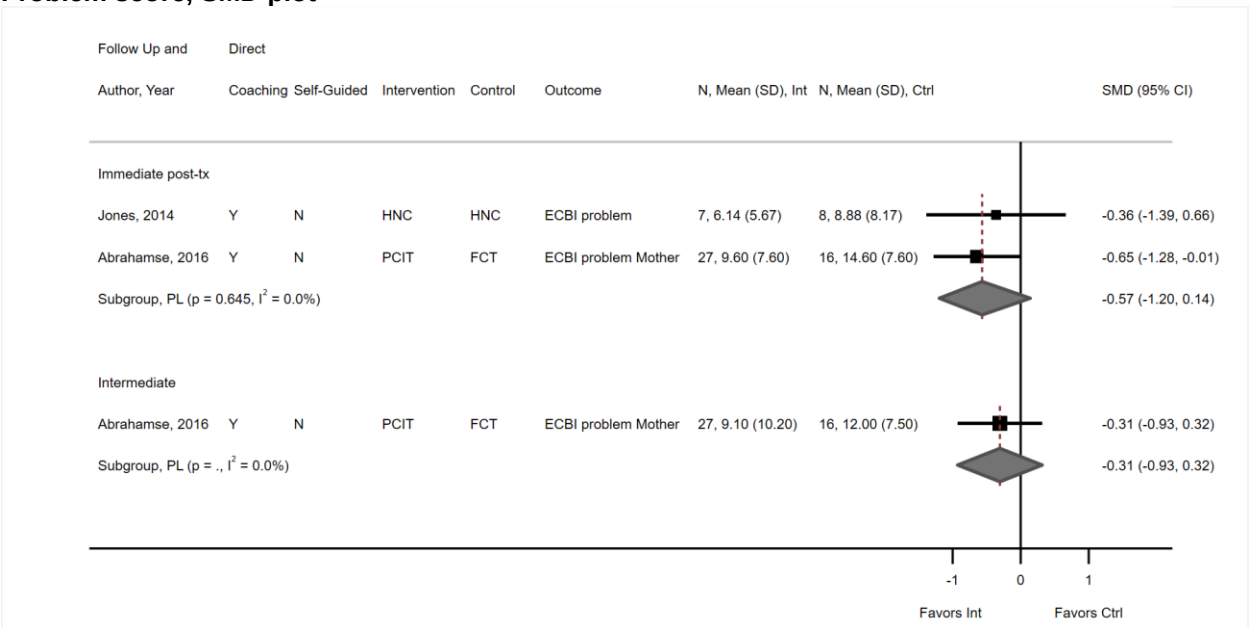
Pooled Results: CBCL Externalizing, ECBI Intensity, or ECBI Problem Scores

Figure H-8. Comparison of multicomponent PMT with multicomponent PMT: CBCL externalizing or ECBI Intensity scores



Abbreviations: Ctrl = control; CBCL = Child Behavior Checklist; ECBI = Eyberg Child Behavior Inventory; FCT = Family Creative Therapy; HNC = Helping the Noncompliant Child; Int = intervention; PCIT = Parent–Child Interaction Therapy; PPP = Positive Parenting Program (Triple P); SD = standard deviation; SMD = standardized mean difference

Figure H-9. Multicomponent Parent Management versus other multicomponent interventions, ECBI Problem score, SMD plot



Abbreviations: CI = confidence interval; Ctrl = control; ECBI = Eyberg Child Behavior Inventory; FCT = Family Creative Therapy; HNC = Helping the Noncompliant Child; IY = Incredible Years; PCIT = Parent–Child Interaction Therapy; PPP = Positive Parenting Program; SD = standard deviation; SMD = standardized mean difference; TAU = Treatment as Usual; TIK = Tuning into Kids

Table H-6. Summary of instrument scores and measures not represented in the SMD plots

Outcome	Author, Year	Followup	PMT % (n/N) or Mean (SD), n	Control % (n/N) or Mean (SD), n	MD (95% CI)
ECBI Intensity raw scores, (scale 36 to 252)	Abrahamse, 2016[11]	Posttreatment	**PCIT** 103.7 (36.4) (n=18)	**FCT** 137.8 (30.0) (n=25)	**MD -34.10 (-54.6 to -13.6)**
	Abrahamse, 2016[11]	Intermediate Term	**PCIT** 114.2 (46.7) (n=18)	**FCT** 133.2 (25.8) (n=25)	MD -19.00 (-41.5 to 3.5)
	Webster-Stratton, 1997[9]	Short-term	**Multicomponent PMT** IY Parent + child 121.40 (24.25) (n=22)	**Child or Parent Only** IY Child 121.70 (22.96) (n=27)	MD -0.30 (-14.27 to 13.67)
	Webster-Stratton, 1997[9]	Short-term	**Multicomponent PMT** IY Parent + child 121.40 (24.25) (n=22)	**Child or Parent Only** IY Parent 118.72 (28.28) (n=26)	MD 2.67 (-12.03 to 17.37)
	Larsson, 2009[10]	Posttreatment	**Multicomponent PMT** IY PMT 121.8 (31.90) (n=52)	**Child or Parent Only** IY parent only 116.50 (27.00) (n=45)	MD 5.30 (-6.42 to 17.02)
	Webster-Stratton, 1997[9]	Long-term	**Multicomponent PMT** IY Parent + child 112.15 (32.93) (n=22)	**Child or Parent Only** IY Child 117.73 (32.93) (n=24)	MD -5.58 (-27.7 to 14.5)
	Webster-Stratton, 1997[9]	Long-term	**Multicomponent PMT** IY Parent + child 112.15 (32.93) (n=20)	**Child or Parent Only** IY Parent 119.28 (31.69) (n= 26)	MD -7.13 (-25.51 to 11.25)
	Larsson, 2009[10]	Long-term	**Multicomponent PMT** IY 119.10 (31.40) (n=48)	**Child or Parent Only** IY Parent 121.30 (28.8) (n=40)	MD -2.02 (-14.79 to 10.39)
CBCL Total Problems, mother report (t-scores, scale NR)	Webster-Stratton, 1997[9]	Short-term	**Multicomponent PMT** IY Parent + child 57.05 (7.66) (n=20)	**Child or Parent Only** IY Child 61.71 (9.33) (n=27)	MD -4.66 (-9.89 to 4.88)
	Webster-Stratton, 1997[9]	Short-term	**Multicomponent PMT** IY Parent + child 57.05 (7.66) (n=20)	**Child or Parent Only** IY Parent 55.32 (8.40) (n=26	MD 1.73 (-3.12 to 6.58)
	Webster-Stratton, 1997[9]	Long-term	**Multicomponent PMT** IY Parent + child 57.7 (8.72) (n=20)	**Child or Parent Only** IY Child 58.57 (10.65) (n=24)	MD -0.87 (-6.87 to 5.13)
	Webster-Stratton, 1997[9]	Long-term	**Multicomponent PMT** IY Parent + child 57.7 (8.72) (n=20)	**Child or Parent Only** IY Parent 55.08 (10.55) (n=26)	MD 2.62 (-3.26 to 8.50)

Outcome	Author, Year	Followup	PMT % (n/N) or Mean (SD), n	Control % (n/N) or Mean (SD), n	MD (95% CI)
SDQ-conduct[a] (Scale 0-10)	Dadds, 2019[13]	Posttreatment	**PMT + EE** 4.68 (2.16) (n=20)	**PMT +CCP** 4.44 (2.0) (n=20)	MD 0.24 (-1.09 to 1.57)
	Dadds, 2019[13]	Short-term	**PMT + EE** 4.26 (2.26) (n=19)	**PMT +CCP** 4.06 (1.73) (n=16)	MD 0.20 (-1.21 to 1.61)
	Duncombe, 2016[7]	Intermediate	**TIK** 2.88 (2.69) (n=107)	**Triple P** 2.99 (2.38) (n=107)	MD -0.11 (-0.79 to 0.57)

Abbreviations: CBCL = Child Behavior Checklist; CI = confidence interval; CCP = Child Centered Play; ECBI = Eyberg Child Behavior Inventory; EE = Emotional Engagement; FCT = Family Creative Therapy; IY = incredible years; MD = mean difference; PCIT = Parent–Child Interaction Therapy; Triple P = Positive Parenting Program; SD = standard deviation; SMD = standardized mean difference; TIK = Tuning into Kids

[a] Dadds scores are mother-reported, Duncombe scores are teacher-reported

Multicomponent Interventions: Family Therapy

Description of Studies and Detailed Analysis

Family therapy versus treatment as usual. Three RCTs[14-16] reported family therapy interventions compared to treatment as usual. One RCT[15] (N=58) compared a multicomponent group psychotherapy intervention to an undefine control group in children with clinical levels of conduct disorders (CBCL externalizing scale T-scores ≥70). The intervention had three components: a 12-session parent program aimed at teaching skills for fostering positive parent-child relationships, promoting positive behaviors and effectively addressing problematic conduct; a 12-session child program designed to teach children how to identify and manage their emotions, develop self-control, solve problems, appreciate different perspectives, and enhance social skills; and an 8-session teacher program aimed at equipping educators with strategies to manage disruptive behaviors, foster collaboration with families, and cultivate appropriate conduct within the school environment. The sessions were conducted simultaneously in groups of 5 to 10 participants at the child's school. At a 5-year followup (at study entry, mean child age was 8 years), children of families in the program had lower CBCL externalizing scores than those in the control group (**Table H-7**).

A second RCT[14] (N=165) compared multifamily psychoeducational psychotherapy plus TAU with TAU alone for the treatment of school age children with mood disorders (70% bipolar, 30% depressive disorder) and comorbid ODD or CD (97%) and ADHD (90%). This was a secondary analysis of a RCT[84] which looked specifically at DBD outcomes. Multifamily psychotherapy consisted of eight, 90-minute, concurrent child and parent group sessions. Children were taught CBT strategies, problem solving and communication skills. Parent were taught resource acquisition, how to work effectively with service providers and parent management training skills. Treatment sessions began and ended with the children and parents together briefly and families had weekly projects. TAU consisted of medication management, school-based services, and other therapies. At 52 weeks, children who received multifamily psychoeducational psychotherapy had similar scores on the overall DBD, ODD and CD scales of the Children's Interview for Psychiatric Syndromes Child-Parent Form (**Table H-7**).

A third RCT[16] (26 schools, N=594) compared two variations of the culturally sensitive multiple family group therapy versus a bolstered TAU where children received usual care that consisted of mental health care support literature reinforced with school support materials. The multiple family group therapy intervention was a culturally adapted (Ugandan) version of the evidence-based "4Rs and 2Ss" program designed to enhance crucial skills and family dynamics including Rules, Responsibilities,

Relationships, Respectful Communication, Stress and Social Support. Participants, including children, adult caregivers, and siblings (age 6 or older) attended 16 group sessions (6 to 20 families). This trial evaluated two variations of this intervention: one delivered by parents and peers and the other by community health workers, all trained by the study team. Children who received the culturally adapted multifamily group therapy, regardless of who delivered it, reported lower (i.e., improved) scores on the Iowa Conners Rating Scale ODD subscale posttreatment compared with those who received bolstered TAU (**Table H-7**). When compared with one another, the parent and peer delivered and the community health worker delivered versions of the intervention were equally effective in reducing ODD symptoms (mean 2.8 vs. 2.8; MD 0.0, 95% CI -0.59 to 0.59).

In addition, one NRSI[73] (N=320) compared multiple family group therapy versus TAU (i.e., case management, individual and family therapy, medication management) for the treatment of primarily Latino (53%) or Black (30%) children diagnosed with ODD or CD. Family therapy was based on the "4Rs and 2Ss" program (Rules, Responsibilities, Relationships, Respectful Communication, Stress and Social Support). Participants, including children, adult caregivers, and siblings (age 6 or older) attended 16 weekly group sessions involving six to eight families. Children who received the multiple family group therapy intervention had lower (i.e., improved) scores on the Iowa Conners Rating Scale ODD subscale posttreatment and intermediate term (26 weeks) compared with those receiving TAU (**Table H-7**).

Table H-7. Results from studies comparing Multicomponent Family Therapy versus TAU or another control

Outcome	Author, Year Study Design	Family Therapy	Followup	Family therapy Mean (SD)	TAU/Control Mean (SD)	MD (95% CI)
CBCL – Externalizing (parent) (Scale NR)	Romero, 2017[15a] RCT	Group psychotherapy (child, parent, and teacher)	260 weeks	12.86 (8.36) (n=37)	21.20 (10.36) (n=21)	**-8.34 (-13.33 to -3.35)**
P-ChIPS, Overall DBD Symptoms (0-23)	Boylan, 2013[14] RCT	Multifamily psychoeducational psychotherapy (child and parent)	52 weeks	15.7 (8.5) (n=60)	17.8 (8.0) (n=61)	-2.10 (-5.07 to 0.87)
P-ChIPS, ODD Symptoms (parent) (SCALE 0-8)	Boylan, 2013[14] RCT	Multifamily psychoeducational psychotherapy (child and parent)	52 weeks	4.5 (2.6) (n=60)	4.9 (2.7) (n=61)	-0.40 (-1.35 to 0.55)
P-ChIPS, CD Symptoms (parent) (SCALE 0-15)	Boylan, 2013[14] RCT	Multifamily psychoeducational psychotherapy (child and parent)	52 weeks	1.8 (2.4) (n=60)	1.8 (2.4) (n=61)	0.00 (-0.86 to 0.86)
Iowa Conners Rating Scale – ODD (parent) (Scale NR)	Brathwaite, 2022[16b] (parent peer delivered) RCT	Culturally adapted multiple family group therapy ("4Rs and 2Ss") (child, parents, siblings)	Post treatment	2.8 (2.8) (n=173)	3.9 (3.3) (n=236)	**-1.13[c] (-1.71 to -0.49)**
Iowa Conners Rating Scale – ODD (parent) (Scale NR)	Brathwaite, 2022[16b] (community health worker delivered) RCT	Culturally adapted multiple family group therapy ("4Rs and 2Ss") (child, parents, siblings)	Post treatment	2.8 (2.9) (n=185)	3.9 (3.3) (n=236)	**-1.13[c] (-1.72 to -0.48)**
	Gopalan, 2015[73] NRSI	Multiple family group therapy ("4Rs and 2Ss") (child, parents, siblings)	Post treatment	7.74 (3.75) (n=177)	9.01 (3.81) (n=83)	**-1.27 (-2.26 to -0.28)**
	Gopalan, 2015[73] NRSI	Multiple family group therapy ("4Rs and 2Ss") (child, parents, siblings)	26 weeks	7.39 (3.87) (n=146)	8.83 (4.03) (n=75)	**-1.44 (-2.54 to -0.34)**

Abbreviations: CBCL = Child Behavior Checklist; CD = conduct disorder; CI = confidence interval; MD = mean difference; ODD = oppositional defiant disorder; P-ChIPS = Children's Interview for Psychiatric Syndromes - Parent Form; SD = standard deviation; SMD = standardized mean difference; TAU = treatment as usual; WL = waitlist.

[a] Study reports multicomponent group psychotherapy compared to a "control group". The control group was not defined.

[b] Brathwaite 2022 included three interventions. The two multifamily group therapies were identical in all ways other than one being delivered by parent peers, and the other delivered by community health workers. All facilitators were trained by the study team.

[c] MD (only) reported by authors in text.

Multicomponent Interventions: Specific Skills Training

Specific skill training. Three RCTs (in five publications)[17-21] and two NRSIs (in three publications)[77,78,80] evaluated multicomponent specific skills training interventions for the treatment of school age children with disruptive behaviors.

Specific skill training versus waitlist or treatment as usual. Two RCTs (in three publications)[17-19] and two NRSIs (in three publications)[77,78,80] compared multicomponent specific skills training interventions to TAU or waitlist.

Description of Studies and Detailed Analysis

The coping power program versus treatment as usual. One RCT (in two publications)[17,18] compared the Utrecht Coping Power Program with TAU for school age children diagnosed with DBD; 63 percent had comorbid ADHD. The Utrecht Coping Power Program is described in detail in **Appendix G**. Briefly, the Utrecht Coping Power Program is an adaptation of the Coping Power Program, that targets children with more significant emotional and behavioral difficulties. Children received 23 sessions and parents received 15 sessions over 9 months. TAU consisted of typical mental health services and included family therapy, behavior therapy, and various other treatments (e.g., parental guidance, play therapy). Posttreatment, children who received the Utrecht Coping Power Program had similar CBCL externalizing T-scores as those who received TAU.[17] At a 5-year followup,[18] children in both groups had similar National Youth Survey Questionnaire Delinquency scores and similar rates of alcohol or marijuana use in the past month (data not reported, $p>0.05$), but fewer children who received the Utrecht Coping Power Program reported cigarette use in the prior month compared with those who received TAU. Authors also reported drug-use over the lifetime, with similar rates of alcohol and cigarette use (data not reported, $p>0.05$) among children in both groups, but a lower lifetime use of marijuana in children who received the Utrecht Coping Power Program group versus TAU (**Table H-8**).

Two NRSIs (across three publications)[77,78,80] compared the Coping Power Program with TAU for school age children diagnosed with ODD (primarily) or CD; about a quarter of the children in both studies had comorbid ADHD. Both NRSIs are from similar author groups and it is unclear if there is overlap between the two study populations; one study[80] included a third treatment arm (Beyond the Clouds). For the purposes of this report, these study populations were treated as belonging to two separate studies. The Coping Power Program is described in detail in **Appendix G**; briefly, it is a multicomponent, evidence-based intervention program targeting children with elevated aggression and their parents or caregivers. Children received 24-36 sessions and parents received 16 sessions; sessions were delivered weekly over 12 months, in a group format. TAU consisted of a generic multicomponent CBT-based treatment model; the child and the parent received 36 weekly individual psychotherapy sessions (i.e., psychodynamic psychotherapy, systemic psychotherapy, play therapy) over the same period. Children who received the Coping Power Program had lower CBCL externalizing T-scores compared with those who received TAU posttreatment and long term at 52 weeks, but the effect was not maintained at the longest followup (261 weeks) in one NRSI (all analyses controlled for the use of medication during the treatment)[78] (**Table H-8**). Of note, by the longest followup in the latter study, children were now adolescents/adolescents (age 15-16 years). Similarly, in the second NRSI,[80] scores posttreatment on the rule breaking and aggression subscales of the CBCL were lower in children who received the Coping Power Program versus TAU (**Table H-8**). One study[77] reported that fewer children who received the Coping Power Program versus TAU were considered non-responders to treatment as rated by the clinician (Clinical Global Impression – Improvement scale score >2).

Table H-8. School age: Utrecht Coping Power Program or Coping Power Program versus waitlist or TAU

Outcome	Author, Year Study design	SST Control	Immediately posttreatment or followup time	SST Mean (SD) or % (n/N)	TAU/WL Mean (SD) or % (n/N)	MD (95% CI) or RR (95% CI)
CBCL Externalizing (T scores)	Van de Wiel, 2007[17] RCT	UCPP TAU	Posttreatment	69.61 (8.41) (n=38)	69.92 (9.27) (n=26)	MD -0.01 (-4.46 to 4.44)
NYSQ – Delinquency Scale (scale NR)	Zonnevylle-Bender, 2007[18a] RCT	UCPP TAU	261 weeks	1.2 (1.5) (n=30)	1.5 (1.5) (n=31)	MD -0.30 (-1.07 to 0.47)
Use of cigarettes in prior month[b]	Zonnevylle-Bender, 2007[18a] RCT	UCPP TAU	261 weeks	16.7% (5/30)	41.9% (13/31)	RR 0.40 (0.16 to 0.98)
Lifetime use of marijuana[b]	Zonnevylle-Bender, 2007[18a] RCT	UCPP TAU	261 weeks	13.3% (4/30)	35.5% (11/31)	RR 0.38 (0.13 to 1.05)
CBCL Externalizing (T scores)	Muratori, 2019[78c] NRSI	CPP TAU	Posttreatment	64.62 (6.58) (n=55)	67.61 (6.33) (n=42)	**MD -2.99 (-5.62 to -0.36)**
	Muratori, 2019[78c] NRSI	CPP TAU	52 weeks	60.71 (7.23) (n=55)	64.29 (9.14) (n=42)	**MD -3.58 (-6.88 to -0.28)**
	Muratori, 2019[78c] NRSI	CPP TAU	261 weeks	60.29 (5.58) (n=55)	62.17 (8.47) (n=42)	MD -1.88 (-4.71 to 0.96)
CBCL – Aggression subscale (T scores)	Muratori, 2017[80] NRSI	CPP TAU	Posttreatment	64.03 (6.58) (n=72)	70.23 (8.63) (n=72)	**MD -6.20 (-8.73 to -3.67)**
CBCL – Rule breaking subscale (T scores)	Muratori, 2017[80] NRSI	CPP TAU	Posttreatment	61.43 (6.53) (n=72)	64.97 (7.24) (n=72)	**MD -3.54 (-5.81 to -1.27)**
Non-responders to treatment (CGI-I score >2)	Muratori, 2017[77] NRSI	CPP TAU	52 weeks	16.7% (5/30)	68.2% (15/22)	RR 0.24 (0.10 to 0.57)

Abbreviations: CBCL = Child Behavior Checklist; CI = confidence interval; CPP = Coping Power Program; MD = mean difference; NR = not reported; NRSI = nonrandomized studies of interventions; NYSQ = National Youth Survey Questionnaire; Post-tx = posttreatment; RCT = randomized control trial; SD = standard deviation; SST = Specific Skills Training; TAU = treatment as usual; UCPP = Utrecht Coping Power Program

[a] companion paper to van de Wiel, 2007

[b] authors state that the groups did not differ (p>0.05) in their use of alcohol or marijuana in the past month or in their lifetime use of alcohol and cigarettes but did not provide data.

[c] companion paper to Muratori, 2017[77]

Reciprocal skills training versus waitlist. One RCT[19] (N=51) compared reciprocal skills training, either in a hospital or clinical setting, to waitlist. All children met the diagnostic criteria for ODD (100%) and 36 percent had comorbid ADD. Several baseline imbalances between the treatment groups are noted: twice as many children randomized to waitlist were diagnosed with ADD (58%) compared with those randomized to reciprocal skills training group (24%); the mean age of children were different across groups (7.6 years vs. 8.3 years vs. 9.3 years); and the children who received reciprocal skills training in a clinic setting were almost exclusively boys whereas the hospital setting and the waitlist group included about half boy and girls. The reciprocal skills training program used cognitive behavioral and family therapy principles to instruct parents in child management techniques and the fundamentals of positive parenting. Additionally, it focused on teaching families anger management and communication skills. The intervention was delivered over 10 weekly, 2-hour sessions in groups of 6 to

10 children plus their parents. Compared to waitlist, children in the reciprocal skills training group had lower T-scores on the CBCL externalizing scale posttreatment; both treatment settings (hospital and clinic) were equally effective in reducing scores compared with waitlist (**Table H-9**). Reciprocal skills training was associated with a greater likelihood of achieving remission (i.e., no longer meeting the DSM-IV criteria for ODD) compared with waitlist. The hospital setting as compared with the clinical setting for reciprocal skills training was associated with a greater likelihood of remission (RR 1.29, 95% CI, 1.00 to 1.67). However, as mentioned, there were many differences in potentially prognostic baseline characteristics between randomized groups, indicating these results must be interpreted with caution.

Table H-9. School age: Reciprocal Skill Training versus waitlist, results immediately posttreatment

Outcome	Author, Year Study Design	RST Setting	RST Mean (SD) or % (n/N	WL Mean (SD) or % (n/N)	MD (95% CI) or RR (95% CI)
CBCL T-scores Externalizing	Barrett, 2000[19] RCT	Clinic/ hospital	59.07 (10.10) (n=45)	74.00 (5.00) (n=12)	**MD -14.93 (-19.02 to -10.84)**
	Barrett, 2000[19] RCT	Clinic	59.8 (11.5) (n=23)	74.0 (5.0) (n=12)	**MD -14.2 (-21.32 to -7.08)**
	Barrett, 2000[19] RCT	Hospital	58.3 (8.4) (n=22)	74.0 (5.0) (n=12)	**MD -15.70 (-21.12 to -10.28)**
No longer met DSM-IV criteria for ODD	Barrett, 2000[19] RCT	Clinic/ hospital	84.4% (38/45)	33.3% (4/12)	**RR 2.53 (1.13 to 5.69)**
	Barrett, 2000[19] RCT	Clinic	73.9% (17/23)	33.3% (4/12)	**RR 2.22 (0.96 to 5.12)**
	Barrett, 2000[19] RCT	Hospital	95.5% (21/22)	33.3% (4/12)	**RR 2.86 (1.28 to 6.41)**

Abbreviations: CBCL = Child Behavior Checklist; CI = confidence interval; DSM-IV = Diagnostic Statistical Manual Fourth Edition; MD = mean difference; NR = not reported; ODD = Oppositional Defiant Disorder; Post-tx = posttreatment; RCT = randomized control trial; RR = risk ratio; RST = reciprocal skills training; SD = standard deviation; WL = waitlist.

Specific skill training versus other treatments. Two studies evaluated multicomponent specific skills training interventions compared to a child-only intervention (1 RCT, in 2 publications)[20,21] or to another multicomponent therapy (1 NRSI).[77]

One RCT[20,21] compared a CBT-based social competence training program with an educational group play intervention for school aged boys diagnosed with ODD (77%), CD (3%), or mixed disorder of conduct and emotions or hyperkinetic CD (20%) and who displayed overt peer-related aggressive behavior. Social competence training aimed to modify social cognitive information processing, impulse control, social problem solving, social skills and social interactions through personalized treatment using specific daily life situations and included parent-, teacher-, or peer-focused interventions as needed. The group play intervention utilized techniques to activate resources and provided the opportunity to practice cooperative and prosocial interactions and conflict resolution skills; no specific problem-solving techniques or other cognitive interventions were implemented and only the child was involved. The total treatment duration in both groups was 24 weeks; social competence training was delivered in 45-minute sessions once per week and group play therapy in 90-minute sessions every other week. Children who received social competence training had lower externalizing scores on the CBCL posttreatment (MD -0.15, 95% CI -0.25 to -0.05)[20] and at intermediate followup (43 weeks; MD -0.12, 95% CI -0.25 to 0.01)[21] and were more likely to achieve clinically significant improvements compared to those who participated in group play (**Table H-10**).

One NRSI[77] compared the Coping Power Program to a generic multicomponent program called Beyond the Clouds. This study also included a TAU arm; see above for population and intervention details. Beyond the Clouds utilized common CBT-based techniques applied however therapist saw fit and involved individual psychotherapy for the child and parent training for the parent. Treatment

sessions were delivered weekly over 52 weeks. Children who received the Coping Power Program had lower scores on the aggressive behavior and rule-breaking subscales of the CBCL posttreatment compared with children who received Beyond the Clouds; this difference between groups persisted long-term (52 weeks) for the rule-breaking scores only. Children in the Coping Power Program were less likely to be non-responders to treatment as those in the Beyond the Clouds group (17% vs. 38%) but the difference was not statistically significant (**Table H-10**).

Table H-10. School age: multicomponent interventions (Specific Skill Training versus other therapies)

Outcome	Author, Year Study Design	Intervention Comparator	Immediately posttreatment or followup time	Intervention Mean (SD) or % (n/N)	Comparator Mean (SD) or % (n/N)	MD (95% CI) or RR (95% CI)
CBCL externalizing scores (Scale NR)	Goertz-Dorten, 2019[20] RCT	SCT Group play	Posttreatment	0.44 (0.22) (n=50)	0.59 (0.28) (n=51)	MD -0.15 (-0.25 to -0.05)
	Giudice, 2022[21a] RCT	SCT Group play	43 weeks	0.31 (0.17) (n=41)	0.47 (0.30) (n=33)	MD -0.12 (-0.25 to 0.01)[b]
Clinically significant improvement (Stanine score <7 on SCL-DBD)	Goertz-Dorten, 2019[20] RCT	SCT Group play	Posttreatment	66% (33/50)	26% (11/41)	RR 2.46 (1.43 to 4.24)
Deterioration in symptoms on SCL-DBD[c]	Guidice, 2022[21a] RCT	SCT Group play	43 weeks	0% (0/41)	2.5% (1/33)	RR NC, p=0.42
No change in symptoms on SCL-DBD[c]	Guidice, 2022[21a] RCT	SCT Group play	43 weeks	10% (4/41)	39% (13/33)	RR 0.25 (0.09 to 0.69)
Improvement in symptoms on SCL-DBD[c]	Guidice, 2022[21a] RCT	SCT Group play	43 weeks	90% (37/41)	58.5% (19/33)	RR 1.57 (1.15 to 2.14)
CBCL aggressive behaviors subscale (T scores)	Muratori, 2017[77] Observational	CPP BtC	Posttreatment	64.97 (7.00) (n=33)	69.19 (6.00) (n=37)	MD -4.22 (-7.32 to -1.12)
	Muratori, 2017[77] Observational	CPP BtC	52 weeks	60.52 (5.77) (n=33)	64.43 (11.05) (n=37)	MD -3.91 (-8.19 to 0.37)
CBCL rule-breaking subscale (T scores)	Muratori, 2017[77] Observational	CPP BtC	Posttreatment	60.52 (5.00) (n=33)	65.27 (7.50) (n=37)	MD -4.75 (-7.83 to -1.67)
	Muratori, 2017[77] Observational	CPP BtC	52 weeks	58.06 (4.47) (n=33)	62.70 (8.90) (n=37)	MD -4.64 (-8.06 to -1.22)
Nonresponders to treatment (CGI >2)	Muratori, 2017[77] Observational	CPP BtC	52 weeks	16.7% (5/30)	38.2% (13/34)	RR 0.44 (0.18 to 1.08)

Abbreviations: BtC = Beyond the Clouds; CBCL = Child Behavior Checklist; CGI = Clinical Global Impression – Improvement; CI = confidence interval; CPP = Coping Power Program; MD = mean difference; NR = not reported; NRSI = nonrandomized study of interventions; RCT = randomized control trial; RR = risk ratio; SCL-DBD = Symptom Checklist for Disruptive Behavior Disorder; SCT = Social Competence Training program.

[a] Same trial/followup publication to Goertz-Dorten, 2019

[b] Differences between SCT and play therapy at 10 months were evaluated using linear mixed models for repeated measures with the fixed effects group, time, baseline value, and the interaction group by time.

[c] Cut-offs not defined.

Multicomponent Interventions: Collaborative Problem Solving

Collaborative problem solving versus multicomponent PMT and versus parent-only PMT. Three trials, involving similar author groups, compared Collaborative Problem Solving with PMT delivered to the parent only (1 RCT)[26] or modified to include the child (i.e., multicomponent) (2 RCTs).[6,25] One trial specifically included children with concurrent "affective dysregulation", defined as at least subthreshold features of either severe major depression or juvenile bipolar disorder.[26] The number of sessions ranged from 10 to 15 across the trials, lasted from 60 to 75 minutes per session and were delivered individually on a weekly basis. In two trials,[6,25] participants received one followup session 2 weeks following the last regularly scheduled session. One trial noted that the study was conducted in a community-based setting in Australia[25] and another in a rural setting in the United States.[6]

Table H-11. School age: Collaborative Problem Solving versus multicomponent PMT or parent-only PMT

Outcome	Author, Year	PMT Intervention	Immediately posttreatment or followup time	CPS Mean (SD) or % (n/N)	PMT Mean (SD) or % (n/N)	MD (95% CI) or RR (95% CI)
BASC-2 aggression scale (T-scores)	Ollendick, 2016[6]	PMT (plus child)	1 week	59.57 (14.48) (n=60)	57.68 (12.70) (n=63)	MD 1.89 (-2.97 to 6.75)
DBDRS (parent rated) (scale NR)	Murrihy, 2023[25]	PMT (plus child)	Posttreatment	3.37 (2.44) (n=81)	2.82 (2.31) (n=79)	MD 0.55 (-0.19 to 1.29)
	Murrihy, 2023[25]	PMT (plus child)	26 weeks	2.99 (2.56) (n=81)	2.80 (2.56) (n=79)	MD 0.19 (-0.61 to 0.99)
ODDRS (parent rated) (scale NR)[a]	Greene, 2004[26]	PMT (parent-only)	Posttreatment	21.4 (NR)	23.1 (NR)	MD NC, p>0.05
	Greene, 2004[26]	PMT (parent-only)	16 weeks	21.0 (NR)	24.8 (NR)	MD NC, p>0.05
Remission: ADIS CSR <4 (i.e., ODD diagnosis free)	Ollendick, 2016[6]	PMT (plus child)	1 week	48% (22/46)	49% (24/49)	RR 0.98 (0.64 to 1.48)
	Murrihy, 2023[25]	PMT (plus child)	Posttreatment	40.0% (26/65)	50.0% (33/66)	RR 0.80 (0.55 to 1.17)
	Murrihy, 2023[25]	PMT (plus child)	26 weeks	44.8% (26/58)	51.8% (29/56)	RR 0.87 (0.59 to 1.27)
Remission: on CGI-I scale (clinician rated) (score 1 or 2, much/very much improved)	Ollendick, 2016[6]	PMT (plus child)	1 week	47% (21/45)	46% (23/50)	RR 1.01 (0.66 to 1.56)
	Murrihy, 2023[25]	PMT (plus child)	Posttreatment	58.5% (38/65)	68.2% (45/66)	RR 0.86 (0.66 to 1.12)
	Greene, 2004[26b]	PMT (parent-only)	Posttreatment	71.4% (20/28)	47.4% (9/19)	RR 1.51 (0.89 to 2.56)
	Greene, 2004[26b]	PMT (parent-only)	16 weeks	80.0% (20/25)	43.8% (7/16)	**RR 1.83 (1.01 to 3.30)**
Clinically significant improvement on the ODDRS (≥25% from baseline)[c]	Greene, 2004[26]	PMT (parent-only)	Posttreatment	46.4% (13/28)	36.8% (7/19)	RR 1.26 (0.62 to 2.56)
	Greene, 2004[26]	PMT (parent-only)	16 weeks	60.0% (15/25)	37.5% (6/16)	RR 1.60 (0.79 to 3.25)

Abbreviations: ADIS CSR = Anxiety Disorders Interview Schedule Clinical Severity Rating scale; BASC-2 = Behavior Assessment System for Children-Second Edition; CGI = Clinical Global Impression Improvement Scale; CI = confidence interval; CPS = Collaborative Problem Solving; DBDRS = Disruptive Behavior Disorders Rating Scale; MD = mean difference; NC = not calculable; NR = not reported; ODD = oppositional defiant disorder; ODDRS = Opposition Defiant Disorder Rating Scale; PMT = Parent Management Training; RR = risk ratio; SD = standard deviation.

[a] Data estimated from graph in article.

[b] Proportions for Greene et al., 2004 were based on imputed data and denominators were back calculated using the numerators and percentages provided by the authors.

[c] Numerators for posttreatment were back calculated using sample that finished treatment and the percentages given in the text. At 16 weeks, all data was given in text.

Multicomponent Interventions: Multisystemic Therapy

Description of Studies

SNAP™ is a standardized program designed to address antisocial behavior in children aged 6 to 11 through a comprehensive, multisystemic approach. The program's implementation involves collaboration with local law enforcement, juvenile justice systems, schools, and other community organizations to identify early signs of serious violence and delinquency and establish a unified referral process. The core components of SNAP™ consist of concurrent 12-week sessions for both children (SNAP™ Children's Group) and parents (SNAP™ Parent Group), each lasting 90 minutes per week. In the children's groups, cognitive-behavioral self-control and problem-solving techniques are emphasized and the sessions are structured (arrival time/free play, teaching and reinforcement of self-control/problem-solving skill, recreation, snack, relaxation/end), with opportunities for unstructured/structured play, discussion, modeling, coaching and behavioral rehearsal. Parent groups focus on teaching effective child management techniques, and are structured (specific parent/child problem, applicable parenting skill, modeling, role-playing, discussion, homework, relaxation). Following completion of the group treatment component, children receive tailored SNAP™ components based on their individual needs. These additional components may include family counseling, booster sessions, academic support, school advocacy, and mentoring, among others.

Detailed Analysis

Stop Now and Plan (SNAP™) versus standard services or waitlist. One RCT compared SNAP™ with standard services.[22] Standard services were generally delivered on an individual basis and included "wraparound" services (high intensity, multidisciplinary services providing 10 or more service hours per week) as well as typical outpatient services provided by a psychiatrist, psychologist or social worker, group treatment, or other mental health services provided at community clinics or in private practices. Over half (53%) of the participants who received standard services engaged in the higher intensity "wraparound" services. SNAP™ was associated with lower T-scores at short-term followup and similar

scores at intermediate- and long-term followup on the CBCL externalizing scale compared with standard services (**Table H-12**).

Table H-12. Multicomponent interventions in school age children: SNAP versus standard services

Outcome	Author, Year Study Design	Followup	SNAP™ mean (SD), n or % (n/N)	Standard services mean (SD), n or % (n/N)	MD (95% CI) or RR (95% CI)
CBCL Externalizing (T-scores)[a]	Burke, 2015[22] RCT	13 weeks	68.20 (7.61) (n=116)	71.40 (6.85) (n=109)	**MD -3.20 (-5.09 to -1.31)**
	Burke, 2015[22] RCT	39 weeks	67.80 (9.26) (n=104)	69.50 (8.15) (n=102)	MD -1.70 (-4.08 to 0.68)
	Burke, 2015[22] RCT	65 weeks	65.70 (8.47) (n=110)	67.80 (9.12), (n=101)	MD -2.10 (-4.48 to 0.28)
Any Contact with Criminal System During Study[b]	Burke, 2015[22] RCT	65 weeks	12.2% (10/82)	22.4% (15/67)	RR 0.54 (0.26 to 1.13)

Abbreviations: CBCL = Child Behavior Checklist; CI = confidence interval; MD = mean difference; RCT = randomized controlled trial; RR = risk ratio; SD = standard deviation; SNAP = Stop Now and Plan.

[a] Means and variation were estimate from a graph in the article; we converted 95% CI was converted to SD.

[b] Denominators were back calculated. Only children over the age of criminal responsibility with consenting parents were included. The charges included contempt, failure to pay fines, terroristic threats, robbery and aggravated assault with injury

Multicomponent Interventions That Were Multimodal or Modular

Multicomponent multimodal intervention. There is insufficient evidence from one NRSI rated high risk of bias (N=135) that compared a multimodal treatment program (MTP) with TAU[72] provided by community health services. Treatment allocation was based on MTP availability; when MTP was not immediately available, patients were treated and followed by community services. The MTP consisted of weekly, 2-hour sessions over 52 weeks that included individual and group child therapy to improve problem solving and self-control and individual parent training to define the child's behavioral problems, learn interaction techniques and training to monitor conflict situations in order to apply new skills. There were no treatment constraints for the TAU group. Children reportedly received psychoeducation with periodic visits (1 to 2 hours/week) but only 30 children (42%) received individual psychotherapy and parents only received periodic psychoeducation (one or two per month). Direct coaching was not reported. Children were a mean age of 11 years. Study limitations include unclear patient selection methods, unclear attrition, and baseline differences in DSM-IV diagnosis and comorbidities (mood and learning disorders, Axis II disorders); authors did not adjust for these, although they did adjust for age and gender.

Multicomponent modular intervention. One index RCT (N=144)[28] and a related companion publication[29] compared conduct of a multicomponent MTP in the child's home, school and/or community settings (not further specified) with delivery of the same program in an outpatient clinic, although session content for some modules differed by setting. The MTP was delivered weekly and consisted of child CBT and skills training, ADHD medication, PMT, parent-child and family therapy, teacher consultations and school programming, peer relations and community development and crisis management. Treatment was terminated when family goals were met or a preference for termination was expressed. The completion rate (receipt of ≥ 15 service hours) was higher for children who received a home, school, or community setting versus a clinic setting (93.1% vs 73.6%); noncompleters were significantly more likely to be African American than completers (78.9% vs. 48.3%). Participants who had completed the above index RCT (N=129)[28] through 156 weeks posttreatment were re-randomized to a booster treatment or enhanced usual care[27] in the same setting as the index RCT (i.e., community or clinic). The age-appropriate booster treatment focused on three goals: 1) identify current problems based

on the final 156-week posttreatment followup to the index trial, 2) apply relevant old and new content modules and 3) provide recommendations for maintenance of outcomes and prevent functional deterioration. Treatment was continued until symptom or problem resolution was attained or a maximum of 15 treatment hours was attained. Session number and duration varied across the 26-week intervention based on family needs and preferences. Enhanced usual care consisted of a written summary of the 156-week evaluation from the index trial, referrals and treatment recommendations based on an outline of the child's diagnoses and individualized goals. A large proportion of children had comorbid ADHD (70%). Direct coaching was not reported in either trial.

CBCL externalizing scores. Raw CBCL externalizing scores were similar between the MTP delivered in the child's environment/community and MTP delivered in an outpatient clinic at all time points in one RCT[28] and related companion paper[29] (**Table H-13**). Raw CBCL externalizing scores were also similar between children/families receiving booster therapy and those receiving enhanced TAU at all time points **(Table H-14)**.

Other outcomes. The likelihood of remission (free of any DBD diagnosis) was similar for MTP delivery in the child's environment and an outpatient clinic at all time frames, as were the likelihoods of achieving CBCL externalizing scores in the normative range and being involved in the juvenile court system (**Table H-13**). The likelihood of the child continuing to meet criteria for ODD or demonstrating heighted externalizing problems was similar for children/families who received the booster treatment versus those who had enhanced TAU. Court involvement at 104 weeks was substantially more likely among children with booster treatment versus enhanced usual care, however. There were no differences between groups on a Substance Use Survey Interview or Suicide Ideation Questionnaire at any time **(Table H-13)**.

Table H-13. Multicomponent modular interventions: RCT (Kolko 2009[28]) comparing delivery methods (child's environment versus outpatient clinic) in school age children

Outcome	Followup	Child's environment % (n/N) or mean (SD), n	Clinic % (n/N) or mean (SD), n	RR (95% CI) or MD (95% CI)
CBCL Externalizing (raw scores)[28]	Immediate Posttreatment	19.74 (13.46), (n=69)	17.36 (113.23) (n=68)	MD 2.38 (-2.09 to 6.85)
	Long Term (156 weeks)	21.24 (14.48), (n=63)	20.84 (15.88), (n=66)	MD 1.34 (-2.96 to 5.64)
Remission (free of any DBD diagnosis)[28]	Immediate Posttreatment	34.8% (24/69)	35.3% (24/68)	RR 0.99 (0.62 to 1.55)
	Long Term (52 weeks)	34.3% (23/67)	25% (17/68)	RR 1.37 (0.81 to 2.33)
	Long Term 104 weeks	47% (31/66)	35.3% (24/68)	RR 1.33 (0.88 to 2.01)
	Long Term (156 weeks)	47.6% (30/63)	36.4% (24/66)	RR 1.31 (0.87 to 1.97)
Proportion in normative range on CBCL externalizing T-score[28]	Immediate Posttreatment	42% (29/67)	44.1% (30/68)	RR 0.98 (0.67 to 1.44)
	Intermediate Term (26 weeks)	40.9% (27/67)	44.9% (31/69)	RR 0.88 (0.60 to 1.31)
	Long Term (52 weeks)	43.3 (29/67)	50.0% (34/68)	RR 0.86 (0.60 to 1.24)
	Long Term (104 weeks)	47% (31/66)	47.1% (32/68)	RR 1.0 (0.7 to 1.43)
	Long Term 156 weeks	47.6% (30/63)	57.6% (38/68)	RR 0.85 (0.61 to 1.19)
Juvenile court involvement[28]	Long Term (52 weeks)	4.5% (3/67)	10.3% (7/68)	RR 0.43 (0.12 to 1.61)
	Long Term (156 weeks)	11.1% (7/63)	15.2% (10/66)	RR 0.73 (0.30 to 1.80)

Abbreviations: CBCL = Child Behavior Checklist; CI = confidence interval; MD = mean difference; RCT = randomized controlled trial; SD = standard deviation

Table H-14. Multicomponent modular interventions: RCT (Kolko 2014[27]) comparing treatment booster with enhanced treatment as usual in school age children

Outcome	Followup	Intervention% %(n/N) or Mean (SD), n	Comparator % (n/N)	RR (95% CI) or MD (95% CI)
CBCL Externalizing (raw scores)[28]	Immediate Posttreatment	18.32 (9.97) (n= 56)	18.37 (10.28) (n=59)	MD -0.05 (-3.7 to 3.65)
	Long Term (52 weeks)	18.96 (10.29) (n=57)	17.62 (12.63) (n= 54)	MD 1.34 (-2.96 to 5.64)
	Long Term (104 weeks)	17.37 (9.65) (n= 56)	16.19 (11.27) (n=55)	MD 1.18 (-2.73 to 5.09)
Meets ODD criteria[28]	Long Term (52 weeks)	47.0% (NR)	43.0% (NR)	NC
	Long Term (104 weeks)	31.5% (17/54)	31.8% (21/55)	RR 0.82 (0.49 to 1.38)
Heightened externalizing problems[28]	Long Term (52 weeks)	33.0% (NR)	35.0% (NR)	NC
	Long Term (104 weeks)	37.0% (20/54)	43.6% (24/55)	RR 0.88 (0.53 to 1.34)
Court involvement[28]	Long Term (104 weeks)	37.0% (20/54)	14.5% (8/55)	RR 2.54 (1.23 to 5.28
Substance Use Survey – child report[a][28]	Immediate Posttreatment	3.32 (6.41) (n=56)	1.85 (5.03) (n=59)	MD 1.47 (-0.65 to 3.59)
	Intermediate Term (26 weeks)	7.88 (9.16) (n=57)	5.06 (7.34) (n=54)	MD 2.82 (-0.31 to 5.95)
	Long Term (52 weeks)	5.72 (10.74) (n=56)	4.72 (9.46) (n=55)	MD 0.60 (-2.81 to 4.81)
	Long Term (104 weeks)	5.77 (7.83) (n=58)	6.21 (10.97 (n=53)	MD 0.81 (-4.0 to 3.12)
Suicidal Ideation Questionnaire[b][28]	Immediate Posttreatment	18.49 (10.42) (n=56)	18.36 (9.93) (n=59)	MD 0.94 (-3.19 to 3.45)
	Intermediate (26 weeks)	18.71 (9.43) (n=57)	16.38 (3.5) (n=54)	MD 2.33 (-0.37 to 5.03)
	Long Term (52 weeks)	17.96 (10.55) (n=56)	18.93 (10.64 (n=55)	MD -0.97 (-4.96 to 3.02)
	Long Term (104 weeks)	16.12 (2.80) (n=58)	15.71(1.88) (n=53)	MD 0.37 (-/049 to 3.31)

Abbreviations: CBCL = Child Behavior Checklist; DBD = disruptive behavior disorder; NC = not calculable; ODD = oppositional defiant disorder; SUSI = Substance Use Survey Interview; SIQ = Suicide Ideation Questionnaire.

[a] Child report of substance use (no/yes), within the past year, and amount of use in each of 9 categories (e.g., alcohol, tobacco, marijuana, stimulants, opioids)

[b]15 items (7-point scale) to reflect suicide cognitions and frequency in past month

Child's mental health. One RCT (N=144)[28] compared conduct of a MTP in the child's environment (e.g., home, school) with delivery of the same program in an outpatient clinic and reported that there was no difference between intervention delivery locations in child-reported severity of depressive symptoms based on the Children's Depression Inventory that compared pre and post treatment (p=0.831) or pretreatment to followup (time not specified, p= 0.748). Similarly, there was no effect of treatment on child's Self Report of Antisocial Behavior at either time (pre-post, p=0.768 and pretreatment to followup, 0.295 respectively).

Other Multicomponent Interventions for School Age Children

Multicomponent interventions versus treatment as usual or waitlist. One RCT[30] (N=32) compared a manualized psychoanalytic child psychotherapy from the Trial on Improving Inter-Generational Attachment for Children Undergoing Behavioral Problems (TIGA-CUB) with TAU for school-age

children with clinical levels of CD on the SDQ conduct subscale. Psychotherapy was delivered in 12 weekly, 50-minute sessions for both children and parents, running concurrently. TAU consisted of any usual care provided at the center with no set number of sessions or timing. At the 17-week followup (unclear if 17 weeks from baseline or posttreatment), individuals who received psychotherapy had similar scores on the CBCL externalizing scale (adjusted for baseline scores) compared with TAU (N=24, adjusted mean difference -2.25, 95% CI -8.34 to 3.84).

One RCT[43] (N=43) compared Regulation Focused Psychotherapy for Children versus waitlist for school aged children diagnosed with ODD. Children with ASD were included, though moderate and severe cases were excluded. Regulation Focused Psychotherapy was a manualized psychodynamic intervention aimed at improving the child's ability to manage their emotions and impulses by addressing defensive maneuvers and avoidance mechanisms against painful feelings. Parent sessions were focused on helping the parent understand that all behavior has meaning and enhancing their ability to address the underlying emotions behind those behaviors. Treatment was comprised of 16 individual sessions for children provided twice weekly and four parent sessions delivered over 10 weeks. Partway through the intervention, children were transitioned to an online-format to facilitate restrictions related to the COVID-19 pandemic; authors noted that the intervention was adapted quickly and that children adjusted to the new format easily. Children who received Regulation Focused Psychotherapy had lower scores on the ODD Rating Scale (N=43, MD -4.81, 95% CI -7.74 to -1.88) but similar T-scores on the CBCL ODD subscale (N=43, MD -3.66, 95% CI -8.47 to 1.11) posttreatment versus waitlist.

One RCT[32] (N=103) evaluated a telephone-assisted self-help intervention (plus TAU) versus TAU in a population of school age children with ADHD and comorbid ODD/CD. Since not all children met the clinical cut-off for ODD/CD, results are reported only for the subgroup of patients who had clinical levels of ODD/CD (n=58) at baseline. The intervention consisted of new self-help booklets for parents every 2 weeks along with 14 total phone conversations with a trained counselor over 12 months. TAU consisted of continued routine care and a stable dose of methylphenidate. Immediately posttreatment, the telephone-assisted self-help intervention was associated with a moderate increase in the likelihood of shifting from a clinical to non-clinical range for ODD/CD symptoms versus TAU alone (54.8% [17/31] vs. 29.6% [8/27]; RR 1.85, 95% CI 0.95 to 3.59).

One RCT[31] (N=163) compared a protocol for an office-based nurse-administered behavioral intervention compared with enhanced TAU for school age children with any DBD diagnosis but primarily ODD or CD (63.5%). About a quarter of the children had comorbid ADHD (22%). All participants in the intervention group received child CBT, enhanced parent management training and family psychoeducation, and skills training; in addition, ADHD medication, development and peer enrichment, school/teacher consultation, and/or case/crisis management were administered as needed. The intervention was delivered in a primary care setting, across eight to ten sessions (6 initial 1.5-hour sessions and 2-4 followup sessions) over 3 to 6 months. Enhanced TAU provided facilitated referral to off-site professionals for assessment and treatment plans which could include both therapy and medication. At posttreatment, children who received the nurse-administered intervention had similar Pediatric Symptom Checklist (PSC)-17 externalizing scores (N=151, MD 0.10, 95% CI -0.83 to 1.03) and parent-rated SDQ total scores (N=151, MD -0.20, 95% CI -1.98 to 1.58) as those who received enhanced usual care. The likelihood of achieving remission (i.e., no longer met diagnostic criteria for ODD or CD) was similar for children in both groups, respectively, at posttreatment (53% [28/53] vs. 41% [21/50], RR 1.26, 95% CI 0.83 to 1.90) and 12 months (54% [29/53] vs. 59% [30/50], RR 0.91, 95% CI 0.65 to 1.27), as was the likelihood of scoring below the clinical cut-off on the PSC-17 externalizing scale (posttreatment: 57.3% [43/75] vs. 62.8% [49/78], RR 0.91, 95% CI 0.70 to 1.18); 12 months: 61.2% [41/67] vs. 66.7% [40/60], RR 0.92, 95% CI 0.71 to 1.19).

One RCT[33] (N=50) compared a unique mindfulness-based intervention versus a waitlist control group. All children were Caucasian boys with a dual diagnosis of ODD and ADHD; ASD was an excluded condition. The mindfulness intervention consisted of nine concurrent weekly 1.5-hour group sessions for children and parents during which children participated in meditation, discussion, and readings with homework and parents were taught about interaction, meditation, and improving attitude to become a better model for their children. The waitlist group received no treatment. Immediately posttreatment, children who received the mindfulness-based intervention had similar SDQ conduct scores (N=50, MD 0.25, 95% CI -0.46 to 0.96) and Modified Overt Aggression Scale scores (N=50, MD -0.60, 95% CI -1.34 to 0.14) compared with those in the waitlist group.

One RCT[37] (N=98) compared several multicomponent variations of the Incredible Years program versus a waitlist control for the treatment of school age children (90% boys) with a diagnosis of ODD. The Incredible Years program was modified to allow for different multicomponent combinations (i.e., parent, child, teacher) and included Child Training plus Teacher Training (n=23), Parent Training plus Teacher training (n=24), and Parent Training plus Child Training plus Teacher Training (n=25). This trial also included Parent Training alone (n=31) and Child Training alone (n=30) arms which are described **Appendix D** and are compared with the multicomponent Incredible Years interventions in the sections below. Incredible Years has been described in detail in **Appendix G**. Parent Training involved weekly, 2-hour group sessions of 10 to 12 parents and two therapists. Child Training entailed weekly 2-hour group sessions (6-7 children) of "Dinosaur School". Teacher Training consisted of four full days of in-clinic group training sequenced throughout the school year and corresponding roughly to the end of the Parent Training and Child Training treatments. The curriculum for teachers focused on implementing effective classroom management techniques to address misbehavior, fostering positive connections with challenging students, and enhancing social skills across various school environments. Children who received the multicomponent protocols were more likely to show clinically significant improvement posttreatment compared with waitlist: Parent plus Teacher (84.6%), Child plus Teacher (81.3%) and Parent plus Child plus Teacher (65.2%) Training versus waitlist (40.0%); however, only the differences for the two protocols that involved the teacher plus either the child or the parent were statistically significant ($p<0.01$). Clinically significant improvement was defined as moving from the clinical (>142) to nonclinical range (<142) on the mother reported ECBI intensity scale; only children in the clinical range at baseline were included in the analysis and since sample sizes were not reported for this subgroup, an effect estimate could not be calculated.

One NRSI[77] (N=74) compared a generic multicomponent program called Beyond the Clouds to TAU for school age children diagnosed with ODD (67%) or CD (33%); some children had comorbid ADHD (17%). Beyond the Clouds utilized generic CBT-based techniques applied however therapist saw fit and involved individual psychotherapy for the child and parent training for the parent. TAU consisted of psychodynamic therapy, systemic psychotherapy, and play therapy. All treatment sessions were delivered weekly over 52 weeks. At posttreatment, children who received Beyond the Clouds had similar scores on the CBCL aggression (N=65, MD -23.58, 95% CI -7.57 to 0.41) and CBCL rule breaking (N=65, MD -1.00, 95% CI -4.65 to 2.65) subscales compared with those who received TAU. At 52 weeks, children in the Beyond the Clouds group had lower scores on CBCL aggression (N=65, MD -5.95, 95% CI -10.90 to -1.01), but not CBCL rule breaking (N=65, MD -2.80, 95% CI -6.67 to 1.07), subscale versus those in the TAU group.

One NRSI[79] (N=2,763) compared a variety of manualized parent-child focused evidence-based programs with TAU for school age children with clinical levels of disruptive behavior as measured by the Ohio problem severity and functioning scales. The programs evaluated included Parent Management Training, Brief Strategic Family Therapy, Parent-Child Interaction Therapy, and Parenting with Love

and Limits. TAU included individual and family-based treatments that are not classified as evidence-based programs (e.g., social skills group, supportive therapy, parenting counseling). Treatment durations were not reported. The authors used propensity score matching to control for baseline differences between groups. At the end of treatment, children who received the parent-child focused interventions reported greater improvement in disruptive behavior symptoms according to the Ohio problem severity score (adjusted mean difference in change scores -2.62, standard error 0.91, $p<0.05$) but similar improvement in functioning according to the Ohio function score (adjusted mean difference in change scores 1.00, standard error 0.91, $p>0.05$).

Multicomponent intervention versus a parent-only intervention. One RCT (in two publications)[35,36] compared a Swedish PMT program (i.e., KOMET) combined with the child-component of the Coping Power Program versus the PMT program alone for school age children diagnosed with ODD (90%), CD (4%) or DBD not otherwise specified (10%). Most children had comorbid ADHD (67%). The Swedish PMT program, based on social learning theory and influenced by the Incredible Years and Parent Management Training – Oregon model, focused on enhancing positive parent-child interaction using playtime, praise and rewards, giving clear instructions/commands and reducing the reinforcement of negative behavior. The child-component of the Coping Power Program was a manual-based CBT intervention that taught children emotional regulation, problem solving and social skills; it was adapted to the Swedish psychiatric context and modified to allow the parent and child groups to run concurrently (the number of sessions were reduced by half and the duration of each session was more than doubled). Both interventions were delivered in a group setting; parents received 11, 2.5-hour sessions and children received 15, 2.5-hour sessions. Children who received PMT plus child-CBT had similar scores on the Parent/Teacher Disruptive Disorder Behavior rating scale total scores (N=97, MD -3.47, 95% CI -9.93 to 2.99), Parent/Teacher Disruptive Behavior ODD scores (N=97, MD -0.12, 95% CI -2.13 to 1.89) and SDQ total scores (N=97, MD -0.75, 95% CI -3.43 to 1.93) posttreatment compared with those who receive PMT only.[35] Long term, scores on the Parent/Teacher Disruptive Behavior ODD scale remained similar between the treatment groups, respectively: 52 weeks (N=71; MD -0.53, 95% CI -3.15 to 2.09) and 104 weeks (N=83; MD 1.87, 95% CI -0.50 to 4.24).[36] Compared with PMT alone, PMT plus child-CBT was associated with a similar likelihood of recovery, i.e., no longer have clinical levels of ODD, (34.6% [18/52] vs. 25.8% [8/31], RR 1.34, 95% CI 0.66 to 2.71) and of clinically significant improvement, i.e., reliable change but still clinical levels of ODD, (19.2% [10/52] vs. 22.6% [7/31], RR 0.85, 95% CI 0.36 to 2.00) at long-term followup (104 weeks).[36]

One RCT[37] (N=103) compared several multicomponent variations of the Incredible Years program versus Incredible Years Parent-only Training for the treatment of school age children (90% boys) with a diagnosis of ODD. This trial also included a waitlist group and an Incredible Years Child Training only arm compared with the multicomponent Incredible Years (see **Appendix D** for arm details). Children who received the multicomponent protocols were more likely to show clinically significant improvement on the mother-reported ECBI intensity scale posttreatment compared with the parent-only protocol: Parent plus Teacher (84.6%), Child plus Teacher (81.3%) and Parent plus Child plus Teacher (65.2%) Training versus Parent only Training (42.9%). These effects were maintained at 52 weeks: Parent plus Teacher (84.6%), Child plus Teacher (72.7%) and Parent plus Child plus Teacher Training (80.0%) versus Parent Training (42.9%). Clinically significant improvement was defined as moving from the clinical (>142) to nonclinical range (<142) on the mother reported ECBI intensity scale; only children in the clinical range at baseline were included in the analysis; since sample sizes were not reported for this subgroup, an effect estimate could not be calculated.

Multicomponent intervention versus a child-only intervention. One RCT[37] (N=102) compared several multicomponent variations of the Incredible Years program versus Incredible Years Child-only Training for the treatment of school age children (90% boys) with a diagnosis of ODD. This trial also included a waitlist group, and details of the interventions are described above in that section. This trial also included an Incredible Years Parent Training-only arm compared with the multicomponent Incredible Years interventions (see **Appendix D** for arm details). More children who received Parent plus Teacher Training and Child plus Teacher Training showed clinically significant improvement posttreatment compared with the those who received Child-only Training, but the differences were not statistically significant (84.6% and 81.3%, respectively, versus 63.2%; p>0.05). For those who received Parent plus Child plus Teacher Training, the likelihood of achieving a clinically significant difference posttreatment on the ECBI intensity scale was similar compared with Child Training alone (65.2% vs. 63.2%, respectively). These effects were maintained at 52 weeks: Parent plus Teacher (84.6%), Child plus Teacher (72.7%) and Parent plus Child plus Teacher Training (80.0%) versus Child Training (66.7%). Clinically significant improvement was defined as moving from the clinical (>142) to nonclinical range (<142) on the mother reported ECBI intensity scale; only children in the clinical range at baseline were included in the analysis and since sample sizes were not reported for this subgroup, an effect estimate could not be calculated.

Multicomponent intervention versus another multicomponent intervention. One RCT (N=30)[34] compared Decision Rule Based Treatment with Sequential Treatment for the care of school-aged children with a dual diagnosis of ODD and major depression disorder (60%)/dysthymia (40%). Decision Rule Based Treatment utilized a transdiagnostic approach and consisted of six core modules designed to address both conduct problems and depression in a cohesive manner and involving both child and parent: 1) psychoeducation, 2) tuning into the child and improving parent-child interactions, 3) emotion coaching, 4) contingency management, 5) emotion regulation and development of a coaching plan, and 6) family problem solving. Supplemental CBT sessions were available for all participants. Sequential treatment consisted of two components: a CBT-protocol for depression (children received skill training in various cognitive, behavioral, and affective areas of functioning) and a manualized PMT program (parents received education about the causes of defiant behavior and training in attending skills, effective parental commands, and use of a contingency management program and time out). Participants were randomized to six sessions of either CBT or PMT followed by six sessions of the other protocol; therapists could provide content from either protocol during the remaining 12 weeks. Both Decision Rule Based Treatment and Sequential Treatment were delivered in 18 sessions over 24 weeks; sessions were provided once a week during the first 12 weeks and biweekly for the remaining 12 weeks. Children who received Decision Rule Based Treatment had similar scores on the Disruptive Behavior Disorder Rating Scale compared with those who received Sequential Treatment posttreatment (N=26, MD -1.20, 95% CI -2.65 to 0.25) and at the 24-week followup (N=22, MD -0.90, 95% CI -2.35 to 0.55); results were similar when adjusted for child age and baseline scores. Decision Rule Based Treatment was associated with a similar likelihood of remission in conduct problem disorder compared with Sequential Treatment, respectively, posttreatment (71% [12/17] vs. 78% [7/9], RR 0.91, 95% CI 0.57 to 1.44) and at 24 weeks (79% [11/14] vs. 88% [7/8], RR 0.90, 95% CI 0.61 to 1.31).

One RCT[37] (N=72) compared several multicomponent variations of Incredible Years versus each other for the treatment of school age children (90% boys) with a diagnosis of ODD. This trial included a waitlist group, an Incredible Years Parent Training-only arm and an Incredible Years Child Training-only arm compared with the multicomponent Incredible Years interventions (see **Appendix D** for arm details). Children who received Parent plus Teacher Training and Child plus Teacher Training had a

similar likelihood of achieving a clinically significant improvement posttreatment (84.6% and 81.3%), while more children in both groups achieved a clinically significant improvement compared with the Parent plus Child plus Teacher program (65.2%), though the differences were not statistically significant. These effects were maintained at 52 weeks: Parent plus Teacher (84.6%), Child plus Teacher (72.7%) and Parent plus Child plus Teacher Training (80.0%), with further improvement seen at this timepoint in the group involving all three components. Clinically significant improvement was defined as moving from the clinical (>142) to nonclinical range (<142) on the mother reported ECBI intensity scale; only children in the clinical range at baseline were included in the analysis and since sample sizes were not reported for this subgroup, an effect estimate could not be calculated.

Appendix H References

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Appendix I. Key Question 1: Additional Behavioral Outcomes for Adolescents

Description of Included Studies

Seventeen randomized controlled trials (RCTs) (in 18 publications)[1-18] assessed behavioral interventions for disruptive behavior disorders (DBDs) in adolescents. The study mean age of the enrolled children was 15.4 years; three trials[8,9,18] did not report a mean age (age range of enrolled participants, 12-18 years). Most adolescents were male (68.5%) with three trials[8,9,12] enrolling only males. In the trials that reported race or ethnicity, about half of the populations were White (50.4%) followed by Black (36.1%) and Hispanic/Latino (20.2%). One trial[11] enrolled only Hispanic adolescents and two trials[7,17] enrolled predominately Black or Hispanic adolescents (range 84% to 99%).

Interventions That Included a Parent Component and a Child Component

Description of family therapy studies. Five RCTs evaluated family therapy interventions for the treatment of conduct/behavior problems in adolescents.[7-11]

Three RCTs compared family therapy with treatment as usual (TAU).[7-9] Two of these trials[8,9] evaluated Family Mode Deactivation Therapy, based on the principles of cognitive behavioral therapy (CBT) with elements of Functional Analytic Psychotherapy, Acceptance and Commitment Therapy, Dialectical Behavior Therapy, and mindfulness. Family Mode Deactivation Therapy was developed to treat adolescents (along with their families) with severe behavior problems, complex comorbid problems, and a history of abuse. In these two trials, all participants had several comorbid problems and had a history of childhood abuse (almost half [45% to 48%] suffered from post-traumatic stress disorder (PTSD) and some had a history of suicidal ideation). Treatment duration was 6 to 8 months during their stay in a residential treatment facility. For the purposes of this report, these RCTs are treated as separate trials; however, the trials were not well described and there is potential/likely overlap in the study populations. The third trial evaluated the Parenting with Love and Limits group therapy program, a manualized structural-strategic program that aims to assist families in restoring adult authority by establishing consistent limits and reclaiming loving relationships. Parenting with Love and Limits included multifamily group therapy sessions (4-6 families, maximum of 12 people) and individual family therapy coaching sessions. Treatment duration was 6 weeks (6 weekly, 2-hour classes).

Two RCTs compared family therapy with a child-only intervention.[10,11] One trial[10] evaluated Family Behavior Therapy which followed the typical format used in behavior therapy and was comprised of a standardized, multiple component approach including behavioral contracting, stimulus control, urge control and communications training. Family Behavior Therapy was compared with Individual Cognitive Problem-Solving therapy adapted to be more purely cognitive; only problem-solving steps were reinforced and behavioral features (e.g., role-playing, specific behavioral research, parent training and reinforcement) were not used. Also, therapists were nondirective and did not encourage the generation of choices that were distinctly prosocial. Participants in both groups received 15 sessions (60-90 minutes) gradually spaced out over 26 weeks. The second trial[11] evaluated Brief Strategic Family Therapy, which is based on the structural family therapy tradition and is comprised of three therapeutic categories: joining (therapist "joins" the family and observes its interactions), diagnosing (therapist diagnoses patterns of repetitive behavior) and restructuring (change-producing strategies). Participants

received a mean of 11, 1-hour weekly sessions (range 4-20 sessions, depending on the clinical severity of the presenting problems). Brief Strategic Family Therapy was compared with a participatory-learning group, led by a facilitator, in which four to eight adolescents were encouraged to discuss and solve problems amongst themselves. The authors note that this control group did not represent a validated intervention and was designed to control for common therapeutic factors. The mean number of weekly sessions received was nine (range, 6-16 sessions, 90-minute duration). All participants in this trial were Hispanic.

Detailed Analysis

Multisystemic therapy versus TAU. Three trials reported Child Behavior Checklist (CBCL) externalizing scores[1,2,5] and one trial each reported BASC-2[6] and Strength and Difficulties Questionnaire (SDQ)[3,4] conduct scale scores (**Table I-1**). Results were similar for Multisystemic Therapy versus TAU at all timepoints across the outcome measures, except for the SDQ conduct scale at intermediate term (26 weeks), which favored Multisystemic Therapy (0-10 scale, 1 RCT, N=558, MD -0.62, 95% CI -0.99 to -0.25; small effect).[3]

One trial[3] reported that adolescents who received Multisystemic Therapy were just as likely as those who received TAU to be diagnosed with a conduct disorder alone (45.6% [114/249] vs. 48.4% [115/238], respectively; relative risk [RR] 0.95, 95% confidence interval [CI] 0.78 to 1.14) or a conduct disorder with anxiety (49.7% [124/249] vs. 55.4% [132/238]; RR 0.90, 95% CI 0.76 to 1.06) at long-term followup (52 weeks) based on the clinician-rated Development and Well-Being Assessment.

One trial reported quality of life over the long term using the eight individual scales of the SF-36 and found similar results across timepoints between Multisystemic Therapy and TAU; the emotional well-being scale showed statistically significant improvement favoring Multisystemic Therapy at long term (156 weeks) however the difference was small and likely not clinically significant (N=479, mean difference [MD] 3.88, 95% CI 0.15 to 7.61).[4]

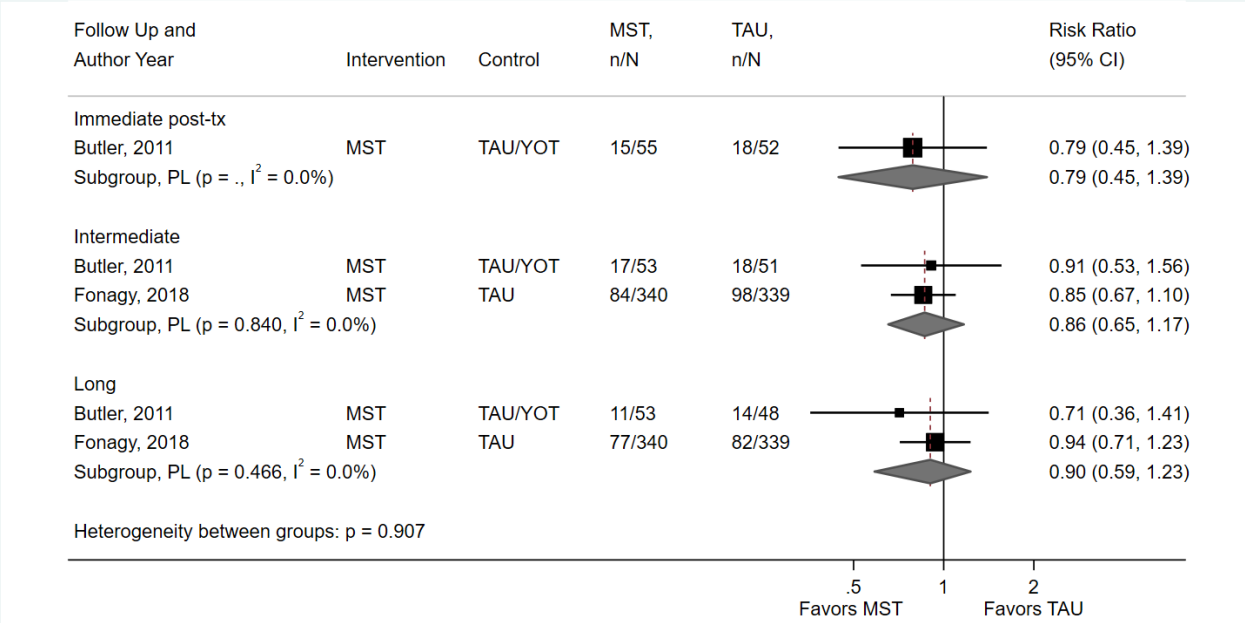
Table I-1. Results from validated outcomes measures from RCTs comparing MST with TAU

Outcome	Author, Year	Immediately posttreatment or followup time	MST mean (SD), n	TAU mean (SD), n	MD (95% CI)
CBCL externalizing (T-scores)	Butler, 2011[2]	Posttreatment	63.40 (10.20) (n=53)	63.70 (9.90) (n=51)	-0.30 (-4.16 to 3.56)
	Sundell, 2008[5]	9 weeks	72.10 (17.10) (n=79)	69.90 (19.10) (n=77)	2.20 (-3.49 to 7.89)
CBCL externalizing (raw scores)	Asscher, 2013[1]	Posttreatment	17.64 (11.57) (n=147)	19.25 (10.56) (n=109)	-1.61 (-4.34 to 1.12)
BASC-2 conduct (T-scores)	Wagner, 2019[6]	26 weeks	54.43 (5.09) (n=7)	50.00 (2.45) (n=4)	4.43 (-1.79 to 10.65)
	Wagner, 2019[6]	52 weeks	54.57 (7.48) (n=7)	47.25 (2.99) (n=4)	7.32 (-1.68 to 16.32)
SDQ conduct (0-10) (parent rated)	Fonagy, 2018[3]	26 weeks	4.8 (2.5) (n=290)	5.5 (2.5) (n=268)	**-0.62 (-0.99 to -0.25)**
	Fonagy, 2018[3]	52 weeks	4.6 (2.6) (n=246)	4.8 (2.7) (n=237)	-0.25 (-0.66 to 0.16)
	Fonagy, 2018[3]	78 weeks	4.4 (2.5) (n=232)	4.6 (2.5) (n=209)	-0.16 (-0.57 to 0.25)
	Fonagy, 2020[4]	104 weeks	4.08 (NR)	4.38 (NR)	-0.19 (-0.60 to 0.21)
	Fonagy, 2020[4]	156 weeks	4.49 (NR)	3.92 (NR)	0.10 (-0.37 to 0.57)
	Fonagy, 2020[4]	208 weeks	3.98 (NR)	3.75 (NR)	-0.10 (-0.64 to 0.44)

BASC-2 = Behavior Assessment System for Children-Second Edition; CBCL = The Child Behavior Checklist; CI = confidence interval; MST = Multisystemic Therapy; NR = not reported; SDQ = Strengths and Disabilities Questionnaire; TAU = treatment as usual.

A total of three RCTs reported outcomes related to involvement with the criminal legal system. Across two RCTs,[2,3] the likelihood of committing an offense/any offending behavior was similar for adolescents who received Multisystemic Therapy versus TAU across all timepoints (**Figure I-1**). Each trial assessed offenses over 6-month periods and did not provide cumulative rates. Both trials reported an additional long-term timepoint of 78 weeks with no difference between groups in the pooled analysis (2 RCTs, N=778, 18.1% vs. 18.1%; RR 0.59, 95% CI 0.06 to 4.46, I^2=90.6%; data not in figure);[2,3] however, there was substantial heterogeneity. The smaller trial[2] reported a decreased likelihood of offense for Multisystemic Therapy versus TAU participants while the larger trial[3] reported a similar likelihood (**Table I-2**); the reason for these differences is unclear. The smaller of the two trials[2] further delineated between violent and nonviolent offenses, with no differences between groups for either measure at all timepoints, except for nonviolent offenses at 78 weeks (long term) which occurred in fewer Multisystemic Therapy versus TAU participants (RR 0.23, 95% CI 0.08 to 0.63, large effect) (**Table I-2**). There were no differences between treatment groups in the proportion of adolescents with criminal convictions (1 RCT)[4] or police arrests (1 RCT).[5] Adolescents who received Multisystemic Therapy and TAU had a similar likelihood of out-of-home placement/care and school participation across various timepoints in two RCTs[3,5] (**Table I-2**).

Figure I-1. Proportion of adolescents with any offense/offending behavior from RCTs comparing MST with TAU



Abbreviations: MST = multisystemic therapy; TAU = treatment as usual; RR = risk ratio; RCT = randomized controlled trial

Table I-2. Other behavioral outcomes from RCTs comparing MST with TAU in adolescents

Outcome	Author, Year	Immediately Posttreatment or Followup Time	MST % (n/N)	TAU % (n/N)	RR (95% CI)
Any Offense	Fonagy 2018[3]	78 weeks	19.7% (67/340)	15.6% (53/339)	1.26 (0.91 to 1.75)
	Butler 2011	78 weeks	7.7% (4/52)	36.2% (17/47)	0.21 (0.08 to 0.59)
Violent Offenses	Butler, 2011[2]	Posttreatment	9.1% (5/55)	15.4% (8/52)	0.59 (0.21 to 1.69)
	Butler, 2011[2]	26 weeks	18.9% (10/53)	17.6% (9/51)	1.07 (0.47 to 2.41)
	Butler, 2011[2]	52 weeks	5.7% (3/53)	14.6% (7/48)	0.39 (0.11 to 1.42)
	Butler, 2011[2]	78 weeks	1.9% (1/52)	8.5% (4/47)	0.23 (0.03 to 1.95)
Non-violent Offenses	Butler, 2011[2]	Posttreatment	20.0% (10/53)	23.1% (12/52)	0.82 (0.39 to 1.73)
	Butler, 2011[2]	26 weeks	18.9% (10/53)	25.5% (13/51)	0.74 (0.36 to 1.53)
	Butler, 2011[2]	52 weeks	18.9% (10/53)	25.0% (12/48)	0.75 (0.36 to 1.59)
	Butler, 2011[2]	78 weeks	7.7% (4/52)	34.0% (16/47)	**0.23 (0.08 to 0.63)**
Proportion with a criminal offence with a conviction	Fonagy, 2020[4]	260 weeks	55.0% (188/342)	53.0% (180/341)	1.04 (0.91 to 1.20)
Police Arrests	Sundell, 2008[5]	9 weeks	47.4% (36/76)	49.3% (36/73)	0.96 (0.69 to 1.34)
	Fonagy, 2018[3]	78 weeks	13.0% (43/340)	11.0% (36/335)	1.18 (0.78 to 1.78)

Outcome	Author, Year	Immediately Posttreatment or Followup Time	MST % (n/N)	TAU % (n/N)	RR (95% CI)
Out-of-home/institutional placement	Sundell, 2008[5]	9 weeks	10.5% (8/76)	9.6% (7/73)	1.10 (0.42 to 2.87)
Out-of-home care	Sundell, 2008[5]	9 weeks	22.4% (17/76)	17.8% (13/73)	1.26 (0.66 to 2.40)
Exclusion from school	Fonagy, 2018[3]	26 weeks	NR	NR	OR 1.00 (0.7 to 1.43)[a]
	Fonagy, 2018[3]	52 weeks	NR	NR	OR 0.93 (0.64 to 1.37)[a]
	Fonagy, 2018[3]	78 weeks	NR	NR	OR 0.71 (0.45 to 1.13)[a]
Not attending compulsory or high school	Sundell, 2008[5]	9 weeks	27.6% (21/76)	24.7% (18/73)	1.12 (0.65 to 1.93)

Abbreviations: MST = multisystemic therapy; TAU = treatment as usual; RR = risk ratio; RCT = randomized controlled trial.
[a] OR reported by trial authors.

Family therapy. All three trials of family therapy found family therapy associated with large improvements on the CBCL externalizing scale compared with TAU (**Table I-3**); the trial of Parenting with Love and Limits[7] reported results immediately posttreatment and the two trials of Family Mode Deactivation Therapy[8,9] reported results at short-term followup. One of the latter trials[9] did not provide sample sizes by treatment group so a confidence interval could not be calculated, but the difference is similar to the other Family Mode Deactivation Therapy trial and likely also statistically significant. Participants who received Family Mode Deactivation Therapy showed a greater reduction in the number of incidents of physical aggression compared with those who received TAU over the short (MD -37 incidents) and intermediate (MD -54 incidents) term in one trial;[8] authors did not provide enough data to calculate a confidence interval but the differences are likely statistically and clinically significant (**Table I-3**). The trial that compared Parenting with Love and Limits versus TAU (customary probation services) in adolescents involved in the juvenile court system reported a much lower recidivism rate in participants who received the intervention over the 52 weeks following treatment completion (15.8%

[3/19] vs. 55.6% [10/18]; RR 0.28, 95% CI 0.09 to 0.87; large effect);[7] the total number of days in detention was also significantly lower (72 vs. 543 days) (**Table I-3**).

Table I-3. Outcomes from family therapy interventions versus treatment as usual

Outcome	Author, Year	Family Therapy	Immediately posttreatment or followup time	FT mean (SD), n	TAU mean (SD), n	MD (95% CI)
CBCL Externalizing (T-scores)	Sells, 2011 [7]	PLL	Posttreatment	56.57 (11.21) (n=19)	71.83 (10.11) (n=19)	MD -15.26 (-22.05 to -8.47)
	Swart, 2014b[8] – all-male treatment center	FMDT	4 weeks	48.16 (8.47) (n=61)	70.18 (13.32) (n=61)	MD -22.02 (-25.98 to -18.06)
	Swart 2014a[9] – all male	FMDT	4 weeks	47.60 (5.10) (n=NR)	71.60 (11.60) (n=NR)	MD -24.00 (NC), p<0.05
Incidents of physical aggression[a]	Swart, 2014b[8]	FMDT	4 weeks	6 (NR) (n=61)	43 (NR) (n=61)	MD -37 (NC)
	Swart, 2014b[8]	FMDT	26 to 36 weeks	3 (NR) (n=61)	57 (NR) (n=61)	MD -54 (NC)
Total days in detention	Sells, 2011[7]	PLL	52 weeks	72 (NR)	543 (NR)	MD -471 (NC), p<0.05

Abbreviations: CBCL = The Child Behavior Checklist; CI = confidence interval; FMDT = Family Mode Deactivation Therapy; FT = family therapy; MD = mean difference; NC = not calculable; NR = not reported; PLL = Parenting with Love and Logic; SD = standard deviation.

[a] Defined as an act directed towards a specific other person or object with the intent to hurt or frighten, for which there is a consensus about the aggressive intent of the act.

Child-Only Interventions

Detailed Analysis

Child-only interventions versus treatment as usual or waitlist. Four trials compared a child-only intervention with TAU or waitlist.[12-14,18]

One RCT[12] (N=81) compared inpatient individualized CBT with TAU for the treatment of adolescent(mean 17.8 years) male violent offenders. Individualized CBT (plus TAU) had four main phases delivered over 15 to 20 weekly 45-minute sessions, designed to strengthen prosocial skills and reduce recidivism: motivation and goal setting, social problem-solving training, cognitive self-control training, and relapse prevention. TAU in the residential centers consisted of time spent in structured activities of daily living, formal education and leisure activities. The most common active intervention was aggression replacement therapy (10 weekly group sessions); others included aggression replacement therapy-based anger management and supportive family therapy and except for selective serotonin reuptake inhibitors (SSRIs), medications were rarely used. Mean scores on the Youth Self-Report Oppositional Defiance Disorder (ODD) subscale (0-10 scale; MD -0.60, 95% CI -0.51 to 0.39) and Youth Self-Report Conduct Problems subscale (0-28 scale; MD -0.26, 95% CI -0.49 to 1.01) were similar immediately posttreatment between participants who received CBT compared with TAU. At both 12 and 24 months, participants in the CBT and TAU group had a similar likelihood of criminal convictions for violent crimes (12 months: 34% vs. 23%, RR 1.47, 95% CI 0.73 to 2.96; 24 months: 50% vs. 40%, RR 1.26, 95% CI 0.78 to 2.06) and criminal convictions for any crime (12 months: 71% vs. 65%, RR 1.09, 95% CI 0.81, 1.47; 24 months: 71% vs. 74%, RR 0.95, 95% CI 0.73 to 1.25).

One RCT[14] (N=66) compared inpatient psychodynamic therapy to waitlist in primarily female (68%) adolescents diagnosed with a mixed disorder of conduct (ODD 74%, conduct disorder [CD] 26%) and emotions (primarily depression, 80% and anxiety, 68%). Psychodynamic therapy was provided in individual and group settings over an average of 34.2 weeks and was a manualized treatment based on the psychoanalytic-interaction model (i.e., similar to transference-focused and mentalization-based psychotherapy but focused mostly on the adolescent's personal skills). Other therapeutic strategies and pharmacotherapy were also provided as needed. Participants in the waitlist condition were permitted to seek out usual care as needed; the most common treatments received during the 6-month waiting period were psychotherapy (29.4%), pharmacotherapy (11.8%), or a combination of both (8.8%). Immediately posttreatment, mean SDQ total difficulties scores were lower (i.e., improved) in adolescents who received psychodynamic therapy compared with waitlist (0-40 scale; MD -3.64, 95% CI -6.57 to -0.71, small effect). Psychodynamic therapy resulted in a significantly greater likelihood of remission (i.e., no longer meeting the diagnostic criteria for a mixed disorder of conduct and emotions) versus waitlist posttreatment (71.9% vs. 8.8%; author reported OR 26.41, 95% CI 6.42 to 108.55). All analyses were intent-to-treat (ITT). Remission of conduct disorders specifically was reported in the adolescents who received psychodynamic therapy only with 65.6% no longer meeting the diagnostic criteria for ODD/conduct disorder (CD) posttreatment, increasing slightly to 68.8% at 6 months.

One RCT[13] (N=96) compared a mindfulness-based intervention (based primarily on the adolescent mindfulness-based intervention for enhancing emotional regulation program with exercises from the Taming the Adolescent Mind program)[19] versus TAU provided in a residential institution for youth. Mindfulness training focused on psychoeducation about emotions and mindfulness principles and was delivered across 16, 50-minute sessions (6 on emotion psychoeducation, 10 on mindfulness principles). TAU included psychotherapy, psychomotricity, speech therapy, and medication; participants received several hours of weekly care. Authors indicated that CBCL externalizing scores were similar between the two groups immediately posttreatment but did not provide raw data for further analysis.

One small RCT[18] (N=12) compared CBT, Social Skills Training, and a combination of both therapies with a waitlist control group for adolescents diagnosed with CD. CBT utilized psychoeducation, problem identification, and cognitive restructuring and Social Skills Training involved problem solving, "tuning in", emotional regulation, and communication strategies; all interventions were delivered in eight weekly 1-hour sessions. At posttreatment followup, mean scores on the Frequency of Delinquent Behavior Scaling Instrument (scale unclear) were lower (i.e., improved) for participants who received one of the three active interventions versus the waitlist condition: CBT (MD -1.45, SE 0.36, p=0.002), Social Skills Training (MD -1.60, SE 0.36, p=0.002) and combined CBT and Social Skills Training (MD -1.70, SE 0.36, p<0.0001).

Child-only interventions versus another child-only intervention. Five trials compared a child-only intervention with another active child-only intervention.[13,15-18]

One RCT[17] (N=310) compared Preventing HIV/AIDS Among Teens in Juvenile Justice (the PHAT life) intervention to an intensive health promotion control in primarily Black (90%) male (67%) juvenile offenders on probation. The Preventing HIV/AIDS intervention utilized individualized interactive treatment plans designed to address emotional regulation and decision-making and was delivered in eight 90-to 120-minute sessions over 2 weeks. Intensive health promotion involved interactive information dissemination-based strategies with little personalized treatment. The population was split into two groups, clinically aggressive juvenile offenders and non-clinically aggressive juvenile offenders. Among clinically aggressive juvenile offenders (N=71), participants in the Preventing HIV/AIDS intervention group showed a slightly greater reduction in Youth Self-Report Aggressive Behaviors scale scores than those in the control group at 6 months (MD -3.17, 95% CI -6.32 to -0.02)

but not at 12 months (MD -0.10, 95% CI -2.99 to 2.78). At 12 months, the likelihood of incarceration was significantly lower for adolescents randomized to the Preventing HIV/AIDS intervention (11.5%, 3/26) versus intensive health promotion (40%, 14/35), RR 0.29 (95% CI 0.09 to 0.90). Among nonclinically aggressive juvenile offenders (N=239), mean Youth Self-Report Aggressive Behaviors scores were similar between adolescents who received the Preventing HIV/AIDS intervention compared with intensive health promotion at both timepoints: 6 months (MD -0.01, 95% CI -1.14 to 1.12) and 12 months (MD 0.72, 95% CI -0.51 to 1.95). Authors did not report the rate of incarceration by 12 months for this subgroup.

One small RCT[18] (N=12) compared a combination of CBT and Social Skills Training versus CBT alone and Skills Training alone for adolescents diagnosed with conduct disorder. This trial also included a waitlist group and details of the interventions are described above. At posttreatment followup, mean scores on the Frequency of Delinquent Behavior Scaling Instrument were similar between groups: combined CBT and Social Skills Training versus CBT alone (MD -0.25, SE 0.36, p=0.496) and versus Social Skills Training alone (MD -0.10, SE 0.36, p=0.784) and Social Skills Training versus CBT (MD -0.15, SE 0.36, p=0.681).

One RCT[16] (N=42) compared group reality therapy to an unstructured supportive session control group in adolescents diagnosed with ODD and comorbid attention-deficit/hyperactivity disorder (ADHD). Group reality therapy involved information dissemination, education of choice theory, and role-playing directed at behavior modification. Unstructured supportive group sessions were not described. Both treatments were provided in five weekly 120-minute sessions. Participants receiving group reality therapy showed more improvement versus the control group on the SDQ conduct scale 1 week after completion of treatment (N=40; mean change from baseline -2.75 [SD 1.71] vs. -0.6 [SD 1.82], p<0.001) but not at 5 weeks posttreatment (N=40; mean change from baseline -1.05 [SD 0.89)] vs. -0.75 [SD 1.41], p=0.708).

One RCT[15] (N=93) compared an Adolescent Coping With Depression course to a life skills/tutoring intervention for adolescents with a diagnosis of CD and comorbid Major Depressive Disorder as well as a variety of other disordered behaviors (e.g., substance abuse or dependence, ADHD, anxiety, history of inpatient or residential treatment, history of prior arrest). All adolescents referred for the study were under the supervision of an intake, probation, or parole officer but were not in custody at the time of enrollment. The Adolescent Coping With Depression intervention comprised behavioral and cognitive components including skill development, emotional regulation, and communication, conflict resolution and relapse prevention. Life skills/tutoring involved current events review, life skills training, and academic tutoring, Participants in both groups received 16, 2-hour group sessions over 8 weeks. CBCL externalizing scores (scale unclear) were similar between participants who received Adolescent Coping With Depression versus life skills/tutoring immediately posttreatment (MD -4.0, 95% CI -9.57 to 1.57) and at 6 months (MD -0.60, 95% CI -7.02 to 5.82), but those in the intervention arm showed less improvement at 12 months than adolescents who received life skills/tutoring (MD 6.8, 95% CI 1.29 to 12.31). The likelihood of remission (i.e., cessation of CD diagnosis) was similar between adolescents in both groups, respectively, posttreatment (9.1% vs. 17.0%, RR 0.53, 95% CI 0.17 to 1.65), at 6 months (31.7% vs. 33.3%, RR 0.95, 95% CI 0.52 to 1.75) and at 12 months (41.5% vs. 39.1%, RR 1.06, 95% CI 0.64 to 1.77).

One RCT[13] (N=100) compared a mindfulness-based intervention with a health psychoeducation condition; this trial also included a TAU arm and details of the mindfulness training intervention are described above. Authors indicated that CBCL externalizing scores were similar between the two groups immediately posttreatment (N=90) but did not provide raw data for further analysis.

Family therapy versus child-only interventions. Two trials compared a family therapy intervention with a child-only intervention for the treatment of behavior disorders in primarily male (range 75% to 82%) adolescents.[10,11]

One trial compared Family Behavior Therapy versus Individual Cognitive Problem Solving in adolescents with dually diagnosed conduct-disordered and substance dependence.[10] Family Behavior Therapy followed the general format used in behavior therapy (primarily behavioral contracting, stimulus control, urge control, and communications training). Individual Cognitive Problem Solving was based on validated problem-solving methods but was modified to employ a more "purely" cognitive approach and did not utilize behavioral features. The two treatments were intended to be similar in most other respects (e.g., duration, number and length of sessions, therapist involvement and conduct, adherence to manuals and structure). This trial[10] reported similar scores on both the ECBI intensity and problem scales through 26 weeks of followup for the Family Behavior Therapy and the Individual Cognitive Problem Solving groups; the proportion of participants abstinent from drug use was also similar in both groups (**Table I-4**).

The second trial compared Brief Strategic Family Therapy with a participatory learning group control intervention in Hispanic adolescents.[11] Brief Strategic Family Therapy was based on the structural family therapy tradition and aimed to transform or restructure the ways in which the family functioned in order to reduce the adolescent's problem behavior. Adolescents who received participatory learning were encouraged to discuss and solve problems among themselves and were led by a facilitator; this intervention was not a validated group intervention and was designed to represent groups conducted in school settings. This trial[11] reported that Brief Strategic Family Therapy was associated with a significant reduction in behavior problems immediately posttreatment compared with the participatory learning group intervention based on both the Revised Behavior Problem Checklist conduct disorder scale and socialized aggression scale scores; in addition, more participants who received Brief Strategic Family Therapy showed reliable change on both scales, to include movement into the nonclinical range, versus those randomized to the participatory learning group (**Table I-4**).

Table I-4. Outcomes from RCTs comparing family therapies with child-only interventions

Outcome	Author, Year	Family Therapy Comparator	Immediately Posttreatment or Followup Time	Intervention Mean (SD), n or % (n/N)	Comparator Mean (SD), n or % (n/N)	MD or RR (95% CI)
EBCI Intensity scores (range, 36 to 252)	Azrin, 2001[10]	FBT ICPS	Posttreatment	90.72 (36.37) (n=29)	110.35 (45.92) (n=27)	MD -19.63 (-41.43 to 2.17)
	Azrin, 2001[10]	FBT ICPS	26 weeks	94.29 (40.35) (n=29)	86.71 (38.10) (n=27)	MD 7.58 (-12.97 to 28.13)
EBCI Problem scores (range, 0-36)	Azrin, 2001[10]	FBT ICPS	Posttreatment	8.58 (9.09) (n=29)	11.95 (9.46) (n=27)	MD -3.37 (-8.24 to 1.50)
	Azrin, 2001[10]	FBT ICPS	26 weeks	8.22 (8.41) (n=29)	11.52 (12.02) (n=27)	MD -3.30 (-8.77 to 2.17)
Drug/substance abstinent[a]	Azrin, 2001[10]	FBT ICPS	26 weeks	44.8% (13/29)	44.4% (12/27)	RR 1.01 (0.56 to 1.81)
RBPC conduct disorder scale (range, 0-44)	Santisteban, 2003[11]	BSFT PLG	Posttreatment	19.0 (11.1) Change from baseline: -4.6 (n=NR)	21.8 (10.6) Change from baseline: 1.0 (n=NR)	p<0.01 for change scores[b]
RBPC socialized aggression scale (range, 0-34)	Santisteban, 2003[11]	BSFT PLG	Posttreatment	10.2 (7.1) Change from baseline: -4.0 (n=NR)	12.3 (8.5) Change from baseline: 0.8 (n=NR)	p<0.01 for change scores[b]

Outcome	Author, Year	Family Therapy Comparator	Immediately Posttreatment or Followup Time	Intervention Mean (SD), n or % (n/N)	Comparator Mean (SD), n or % (n/N)	MD or RR (95% CI)
Reliable Change within Clinical Range[c]: RBPC conduct disorder scale	Santisteban, 2003[11]	BSFT PLG	Posttreatment	42.5% (17/40)	0% (0/18)	**NC, p<0.01**
Reliable Change within Clinical Range[d]: RBPC socialized aggression scale	Santisteban, 2003[11]	BSFT PLG	Posttreatment	36.4% (16/44)	11.1% (2/18)	3.27 (0.84 to 12.80)
Reliable Change plus movement into non-clinical range[c]: RBPC conduct disorder scale	Santisteban, 2003[11]	BSFT PLG	Posttreatment	25.0% (10/40)	0% (0/27)	**NC, p<0.05**
Reliable Change plus movement into non-clinical range[d]: RBPC socialized aggression scale	Santisteban, 2003[11]	BSFT PLG	Posttreatment	18.2% (8/44)	5.6% (1/18)	3.27 (0.44 to 24.31)

Abbreviations: BSFT = Brief strategic family therapy; CI = confidence interval; ECBI = Eyberg Child Behavior Inventory; FBT = Family behavior therapy; ICPS = Individual cognitive problem solving; MD = mean difference; PLG = participatory learning group intervention; RBPC = Revised Behavior Problem Checklist; RMANOVA = repeated measures analysis of variance; RR = risk ratio; RCT = randomized controlled trial; SD = standard deviation.

[a] Based on urinary analysis alone.

[b] Based on repeated measures analysis of variance (ANOVA).

[c] Out of the patients in clinical range at baseline, RBPC conduct disorder scale: 77% (40/52) vs. 67% (18/27).

[d] Out of the patients in clinical range at baseline, RBPC socialized aggression scale: 85% (44/52) vs. 67% (18/27)

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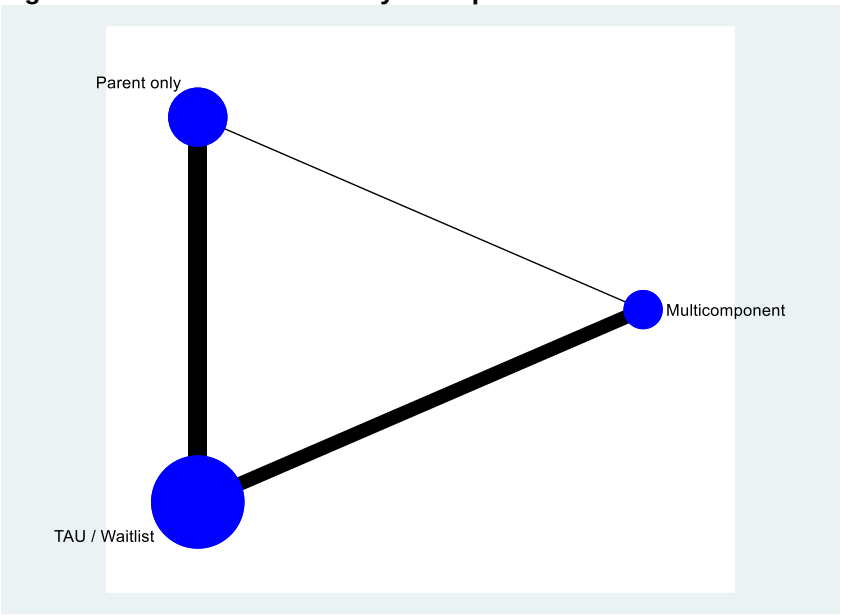
Appendix J. Network Meta-Analysis and Indirect Comparisons for Psychosocial Interventions

Preschool

Figure J-1. Network meta-analysis of preschool interventions immediately posttreatment



Abbreviations: TAU = treatment as usual

Table J-1. Pairwise, network, and indirect comparisons of interventions in preschool children

	Timepoint	# Trials	Pairwise SMD (95% CI)	# Trials	Network SMD (95% CI)	# Trials	Indirect SMD (95% CI)
Multicomponent Interventions versus TAU/Waitlist	Posttx	10	**-0.96 (-1.38 to -0.60)**	24	**-0.96 (-1.31 to -0.61)**	-	-
	Short	1	**-0.59 (-0.94 to 0.24)**	-	-	-	-
	Intermediate	1	**-2.86 (-3.96 to -1.76)**	-	-	-	-
	Long	4	0.05 (-0.56 to 0.75)	-	-	-	-
Parent-Only Interventions versus TAU/Waitlist	Posttx	13	**-0.61 (-0.99 to -0.31)**	24	**-0.61(-0.91 to -0.32)**	-	-
	Short	3	**-0.79 (-1.05 to -0.55)**	-	-	-	-
	Intermediate	5	**-0.47 (-0.77 to -0.14)**	-	-	-	-
	Long	4	0.05 (-0.56 to 0.75)	-	-	-	-
Multicomponent Interventions versus Parent-Only Interventions	Posttx	1	-0.24 (-0.91 to 0.42)	24	-0.35 (-0.78 to 0.08)	23	-0.35 (-0.87 to 0.17)
	Short	-	-	-	-	4	0.20 (-0.23 to 0.63)
	Intermediate	-	-	-	-	6	**-2.39 (-3.53 to -1.25)**
	Long	-	-	-	-	6	0.32 (-0.49 to 1.13)

Abbreviations: CI = confidence interval; SMD = standard mean difference; TAU = treatment as usual

School Age

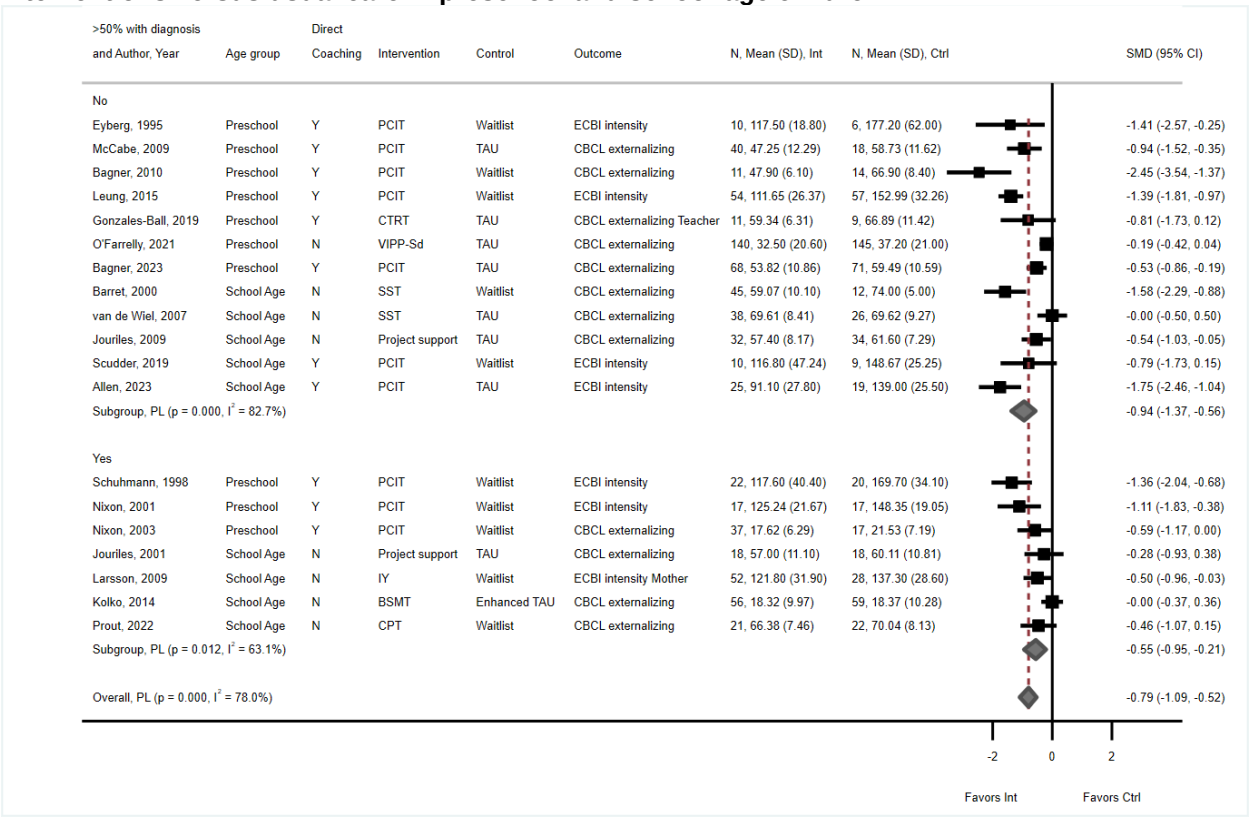
Table J-2. Pairwise and indirect comparisons of interventions in school-age children

	Timepoint	# Trials	Pairwise SMD (95% CI)	# Trials	Indirect SMD (95% CI)
Multicomponent Interventions versus TAU/Waitlist	Posttreatment	9	**-0.61 (-1.05 to -0.20)**	-	-
	Short	3	-0.56 (-1.34 to 0.16)	-	-
	Intermediate	6	-0.23 (-0.42 to -0.05)	-	-
	Long	5	-0.36 (-0.78 to 0.01)	-	-
Parent-Only Interventions versus TAU/Waitlist	Posttreatment	7	**-0.45 (-0.68 to -0.24)**	-	-
	Short	5	**-0.60 (-1.18 to -0.09)**	-	-
	Intermediate	4	-0.20 (-0.43 to 0.01)	-	-
	Long	3	-0.21 (-0.55 to -0.01)	-	-
Child-Only Interventions versus TAU/Waitlist	Posttreatment	3	-0.95 (-2.06 to 0.11)	-	-
	Short	1	**-1.32 (1.94 to -0.69)**	-	-
	Intermediate	-	-	-	-
	Long	-	-	-	-
Multicomponent Interventions versus Child-Only Interventions	Posttreatment	1	**-0.60 (-1.02 to -0.18)**	12	0.35 (-0.82 to 1.51)
	Short	1	-0.01 (-0.58 to 0.55)	-	-
	Intermediate	1	-0.43 (-0.89 to 0.03)	8	0.76 (-0.22 to 1.73)
	Long	1	-0.17 (-0.73 to 0.40)	8	-0.36 (-0.75 to 0.03)
Multicomponent Interventions versus Parent-Only Interventions	Posttreatment	1	0.18 (-0.22 to 0.58)	16	-0.16 (-0.64 to 0.32)
	Short	1	0.10 (-0.47 to 0.67)	8	0.03 (-0.90 to 0.96)
	Intermediate	-	-	-	-
	Long	2	-0.12 (-0.54 to 0.27)	8	-0.16 (-0.63 to 0.32)
Parent-Only Interventions versus Child-Only Interventions	Posttreatment	-	-	-	-
	Short	-	-	-	-
	Intermediate	-	-	-	-
	Long	-	-	-	-

Abbreviations: CI = confidence interval; SMD = standard mean difference; TAU = treatment as usual

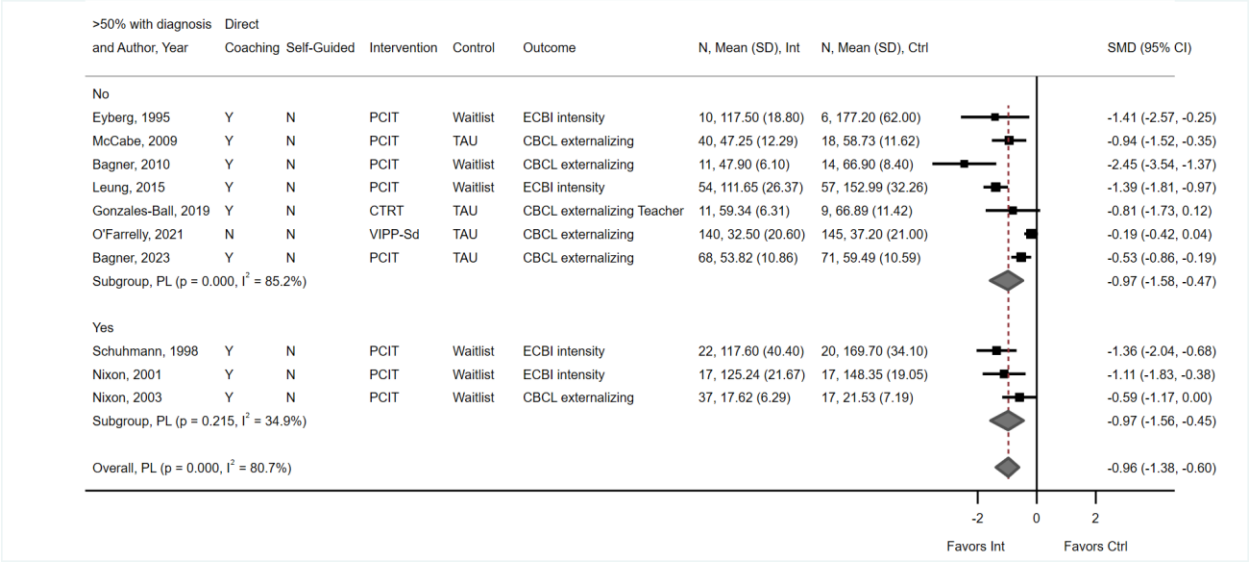
Comparison of Trials of Preschool Plus School-Age Children With Versus Without A Formal Diagnosis of a Disruptive Behavior Disorder

Figure J-2. Official diagnosis of a DBD versus no official diagnosis in trials of multicomponent interventions versus usual care in preschool and school-age children



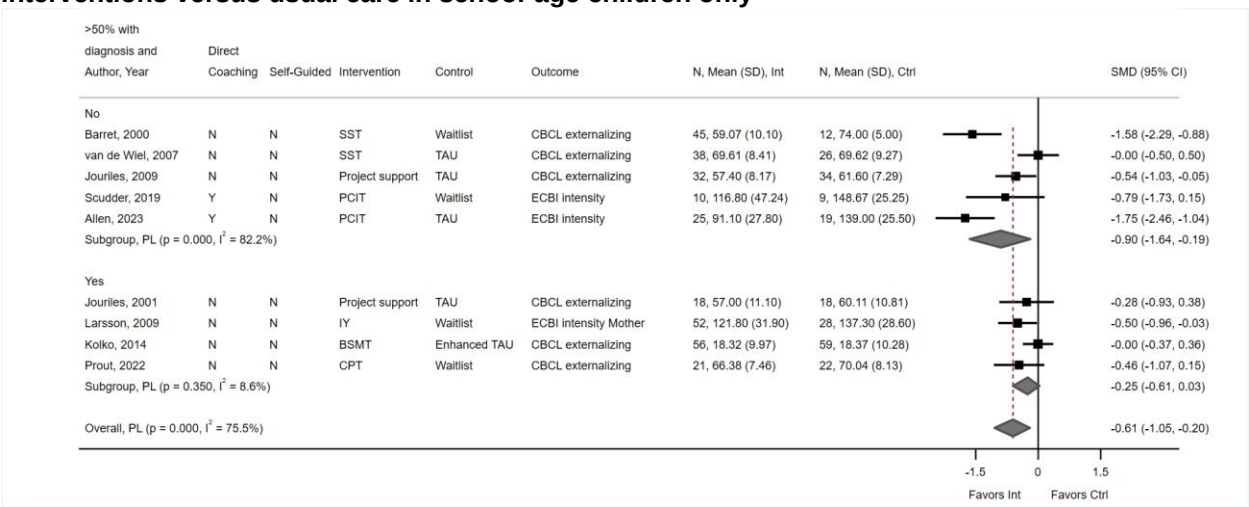
Abbreviations: CI = confidence interval; BSMT = Booster Session of Modular Treatment; CBCL = Child Behavior Checklist; CPT = Combined Parent and Child Training; Ctrl = control; CTRT = Child-Teacher Relationship Training; DBD = disruptive behavior disorder; ECBI = Eyberg Child Behavior Inventory; Int = intervention; IY = Incredible Years; N = No; PCIT = Parent-Child Interaction Therapy; PL = profile likelihood; SD = standard deviation; SMD = standardized mean difference; SST = Specific Skills Training; TAU = treatment as usual; Y = Yes; VIPP-sd = Video-feedback Intervention to promote Positive Parenting and Sensitive Disciple

Figure J-3. Official diagnosis of a DBD versus no official diagnosis in trials of multicomponent interventions versus usual care in preschool children only



Abbreviations: CI = confidence interval; CBCL = Child Behavior Checklist; Ctrl = control; CTRT = Child-Teacher Relationship Training; DBD = disruptive behavior disorder; ECBI = Eyberg Child Behavior Inventory; Int = intervention; N = No; PCIT = Parent-Child Interaction Therapy; PL = profile likelihood; SD = standard deviation; SMD = standardized mean difference; TAU = treatment as usual; Y = Yes; VIPP-sd = Video-feedback Intervention to promote Positive Parenting and Sensitive Disciple

Figure J-4. Official diagnosis of a DBD versus no official diagnosis in trials of multicomponent interventions versus usual care in school-age children only



Abbreviations: BSMT = Booster Session of Modular Treatment; CI = confidence interval; CBCL = Child Behavior Checklist; CPT = Combined Parent and Child Training; Ctrl = control; DBD = disruptive behavior disorder; ECBI = Eyberg Child Behavior Inventory; Int = intervention; IY = Incredible Years; N = No; PCIT = Parent-Child Interaction Therapy; PL = profile likelihood; SD = standard deviation; SMD = standardized mean difference; SST = Specific Skills Training; TAU = treatment as usual; Y = Yes;

Appendix K. Key Question 2: Additional Details

Table K-1. Patient criteria for inclusion in RCTs of pharmacologic interventions

Patient Criteria	Study, Year N	Inclusion Criteria	Other Patient Characteristics
Single diagnosis	Donovan, 2000[1] N=15	CD or ODD (DSM-IV)	Chronic symptoms (≥1 year)
	Juarez-Trevino, 2019[2] N=24	CD (DSM-IV)	-
	Klein, 1997[3] N=71	CD (DSM-III)	-
	Spencer, 2006[4] N=297	ODD (DSM-IV-TR)	-
	Steiner, 2003[5] N=58	CD (DSM-IV)	Inpatient facility resident
Comorbid diagnoses	Dittman, 2011[6] N=180	ADHD + ODD (DSM-IV-TR)	-
	Garg, 2015[7] N=37	ADHD + ODD (DSM-IV)	-
	Safavi, 2014[8] N=40	ADHD + ODD (DSM-IV-TR)	-
	Connor, 2008[9] N=19	CD (K-SADS-E) OAS score ≥25 CGI-S score ≥4	-
	Connor, 2010[10] N=217	ADHD (DSM-IV-TR + K-SADS-PL) CPRS-R:L score ≥12 (girls) or ≥14 (boys)	-
	Findling, 2000[11] N=20	CD (DSM IV) CGI score indicating moderate symptoms CBCL aggression subscale T-score ≥2 SD above the mean	-
	Jahangard, 2017[12] N=84	ADHD with ODD symptoms (DSM-IV) CPRS-R:L score ≥70	Prior treatment failure with methylphenidate and family counseling
	Reyes, 2006[13] N=335	CD, ODD or DBD NOS (DSM-IV +KSADS-PL) NCBRF conduct problem subscale score ≥24	Prior responders to 12-week risperidone run-in
	Towbin, 2020[14] N=49	DMDD (DSM-V)[a] CGAS score <60	Prior treatment failure with pharmacologic interventions, nonpharmacologic interventions, or both; initially enrolled as inpatients with subsequent discharge during the course of the 8-week trial
Comorbid diagnosis + scale score(s)	Aman, 2014[15] N=168	ADHD + CD or ODD (DSM-IV) MOAS score ≥3 NCBRF D-Total score ≥27 CGI-S score ≥4	Residual symptoms following 3-week treatment with stimulants and parent training
	Blader, 2009[16] N=27	ADHD + CD or ODD (K-SADS-PL) R-MOAS score >24 CBCL aggressive behavior subscale T-score ≥65 CGI T-score ≥70	Persistent symptoms following 2-week stimulant treatment
	Blader, 2021[17] N=40	ADHD + ODD or CD (DSM-IV-TR) CBCL aggressive behavior subscale score ≥1.5 SD above mean R-MOAS score >24	Inadequate response to run-in stimulant treatment and family therapy

Patient Criteria	Study, Year N	Inclusion Criteria	Other Patient Characteristics
	Dell'Agnello, 2009[18] N=137	ADHD + ODD (DSM-IV) CGI-S score ≥4 SNAP-IV ODD subscale score ≥15	No response to parent support alone
	Masi, 2015[19] N=22	Bipolar II disorder + CD (DSM-IV) CGI-S ≥4 CGAS ≤50	27% inpatient; 73% outpatient

Abbreviations: ADHD = attention-deficit/hyperactivity disorder; AQ = Aggression Questionnaire; CBCL = Child Behavior Checklist; CD = conduct disorder; CGAS = Children Global Assessment Scale; CGI = Clinical Global Impressions; CGI-S = Clinical Global Impressions – Severity; CPRS-R:L = Conners' Parent Rating Scale-Revised: Long Form; DBD NOS = disruptive behavior disorder not otherwise specified; DMDD = Disruptive Mood Dysregulation Disorder; K-SADS-E = Schedule for Affective Disorders and Schizophrenia for School-Aged - Epidemiologic Version; K-SADS-PL = Schedule for Affective Disorders and Schizophrenia for School-Aged Children - Present and Lifetime Version; MOAS = Modified Overt Aggression Scale; NCBRF = Nisonger Child Behavior Rating Form; ODD = oppositional defiant disorder; R-MOAS = Retrospective Modified Overt Aggression Scale; SNAP-IV: Swanson, Nolan and Pelham Teacher and Parent Rating Scale

[a]The trial initially enrolled children with severe mood dysregulation. During the course of the trial, the DMDD diagnosis was introduced via the DSM-IV; 98% (48/49) of those enrolled met DMDD criteria.

Table K-2. Pharmacologic interventions and comparators

Intervention	Placebo	Risperidone	Divalproex/ divalproex sodium	Methylphenidate
Risperidone	5[11-13,15,17]	-	-	-
Quetiapine	1[9]	1[19]	-	-
Clozapine	-	1[2]	-	-
Aripiprazole	-	1[8]	-	-
Divalproex/ divalproex sodium	3[1,16,17]	1[17]	1[5a]	-
Citalopram	1[14]	-	-	-
Methylphenidate	1[3]	-	-	-
Mixed amphetamine salts	1[4]	-	-	-
Atomoxetine	-	-	-	1[7]
Guanfacine	1[10]	-	-	-

Pharmacologic Interventions Versus Placebo

Table K-3. Results of RCTs of antipsychotics versus placebo

Author, Year Duration of followup	N= Inclusion criteria	Mean age % female Race/ethnicity	Intervention	Results
Aman, 2014,[15] Gadow, 2014[20] and Rundberg-Rivera, 2015[21] (TOSCA Study) 9 weeks	N=168 Comorbid ADHD and ODD or CD diagnosis and persistent symptoms after methylphenidate treatment and parent training	Mean age: 9 years 24% female 53% White 35% Black 10% multiracial 2% other race 5% Hispanic 94% non-Hispanic	Add-on risperidone (mean dose 1.9 mg/day) Intervention and placebo groups also received methylphenidate and parent training	Proportion with response (NCBRF disruptive behavior total score of ≥25% and a CGI-I score of 1 or 2): 79% (66/84) vs. 70% (59/84); RR 1.12 (0.94-1.34) ADHD-SC4 - Parent-rated ODD; mean (SD): 0.8 (0.6) vs. 1.1 (0.8); p=0.014; effect size 0.27 NCBRF disruptive behavior total score; mean (SD): 10.7 (9.0) vs. 17.8 (15.4); p=0.01; effect size 0.43

Author, Year Duration of followup	N= Inclusion criteria	Mean age % female Race/ethnicity	Intervention	Results
Blader, 2021[17] 8 weeks	N=26[b] Comorbid ADHD and ODD or CD diagnoses with persistent aggression after 3-month stimulant treatment and family therapy	Mean age 10 years 16% female 41% White 20% Black 5% other race 34% Hispanic	Add-on risperidone (mean dose 1.15 mg/day) Intervention and placebo groups also received methylphenidate or extended-release mixed amphetamine salts and family therapy	Proportion with response (R-MOAS <15): 69% (12/17) vs. 37% (3/9); RR 2.12 (0.80 to 5.61) CBCL aggressive behavior subscale T-score; LSM difference (95% CI): -9.11 (-14.86 to -36); p=0.002 CBCL rule-breaking subscale T-score; LSM difference (95% CI): -7.58 (-11.08 to -4.09); p=0.000 R-MOAS square root; LSM difference (95% CI): -2.33 (-3.83 to -0.82); p=0.003 CDRS; LSM difference (95% CI): -7.72 (-13.58 to -1.67); p=0.02
Connor, 2008[9] 7 weeks	N=19 CD diagnosis with aggressive behavior and moderately severe symptoms	Mean age: 14 years 74% female 74% White 26% non-White	Quetiapine (mean dose 294 mg/day)	CGI-S; mean (SD): 3.4 (SD 1.1) vs. 5.0 (SD 0.6); mixed effect model difference -1.80 (95% CI -0.53 to -3.10); effect size 1.6 (95% CI 0.9 to 3.0) OAS; mean (SD): 43.3 (55.6) vs. 49.4 (27.8); NSD between groups
Findling, 2000[11] 10 weeks	N=20 CD diagnosis and at least moderately severe symptoms	Mean age: 9 years 5% female 50% White; other race/ethnicity not reported	Risperidone (mean dose NR; maximum dose 1.5 mg/day [weight <50 mg] or 3.0 mg/day [weight ≥50 kg])	CGI-S; mean change from baseline (SE): -2.58 (0.49) vs. -0.08 (0.66); p=0.003 CGI-I, mean score at followup: 1.80 (SE 0.33) vs. 3.60 (SE 0.45); p=0.002 CBCL aggressive behavior subscale; mean difference from baseline (SE): -24.2 (5.7) vs. -11.5 (4.5); p=0.11
Jahangard, 2017[12] 8 weeks	N=84 ADHD diagnosis with ODD symptoms and prior treatment failure with methylphenidate and family counseling	Mean age 9 years 28% female Race/ethnicity not reported	Add-on risperidone (0.5 mg/day) Intervention and placebo groups also received methylphenidate	CGI-S; mean (SD): 2.02 (0.72) vs. 2.45 (0.77); p<0.05
Reyes, 2006[13] and Pandina, 2009[22] 6 months	N=335 CD, ODD, or DBD NOS diagnosis and clinical severity warranting risperidone treatment	Mean age: 11 years 13% female 87% White; other race/ethnicity not reported	Risperidone maintenance; (mean dose 0.81 mg/day [weight <50 kg] or 1.22 mg/day [weight ≥50 kg])	Proportion with symptom recurrence (deterioration of CGI-S ≥2 points or NCBRF conduct problem subscale ≥7 points at 2 consecutive visits 6-8 days apart): 27.3% (47/172) vs. 42.3% (69/163); RR 0.65 (95% CI 0.48 to 0.87) CGI-S; mean change (SD): 0.6 (1.2) vs. 1.2 (1.4); p<0.001

Abbreviations: ADHD = attention deficit/hyperactivity disorder; ADHD-SC4=ADHD Symptom Checklist-4; CAS-P=Children's Aggression Scale-Parent; CBCL=Child Behavior Checklist; CDRS: Child Depression Rating Scale; CGI-I=Clinical Global Impressions Improvement; CGI-S=Clinical Global Impressions-Severity; CPRS-R:S=Conners' Parent Rating Scale-Revised: Short Form; MOAS=Modified Overt Aggression Scale; NCBRF=Nisonger Child Behavior Rating Form; OAS=Overt Aggression Scale
[b]Risperdione and placebo arms only; study also included a divalproex sodium arm (n=14)

Table K-4. Results of RCTs of anticonvulsants versus placebo

Author, Year Duration of followup	N= Inclusion criteria	Mean age % female Race/ethnicity	Intervention	Results
Blader, 2009[16] 8 weeks	N=27 Comorbid ADHD and ODD or CD diagnoses with persistent aggression after 2-week stimulant treatment	Mean age 8 years 22% female 74% White 11% Black 11% other race 4% Hispanic	Add-on divalproex (mean dose 567 mg)	Proportion with response (R-MOAS score reduction ≥40% and total score ≤10): 57% (8/14) vs. 15% (2/13); RR 3.71 (0.96 to 14.37) R-MOAS; mean score (SD): 32.13 (44.14) vs. 35.77 (28.86); p=0.80; MD -3.64 (-31.58 to 24.30)
Blader, 2021[17] 8 weeks	N=23[a] Comorbid ADHD and ODD or CD diagnoses with persistent aggression after 3-month stimulant treatment and family-based therapy	Mean age: 10 years 16% female 41% White 20% Black 5% other race 34% Hispanic	Add-on divalproex sodium (18 mg/kg/day; total doses ranged from 375 mg/day to 1000 mg/day; mean 713 mg/day)	Proportion with response (R-MOAS <15): 43% (6/14) vs. 33% (3/9); RR 1.29 (0.43 to 3.88) CBCL aggressive behavior subscale T-score; LSM difference (95% CI): -7.48 (-13.93 to -1.03); p=0.02 CBCL rule-breaking subscale T-score; LSM difference (95% CI): -3.87 (-7.79 to 0.06); p=0.053 R-MOAS; LSM difference (95% CI): -1.60 (-3.18 to -0.03); p=0.046 CDRS; LSM difference (95% CI): -5.51 (-12.06 to 1.03); p=0.15
Donovan, 2000[1] 6 weeks	N=15 ODD or CD diagnosis with symptom duration ≥1 year	Mean age: 14 years 20% female 15% White 25% Black 60% Hispanic	Divalproex (10 mg/lb/day)	Proportion with response (≥70% reduction in MOAS and SCL-90 anger-hostility scores): 86% (6/7) vs. 25% (2/8); RR 3.43 (0.99 to 11.82)

Abbreviations: ADHD = attention-deficit/hyperactivity disorder; CBCL=Child Behavior Checklist; CDRS: Child Depression Rating Scale; LSM=least squares means; MOAS=Modified Overt Aggression Scale; R-MOAS=Retrospective-Modified Overt Aggression Scale; SCL-90=Symptom Checklist-90

[a]Divalproex sodium and placebo arms only; study also included a risperidone arm (n=17)

Table K-5. Results of RCTs of stimulants versus placebo

Author, Year Duration of followup	N= Inclusion criteria	Mean age % female Race/ethnicity	Intervention	Results
Klein, 1997[3] 5 weeks	N=74 CD diagnosis; 69% met ADHD criteria	Mean age: 10 years 11% female 65% White 29% Black 6% Hispanic	Methylphenidate (up to 60 mg/day; mean dose 41.3 mg/day)	Proportion with response, global (scale not reported; clinician-rated improved, much improved or completely well): 68% (28/41) vs. 11% (5/42); RR 5.74 (95% CI 2.46 to 13.40) Conduct problems, overall teacher rating mean score (SE) 1.3 (0.1) vs. 2.3 (0.1); p<0.03

Author, Year Duration of followup	N= Inclusion criteria	Mean age % female Race/ethnicity	Intervention	Results
Spencer, 2006[4] 4 weeks	N=297 ODD diagnosis; 79% had comorbid ADHD	Mean age: 11 years 31% female 71% White 16% Black 6.5% other race 6.5% Hispanic	Mixed amphetamine salts (10, 20, 30, or 40 mg/day)	Proportion with response (CGI-S "much" or "very much" improved from baseline) 10 mg/day: 36% (21/58) vs. 27% (16/60); RR 1.36 (95% CI 0.79 to 2.33) 20 mg/day: 55% (31/56) vs. 27% (16/60); RR 2.08 (95% CI 1.28 to 3.36) 30 mg/day: 61% (39/64) vs. 27%; (16/60); RR 2.29 (95% CI 1.44 to 3.63) 40 mg/day: 61% (36/59) vs. 27%; (16/60; RR 2.29 (95% CI 1.44 to 3.65) SNAP-IV ODD teacher rating Week 4, LSM difference (95% CI) 10 mg/day: -0.41 (95% CI -0.83 to 0.00); p=0.047 20 mg/day: -0.42 (95% CI -0.83 to -0.01); p=0.043 30 mg/day: -0.55 (95% CI -0.95 to -0.15); p=0.003 40 mg/day: -0.41 (95% CI -0.83 to 0.01); p=0.059

Abbreviations: ADHD = attention-deficit/hyperactivity disorder; CGI-S= CGI-S=Clinical Global Impression – Severity; ODD=Oppositional Defiant Disorder; SNAP-IV= Swanson, Nolan and Pelham Teacher and Parent Rating Scale

Table K-6. Results of RCTs of nonstimulants versus placebo

Author, Year Duration of followup	N= Inclusion criteria	Mean age % female Race/ethnicity	Intervention	Results
Connor, 2010[10] 9 weeks	N=217 ADHD diagnosis with oppositional symptoms based on CPRS-R:L scores oppositional subscale score	Mean age 9 years 31% female 66% White 22% Black <1% Hawaiian or Pacific Islander 3% American Indian or Alaska Native 8% other race 17% Hispanic	Guanfacine extended release (1 mg/day titrated to 4 mg/day; mean dose not reported)	CPRS-R:L oppositional subscale LSM change from baseline -10.9 vs. -6.8; p<0.001
Dell-Agnello, 2009[18] 6 weeks	N=137 Comorbid ADHD and ODD diagnosis	Mean age 10 years 7% female Race/ethnicity not reported	Atomoxetine (0.5 mg/kg/day titrated to 1.2 mg/kg/day; mean dose 1.10 mg/kg/day)	SNAP-IV ODD subscale Mean change from baseline (SD) -2.7 (SD 4.1) vs. -0.3 (SD 2.6); p=0.001 CPRS-R:S oppositional subscale Mean score (SD) 10.5 (4.4) vs. 13.0 (4.2); p=0.002 CTRS-R:S oppositional subscale Week 6, mean score (SD) 6.5 (4.1) vs. 10.9 (3.1); p=0.002

Author, Year Duration of followup	N= Inclusion criteria	Mean age % female Race/ethnicity	Intervention	Results
Dittman, 2011[6] and Wehmeier, 2011[23] 9 weeks	N=180 Comorbid ADHD and ODD diagnosis	Mean age 11 years 16% female Race/ethnicity not reported	Atomoxetine (0.5 mg/kg/day titrated to 1.2 mg/kg/day; mean dose not reported)	SNAP-IV ODD subscale LSM difference (95% CI) -3.2 (-5.0 to -1.5); p<0.001 CGI-S ODD symptoms LSM difference (95% CI) -0.8 (-1.1 to -0.4); p<0.001 KINDL-R total score (parent-rated quality of life) Week 9, mean change from baseline (SD) 2.6 (16.41) vs. -1.6 (14.29); p=0.02

Abbreviations: ADHD = attention-deficit/hyperactivity disorder; CGI-S=Clinical Global Impression – Severity; CPRS-R:L= CPRS-R:S= Conners' Parent Rating Scale-Revised: Long Form; Conners' Parent Rating Scale-Revised: Short Form; CTRS-R:S= Conners' Teacher Rating Scale-Revised: Short Form; KINDL-R=*Revidierter KINDer Lebensqualita tsfragebogen* (German language); LSM=least squares means; ODD=Oppositional Defiant Disorder; SNAP-IV= Swanson, Nolan and Pelham Teacher and Parent Rating Scale

Head-To-Head Trials of Pharmacologic Interventions

Within Class Head-To-Head Trials

Head-To-Head Trials of Antipsychotics

We identified three head-to-head randomized controlled trials (RCTs) (N=86) of risperidone versus other antipsychotics published since the prior report (**Table K-7**; **Appendix D**).[2,8,19] Duration of followup ranged from eight to 16 weeks. Age and clinical diagnoses varied among the trials. One trial enrolled a preschool population with comorbid attention-deficit/hyperactivity disorder (ADHD) and oppositional defiance disorder (ODD),[8] one included school-age children with conduct disorder (CD),[2] and the remaining trial enrolled adolescents with comorbid Bipolar II Disorder and CD.[19]

Study results are summarized in **Table K-7**. There were no differences between intervention arms for most outcomes, including measures of response (2 studies), aggression (Modified Overt Aggression Scale or CBCL aggression subscale; 3 studies), and depression (Hamilton Depression Rating Scale; 1 study). The only significant between-group difference was in the 16-week trial conducted in school-age children, which found those treated with risperidone had a smaller change from baseline in Child Behavior Checklist (CBCL) externalizing score compared with those treated with clozapine (17.7 [standard deviation (SD) 13.7] vs. 30.3 [SD 9.6]; p=0.04).[2]

Table K-7. Results of head-to-head RCTs of antipsychotics

Author, Year Duration of followup	N= Inclusion criteria	Mean age % female Race/ethnicity	Comparison	Results
Juarez-Trevino, 2019[2] 16 weeks	N=24 CD diagnosis	Mean age: 11 years 8% female Race/ethnicity not reported	Risperidone (0.025 mg/kg/day titrated to 0.05 mg/kg/day) vs. clozapine (0.3 mg/kg/day titrated to 0.6 mg/kg/day)	MOAS; mean change from baseline (SD) 18.3 (22.3) vs. 16.0 (11.6); p=0.58 CBCL Aggressive Behavior subscale; mean change from baseline (SD) 8.6 (9.8) vs. 14.2 (5.1); p=0.17

Author, Year Duration of followup	N= Inclusion criteria	Mean age % female Race/ethnicity	Comparison	Results
				CBCL-E; mean change from baseline (SD): 17.7 (13.7) vs. 30.3 (9.6); p=0.04
Masi, 2015[19] 12 weeks	N=22 Comorbid Bipolar II Disorder and CD diagnoses	Mean age: 15 years 45% female 100% White	Risperidone (mean dose 1.90 mg/day) vs. quetiapine (mean dose 163.30 mg/day)	Proportion with response (CGI-I score ≤2 and CGI-S score ≤3) 60% (6/10) vs. 50% (6/12); RR 1.20 (0.56 to 2.56) MOAS; mean change from baseline (SD NR) -11.2 vs. -8.75 ; p=0.62 CGI-S; mean change from baseline (SD NR) -1.40 vs. -1.75; p=0.58 HDRS; mean change from baseline (SD NR) -7.7 vs. -3.2; p=0.24
Safavi, 2016[8] 8 weeks	N=40 Comorbid ADHD and ODD diagnoses	Mean age: 4 years 17% female Race/ethnicity not reported	Risperidone (mean dose 1.05 mg/day) vs. aripiprazole (4.69 mg/day)	Proportion with response (CGI-I score of 1 or 2): 30% (6/16) vs. 35% (7/17); RR 0.91 (0.39 to 2.13) CPRS-R:S ODD subscale score Week 8, mean (SD) 10.18 (4.13) vs. 9.00 (3.74); p=0.91

Abbreviations: ADHD = attention-deficit/hyperactivity disorder; CBCL=Child Behavior Checklist; CGI-I=Clinical Global Impressions Improvement; CGI-S=Clinical Global Impressions-Severity; CPRS-R:S=Conners' Parent Rating Scale-Revised: Short Form; HDRS: Hamilton Depression Rating Scale; MOAS=Modified Overt Aggression Scale

Head-To-Head Trials of Anticonvulsants

One trial compared high- versus low-dose divalproex in 58 adolescent males (mean age 16 years; 38% white, 38% Latino, 16% Black, 3% Asian, 5% other race ethnicity/not reported) with conduct disorder incarcerated in a state juvenile correctional facility (**Appendix D**).[5] The enrolled population was considered to be severely criminal relative to other adolescents in the justice system, and two-thirds of the population had committed a serious criminal offense (e.g., manslaughter, robbery, rape). Most also had multiple comorbid diagnoses that included substance use disorder (88%), learning disability (60%), dysthymia/depression (54%), ADHD (52%), and PTSD (22%). According to clinician-rated CGI-S scores, the proportion of the population that was moderately (score=4), markedly (score=5), or severely ill (score=6) at baseline was 26, 30, and 25 percent, respectively.

At 7-week followup, use of high-dose divalproex was associated with lower risk of moderate (15% [5/34] vs. 25% [6/24]; RR 0.59, 95% CI 0.20 to 1.71), marked (3% [1/34] vs. 17% [4/24]; RR 0.18, 95% CI 0.02 to 1.48), or severe illness (9% [3/34] vs. 23% [6/24]; RR 0.35, 95% CI 0.10 to 1.27) versus low-dose divalproex based on CGI-S score. Adolescents treated with high-dose divalproex were also more likely to be rated much or very much improved based on CGI-I score ≤2 compared with low-dose divalproex (53% [18/34] vs. 8% [2/24]; RR 6.35, 95% CI 1.62 to 24.86).

There was no difference between treatment groups in change in privilege level, which confers the level of freedom within the correctional facility.

Between Class Head-to-Head Trials

Antipsychotics Versus Anticonvulsants

One RCT that compared the effectiveness of risperidone with divalproex sodium was identified (**Appendix D; Appendix E**).[17] The study included 36 school-age children with comorbid ADHD and either CD or ODD who had inadequate response to open-label stimulant treatment prior to randomization. The study also included a placebo arm; results for risperidone versus placebo and divalproex sodium versus placebo are discussed separately. The study reported least squares mean (LSM) difference between groups at 8-week followup. There was no difference between groups in change in aggression based on R-MOAS (p=0.28) and CBCL Aggressive Behavior subscale (p=0.56) scores. There was also no difference between groups in depressive symptoms based on CDRS scores (p=0.37).

Stimulants Versus Nonstimulants

One open-label trial comparing methylphenidate (mean dose 15.1 mg/day) with atomoxetine (mean dose 17.2 mg/day) was identified (**Appendix D**).[7] The trial was conducted in school-age children with comorbid ODD and ADHD. The study population was a subset of a larger trial that enrolled children with ADHD. Children in the ADHD trial who were determined to have comorbid ODD based on the Vanderbilt ADHD Diagnostic Parent Rating Scale (VADPRS) were included in this trial. The trial enrolled 37 children but reported followup data for only 17 of those enrolled and therefore, findings should be interpreted with caution. The trial had a high risk of bias due to other limitations in addition to the high loss to followup and open-label design, including unclear allocation concealment and no intention-to-treat analysis (**Appendix E**). After 8-week followup, there was no difference between methylphenidate and atomoxetine groups in the proportion of children with treatment response, defined as no longer meeting VADPRS ODD criteria (RR 1.24, 95% CI 0.76 to 2.05). There was also no difference between groups in VADPRS ODD subscale scores (6.4 [SD 3.2] vs. 6.4 [SD 5.0]; p=0.93).

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Appendix L. Key Question 5: Additional Details

Table L-1. Adverse events in RCTs of pharmacologic interventions for treatment of DBD

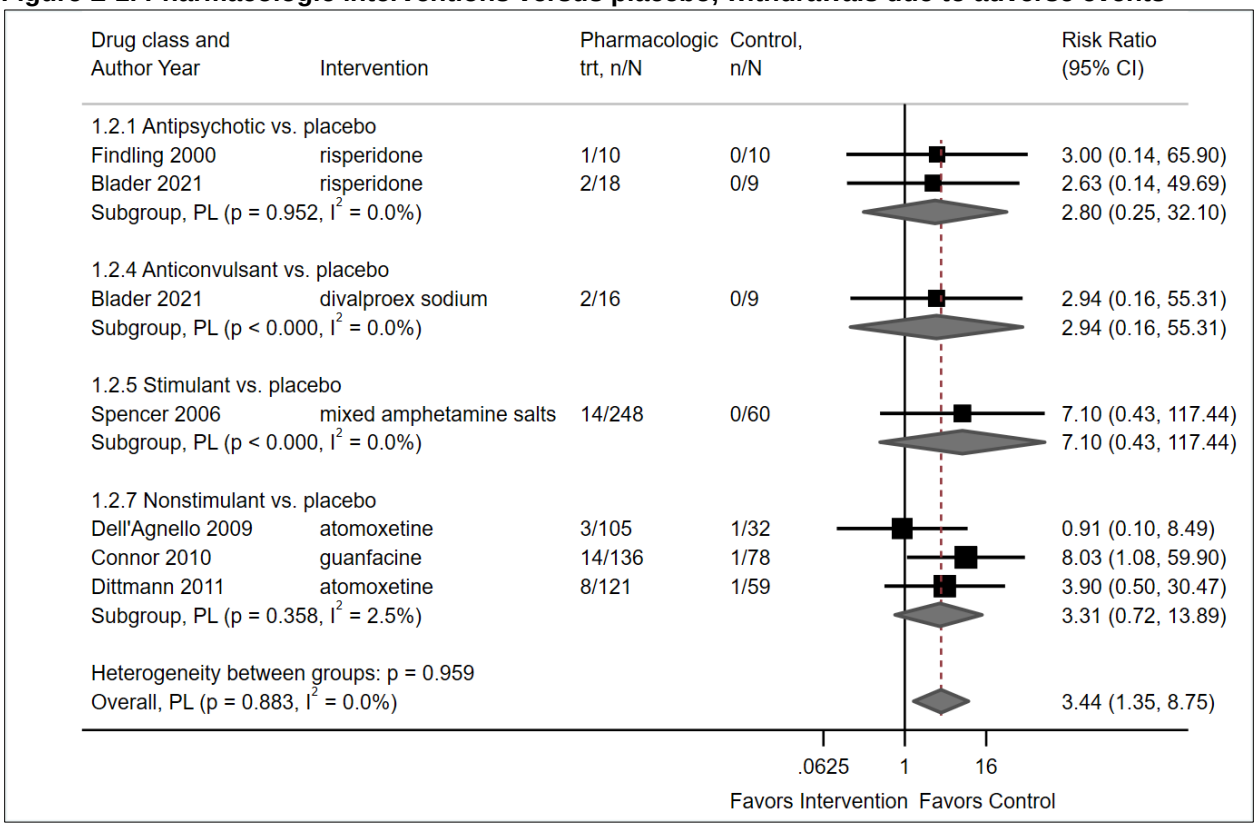
	Author, Year Duration of followup	Comparison	Any AE	Withdrawal due to AEs	Serious AEs	Selected specific AEs[a]
Antipsychotics	Aman 2014,[1] 9 weeks	Risperidone (n=84) vs. placebo (n=84)	NR	NR	None reported in either group	NR
	Blader 2021[2] 8 weeks	Risperidone (n=18) vs. placebo (n=9)	NR	11.1% (2/18) vs. 0% (0/9) RR 2.63 (95% CI 0.14-49.69)	None reported in either group	Tremor: 0% (0/18) vs. 33.3% (3/9) RR 0.08 (95% CI 0.00-1.32) Depression/sadness: 30.0% (6/18 vs. 55.6% (5/9) RR 0.60 (95% CI 0.25-1.44) Apathy: 4/18 vs. 3/9 RR 0.67 (95% CI 0.19-2.36)
	Connor 2008[3] 7 weeks	Quetiapine (n=9) vs. placebo (n=19)	NR	NR	NR	Weight gain: 33.3% (3/9) vs. 10.0% (1/10) RR 3.33 (95% CI 0.42-26.58) Narrative report of no differences in cardiac changes, prolactin levels or EPS
	Findling 2000[4] 10 weeks	Risperidone (n=10) vs. placebo (n=10)	NR	10.0% (1/10) vs. 0% (0/10) RR 3.00 (95% CI 0.14 to 65.90)	NR	NR
	Jahangard 2017[5] 8 weeks	Risperidone (n=42) vs. placebo (n=42)	NR	None in either group	NR	Mean weight change: +1.4 kg (5.7%) vs. -0.62 kg (-2.4%); p<0.05
	Reyes 2006[6] 6 months	Risperidone (n=172) vs. placebo (n=163)	47.6% (82/172) vs. 36.2% (59/163) **RR 1.32 (95% CI 1.02-1.70)**	1.7% (3/172) vs. 0.6% (1/163) RR 2.84 (95% CI 0.30 to 27.06)	3.5% (6/172) vs. 3.1% (5/163; specific AEs not described) RR 1.14 (95% CI 0.35-3.65)	Weight gain: 1.2% (2/172) vs. 0.6% (1/163) RR 1.90 (95% CI 0.17-20.70) EPS: 1.7% (3/172) vs. 0.6% (1/163) RR 2.84 (95% CI 0.30-27.06) Prolactin-related events: 2.9% (5/172) vs. 0% (0/163) RR 10.43 (95% CI 0.58-187)

	Author, Year Duration of followup	Comparison	Any AE	Withdrawal due to AEs	Serious AEs	Selected specific AEs[a]
	Juarez-Trevino 2019[7] 16 weeks	Risperidone (n=12) vs. clozapine (n=12)	NR	0% (0/12) vs. 16.7% (2/12) RR 0.20 (95% CI 0.01-3.77)	NR	Sedation/hypersomnia: 0% (0/12) vs. 33.3% (4/12) RR 0.11 (95% CI 0.01-1.86) No incidence of metabolic syndrome or akathisia
	Masi 2015[8] 12 weeks	Risperidone (n=10) vs. quetiapine (n=12)	NR	None in either group	NR	Weight gain BMI increase: 6/10 vs. 3/12 RR 2.40 (95% CI 0.80-7.23) No incidence of EPS or prolactin-related AEs
	Safavi 2016[9] 8 weeks	Risperidone (n=20) vs. aripiprazole (n=20)	NR	10.0% (2/20) vs. 20.0% (4/20) RR 0.50 (95% CI 0.10-2.43)	NR	NR
	Blader 2021[2] 8 weeks	Risperidone (n=18) vs. divalproex sodium (n=16)	NR	12.5% (2/16) vs. 0% (0/9) RR 2.94 (95% CI 0.16-55.31)	None reported in either group	Tremor: 0% (0/16) vs. 33.3% (3/9) RR 0.08 (95% CI 0.00-1.46) Depression/sadness: 31.3% (5/16) vs. 55.6% (5/9) RR 0.56 (95% CI 0.22-1.43) Apathy: 12.5% (2/16) vs. 33.3% (3/9) RR 0.38 (95% CI 0.08-1.84)
Anticonvulsants	Blader 2009[10] 4 weeks	Divalproex (n=15) vs. placebo (n=15)	Narrative report of no difference between groups	NR	NR	NR
	Blader 2021[2] 8 weeks	Divalproex sodium (n=16) vs. placebo (n=9)	NR	12.5% (2/16) vs. 0% (0/9) RR 2.94 (95% CI 0.16-55.31)	None reported in either group	Tremor: 0% (0/16) vs. 33.3% (3/9) RR 0.08 (95% CI 0.00-1.46) Depression/sadness: 31.3% (5/16) vs. 55.6% (5/9) RR 0.56 (95% CI 0.22-1.43) Apathy: 12.5% (2/16) vs. 33.3% (3/9) RR 0.38 (95% CI 0.08-1.84)
	Steiner 2003[11] 7 weeks	High-dose (n=34) vs. low-dose divalproex (n=24)	NR	NR	None reported in either group	NR

	Author, Year Duration of followup	Comparison	Any AE	Withdrawal due to AEs	Serious AEs	Selected specific AEs[a]
Stimulants	Spencer 2006[12] 4 weeks	Mixed amphetamine salts (n=248) vs. placebo (n=60)	NR	5.6% (14/248) vs. 0% (0/60) RR 7.10 (95% CI 0.43-117)	1/248 (suicide attempt) vs. 0/60 RR 0.73 (95% CI 0.03-17.82)	Weight loss: 10.1% (25/248) vs. 0% (0/60) RR 12.49 (95% CI 0.77-202)
	Garg 2015[13] 8 weeks	Methylphenidate (n=15) vs. atomoxetine (n=22)	46.7% (7/15) vs. 54.5% (12/22); RR 0.86 (95% CI 0.44-1.66)	13.3% (2/15) vs. 13.6% (3/22) RR 0.98 (95% CI 0.19-5.17)	NR	NR
Nonstimulants	Dittman 2011[14] 9 weeks	Atomoxetine (n=121) vs. placebo (n=59)	63.6% (77/121) vs. 30.5% (18/59) **RR 2.09 (95% CI 1.39-3.14)**	6.6% (8/121) vs. 1.7% (1/59) RR 3.90 (95% CI 0.50-30.47)	NR	NR
	Dell-Agnello 2009[15] 8 weeks	Atomoxetine (n=105) vs. placebo (n=32)	NR	2.9% (3/105) vs. 3.1% (1/32) RR 0.91 (95% CI 0.10-8.49)	NR	Anorexia/decreased appetite: 42.9% (45/105) vs. 9.4% (3/32) **RR 4.57 (95% CI 1.52-13.73)**
	Connor 2010[16] 9 weeks	Guanfacine (n=136) vs. placebo (n=78)	83.8% (114/136) vs. 57.7% (45/78) **RR 1.40 (95% CI 1.16-1.70)**	10.3% (14/136) vs. 1.3% (1/78) **RR 8.03 (95% CI 1.08-59.90)** Withdrawal due to cardiac AEs: 0.7% (1/136) vs. 0% (0/78) RR 1.73 (95% CI 0.07-41.96)	NR	Heart rate <50 bpm: 5.1% (7/136) vs. 1.3% (1/78) RR 4.01 (95% CI 0.50-32.03) Decreased DBP: 5.9% (8/136) vs. 1.3% (1/78) RR 4.59 (95% CI 0.58-36.00)
Antidepressants	Towbin 2020[17] 8 weeks	Citalopram (n=23) vs. placebo (n=26)	Mean number of AEs (SD): 14.3 (7.1) vs. 11.5 (6.1); p=0.138	NR	4.3% (1/23; suicidal ideation) vs. 0% (0/26) RR 3.38 (95% CI 0.14-79.00)	Weight changes: 56.5% (13/23) vs. 50.0% (13/26) RR 1.13 (95% CI 0.67-1.91) Insomnia: 73.9% (17/23) vs. 92.3% (24/26) RR 0.80 (95% CI 0.61-1.05)

Abbreviations: AE = adverse event; BMI = body mass index; CI = confidence interval; DBP = diastolic blood pressure; EPS = extrapyramidal side effects; NR = not reported; RR = relative risk; SD = standard deviation.

Figure L-1. Pharmacologic interventions versus placebo, withdrawals due to adverse events



Abbreviations: CI = confidence interval; PL = profile likelihood.

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Appendix M. Key Question 6: Additional Details

Key Question 6a. Do interventions for disruptive behaviors vary in effectiveness and harms based on patient characteristics, including gender, age (including pubertal changes and use of oral contraceptives), racial/ethnic minority, LGBTQ+ status, English proficiency, health literacy, socioeconomic status, insurance status, rural versus urban, developmental status or delays, family history of disruptive behavior disorders or other mental health disorders, prenatal use of alcohol and drugs (specifically methamphetamine), history of trauma or Adverse Childhood Experiences (ACEs), parental ACEs, access to social supports (neighborhood assets, family social support, worship community, etc.), personal and family beliefs about mental health (e.g. stigma around mental health), or other social determinants of health?

Overall Key Findings

- Twelve RCTs (4 preschool, 7 school age, 1 adolescent) of psychosocial interventions conducted subgroup analyses to test for effect modification based on patient characteristics; seven of these found no interaction based on analyses of child and/or parent characteristics.
- Tests for modification in trials of psychosocial interventions for all patient characteristics was insufficient due to the heterogeneity of trials and inconsistency of findings.
- No trials of pharmacologic interventions met criteria for inclusion in Key Question 6a, and no studies reported differential harms according to patient characteristics.

Detailed Analysis

We identified twelve RCTs that conducted subgroup analyses to test for effect modification based on patient characteristics (**Table M-1**).[1-12] Four trials were conducted in preschoolers,[1-4] seven were conducted in school age children,[5-11] and one was conducted in an adolescent population.[12] Details regarding populations and specific treatment protocols are provided in **Key Question 1** within the main report and **Appendix G.** Studies tested for a range of variables that included child (e.g., age, gender, socioeconomic status) and parent (e.g., age, marital status, education) characteristics.

Psychosocial Interventions

Preschool

Four trials that assessed treatment effect modification in preschool aged children compared parent-targeted interventions with control (**Table M-1)**.[1-4] Outcomes assessed included ECBI Problem and Intensity scores, CBCL Externalizing score, and the Preschool Parental Account of Children's Symptoms. Based on these outcome measures, there were no consistently significant factors that demonstrated effect modification across the studies.

One trial[1] that compared Incredible Years with a waitlist control found significant interaction when assessing child age (p for interaction=0.04) and gender (p for interaction=0.04), and maternal depression based on Beck Depression Inventory score at baseline (p for interaction=0.004). Child age in months was analyzed as a continuous variable, finding that younger age children in the Incredible Years group showed greater improvement in conduct problems compared with younger children in the control group. Boys in the Incredible Years group showed improvement in conduct problems, while girls in both Incredible Years and waitlist groups tended to improve. Children of mothers with higher Beck Depression Inventory scores also showed greater improvement in conduct problems with Incredible Years versus similar children in the control arm. A second trial[2] that compared both psychologist- and nurse-led Incredible Years with a minimal intervention control group, found no interaction when testing for child age or parent race/ethnicity, socioeconomic status or maternal mental health. The same study found a moderating effect for gender (p for interaction=0.001). Girls in the nurse-led Incredible Years group had greater improvement in CBCL Externalizing score compared with boys, while boys fared better than girls for the same outcome in the minimal intervention control group; there was no clear differential effect for gender in the psychologist-led Incredible Years group. Using ECBI Intensity as an outcome, the study found maternal education (≤high school vs. ≥some college) was also an effect moderator (p for interaction=0.01) though very small subset sample sizes limit interpretation of this finding. In the other two studies, there were no clear differences in effect based on the variables analyzed. One study reported no significant effect modification for any of the variables tested.[3] The fourth study did not report tests for interaction, but study results stratified according to child age, caregiver race/ethnicity, and number of caregivers resulted in overlapping confidence intervals, suggested no significant difference between groups for these variables.[4]

School Age

Seven RCTs assessed psychosocial treatment effect modification in school age children (**Table M-1**).[5-11] Two trials[5,6] compared a multicomponent intervention with control and three[8,9,11] compared a parent-only intervention with control. One study[7] compared a parent and child intervention with a parent-only intervention, and one[10] compared community-based with clinic-based modular treatment; see **Appendix D** for intervention details.

There was little evidence of moderator effects among the studies. Four trials found no evidence of interaction for any of the tested child and parent characteristics.[5,7,8,11] One trial that compared emotion-focused parent training (Tuning Into Kids), behavior-focused parent training (Triple P), and a waitlist control found a moderating effect for child age and teacher-rated SDQ Conduct Problems scale score (p for interaction=0.017).[6] Age was tested as a dichotomous variable (≤7 years vs. ≥8 years). The study found children in the older age group were more likely to have a positive response to the emotion-focused parent training intervention, while the

younger age group were more likely to respond to the behavior-focused parent training intervention. A second trial that compared parent training with usual care found age to be a significant modifier for Teacher Reported Total (p for interaction=0.04) and Externalizing (p for interaction=0.04) scores.[9] Children under 8 years old in the parent training group had significantly lower scores than those in the control group for both measures, while no such effect was observed for children over 8 years. A third trial[10] that compared community-based with clinic-based modular treatment tested child, parent, and family-level variables immediately posttreatment and at 3-years followup. For most variables, there was no interaction at either time point for CBCL Externalizing score and number of disruptive behavior disorder symptoms. One exception was for family conflict, a measure based on the Family Environment Scale Conflict scale, which was found to marginally significant for treatment effect moderation on CBCL Externalizing score at 3-year followup (p for interaction=0.05). In the study, children with low family conflict scores at baseline in the community-based treatment group tended to have more externalizing behaviors at followup compared with similar children in the clinic-based treatment group. No effect was observed for children with high family conflict scores at baseline.

Adolescent

One RCT conducted in an adolescent population compared treatment effect stratified according to gender.[12] The study compared multisystemic therapy with treatment as usual in teens with moderate to severe antisocial behavior at baseline. Risk of having a criminal offence with a conviction was lower in girls who received multisystemic therapy compared with treatment as usual (OR 0.9, 95% CI 0.6 to 1.36) while boys were more like to have a criminal offence with a conviction (OR 1.58, 95% CI 0.94 to 2.66). Tests for interaction were not reported, but overlapping confidence intervals suggest no significant difference between these groups.

Table M-1. Differential effectiveness according to patient characteristics in studies of psychosocial interventions

Patient Characteristic	Author, Year N	Intervention	Comparison	Variables Analyzed	Outcome(s)	Results
Preschool	Gardner, 2010[1] N=133	Incredible Years	Waitlist	Child: • Age • Gender Parent: • Age • Marital status • Family income • Maternal depression based on Beck Depression Inventory	ECBI Problem	Child: • **Age: p for interaction=0.04** • **Gender: p for interaction=0.04** Parent: • Age: p for interaction>0.05 • Marital status: p for interaction>0.05 • Family income: p for interaction>0.05 • **Maternal depression: p for interaction=0.004**
	Lavigne, 2008[2] N=117	Incredible Years (psychologist- and nurse-directed)	Minimal intervention (bibliotherapy)	Child: • Age • Gender Parent: • Race/ethnicity • SES • Education level • Maternal mental health	CBCL Externalizing ECBI Intensity	CBCL Externalizing Child: • **Gender: p for interaction=0.001** ECBI Intensity subscale Parent: • **Maternal education level: p for interaction=0.001** No significant effect for all other variables (data not reported)
	McGilloway, 2012[3] N=149	Incredible Years parent training	Waitlist	Child: • Age • Gender • SES • Increased conduct disorder risk due to single parenthood, teenage parenthood, parental depression, family poverty, and parental history of drug abuse or criminality	ECBI Problem and Intensity	Narrative report of no significant moderator effects for any variable

Patient Characteristic	Author, Year N	Intervention	Comparison	Variables Analyzed	Outcome(s)	Results
	O'Farrelly, 2021[4] N=286	Parent training	Usual care	Child: • Age • Race/ethnicity of caregivers • Number of caregivers participating in treatment	Preschool Parental Account of Children's Symptoms	For all variables, adjusted mean difference (95% CI); tests for interaction not reported Age • 1 year: 2.91 (0.06 to 5.76) • 2 years: 1.82 (-1.04 to 4.68) Race/ethnicity • White: 2.17 (-0.13 to 4.47) • Other race/ethnicity: 2.45 (-1.90 to 6.79) Number of caregivers • 1 caregiver: ES 2.79 (0.64 to 4.94) • 2 caregivers: ES -2.61 (-7.71 to 2.49)
School age	Augmeri, 2007[5] N=30	Multicomponent child and parent outreach project (SNAP)	Active control	Unclear (at least marital status and family income)	CBCL Aggression and Delinquency	Narrative report of no significant moderator effects for parental marital status or family income
	Duncombe, 2016[6] N=307	Emotion-focused parent training Behavior-focused parent training	Waitlist	Child: • Age • Gender Parent: • Family income • Education level • Mental health	SDQ Conduct Problems	Child: • **Age: p for interaction=0.017** No significant effect for all other variables (data not reported)
	Helander, 2022[7] N=97	Parent training + CBT	Parent training alone	Child: • Gender	DBD-ODD	Narrative report of no significant moderator effect for child gender
	Kling, 2010[8] N=155	Therapist-led parent training Self-directed parent training	Waitlist	Child: • Age • Gender • Number of parents in the home Parent: • Age • Education level • Immigrant status	Conduct problems[a]	Narrative report of no significant moderator effects for any variable
	Ogden, 2008[9] N=97	Parent training	Usual care	Child: • Age	TRF Total and Externalizing	Teacher Report Form Total score **Age: p for interaction=0.04** Teacher Report Form Externalizing score **Age: p for interaction=0.04**

Patient Characteristic	Author, Year N	Intervention	Comparison	Variables Analyzed	Outcome(s)	Results
	Shelleby, 2015[10] N=137	Community-based modular treatment	Clinic-based modular treatment	Child • Trauma history (Trauma Events Screening Inventory) Parent • Education level • Employment status • Income • Mental health (BDI) Family • Family conflict (Family Environment Scale Conflict subscale)	CBCL Externalizing Number of DBD symptoms[b]	<u>6-month followup</u> CBCL Externalizing Child • Trauma history: p for interaction=0.95 Parent • Education level: p for interaction=0.10 • Employment status: p for interaction=0.06 • Income: p for interaction=0.33 • Mental health: p for interaction=0.48 Family • Family conflict: p for interaction=0.90 Number of DBD symptoms Child • Trauma history: p for interaction=0.09 Parent • Education level: p for interaction=0.18 • Employment status: p for interaction=0.61 • Income: p for interaction=0.65 • Mental health: p for interaction=0.69 Family • Family conflict: p for interaction=0.33

Patient Characteristic	Author, Year N	Intervention	Comparison	Variables Analyzed	Outcome(s)	Results
	Shelleby, 2015[10] N=137 (Continued)	-	-	-	-	3-year followup CBCL Externalizing Child • Trauma history: p for interaction=0.31 Parent • Education level: p for interaction=0.11 • Employment status: p for interaction=0.94 • Income: p for interaction=0.84 • Mental health: p for interaction=0.23 Family • **Family conflict: p for interaction=0.05** Number of DBD symptoms Child • Trauma history: p for interaction=0.11 Parent • Education level: p for interaction=0.09 • Employment status: p for interaction=0.66 • Income: p for interaction=0.62 • Mental health: p for interaction=0.64 Family • Family conflict: p for interaction=0.51
	Weeland, 2017[11] N=358	Incredible Years	Control (not described)	Child: • Gender • SES • Number of parents in the home	ECBI Intensity	Child: • Gender: narrative report of no significant moderator effect • SES: p for interaction=0.12 • Single-parent home: narrative report of no significant moderator effect
Adolescent	Fonagy, 2020[12] N=611	Multisystemic therapy	Treatment as usual	Child: • Gender	Criminal offence with a conviction	• Gender ○ Female: OR 0.9 (95% CI 0.6 to 1.36) ○ Male: OR 1.58 (95% CI 0.94 to 2.66)

[a]"Conduct problems" was a composite outcome that included standardized mean Parent Daily Report, ECBI Intensity, and ECBI Problem scores
[b]Total number of ODD and CD threshold symptoms based on Kiddie Schedule for Affective Disorders and Schizophrenia for School-Aged Children - Present and Lifetime version
Abbreviations: BDI = Beck Depression Inventory; CBCL = Child Behavior Checklist; DBD-ODD= Disruptive Behavior Disorder Oppositional/Defiant subscale; ECBI = Eyberg Child Behavior Inventory; SDQ = Strengths and Difficulties Questionnaire; TRF = Teacher Report Form

Pharmacologic Interventions

We identified no new studies met criteria for inclusion for this Key Question.

Harms

No studies reported differential harms of treatment according to patient characteristics.

Key Question 6b. Do interventions for disruptive behaviors vary in effectiveness and harms based on clinical characteristics or manifestations of the disorder, including specific disruptive behavior (e.g., stealing, fighting) or specific disruptive behavior disorder (e.g., oppositional defiant disorder, conduct disorder), co-occurring behavioral disorders (e.g., attention deficit hyperactivity disorder, autism spectrum disorder, internalizing disorders), related personality traits and symptom clusters, presence of non-behavioral comorbidities, age of onset, and duration?

Overall Key Findings

- Ten RCTs (3 preschool, 5 school age, 2 adolescent) of psychosocial interventions and one trial of pharmacologic interventions conducted subgroup analyses to test for effect modification based on clinical characteristics.
- Six trials of psychosocial interventions found no evidence of differential treatment effects when stratified according to clinical characteristics. The remaining four studies were heterogenous in terms of interventions and outcomes, and no clinical characteristics were consistently associated with treatment effectiveness.
- Tests for modification in trials of psychosocial interventions for all clinical characteristics was insufficient due to the heterogeneity of trials and inconsistency of findings.
- In one RCT that compared high- versus low-dose divalproex in adolescents, test for interaction was not significant when stratified according to aggression type.
- No studies reported differential harms of treatment according to clinical characteristics.

Detailed Analysis

The 2015 report included six studies that assessed variation in intervention effectiveness according to clinical characteristics, finding no consistent effects across studies. We identified ten trials[1,2,4,6,7,10-14] of psychosocial interventions and one trial[15] of pharmacologic interventions for this report that conducted subgroup analyses to test for effect modification based on clinical characteristics (**Table M-2**). Three studies were conducted in preschoolers,[1,2,4] five were conducted in school age children,[6,7,10,11,13] and three were conducted in an adolescent population;[12,14] see **Key Question 1** within the main report and **Appendix D** for details regarding populations and specific treatment protocols. Clinical characteristics assessed in the studies included scale measures of ODD and CD, comorbid diagnoses (e.g., attention-

deficit/hyperactivity disorder [ADHD]), and specific disease manifestations (e.g., aggression type).

Psychosocial Interventions

Preschool

Three RCTs conducted in preschoolers reported outcomes (ECBI Problem and Intensity scores, CBCL Externalizing score) stratified according to clinical characteristics (**Table M-2**; **Appendix D**).[1,2,4] Two trials reported no significant interaction between Incredible Years and control groups for any variable, including deviant behavior at baseline, CBCL Internalizing score, functional impairment, child temperament, or behavioral comorbidities (e.g., ADHD).[1,2] The third trial, that compared parent training with usual care, did not report tests for interaction, but overlapping confidence intervals suggested no significant differences in treatment effect on parent-assessed symptoms when children were stratified according to SDQ Externalizing score quartile.[4]

School Age

Five RCTs assessed treatment effect moderators in school age children according to clinical characteristics (**Table M-2**; **Appendix D**).[6,7,10,11,13] Two trials of parent training versus control found no interaction between treatment groups for either SDQ Conduct Problems[6] or EBCI Intensity[11] score when children were stratified according to baseline severity of externalizing behavior problems.

The remaining three trials were heterogenous in terms of outcomes and findings. One trial[7] that assessed the Disruptive Behavior Disorder-Oppositional/Defiant subscale compared parent training plus child CBT with parent training alone, and found a significant treatment effect when analyzed according to baseline ODD severity as a dichotomous outcome (high vs. low severity; p for interaction=0.014).[7] However, there was no significant treatment effect when baseline ODD was analyzed as a continuous outcome, nor were there significant effects for either comorbid ADHD or use of prescription medication at baseline. A study of parent training versus Collaborative Problem Solving analyzed treatment effect on parent-rated ODD symptoms according to aggression type.[13] In the study, reactive and premeditated aggression types were dichotomized into high versus low scores. For reactive aggression, no difference in treatment effect was found for high versus low aggression scores, but for children with premeditated aggression, there was a significant interaction when stratified according to high or low score at baseline (p for interaction=0.01) suggesting that children with low premeditated aggression scores had better response to parent training that those with high premeditated aggression scores. Finally, a study of community-based versus clinic-based modular treatment stratified results for CBCL Externalizing score and number of DBD symptoms according to ADHD diagnosis, Teacher Report Form aggression score, and Columbia Impairment Scale score.[10] Marginally significant differential treatment effects were observed for impairment at 6-month followup (immediately posttreatment) for CBCL Externalizing score (p for interaction=0.046) but not for ADHD diagnosis or aggression. For the outcome of number of DBD symptoms, 6-month results indicated a significant treatment effect for ADHD diagnosis (p for interaction=0.03) and impairment (p for interaction=0.04) but not for aggression. None of the treatment effect modifiers were statistically significant at 3-year followup for either outcome.

Adolescent

Two trials of adolescents assessed whether treatment effects were modified by clinical characteristics (**Table M-2**; **Appendix D**).[12,14] One trial[12] of multisystemic therapy versus treatment as usual enrolled teens with moderate to severe antisocial behavior at baseline and reported risk of a criminal offense with a conviction. The study did not report tests for interaction, but subgroup analysis stratified according to: CD or ADHD diagnosis; CD, anxiety or depression diagnosis; Inventory of Callous-Unemotional Traits score; Antisocial Beliefs and Attitudes scale score; or number of delinquent peers resulted in overlapping confidence intervals, suggesting no significant differential treatment effects. The second trial[14] assessed risk of incarceration in teens randomized to a group psychosocial intervention or control stratified according to clinical (versus non-clinical) aggression at baseline. The study reported a significant interaction among treatment groups (p for interaction=0.012), finding that teens with clinical aggression benefitted more from the active intervention than those who did not meet clinical aggression criteria at baseline.

Table M-2. Differential effectiveness according to clinical characteristics in studies of psychosocial interventions

Population	Author, Year	Intervention	Comparison	Subgroups analyzed	Outcome(s)	Results
Preschool	Gardner, 2010[1] N=133	Incredible Years	Waitlist	Deviant behavior (Dyadic Parent–Child Interaction Coding System total count of parent-reported hitting, destructiveness, yelling, crying, whining, and "smart talk")	ECBI Problem	Deviant behavior: Narrative report of no significant moderator effect for deviant behavior (p for interaction not reported)
	Lavigne, 2008[2] N=117	Incredible Years (psychologist- and nurse-directed)	Minimal intervention (bibliotherapy)	• CBCL Internalizing score • Functional impairment • Child temperament • Comorbidity (e.g., ADHD)	CBCL Externalizing ECBI Intensity	No significant effect for all variables (data not shown)
	O'Farrelly, 2021 n=286[4] N=286	Parent training	Usual care	SDQ Externalizing subscale score	Preschool Parental Account of Children's Symptoms	Per SDQ Externalizing scale score quartile: • Q1: ES 2.80 (-0.89 to 6.49) • Q2: ES -0.71 (-6.02 to 4.60) • Q3: ES 1.49 (-2.78 to 5.76) • Q4: ES 3.38 (-0.32 to 7.08)
School age	Duncombe, 2016[6] N=307	Emotion-focused parent training Behavior-focused parent training	Waitlist	Severity of behavior problems at baseline	SDQ Conduct Problems	Narrative report of no significant moderator effect for severity of behavior problems at baseline
	Helander, 2022[7] N=97	Parent training + CBT	Parent training	• ODD severity as a dichotomous outcome (high vs. low) • ODD severity as a continuous outcome (number of diagnostic criteria met) • ADHD diagnosis • Prescribed medication	DBD-ODD	**ODD severity, dichotomous: p for interaction=0.014** No significant moderator effect for other variables (p for interaction not reported)

Population	Author, Year	Intervention	Comparison	Subgroups analyzed	Outcome(s)	Results
	Shelleby, 2015[10] N=137	Community-based modular treatment	Clinic-based modular treatment	• ADHD diagnosis • Aggression (based on TRF) • Impairment (based on CIS)	CBCL Externalizing Number of DBD symptoms[a]	<u>6-month followup</u> CBCL Externalizing • ADHD diagnosis: p for interaction=0.43 • Aggression: p for interaction=0.48 • **Impairment: p for interaction=0.046** Number of DBD symptoms • **ADHD diagnosis: p for interaction=0.03** • Aggression: p for interaction=0.49 • **Impairment: p for interaction=0.04** <u>3-year followup</u> CBCL Externalizing • ADHD diagnosis: p for interaction=0.50 • Aggression: p for interaction=0.57 • Impairment: p for interaction=0.15 Number of DBD symptoms • ADHD diagnosis: p for interaction=0.91 • Aggression: p for interaction=0.40 • Impairment: p for interaction=0.82
	Weeland, 2017[11] N=358	Incredible Years	Control (not described)	Severity of externalizing behavior	ECBI Intensity	Severity of externalizing behavior: p for interaction=0.25
	Wolff, 2008[13] N=47	Parent training	Collaborative problem solving	• Type of aggression ○ Reactive aggression ○ Premeditated aggression	Parent-rated ODD	• Type of aggression ○ Reactive aggression: no significant effect (p for interaction not reported) ○ **Premeditated aggression: p for interaction=0.01**

Population	Author, Year	Intervention	Comparison	Subgroups analyzed	Outcome(s)	Results
Adolescent	Fonagy, 2020[12] N=611	Multisystemic therapy	Treatment as usual	• CD or ADHD diagnosis • CD, anxiety or depression diagnosis • Inventory of Callous-Unemotional Traits score • Antisocial Beliefs and Attitudes scale score • Number of delinquent peers	Criminal offense with a conviction	• CD or ADHD diagnosis at baseline ○ Yes: OR 1.12 (95% CI 0.79 to 1.60) ○ No: OR 1.04 (95% CI 0.48 to 2.23) • CD, anxiety or depression diagnosis at baseline ○ Yes: OR 1.15 (95% CI 0.80 to 1.64) ○ No: OR 1.09 (95% CI 0.51 to 2.31) • Inventory of Callous-Unemotional Traits score: OR 1.01 (95% CI 0.98 to 1.05) • Antisocial Beliefs and Attitudes scale score: OR 1.01 (95% CI 1.00 to 1.02)
	Kendall, 2017[14] N=310	Group psychosocial intervention ("PHAT Life")	Health promotion control	Clinical aggression at baseline	Incarceration	Clinical aggression: p for interaction=0.012

Abbreviations: ADHD = attention-deficit/hyperactivity disorder; DBD-ODD= Disruptive Behavior Disorder Oppositional/Defiant subscale; SDQ = Strengths and Difficulties Questionnaire; TRF = Teacher Report Form

[a]Total number of ODD and CD threshold symptoms based on Kiddie Schedule for Affective Disorders and Schizophrenia for School-Aged Children - Present and Lifetime version

Pharmacologic Interventions

One RCT that compared high- versus low-dose divalproex in 58 adolescent males with severe CD and multiple comorbidities (described in Key Question 2) stratified results according to aggression type.[15] Aggression type was dichotomized as reactive (high distress and low restraint) and premeditated (low distress and high levels of excitement and interest). In the group with reactive aggression, high-dose divalproex was associated with higher response rates than low-dose divalproex based on CGI-I scores (64% [16/25] vs. 13% [2/16]; p=0.001). Adolescents in the premeditated aggression group were slightly more responsive to high-dose than low-dose divalproex (22% [2/9] vs. 0% [0/8]), but these results are limited by the small sample size (n=17) and the between-group difference was not statistically significant (p=0.16). The test for interaction between the reactive and premeditated groups was also not statistically significant (p=0.53).

Harms

No studies reported differential harms of treatment according to clinical characteristics.

Key Question 6c. Do interventions for disruptive behaviors vary in effectiveness and harms based on treatment history of the patient?

One RCT[16] compared atomoxetine with placebo and found no interaction between prior psychostimulant treatment and CGI-S scores or response to treatment among 180 school age children with comorbid ADHD and ODD.

We identified no other studies of pharmacologic interventions, no studies of psychosocial interventions, and no studies reporting harms that assessed whether interventions for disruptive behaviors vary in effectiveness or harms based on treatment history of the patient.

Key Question 6d. Do interventions for disruptive behaviors vary in effectiveness and harms based on characteristics of treatment, including setting (e.g., group homes, residential treatment, family setting), duration, delivery, timing, and dose?

We identified one trial meeting inclusion criteria that compared community-based and clinic-based modular treatment in 137 school-age children with ODD or CD (described in **Key Question 1** within the main report and **Appendix D**).[10] As the intervention was multicomponent, numerous treatment characteristics were tested for interaction, including hours of child CBT, hours of parent management training, hours of parent and child treatment (all continuous outcomes), and treatment completion (< 15 vs. ≥15 hours of treatment). CBCL Externalizing score and number of ODD or CD symptoms at baseline were assessed at 6 months (immediately posttreatment) and 3 years. There was consistent, significant interaction between treatment groups for hours of child CBT delivered for both outcomes at all timepoints, suggesting that more exposure to CBT for the child is associated with greater improvement in DBD symptoms. For CBCL Externalizing score, p for interaction was <0.01 at 6 months and 0.02 at 3 years; corresponding p for interaction for number of ODD or CD symptoms were 0.04 and 0.01. For the other treatment characteristics, effects were mixed. There was a significant interaction effect for hours of parent management training at 6 months for CBCL Externalizing score (p for interaction=0.03) and for number of ODD/CD symptoms at 3 years (p for interaction=0.02), suggesting that more hours of parent management training may be associated with improved DBD

symptoms. There was no significant interaction for either outcome for hours of parent-child treatment or treatment completion at either 6 months or 3 years.

Appendix M References

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Appendix N. Contextual Questions

Contextual Question 1. What are the disparities in the diagnosis of disruptive behavior disorders (based on characteristics such as gender, race/ethnicity, socioeconomic status, other social determinants of health, or other factors) in children and adolescents?

Numerous studies have found that boys are more likely than girls, and that racial/ethnic minority children are more likely than non-Hispanic White children to be diagnosed with a DBD.[1-7] Further, racial/ethnic minority children are more likely to receive a DBD diagnosis while clinically similar non-Hispanic White children are more likely to receive an alternative, potentially less stigmatizing, diagnosis (e.g., attention-deficit/hyperactivity disorder [ADHD]).[3,4] However, studies that assess child behavior using standardized measures (i.e., scale scores) have found the prevalence of externalizing disruptive behaviors to be generally consistent across race/ethnicity, suggesting that DBD overdiagnosis prevails for certain groups.[1] It has been hypothesized that these diagnostic disparities are due to bias on the part of the diagnosing clinicians, who may consciously or unconsciously view non-White or Hispanic children as inherently more dangerous or pathological than non-Hispanic, White children.[1,3]

These diagnostic disparities were observed in a frequently cited 2007 study conducted by Cameron et al[2] that assessed CD diagnosis rates according to race and gender in 1,173 children and adolescents (mean age 13 years) in residential treatment programs (group care, group homes, or therapeutic foster care) throughout the United States. CD diagnosis was determined by agency clinicians (e.g., psychiatrists, psychologists, social workers) using routine diagnostic interviews according to DSM-IV criteria. The Child Behavior Checklist (CBCL) was administered to child care workers for those children in residential treatment or to guardians for children in foster care to determine Rule-breaking (also called Delinquent Behavior)[8] subscale scores. The correspondence between CD diagnosis and CBCL Rule-breaking subscale scores has been previously established.[8-10] In the study, a subscale T-score >67 was considered to be clinically relevant.

In the Cameron study,[2] the proportion of the population with CD diagnosis and clinically relevant CBCL Rule-breaking subscale scores are shown in **Table N-1**. The overall rate of CD diagnosis was 29%, with diagnostic rates for boys (35%) more than twice that for girls (17%). When analyzed according to race/ethnicity, White race children had the lowest rates of CD diagnosis (24%), followed by Black race (34%) and Hispanic ethnicity (43%). These findings were consistent at the intersection of race and gender: CD diagnosis rates were 30%, 44%, and 45% for White, Black and Hispanic boys, respectively, and 13%, 19%, and 39% for White, Black and Hispanic girls. In this study, although boys were twice as likely to receive a CD diagnosis, girls were more likely to score in the clinical range for CBCL Rule-breaking Behavior (58% versus 55%) subscale scores. When analyzed according to race and gender, similar proportions of White (55%) and Black (56%) boys had Rule-breaking subscale scores that reached a clinical threshold, while the proportion of Hispanic boys was slightly higher (61%). Among girls, the number with clinically relevant Rule-breaking scores was lowest for Hispanic girls (51%) despite the highest rate of CD diagnosis for girls; corresponding rates for White and Black girls were 57% and 63%, respectively.

Table N-1. Proportion of children with clinically relevant CBCL rule-breaking subscale scores and CD diagnosis

Population	N=	CBCL Rule-breaking (Delinquency) subscale	CD Diagnosis	CBCL Rule-breaking subscale vs. CD diagnosis
All children[a]	1,173	56.1%	29.2%	p<0.0001
• White	557	55.5%	24.4%	NR
• Black	337	58.7%	34.4%	NR
• Hispanic	134	58.2%	43.3%	NR
All boys	775	55.1%	35.4%	NR
• White	382	55.0%	29.6%	p<0.0001
• Black	214	56.1%	43.5%	p<0.0001
• Hispanic	95	61.1%	45.3%	p<0.0001
All girls	398	58.0%	17.1%	NR
• White	175	56.5%	13.1%	p<0.0001
• Black	123	63.4%	18.7%	p<0.0001
• Hispanic	39	51.3%	38.5%	p<0.0113

Abbreviations: CGCL = Child Behavior Checklist; CD = conduct disorder.
Adapted from Cameron 2007[2]
[a]145 children were not included in subgroup analyses according to race/ethnicity, including 75 children who identified as biracial, 58 American Indian children, and 12 children whose race/ethnicity was not described

Regarding other characteristics that are associated with disparities in the diagnosis of DBD, evidence is more limited. Evidence from two studies suggests that a lower socioeconomic status (SES) based on U.S. Federal Poverty Guidelines may be associated with a DBD diagnosis.[6,11] Federal poverty guidelines (also referred to as poverty level) are calculated based on household size; for example, a family of four living at 100% of the poverty level had an annual income of $30,000 in 2023.[12]Low SES, while driven by economic status, includes other factors that are thought to contribute to child behavioral health, including familial stress and relationships, and community-based disadvantages.[13]

A CDC report of parent-reported data (N=114,476) collected from 2016 to 2019 as part of the National Survey on Children's Health analyzed the percentage of parents reporting that a healthcare provider indicated that their child had behavioral or conduct problems according to poverty level.[11] The study found that rates of parent-reported behavioral or conduct problems were highest for children living under 100% of the poverty level (12.4%) compared with 9.5% for children living at >100% to ≤200% of the poverty level, and 7.4% for those living at >200% of the poverty level.[11] Evidence was consistent in a smaller study of 440 children with a DBD diagnosis that found those with a SES at or above the poverty level were less likely to be diagnosed with DBD than those with a SES below the poverty level (OR 0.69, 95% CI 0.52 to 0.94).[6]

A 2017 U.S. study of 10,110 adolescents with a history of serious juvenile criminal offenses analyzed the relationship between the Adverse Childhood Experiences (ACE) score and the likelihood of a disruptive behavior disorder diagnosis.[14] The study did not find a consistent association between a CD diagnosis, increasing ACE score (indicating more childhood traumatic exposures), and race/ethnicity or gender (**Table N-2**). A higher ACE score was associated with a small increase in risk of ODD diagnosis across all groups except Black female adolescents.

Table N-2. Risk of CD or ODD diagnosis based on ACE score

Population	CD diagnosis OR (95% CI)	ODD diagnosis OR (95% CI)
White males	0.96 (0.91 to 0.99)	1.05 (0.97 to 1.15)
Black males	0.95 (0.92 to 0.98)	1.21 (1.13 to 1.29)
Hispanic males	1.03 (0.96 to 1.10)	1.02 (0.88 to 1.18)
White females	0.92 (0.84 to 1.00)	1.22 (1.06 to 1.41)

Black females	0.99 (0.91 to 1.07)	0.90 (0.80 to 1.04)
Hispanic females	1.02 (0.83 to 1.26)	1.08 (0.82 to 1.43)

Abbreviations: ACE = Adverse Child Experience; CD = conduct disorder; CI = confidence interval; ODD = oppositional defiance disorder; OR = odds ratio.
Adapted from Baglivio, 2017[14]

Contextual Question 2. What are the disparities in the treatment of disruptive behaviors or disruptive behavior disorders (based on characteristics such as gender, race/ethnicity, socioeconomic status, other social determinants of health, or other factors) in children and adolescents?

Direct evidence on disparities in treatment of disruptive behaviors or disruptive behavior disorders is limited. One study that directly examined disruptive behavior treatment disparities used data collected from 2007 to 2010 as part of the U.S. National Survey on Drug Use and Health.[15] The study analyzed data from 20,970 adolescents (ages 12 to 17 years) with self-reported negative externalizing behaviors, though the proportion with clinical diagnoses was not reported. Those reporting ≥ 10 instances of negative externalizing behaviors (e.g., fighting, carrying a handgun, selling drugs, stealing, attacking someone with the intent to injure them) were categorized as having highly severe behavior. The proportion of adolescents receiving outpatient treatment for highly severe negative externalizing behaviors was highest for White children (19.1%), followed by Black (15.0%) and Hispanic (12.3%) children. Adjusted analyses for key demographic factors are reported in **Table N-3**. Though these estimates are based on findings from the total sample (including those with low- and moderately-severe externalizing behaviors) the findings indicate that racial/ethnic minority adolescents and those with lower income were less likely to receive treatment for their externalizing behaviors. Conversely, having a mother or father present in the home increased the likelihood of treatment.

Table N-3. Outpatient treatment disparities among 20,970 adolescents with negative externalizing behaviors

Category	Variable	Adjusted OR (95% CI)
Race/ethnicity (reference: White)	• Black	0.61 (0.52 to 0.70)
	• Hispanic	0.68 (0.58 to 0.79)
Income (reference: high income)	• Moderate	0.91 (0.78 to 1.05)
	• Low	0.85 (0.73 to 0.98)
	• Very low	0.83 (0.71 to 0.96)
Parent in home (reference: parent not in home)	• Mother	1.21 (1.02 to 1.44)
	• Father	1.30 (1.13 to 1.49)

Abbreviations: CI = confidence interval; OR = odds ratio.
Adapted from Malhotra 2015[15]

Multiple studies conducted in child and adolescent populations with general mental health care needs or with ADHD reporting treatment disparities provide some additional contextual evidence.[3,16-20] For example, a 2017 report described disparities in mental health care for children and adolescents based on 85,637 parental interviews of 95,677 children from throughout the United States.[16] The report identified numerous barriers to treatment for Black and Hispanic children, including perceived stigma surrounding mental health treatment on the part of the child, cultural differences and mistrust of mental health care providers on the part of parents or caregivers, and biased beliefs or lack of cultural understanding on the part of clinicians. A second study, of over 172,000 U.S. children enrolled in Medicaid and initiating pharmacologic treatment for ADHD, found Black children were less likely than

White children to receive appropriate follow-up care after treatment initiation, and both Black and Hispanic children were more likely to discontinue treatment and disengage from treatment relative to White children.[17] The study raised the some of the same concerns regarding how race/ethnicity and familial health beliefs (e.g., parent not viewing ADHD as a condition requiring treatment, mistrust of medication use) may contribute to treatment disparities, and the role that clinicians play in contributing to these disparities (e.g., failure to deliver culturally competent treatment).

Contextual Question 3. How do disparities in the diagnosis and treatment of disruptive behaviors or disruptive behavior disorders affect behavioral and functional outcomes (e.g., compliance with teachers, contact with the juvenile justice system, substance abuse)?

We did not identify any studies designed to assess how disparities in diagnosis and treatment of disruptive behaviors or disruptive behavior disorder affect behavioral and functional outcomes, though tangential evidence from a U.K. study of 14,534 children and adolescents suggests an association between race and clinical outcomes.[21] The study examined disparities in treatment outcome among children and adolescents (mean age 12 years) who received treatment for a wide range of mental health problems, including 9% who were described as having conduct problems. Based on multivariate analysis that included gender, age and other variables, the study found Black (n=1,468), Asian (n=880), and mixed-race children and adolescents (n=1,054) were all less likely to have a clinically relevant treatment response relative to White children and adolescents (n=9,826), though the estimate was not statistically significant for Black versus White children (**Table N-4**). The study did not report subgroup analyses according to diagnosis or mental health problem, nor did it report information about the specific treatments that were utilized.

Table N-4. Likelihood of clinically significant improvement following treatment among 14,534 British children and adolescents with mixed mental health problems

Comparison	Adjusted OR (95% CI)
Asian vs. White	0.82 (0.70 to 0.96)
Black vs. White	0.95 (0.84 to 1.08)
Mixed race vs. White	0.80 (0.70 to 0.93)

Abbreviations: CI = confidence interval; OR = odds ratio.
Adapted from Ruprecht-Smith 2023[21]

Appendix N References

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Appendix O. Strength of Evidence Tables

Table O-1. Strength of evidence for outcomes in preschool age

Comparison (outcome)	Studies (n)	Limitations	Consistency	Precision	Publication Bias	Findings, Direction, Magnitude of Effect (95% CI)	Strength of Evidence
Parent-only vs. TAU/ waitlist (ECBI intensity/ CBCL externalizing scores)	13 RCTs[1-13] (N=1222) Immediately posttreatment	Moderate	Consistent	Imprecise	Yes, Egger's p=0.007	SMD -0.61 (-0.99 to -0.31)	Moderate
Parent-only vs. TAU/ waitlist (ECBI intensity/ CBCL externalizing scores)	3 RCTs[1,5,14] (N=323) Short term	Moderate	Consistent	Precise	Not detected	SMD -0.79 (-1.05 to -0.55)	Low
Parent-only vs. TAU/ waitlist (ECBI intensity/ CBCL externalizing scores)	5 RCTs[2,7,12,13,15] (N=627) Intermediate term	Moderate	Consistent	Imprecise	Not detected	SMD -0.47 (-0.77 to -0.14)	Low
Parent-only vs. TAU/ waitlist (ECBI intensity/ CBCL externalizing scores)	2 RCTs[8,12] (N=234) Long term	Moderate	Consistent	Imprecise	Not detected	SMD -0.27 (-0.72 to 0.23)	Insufficient
Parent-only vs. TAU/ waitlist (ECBI problem scores)	9 RCTs[2-5,7,10-13] (N=879) Immediately posttreatment	Moderate	Consistent	Imprecise	Not detected but continued concern for publication bias	SMD -0.72 (-1.28 to -0.32)	Moderate
Parent-only vs. TAU/ waitlist (ECBI problem scores)	2 RCTs[5,14] (N=275) Short term	Moderate	Consistent	Precise	Not detected	SMD -0.89 (-1.27 to -0.52)	Low
Parent-only vs. TAU/ waitlist (ECBI problem scores)	5 RCTs[2,7,12,13,15] (N=625) Intermediate term	Moderate	Consistent	Precise	Not detected	SMD -0.42 (-0.63 to -0.22)	Low
Parent-only vs. TAU/ waitlist (ECBI problem scores)	1 RCT[12] (N=117) Long term	Moderate	Unknown	Imprecise	Not detected	SMD -0.61 (-0.98 to -0.23)	Insufficient
IY vs. TAU/ waitlist (ECBI intensity/CBCL externalizing scores)	3 RCTs[8,11,12] (N=428) Immediately posttreatment	Moderate	Consistent	Precise	Not detected	SMD -0.18 (-0.43 to 0.08)	Low
Nurse vs. therapist-led IY (CBCL externalizing scores)	1 RCT[8] (N=80) Immediately posttreatment	Moderate	Unknown	Imprecise	Not detected	MD 3.00 (-7.96 to 13.96)	Insufficient
Nurse vs. therapist-led IY (CBCL externalizing scores)	1 RCT[8] (N=80) Long-term	Moderate	Unknown	Imprecise	Not detected	MD 3.00 (-7.44 to 13.44)	Insufficient

Comparison (outcome)	Studies (n)	Limitations	Consistency	Precision	Publication Bias	Findings, Direction, Magnitude of Effect (95% CI)	Strength of Evidence
Advanced IY vs. standard IY (CBCL externalizing)	1 RCT[16] (N=76) Immediately posttreatment	Moderate	Unknown	Imprecise	Not detected	MD 0.76 (-3.68 to 5.20)	Insufficient
Advanced IY vs. standard IY (CBCL externalizing)	1 RCT[16] (N=76) Short-term	Moderate	Unknown	Imprecise	Not detected	MD 1.54 (-2.95 to 6.03)	Insufficient
Advanced IY vs. standard IY (ECBI intensity)	1 RCT[16] (N=76) Immediately posttreatment	Moderate	Unknown	Imprecise	Not detected	MD -0.05 (-0.50 to 0.40)	Insufficient
Advanced IY vs. standard IY (ECBI intensity)	1 RCT[16] (N=76) Short-term	Moderate	Unknown	Imprecise	Not detected	MD -0.26 (-0.71 to 0.19)	Insufficient
Enhanced Triple P vs. Standard Triple P (ECBI intensity)	1 RCT[17] (N=92) Immediately posttreatment	Moderate	Unknown	Imprecise	Not detected	MD 3.41 (-7.62 to 14.44)	Insufficient
Enhanced Triple P vs. Standard Triple P (ECBI intensity)	1 RCT[17] (N=92) Long-term	Moderate	Unknown	Imprecise	Not detected	MD 4.57 (-7.18 to 16.32)	Insufficient
Enhanced Triple P vs. Self-help Triple P (ECBI intensity)	1 RCT[17] (N=78) Immediately posttreatment	Moderate	Unknown	Imprecise	Not detected	MD -2.77 (-15.49 to 9.45)	Insufficient
Enhanced Triple P vs. Self-help Triple P (ECBI intensity)	1 RCT[17] (N=78) Long-term	Moderate	Unknown	Imprecise	Not detected	MD -4.65 (-18.58 to 9.28)	Insufficient
Standard Triple P vs. Self-help Triple P (ECBI intensity)	1 RCT[17] (N=82) Immediately posttreatment	Moderate	Unknown	Imprecise	Not detected	MD -6.18 (-17.56 to 5.20)	Insufficient
Standard Triple P vs. Self-help Triple P (ECBI intensity)	1 RCT[17] (N=82) Long-term	Moderate	Unknown	Imprecise	Not detected	MD -9.22 (-22.60 to 4.16)	Insufficient
Enhanced Triple P vs. Standard Triple P in children with co-occurring ADHD subgroup analysis (ECBI intensity)	1 RCT[3] (N=36) Immediately posttreatment	Moderate	Unknown	Imprecise	Not detected	MD 15.21 (-8.94 to 39.36)	Insufficient
Online Triple P vs. Self-directed Triple P (ECBI intensity)	1 RCT[18] (N=335) Immediately posttreatment	Moderate	Unknown	Precise	Not detected	MD 6.00 (-1.55 to 13.55)	Low

Comparison (outcome)	Studies (n)	Limitations	Consistency	Precision	Publication Bias	Findings, Direction, Magnitude of Effect (95% CI)	Strength of Evidence
Online Triple P vs. Self-directed Triple P (ECBI intensity)	1 RCT[18] (N=335) Intermediate-term	Moderate	Unknown	Precise	Not detected	MD -1.00 (-8.84 to 6.84)	Low
Enhanced Triple P vs. Self-directed Triple P (ECBI intensity)	1 RCT[5] (N=123) Immediately posttreatment	Moderate	Unknown	Imprecise	Not detected	MD -9.78 (-19.29 to -0.27)	Insufficient
Enhanced Triple P vs. Self-directed Triple P (ECBI intensity)	1 RCT[5] (N=123) Short-term	Moderate	Unknown	Imprecise	Not detected	MD -9.85 (-199.50 to -0.20)	Insufficient
Enhanced Triple P vs. Standard Triple P in children with co-occurring ADHD subgroup analysis (ECBI problem)	1 RCT[3] (N=36) Immediately posttreatment	Moderate	Unknown	Imprecise	Not detected	MD 0.65 (-5.78 to 7.78)	Insufficient
Enhanced Triple P vs. Self-directed Triple P (ECBI problem)	1 RCT[5] (N=123) Immediately posttreatment	Moderate	Unknown	Imprecise	Not detected	MD 0.37 (-2.02 to 2.76)	Insufficient
Enhanced Triple P vs. Self-directed Triple P (ECBI problem)	1 RCT[5] (N=123) Short-term	Moderate	Unknown	Imprecise	Not detected	MD -2.78 (-5.40 to -0.16)	Insufficient
Enhanced self-directed intervention vs. waitlist (ECBI intensity)	1 RCT[10] (N=25) Immediately posttreatment	Moderate	Unknown	Precise	Not detected	MD -46.23 (-59.14 to -33.32)	Insufficient
Brief parenting intervention vs. waitlist (ECBI intensity)	1 RCT[6] (N=85) Immediately posttreatment	High	Unknown	Imprecise	Not detected	MD -13.73 (-24.30 to -3.16)	Insufficient
Enhanced self-directed intervention vs. waitlist (ECBI problem)	1 RCT[10] (N=25) Immediately posttreatment	Moderate	Unknown	Precise	Not detected	MD -16.10 (-20.17 to -12.03)	Insufficient
Parent therapy vs. waitlist (CBCL externalizing)	1 RCT[9] (N=90) Immediately posttreatment	Moderate	Unknown	Imprecise	Not detected	MD -2.61 (-5.17 to -0.05)	Insufficient
Strongest Families vs. Education control (CBCL externalizing)	1 RCT[19] (N=464) Short-term	Moderate	Unknown	Precise	Not detected	MD -2.00 (-3.39 to -0.61)	Low

Comparison (outcome)	Studies (n)	Limitations	Consistency	Precision	Publication Bias	Findings, Direction, Magnitude of Effect (95% CI)	Strength of Evidence
Strongest Families vs. Education control (CBCL externalizing)	1 RCT[19] (N=464) Intermediate-term	Moderate	Unknown	Precise	Not detected	MD -2.30 (-3.83 to -0.77)	Low
Strongest Families vs. Education control (CBCL externalizing)	1 RCT[19] (N=464) Long-term	Moderate	Unknown	Unknown	Not detected	MD -1.8, p<0.001	Insufficient
Self-efficacy beliefs vs. self-efficacy beliefs plus emotion coaching (CBCL externalizing	1 RCT[9] (N=45) Immediately posttreatment	Moderate	Unknown	Imprecise	Not detected	MD 1.23 (-2.61 to 5.07)	Insufficient
Self-efficacy beliefs vs. self-efficacy beliefs plus emotion coaching (CBCL externalizing)	1 RCT[9] (N=45) Short-term	Moderate	Unknown	Imprecise	Not detected	MD -3.86 (-7.04 to -0.68)	Insufficient
Enhanced self-help vs. self-help (ECBI intensity)	1 RCT[10] (N=28) Immediately posttreatment	Moderate	Unknown	Imprecise	Not detected	MD -29.18 (-49.32 to -9.04)	Insufficient
Enhanced self-help vs. self-help (ECBI intensity)	1 RCT[10] (N=28) Intermediate-term	Moderate	Unknown	Imprecise	Not detected	MD -5.95 (-20.48 to 8.58)	Insufficient
Enhanced self-help vs. self-help (ECBI problem)	1 RCT[10] (N=28) Immediately posttreatment	Moderate	Unknown	Imprecise	Not detected	MD -10.32 (-15.77 to -4.87)	Insufficient
Enhanced self-help vs. self-help (ECBI problem)	1 RCT[10] (N=28) Intermediate-term	Moderate	Unknown	Imprecise	Not detected	MD -4.77 (-8.28 to -1.26)	Insufficient
Multicomponent vs. waitlist/TAU (ECBI intensity or CBCL externalizing)	10 RCTs[20-29] (N=784) Immediate posttreatment	Moderate	Consistent	Precise	Yes, Egger's p=0.012	SMD -0.96 (-1.39 to -0.60)	Moderate
Multicomponent vs. waitlist/TAU (ECBI intensity or CBCL externalizing)	1 RCT[20] (N=131) Short-term	Moderate	Unknown	Imprecise	Not detected	SMD -0.59 (-0.94 to -0.24)	Insufficient
Multicomponent vs. waitlist/TAU (ECBI intensity or CBCL externalizing)	1 RCT[30] (N=28) Intermediate-term	Moderate	Unknown	Precise	Not detected	SMD -2.86 (-3.96 to -1.76)	Insufficient

Comparison (outcome)	Studies (n)	Limitations	Consistency	Precision	Publication Bias	Findings, Direction, Magnitude of Effect (95% CI)	Strength of Evidence
Multicomponent vs. waitlist/TAU (ECBI intensity or CBCL externalizing)	4 RCTs[20,28,31,32] (N=511) Long-term	Moderate	Inconsistent	Imprecise	Not detected	SMD -0.05 (-0.56 to 0.75)	Low
Multicomponent vs. TAU/waitlist (ECBI problem scores)	5 RCTs[21,22,24,25,29] (N=251) Immediately posttreatment	High	Consistent	Precise	Not detected	SMD -1.23 (-1.58 to -0.95)	Low
Multicomponent vs. TAU/waitlist (ECBI problem scores)	1 RCT[31] (48) Long-term	Moderate	Unknown	Imprecise	Not detected	SMD -0.40 (-1.04 to 0.25)	Insufficient
SDQ total (caregiver) Healthy Start, Happy Start video feedback vs. TAU	1 RCT[28] (N=285) Immediately posttreatment	Low	Unknown	Imprecise	Not detected	MD 0.93 (-0.003 to 1.9)	Low
SDQ total (teacher) Healthy Start, Happy Start video feedback vs. TAU	1 RCT[28] (N=210) Immediately posttreatment	Low	Unknown	Imprecise	Not detected	MD 0.10 (-0.18 to 0.37)	Low
SDQ total (caregiver) Healthy Start, Happy Start video feedback vs. TAU	1 RCT[28] (N=285) Long-term	Low	Unknown	Imprecise	Not detected	MD 0.35 (-0.78 to 1.47)	Low
PCIT vs. abbreviated PCIT (CBCL externalizing)	1 RCT[26] (N=37) Immediately posttreatment	Moderate	Unknown	Imprecise	Not detected	MD -0.06 (-4.15 to 4.03)	Insufficient
PCIT vs. abbreviated PCIT (CBCL externalizing)	1 RCT[26] (N=37) Intermediate-term	Moderate	Unknown	Imprecise	Not detected	MD -0.66 (-5.56 to 4.24)	Insufficient
PCIT vs. abbreviated PCIT (CBCL externalizing)	1 RCT[32] (N=49) Long-term	Moderate	Unknown	Imprecise	Not detected	MD -7.41 (-13.18 to -1.64)	Insufficient
Culturally sensitive PCIT vs. PCIT (CBCL externalizing)	1 RCT[25] (N=40) Immediately posttreatment	Moderate	Unknown	Imprecise	Not detected	MD -2.99 (-10.68 to 4.70)	Insufficient
Internet PCIT vs. clinic PCIT (CBCL externalizing)	1 RCT[33] (N=40) Immediately posttreatment	Moderate	Unknown	Imprecise	Not detected	MD 0.20 (-6.78 to 7.18)	Insufficient

Comparison (outcome)	Studies (n)	Limitations	Consistency	Precision	Publication Bias	Findings, Direction, Magnitude of Effect (95% CI)	Strength of Evidence
Internet PCIT vs. clinic PCIT (CBCL externalizing)	1 RCT[33] (N=40) Intermediate-term	Moderate	Unknown	Imprecise	Not detected	MD -0.10 (-9.84 to 9.64)	Insufficient
PCIT + PCIT maintenance vs. PCIT (CBCL externalizing)	1 RCT[22] (N=44) Long-term	Moderate	Unknown	Imprecise	Not detected	MD 4.64 (-0.98 to 10.26)	Insufficient
Cognitive Triple P vs. Triple P (CBCL total)	1 RCT[34] (N=37) Immediately posttreatment	Moderate	Unknown	Imprecise	Not detected	MD -7.42 (-14.95 to 0.11)	Insufficient
Cognitive Triple P vs. Triple P (CBCL total)	1 RCT[34] (N=37) Intermediate-term	Moderate	Unknown	Imprecise	Not detected	MD -2.65 (-10.78 to 5.48)	Insufficient
PCIT vs. Abbreviated PCIT (ECBI intensity)	1 RCT[26] (N=49) Long-term	Moderate	Unknown	Imprecise	Not detected	MD -3.01 (-21.98 to 15.96)	Insufficient
Culturally sensitive PCIT vs. PCIT (ECBI intensity)	1 RCT[25] (N=40) Immediately posttreatment	Moderate	Unknown	Imprecise	Not detected	MD -11.14 (-36.23 to 13.95)	Insufficient
Culturally sensitive PCIT vs. PCIT (ECBI intensity)	1 RCT[31] (N=35) Long-term	Moderate	Unknown	Imprecise	Not detected	MD -3.58 (-29.74 to 22.58)	Insufficient
Group PCIT vs. Individual PCIT (ECBI intensity)	1 RCT[35] (N=81) Immediately posttreatment	Moderate	Unknown	Imprecise	Not detected	MD -5.52 (-23.36 to 12.32)	Insufficient
Group PCIT vs. Individual PCIT (ECBI intensity)	1 RCT[35] (N=81) Intermediate-term	Moderate	Unknown	Imprecise	Not detected	MD -13.46 (-29.78 to 2.86)	Insufficient
Internet PCIT vs. clinic PCIT (ECBI intensity)	1 RCT[33] (N=40) Immediately posttreatment	Moderate	Unknown	Imprecise	Not detected	MD 3.60 (-10.69 to 17.89)	Insufficient
Internet PCIT vs. clinic PCIT (ECBI intensity)	1 RCT[33] (N=40) Intermediate-term	Moderate	Unknown	Imprecise	Not detected	MD 4.5 (-15.72 to 24.72)	Insufficient
IY with home parent support vs. IY (ECBI intensity)	1 RCT[36] (N=126) Immediately posttreatment	Moderate	Unknown	Imprecise	Not detected	MD -5.59 (-17.63 to 6.45)	Insufficient
IY with home parent support vs. IY (ECBI intensity)	1 RCT[36] (N=126) Intermediate-term	Moderate	Unknown	Imprecise	Not detected	MD -6.87 (-18.16 to 4.42)	Insufficient

Comparison (outcome)	Studies (n)	Limitations	Consistency	Precision	Publication Bias	Findings, Direction, Magnitude of Effect (95% CI)	Strength of Evidence
Intensive PCIT vs. Time-limited PCIT (ECBI intensity)	1 RCT[37] (N=50) Immediately posttreatment	Moderate	Unknown	Imprecise	Not detected	MD -8.71 (-12.34 to -5.08)	Insufficient
Intensive PCIT vs. Time-limited PCIT (ECBI intensity)	1 RCT[37] (N=43) Intermediate-term	Moderate	Unknown	Imprecise	Not detected	MD 5.18 (0.12 to 10.24)	Insufficient
PCIT with community helper vs. PCIT (ECBI intensity)	1 RCT[38] (N=81) Immediately posttreatment	Moderate	Unknown	Imprecise	Not detected	MD -6.45 (-23.85 to 10.95)	Insufficient
Technology enhanced HNC vs. HNC (ECBI intensity)	1 RCT[39] (N=101) Immediately posttreatment	Moderate	Unknown	Imprecise	Not detected	MD -6.41 (-15.66 to 2.84)	Insufficient
Technology enhanced HNC vs. HNC (ECBI intensity)	1 RCT[39] (N=101) Short-term	Moderate	Unknown	Imprecise	Not detected	MD -14.30 (-24.27 to -4.33)	Insufficient
Technology enhanced HNC vs. HNC (ECBI intensity)	1 RCT[39] (N=101) Intermediate-term	Moderate	Unknown	Imprecise	Not detected	MD -15.98 (-28.75 to -3.21)	Insufficient
Culturally sensitive PCIT vs. PCIT (ECBI problem)	1 RCT[25] (N=40) Immediately posttreatment	Moderate	Unknown	Imprecise	Not detected	MD -4.37 (-10.89 to 2.15)	Insufficient
Culturally sensitive PCIT vs. PCIT (ECBI problem)	1 RCT[31] (N=35) Long-term	Moderate	Unknown	Imprecise	Not detected	MD -4.17 (-14.51 to 6.17)	Insufficient
IY with home parent support vs. IY (ECBI problem)	1 RCT[36] (N=126) Immediately posttreatment	Moderate	Unknown	Imprecise	Not detected	MD -0.64 (-3.40 to 2.12)	Insufficient
IY with home parent support vs. IY (ECBI problem)	1 RCT[36] (N=126) Intermediate-term	Moderate	Unknown	Imprecise	Not detected	MD -3.48 (-6.01 to -0.95)	Insufficient
Internet PCIT vs. clinic PCIT (ECBI problem)	1 RCT[33] (N=40) Immediately posttreatment	Moderate	Unknown	Imprecise	Not detected	MD 0.50 (-4.79 to 5.79)	Insufficient
Internet PCIT vs. clinic PCIT (ECBI problem)	1 RCT[33] (N=40) Intermediate-term	Moderate	Unknown	Imprecise	Not detected	MD 0.80 (-4.81 to 6.41)	Insufficient

Comparison (outcome)	Studies (n)	Limitations	Consistency	Precision	Publication Bias	Findings, Direction, Magnitude of Effect (95% CI)	Strength of Evidence
PCIT with community helper vs. PCIT (ECBI problem)	1 RCT[38] (N=81) Immediately posttreatment	Moderate	Unknown	Imprecise	Not detected	MD 1.24 (-2.76 to 5.24)	Insufficient
Technology enhanced HNC vs. HNC (ECBI intensity)	1 RCT[39] (N=101) Immediately posttreatment	Moderate	Unknown	Imprecise	Not detected	MD -1.26 (-4.12 to 1.60)	Insufficient
Technology enhanced HNC vs. HNC (ECBI intensity)	1 RCT[39] (N=101) Short-term	Moderate	Unknown	Imprecise	Not detected	MD -3.57 (-6.37 to -0.77)	Insufficient
Technology enhanced HNC vs. HNC (ECBI intensity)	1 RCT[39] (N=101) Intermediate-term	Moderate	Unknown	Imprecise	Not detected	MD -3.71 (-7.35 to -0.07)	Insufficient

Abbreviations: ADHD = Attention Deficit Hyperactivity Disorder; CBCL = Child Behavior Checklist; CU = callous-unemotional; ECBI = Eyberg Child Behavior Inventory; HNC = helping the noncompliant child; IY = Incredible Years; MD = mean difference; ODD = Oppositional Defiant Disorder; OR = odds ratio; PCIT = parent-child interaction therapy; RCT = randomized controlled trial; RR = relative risk; SDQ = Strengths and Difficulties Questionnaire; SMD = standardized mean difference; TAU = treatment as usual; TIK = therapeutic interventions for children.

Table O-2. Strength of evidence for parent only Parent Management Training versus waitlist or treatment as usual outcomes in school age

Outcome Timing	Studies (n)	Limitations	Consistency	Precision	Publication Bias	Findings, Direction, Magnitude of Effect (95% CI)	Strength of Evidence
Pooled scores CBCL Externalizing or ECBI Intensity Immediately Posttreatment	6 RCTs[40-45] (N=841)	Moderate	Consistent	Imprecise	Undetected	SMD -0.39 (-0.63 to -19), I^2= 44.1%	Low
Pooled Scores CBCL Externalizing or ECBI Intensity Short-term	5 RCTs[45-49] (N=814)	Moderate	Consistent	Imprecise	Undetected	SMD -0.60 (-1.18 to -0.09), I^2=84.6%	Low
Pooled Scores CBCL Externalizing or ECBI Intensity Intermediate Term	4 RCTs[44,50-52] (N=390)	Moderate	Consistent	Imprecise	Undetected	SMD -0.20 (-0.43 to 0.01) I^2=0% 6	Low

Outcome Timing	Studies (n)	Limitations	Consistency	Precision	Publication Bias	Findings, Direction, Magnitude of Effect (95% CI)	Strength of Evidence
Pooled scores CBCL Externalizing or ECBI Intensity Long-term	3 RCTS[48,52,53] (N= 470)	Moderate	Consistent	Imprecise	Undetected	SMD -0.21 (-0.55 to -0.01) I^2=35.9%	Low
ECBI Problem (Raw scores 0-36) Immediately Posttreatment	4 RCTs[40-42,44] (N= 423)	Moderate	Consistent	Imprecise	Undetected	MD -4.58 (-6.26 to -2.37), I^2=0%	Low
ECBI Problem (Raw scores 0-36) Short-term	3 RCTs[46-48] (N=287)	Moderate	Consistent	Imprecise	Undetected	MD -2.75 (-5.44 to -1.09), I^2=0.01%	Low
ECBI Problem (Raw scores 0-36) Intermediate term	1 RCT[44] (N=50)	Moderate	Unknown	Imprecise	Undetected	MD -5.10 (-8.90 to -1.30)	Insufficient
ECBI Problem (Raw scores 0-36) Long-term	2 RCTs[48,53] (N=313)	Moderate	Unknown	Imprecise	Undetected	N=272, MD -0.23 (-2.28 to 1.82) (based on large, moderated quality trial, Ward) Pooled results and small study results: Pooled MD -2.38 (-10.44 to 4.07), I^2=80.5% N=41, MD -6.40 (-11.34 to -1.46)	Low

Abbreviations: CBCL = Child Behavior Checklist; CI = confidence interval; ECBI = Eyberg Child Behavior Inventory; MD = mean difference; RCT = randomized controlled trial; SMD = standardized mean difference.

Table O-3. School Age: Strength of evidence for Incredible Years parent only Parent Management Training versus child-only intervention in school age

Outcome Timing	Number of Studies (n)	Limitations	Consistency	Precision	Publication Bias	Findings, Direction, Magnitude of Effect (95% CI)	Strength of Evidence
ECBI Intensity (scale 36 to 252) Short-term	1 RCT[49] (N=53)	Moderate	Unknown	Imprecise	Undetected	MD -2.97 (-16.98 to 11.04)	Insufficient
ECBI Intensity (scale 36 to 252) Long-term	1 RCT[49] (N=50)	Moderate	Unknown	Imprecise	Undetected	MD 1.55 (-16.83 to 19.93)	Insufficient

Abbreviations: CI = confidence interval; ECBI = Eyberg Child Behavior Inventory; MD = mean difference; RCT = randomized controlled trial.

Table O-4. Strength of evidence for parent only Triple P plus sufficient exemplar training versus single session Triple P in school age

Outcome Timing	Number of Studies (n)	Limitations	Consistency	Precision	Publication Bias	Findings, Direction, Magnitude of Effect (95% CI)	Strength of Evidence
ECBI Intensity (scale 36 to 252) Immediately Posttreatment	1 RCT[54] (N=62)	Moderate	Unknown	Imprecise	Undetected	MD -18.99 (-30.90 to -7.08)	Insufficient
ECBI Intensity (scale 36 to 252) Intermediate Term	1 RCT[54] (N=57)	Moderate	Unknown	Imprecise	Undetected	MD -15.71 (-31.36 to -0.06)	Insufficient
ECBI Problem (Raw scores 0-36) Immediately Posttreatment	1 RCT[54] (N=62)	Moderate	Unknown	Imprecise	Undetected	MD -3.82 (-7.13 to -0.51)	Insufficient
ECBI Problem (Raw scores 0-36) Intermediate term	1 RCT[54] (N=57)	Moderate	Unknown	Imprecise	Undetected	MD -3.60 (-7.58 to 0.38)	Insufficient

Abbreviations: CI = confidence interval; ECBI = Eyberg Child Behavior Inventory; RCT = randomized controlled trial.

Table O-5. Strength of evidence for parent online Triple P versus Triple P self-help workbook in school age

Outcome Timing	Number of Studies (n)	Limitations	Consistency	Precision	Publication Bias	Findings, Direction, Magnitude of Effect (95% CI)	Strength of Evidence
ECBI Intensity (scale 36 to 252) Immediately Posttreatment	1 RCT[55] (N=174)	Moderate	Unknown	Imprecise	Undetected	MD -0.82 (-8.24 to 6.60)	Low
ECBI Intensity (scale 36 to 252) Intermediate Term	1 RCT[55] (N=159)	Moderate	Unknown	Imprecise	Undetected	MD -3.23 (-11.88 to 5.42)	Low
ECBI Problem (Raw scores 0-36) Immediately Posttreatment	1 RCT[55] (N=174)	Moderate	Unknown	Imprecise	Undetected	MD 0.01 (-2.25 to 2.27)	Low
ECBI Problem (Raw scores 0-36) Intermediate term	1 RCT[55] (N=159)	Moderate	Unknown	Imprecise	Undetected	MD -1.41 (-3.76 to 0.94)	Low

Abbreviations: CI = confidence interval; ECBI = Eyberg Child Behavior Inventory; MD = mean difference; RCT = randomized controlled trial.

Table O-6. Strength of evidence for parent only Comet (Swedish Parent Management Training) internet versus group delivery in school age

Outcome Timing	Number of Studies (n)	Limitations	Consistency	Precision	Publication Bias	Findings, Direction, Magnitude of Effect (95% CI)	Strength of Evidence
ECBI Intensity (scale 36 to 252) Short-term	1 RCT[56] (N =161)	Moderate	Unknown	Imprecise	Undetected	MD 8.10 (-0.47 to 16.67)	Low
ECBI Intensity (scale 36 to 252) Intermediate Term	1 RCT[56] (N =161)	Moderate	Unknown	Imprecise	Undetected	MD 8.77 (-0.61 to 18.15)	Low
ECBI Intensity (scale 36 to 252) Long-term	1 RCT[56] (N =161)	Moderate	Unknown	Imprecise	Undetected	**MD 11.92 (2.80 to 21.04)**	Low

Outcome Timing	Number of Studies (n)	Limitations	Consistency	Precision	Publication Bias	Findings, Direction, Magnitude of Effect (95% CI)	Strength of Evidence
ECBI Problem (Raw scores 0 to 36) Short-term	1 RCT[56] (N =161)	Moderate	Unknown	Imprecise	Undetected	MD 0.22 (-1.87 to 2.31)	Low
ECBI Problem (Raw scores 0 to 36) Intermediate term	1 RCT[56] (N =161)	Moderate	Unknown	Imprecise	Undetected	MD 0.56 (-1.84 to 2.96)	Low
ECBI Problem (Raw scores 0 to 36) Long-term	1 RCT[56] (N =161)	Moderate	Unknown	Imprecise	Undetected	MD 2.00 (-0.31 to 4.31)	Low

Abbreviations: CI = confidence interval; ECBI = Eyberg Child Behavior Inventory; MD = mean difference; RCT = randomized controlled trial.

Table O-7. Strength of evidence for parent-only interventions: self-help intervention versus waitlist in school age

Outcome Timing	Number of Studies (n)	Limitations	Consistency	Precision	Publication Bias	Findings, Direction, Magnitude of Effect (95% CI)	Strength of Evidence
ECBI Intensity (scale 36 to 252) Posttreatment	1 RCT[57] (N=101)	High	Unknown	Imprecise	Undetected	MD -9.50 (95% CI -17.45 to -1.55) Data are insufficient to draw conclusions for the comparison of a self-help intervention (psychoeducation- and behavioral parent training intervention conducted off- and online) versus waitlist.	Insufficient

Abbreviations: CI = confidence interval; ECBI = Eyberg Child Behavior Inventory; MD = mean difference; RCT = randomized controlled trial.

Table O-8. Strength of evidence for parent-only interventions: behavioral self-help intervention versus non-behavioral self-help intervention in school age

Outcome Timing	Number of Studies (n)	Limitations	Consistency	Precision	Publication Bias	Findings, Direction, Magnitude of Effect (95% CI)	Strength of Evidence
CBCL Externalizing (scale unclear) Immediately Posttreatment	1 RCT[58,59] (N=110)	Moderate	Unknown	Precise	Undetected	MD -3.74 (95% CI -7.20 to -0.28) Larger improvement in CBCL externalizing scores posttreatment for children whose parents received the self-guided behavioral versus the nonbehavioral parent training intervention. It is unclear if this difference is clinically meaningful.	Low

Abbreviations: CBCL = Child Behavior Checklist; CI = confidence interval; MD = mean difference; RCT = randomized controlled trial.

Table O-9. Strength of evidence for child-only interventions: CBT interventions versus no treatment in school age

Outcome Timing	Number of Studies (n)	Limitations	Consistency	Precision	Publication Bias	Findings, Direction, Magnitude of Effect (95% CI)	Strength of Evidence
CBCL Externalizing (scale unclear) Posttreatment	1 RCT[60] (N=30)	High	Unknown	Precise	Undetected	MD -7.60 (95% CI -8.91 to -6.29) Data are insufficient to draw conclusions for the comparison of a CBT intervention versus waitlist.	Insufficient

Abbreviations: CBCL = Child Behavior Checklist; CBT = cognitive behavioral therapy; CI = confidence interval; MD = mean difference; RCT = randomized controlled trial.

Table O-10. Strength of evidence for child-only interventions: Specific Skills Interventions versus waitlist in school age

Outcome Timing	Number of Studies (n)	Limitations	Consistency	Precision	Publication Bias	Findings, Direction, Magnitude of Effect (95% CI)	Strength of Evidence
CBCL Externalizing (T-scores) Posttreatment	1 RCT[61] (N=97)	High	Unknown	Imprecise	Undetected	Social Cognitive Intervention Program vs. WL (N=57): MD -0.40 (95% CI -6.39 to 5.59) Social Skill Training vs. WL (N=55): MD -2.10 (95% CI -7.01 to 2.79) Data are insufficient to draw conclusions.	Insufficient

Outcome Timing	Number of Studies (n)	Limitations	Consistency	Precision	Publication Bias	Findings, Direction, Magnitude of Effect (95% CI)	Strength of Evidence
ECBI Intensity scores (range, 36 to 252) Short-term (8 weeks)	1 RCT[49] (N=49)	Moderate	Unknown	Precise	Undetected	MD -33.87 (95% CI -48.47 to -19.27) IY Child Training (i.e., "Dinosaur School") was associated with a moderate improvement in ECBI intensity scores compared with waitlist.	Insufficient

Abbreviations: CBCL = Child Behavior Checklist; CI = confidence interval; ECBI = Eyberg Child Behavior Inventory; IY = Incredible Years; MD = mean difference; RCT = randomized controlled trial; WL = waitlist.

Table O-11. Strength of evidence for child-only interventions: Specific Skills Interventions versus other child-only interventions in school age

Outcome Timing	Number of Studies (n)	Limitations	Consistency	Precision	Publication Bias	Findings, Direction, Magnitude of Effect (95% CI)	Strength of Evidence
CBCL Externalizing (T-scores) Posttreatment	1 RCT[61] (N=82)	High	Unknown	Imprecise	Undetected	MD 1.71 (95% CI -2.55 to 5.97) Data are insufficient to draw conclusions for the comparison of a Social Cognitive Intervention Program versus Social Skills Training.	Insufficient
Long term (52 weeks)	1 RCT[61] (N=82)	High	Unknown	Imprecise	Undetected	MD -0.64 (95% CI -5.36 to 4.08) Data are insufficient to draw conclusions for the comparison of a Social Cognitive Intervention Program versus Social Skills Training.	Insufficient

Abbreviations: CBCL = Child Behavior Checklist; CI = confidence interval; MD = mean difference; RCT = randomized controlled trial.

Table O-12. Strength of evidence for child-only interventions: play therapy versus waitlist in school age

Outcome Timing	Number of Studies (n)	Limitations	Consistency	Precision	Publication Bias	Findings, Direction, Magnitude of Effect (95% CI)	Strength of Evidence
CBCL – Externalizing (scale NR) Immediately Posttreatment	1 RCT[62] (N=38)	Moderate	Unknown	Precise	Undetected	MD -11.56 (95% CI -15.79 to -7.33) Data are insufficient to draw conclusions for the comparison of Sandplay therapy versus waitlist.	Insufficient

Abbreviations: CBCL = Child Behavior Checklist; CI = confidence interval; MD = mean difference; NR = not reported; RCT = randomized controlled trial.

Table O-13. Strength of evidence for multicomponent interventions versus waitlist or treatment as usual in school age

Outcome Timing	Number of Studies (n)	Limitations	Consistency	Precision	Publication Bias	Findings, Direction, Magnitude of Effect (95% CI)	Strength of Evidence
Pooled scores CBCL Externalizing or ECBI Intensity Immediately Posttreatment	9 RCTs[41,63-70] (N=524)	Moderate	Consistent	Imprecise	Undetected	Pooled SMD (95% CI) -0.61, 95% CI -1.05 to -0.20, I^2=75%	Moderate
Pooled Scores CBCL Externalizing or ECBI Intensity Short-term	3 RCTs[49,66,71] (N=305)	Moderate	Consistent	Imprecise	Undetected	Pooled SMD -0.58, 95%CI -1.34 to 0.16, I^2=73%	Low
Pooled Scores CBCL Externalizing or ECBI Intensity Intermediate Term	6 RCTs[66,67,71-74] (N=742)	Moderate	Consistent	Imprecise	Undetected	Pooled SMD -0.23, 95% CI -0.42 to -0.05, I^2=17%	Low
Pooled scores CBCL Externalizing or ECBI Intensity Long-term	5 RCTs[65,67,71,72,75] (N=511)	Moderate	Consistent	Imprecise	Undetected	Pooled SMD -0.36, 95% CI -0.78 to 0.00, I^2=69%	Low

Abbreviations: CBCL = Child Behavior Checklist; CI = confidence interval; ECBI = Eyberg Child Behavior Inventory; RCT = randomized controlled trial; SMD = standardized mean difference.

Table O-14. Strength of evidence for multicomponent Parent Management Training versus waitlist or treatment as usual in school age

Outcome Timing	Number of Studies (n)	Limitations	Consistency	Precision	Publication Bias	Findings, Direction, Magnitude of Effect (95% CI)	Strength of Evidence
Pooled scores CBCL Externalizing or ECBI Intensity Immediately Posttreatment	5 RCTs[41,63,65,66,69] (N=239)	Moderate	Consistent	Imprecise	Undetected	SMD (95% CI) -0.73, (-1.29 to -0.21) I^2 = 64%	Low
Pooled Scores CBCL Externalizing or ECBI Intensity Short-term	2 RCTs[49,66] (N=80)	Moderate	Inconsistent	Imprecise	Undetected	Pooled SMD -0.67 (-2.15 to 0.81, I^2=85.3%) Individual studies 1 RCT, N= 44, SMD -1.28, (-1.94 to -0.63) 1 RCT, N=36, SMD -0.06 (-0.71 to 0.60)	Insufficient

Outcome Timing	Number of Studies (n)	Limitations	Consistency	Precision	Publication Bias	Findings, Direction, Magnitude of Effect (95% CI)	Strength of Evidence
Pooled Scores CBCL Externalizing or ECBI Intensity Intermediate Term	3 RCTs[66,72,73] (N=401)	Moderate	Consistent	Imprecise	Undetected	SMD -0.34, (-0.65 to -0.12), I^2 = 0%	Low
Pooled scores CBCL Externalizing or ECBI Intensity Long-term	2 RCTs[65,72] (N=131)	Moderate	Consistent	Imprecise	Undetected	SMD -0.50, (-1.15 to 0.14) I^2 = 56.3%	Low
ECBI Problem (Raw scores 0-36) Immediately Posttreatment	3 RCTs[41,63,69] (N=170)	Moderate	Consistent	Imprecise	Undetected	Pooled MD -5.37, 95% CI -8.92 to -2.24, I^2=0%	Low

Abbreviations: CBCL = Child Behavior Checklist; CI = confidence interval; ECBI = Eyberg Child Behavior Inventory; MD = mean difference; RCT = randomized controlled trial; SMD = standardized mean difference.

Table O-15. Strength of evidence for multicomponent Parent Management Training versus multicomponent or Parent Management Training in school age

Outcome Timing	Number of Studies (n)	Limitations	Consistency	Precision	Publication Bias	Findings, Direction, Magnitude of Effect (95% CI)	Strength of Evidence
Pooled scores CBCL Externalizing or ECBI Intensity Immediately Posttreatment	3 RCTs[76-78] (N=236)	Moderate	Consistent	Imprecise	Undetected	SMD -0.18 (-0.54 to 0.10, I^2= 0%)	Low
Pooled Scores CBCL Externalizing or ECBI Intensity Short-term	1 RCT[77] (N=178)	Moderate	Unknown	Imprecise	Undetected	SMD -0.34 (-0.64 to -0.04)	Low
Pooled Scores CBCL Externalizing or ECBI Intensity Intermediate Term	2 RCTs[73,76] (N=245)	Moderate	Consistent	Imprecise	Undetected	SMD 0.02 (-0.59 to 0.38, I^2=47.2%)	Low
ECBI Problem (Raw scores 0-36) Immediately Posttreatment	2 RCTs[76,78] (N=58)	Moderate	Consistent	Imprecise	Undetected	MD -0.57 (-1.20 to 0.14, I^2= 0%)	Low

Outcome Timing	Number of Studies (n)	Limitations	Consistency	Precision	Publication Bias	Findings, Direction, Magnitude of Effect (95% CI)	Strength of Evidence
ECBI Problem (Raw scores 0-36) Intermediate Term	1 RCT[76] (N=43)	Moderate	Unknown	Imprecise	Undetected	MD -0.31 (-0.93 to 0.32)	Insufficient

Abbreviations: CBCL = Child Behavior Checklist; CI = confidence interval; ECBI = Eyberg Child Behavior Inventory; MD = mean difference; RCT = randomized controlled trial; SMD = standardized mean difference.

Table O-16. Strength of evidence for multicomponent Parent Management Training (Incredible Years) versus parent only intervention in school age

Outcome Timing	Number of Studies (n)	Limitations	Consistency	Precision	Publication Bias	Findings, Direction, Magnitude of Effect (95% CI)	Strength of Evidence
ECBI Intensity (scale 36 to 52) Immediately Posttreatment	1 RCT[41] (N=97)	Moderate	Unknown	Imprecise	Undetected	MD 5.30 (-6.42 to 17.02)	Insufficient
ECBI Intensity (scale 36 to 52) Short term	1 RCT[49] (N=48)	Moderate	Unknown	Imprecise	Undetected	MD 2.67 (-12.03 to 17.37)	Insufficient
Pooled ECBI Intensity Long term	2 RCTs[41,49] (N=136)	Moderate	Consistent	Imprecise	Undetected	Pooled SMD -0.12 (-0.64 to 0.27)	Low

Abbreviations: CI = confidence interval; ECBI = Eyberg Child Behavior Inventory; MD = mean difference; RCT = randomized controlled trial; SMD = standardized mean difference.

Table O-17. Strength of evidence for multicomponent Parent Management Training (Incredible Years) versus child only intervention in school age

Outcome Timing	Number of Studies (n)	Limitations	Consistency	Precision	Publication Bias	Findings, Direction, Magnitude of Effect (95% CI)	Strength of Evidence
ECBI Intensity (scale 36 to 52) Short term	1 RCT[49] (N=49)	Moderate	Unknown	Imprecise	Undetected	MD -0.30 (-14.27 to 13.67)	Insufficient
ECBI Intensity (scale 36 to 52) Long term	1 RCT[49] (N=46)	Moderate	Unknown	Imprecise	Undetected	MD -5.58 (-27.7 to 14.5)	Insufficient

Abbreviations: CI = confidence interval; ECBI = Eyberg Child Behavior Inventory; MD = mean difference; RCT = randomized controlled trial.

Table O-18. Strength of evidence for multicomponent interventions: family group psychotherapy (child, parent, and teacher) versus a control group in school age

Outcome Timing	Number of Studies (n)	Limitations	Consistency	Precision	Publication Bias	Findings, Direction, Magnitude of Effect (95% CI)	Strength of Evidence
CBCL Externalizing (T-score) Long term (260 weeks)	1 RCT[75] (N=58)	High	Unknown	Precise	None detected	MD -8.34 (95% CI -13.33 to -3.35) The family psychotherapy program was associated with lower CBCL externalizing scores than those in the control group	Insufficient

Abbreviations: CBCL = Child Behavior Checklist; CI = confidence interval; MD = mean difference; RCT = randomized controlled trial.

Table O-19. strength of evidence for multicomponent interventions: Utrecht Coping Power Program/Coping Power Program versus TAU in school age

Outcome Timing	Number of Studies (n)	Limitations	Consistency	Precision	Publication Bias	Findings, Direction, Magnitude of Effect (95% CI)	Strength of Evidence
CBCL Externalizing (T-score) Posttreatment	1 RCT[70] (N=64) Utrecht Coping Power Program	Moderate	Unknown	Imprecise	Not detected	MD -0.01 (95% CI -4.46 to 4.44) Similar scores for Utrecht Coping Power Program vs. TAU	Insufficient
	1 NRSI[79] (n=97) Coping Power Program	Moderate	Unknown	Precise	Not detected	MD -2.99 (95% CI -5.62 to -0.36) Evidence is insufficient to draw conclusions for Coping Power Program vs. TAU.	Insufficient
CBCL Externalizing (T-score) Long-term (52 and 261 weeks)	1 NRSI[79] (n=97) Coping Power Program	Moderate	Unknown	Precise	Not detected	52 weeks: MD -3.58 (95% CI -6.88 to -0.28) 261 weeks: MD -1.88 (95% CI -4.71 to 0.96) Evidence is insufficient to draw conclusions for Coping Power Program versus TAU.	Insufficient

Abbreviations: CBCL = Child Behavior Checklist; CI = confidence interval; MD = mean difference; NRSI = non-randomized study of intervention; RCT = randomized controlled trial; TAU = treatment as usual.

Table O-20. Strength of evidence for multicomponent interventions: Reciprocal Skills Training versus waitlist in school age

Outcome Timing	Number of Studies (n)	Limitations	Consistency	Precision	Publication Bias	Findings, Direction, Magnitude of Effect (95% CI)	Strength of Evidence
CBCL Externalizing (T-score) Posttreatment	1 RCT[64] (N=57) Reciprocal Skills Training	High	Unknown	Precise	Undetected	MD -14.93 (95% CI -19.02 to -10.84) Clinic setting only vs. TAU (N=35) MD -14.2 (95% CI -21.32 to -7.08) Hospital setting only vs. TAU (N=34) MD -15.70 (95% CI -21.12 to -10.28) Reciprocal skills training associated with lower (i.e., improved) CBCL externalizing scale scores vs. waitlist; both treatment settings (hospital and clinic) were equally effective in reducing scores vs. waitlist.	Insufficient

Abbreviations: CBCL = Child Behavior Checklist; CI = confidence interval; MD = mean difference; RCT = randomized controlled trial; TAU = treatment as usual.

Table O-21. Strength of evidence for multicomponent interventions: Social Competence Training program versus child-only group play in school age

Outcome Timing	Number of Studies (n)	Limitations	Consistency	Precision	Publication Bias	Findings, Direction, Magnitude of Effect (95% CI)	Strength of Evidence
CBCL Externalizing (T-score) Posttreatment	1 RCT[80] (N=101)	High	Unknown	Precise	None detected	MD -0.15 (95% CI -0.25 to -0.05) Social competence training associated with lower CBCL externalizing scores versus a child-only group play intervention.	Low
Intermediate term (43 weeks)	1 RCT[81] (N=74)[a]	High	Unknown	Precise	None detected	MD -0.12 (95% CI -0.25 to 0.01)[b] Social competence training associated with lower CBCL externalizing scores versus a child-only group play intervention.	Insufficient

[a] Same trial/follow-up publication to Goertz-Dorten, 2019.

[b] Differences between social competence training and group play therapy at 10 months were evaluated using linear mixed models for repeated measures with the fixed effects group, time, baseline value, and the interaction group*time.

Abbreviations: CBCL = Child Behavior Checklist; CI = confidence interval; MD = mean difference; RCT = randomized controlled trial.

Table O-22. Strength of evidence for multicomponent interventions: Stop Now and Plan (SNAP™) under 12 outreach program vs. standard services in school age

Outcome Timing	Number of Studies (n)	Limitations	Consistency	Precision	Publication Bias	Findings, Direction, Magnitude of Effect (95% CI)	Strength of Evidence
CBCL Externalizing (T-scores) Short term	1 RCT[71] (N=225)	Moderate	Unknown	Precise	Undetected	MD -3.20 (-5.09 to -1.31) SNAP™ was associated with lower (i.e., improved) CBCL externalizing T scores at 13 weeks compared with standard services.	Low
Intermediate term	1 RCT[71] (N=206)	Moderate	Unknown	Precise	Undetected	MD -1.70 (-4.08 to 0.68) SNAP™ was associated with similar CBCL externalizing T scores at 39 weeks compared with standard services.	Low
Long term	1 RCT[71] (N=211)	Moderate	Unknown	Precise	Undetected	MD -2.10 (-4.48 to 0.28) SNAP™ was associated with similar CBCL externalizing T scores at 65 weeks compared with standard services.	Low

Abbreviations: CBCL = Child Behavior Checklist; CI = confidence interval; MD = mean difference; RCT = randomized controlled trial; SNAP™ = Stop Now and Plan.

Table O-23. Strength of evidence for multicomponent multimodal or modular interventions in school age

	Outcome Timing	Number of Studies (n)	Limitations	Consistency	Precision	Publication Bias	Findings, Direction, Magnitude of Effect (95% CI)	Strength of Evidence
Multimodal treatment vs. treatment as usual	CBCL Externalizing (scoring type NR) Immediately Posttreatment	1 NRSI[82] (N=135)	High	Unknown	Imprecise	Undetected	Mean (SD) 65.58 (7.34) vs. 68.58 (7.62) unadjusted MD (95% CI) -3.0, (-5.5 to 0.45)	Insufficient
	CBCL Externalizing (scoring type NR) 52 weeks	1 NRSI[82] (N=135)	High	Unknown	Imprecise	Undetected	Mean (SD): 63.57 (9.34) vs. 68.52 (9.10) unadjusted MD (95% CI) -4.95,(I 0.9 to -1.81)	Insufficient

	Outcome Timing	Number of Studies (n)	Limitations	Consistency	Precision	Publication Bias	Findings, Direction, Magnitude of Effect (95% CI)	Strength of Evidence
	CBCL Externalizing (raw scores) Immediately Posttreatment	1 RCT[83] (N=137)	Moderate	Unknown	Imprecise	Undetected	MD 2.38 (-2.09 to 6.85)	Low
	CBCL Externalizing (raw scores) 156 weeks	1 RCT[83] (N=129)	Moderate	Unknown	Imprecise	Undetected	MD 0.40 (-4.84 to 5.64)	Low
Modular treatment booster vs. enhanced TAU	CBCL Externalizing – raw scores Immediately Posttreatment	1 RCT[67] (N=115)	Moderate	Unknown	Imprecise	Undetected	MD -0.05 (-3.7 to 3.65)	Low
	52 weeks	1 RCT[67] (N=111)	Moderate	Unknown	Imprecise	Undetected	MD 1.34 (-2.96 to 5.64)	Low
	104 weeks	1 RCT[67] (N =111)	Moderate	Unknown	Imprecise	Undetected	MD 1.18 (-2.73 to 5.09)	Low

Abbreviations: CBCL = Child Behavior Checklist; CI = confidence interval; DBD = disruptive behavior disorder; MD = mean difference; NR = not reported; NRSI = non-randomized study of intervention; ODD = oppositional defiant disorder; RR = relative risk; SD = standard deviation; TAU = treatment as usual.

Table O-24. Strength of evidence for multicomponent interventions: manualized psychoanalytic child psychotherapy versus TAU in school age

Outcome Timing	Number of Studies (n)	Limitations	Consistency	Precision	Publication Bias	Findings, Direction, Magnitude of Effect (95% CI)	Strength of Evidence
CBCL Externalizing (T-scores) Short term	1 RCT[74] (N=24)	Moderate	Unknown	Imprecise	Undetected	Adjusted MD -2.25 (95% CI -8.34 to 3.84) Evidence from one small trial was insufficient to draw conclusions for manualized psychotherapy vs. TAU	Insufficient
Harms	1 RCT[74] (N=24)	Moderate	Unknown	Imprecise	Undetected	Authors stated that no deaths and no related, unexpected, or expected (self-harm/risk-taking behaviors leading to medical attention) serious adverse events were reported. Evidence from one small trial was insufficient to draw conclusions for manualized psychotherapy vs. TAU	Insufficient

Abbreviations: CBCL = Child Behavior Checklist; CI = confidence interval; MD = mean difference; RCT = randomized controlled trial; TAU = treatment as usual.

Table O-25. Strength of evidence for multicomponent interventions: multisystemic therapy versus treatment as usual in adolescents

Outcome Timing	Number of Studies (n)	Limitations	Consistency	Precision	Publication Bias	Findings, Direction, Magnitude of Effect (95% CI)	Strength of Evidence
CBCL Externalizing Immediately Posttreatment	2 RCTs[84,85] (N=360)	Moderate	Consistent	Imprecise	Undetected	1 RCT (N=104), T-scores: -0.30 (-4.16 to 3.56) 1 RCT (N=256), raw scores: -1.61 (-4.34 to 1.12) Similar scores for MST versus TAU.	Low
Short term (9 weeks)	1 RCT[86] (N=156)	Moderate	Unknown	Imprecise	Undetected	T-scores MD 2.20 (-3.49 to 7.89) Similar scores for MST versus TAU.	Low

Abbreviations: CBCL = The Child Behavior Checklist; CI = confidence interval; MD = mean difference; MST = multisystemic therapy; RCT = randomized controlled trial; TAU = treatment as usual.

Table O-26. Strength of evidence for multicomponent interventions: family therapy versus treatment as usual for adolescents

Outcome Timing	Number of Studies (n)	Limitations	Consistency	Precision	Publication Bias	Findings, Direction, Magnitude of Effect (95% CI)	Strength of Evidence
CBCL Externalizing (T-score) Immediately Posttreatment	1 RCT[87] (N=38)	High	Unknown	Imprecise	Undetected	MD -15.26 (-22.05 to -8.47) Data is insufficient to draw conclusions for the comparison of PLL versus TAU.	Insufficient
Short term (4 weeks)	2 RCTs[88,89] (N=206)	High	Consistent	Precise	Undetected	1 RCT (N=122): MD -22.02 (-25.98 to -18.06) 1 RCT (N=84, n in each group NR): MD -24.00 (NC) FMDT was associated with large improvements on the CBCL externalizing scale compared with TAU; one of the trials[88] did not provide sample sizes by treatment group so we could not calculate a confidence interval but the difference is similar to the other trial and likely also clinically significant.	Insufficient

Abbreviations: CBCL = Child Behavior Checklist; CI = confidence interval; FMDT = Family Mode Deactivation Therapy; MD = mean difference; NC = not calculated; NR = not reported; PLL = Parenting with Love and Logic; RCT = randomized controlled trial; TAU = treatment as usual.

Table O-27. Strength of evidence for multicomponent interventions: family therapy versus child-only interventions in adolescents

Outcome Timing	Number of Studies (n)	Limitations	Consistency	Precision	Publication Bias	Findings, Direction, Magnitude of Effect (95% CI)	Strength of Evidence
EBCI Intensity scores (range, 36 to 252) Immediately Posttreatment	1 RCT[90] (N=56)	High	Unknown	Imprecise	Undetected	MD -19.63 (-41.43 to 2.17) Data is insufficient to draw conclusions for the comparison of FBT versus ICPS.	Insufficient
Intermediate term (26 weeks)	1 RCT[90] (N=56)	High	Unknown	Imprecise	Undetected	MD 7.58 (-12.97 to 28.13) Data is insufficient to draw conclusions for the comparison of FBT versus ICPS.	Insufficient
EBCI Problem scores (range 0 to 36) Immediately Posttreatment	1 RCT[90] (N=56)	High	Unknown	Imprecise	Undetected	MD -3.37 (-8.24 to 1.50) Data is insufficient to draw conclusions for the comparison of FBT versus ICPS.	Insufficient
Intermediate term (26 weeks)	1 RCT[90] (N=56)	High	Unknown	Imprecise	Undetected	MD -3.30 (-8.77 to 2.17) Data is insufficient to draw conclusions for the comparison of FBT versus ICPS.	Insufficient

Abbreviations: CI = confidence interval; ECBI = The Eyberg Child Behavior Inventory; FBT = Family Behavior Therapy; ICPS = Individual Cognitive Problem-Solving therapy; MD = mean difference; RCT = randomized controlled trial.

Table O-28. Strength of evidence for child-only interventions: Mindfulness-based Intervention versus TAU and another child-only interventions in adolescents

Outcome Timing	Number of Studies (n)	Limitations	Consistency	Precision	Publication Bias	Findings, Direction, Magnitude of Effect (95% CI)	Strength of Evidence
CBCL Externalizing Immediately Posttreatment	1 RCT[91] (N=88 for MBI vs. TAU; N=90 for MBI vs. health psychoeducation)	High	Unknown	Imprecise	Undetected	Data are insufficient to draw conclusions. Authors indicate that CBCL externalizing scores were similar between MBI vs. TAU and MBI vs. a health psychoeducation intervention immediately posttreatment but did not provide raw data for further analysis.	Insufficient

Abbreviations: CBCL = Child Behavior Checklist; CI = confidence interval; MD = mean difference; MBI = Mindfulness-based Intervention; RCT = randomized controlled trial; TAU = treatment as usual.

Table O-29. Strength of evidence for child-only interventions: Adolescent Coping With Depression course vs. another child-only intervention in adolescents

Outcome Timing	Number of Studies (n)	Limitations	Consistency	Precision	Publication Bias	Findings, Direction, Magnitude of Effect (95% CI)	Strength of Evidence
CBCL Externalizing Immediately Posttreatment	1 RCT[92] (N=91)	Moderate	Unknown	Imprecise	Undetected	MD -4.0 (-9.57 to 1.57) Similar scores for CWD-A vs. Life Skills/Tutoring	Low
Intermediate term (26 weeks)	1 RCT[92] (N=86)	Moderate	Unknown	Imprecise	Undetected	MD -0.60 (-7.02 to 5.82) Similar scores for CWD-A vs. Life Skills/Tutoring	Low
Long term (52 weeks)	1 RCT[92] (N=87)	Moderate	Unknown	Imprecise	Undetected	MD 6.80 (1.29 to 12.31) CWD-A associated with less improvement vs. Life Skills/Tutoring	Low
Harms	1 RCT[92] (N=93)	Moderate	Unknown	Imprecise	Undetected	Data are insufficient to draw conclusions. Authors make the following statement but do not provide further information: "No adverse events associated with the treatment condition were found."	Insufficient

Abbreviations: CBCL = Child Behavior Checklist; CI = confidence interval; CWA-D = Adolescent Coping With Depression course; MD = mean difference; RCT = randomized controlled trial.

Table O-30. KQ2. Strength of evidence for pharmacologic interventions

	Outcome	Studies (N)	Limitations	Consistency	Precision	Publication Bias	Summary of Findings	Strength of Evidence
Antipsychotics vs. placebo	Response	3 RCTs (N=529)[93-95]	Moderate	Consistent	Precise	Not detected	Treatment response was more likely with add-on risperidone in two trials and with risperidone maintenance in one trial but none of the individual study risk estimates were statistically significant.	Low
	CGI-I	1 RCT (N=20)[96]	Low	Unknown	Imprecise	Not detected	Risperidone vs. placebo: CGI-I 1.80 (SE 0.33) vs. 3.60 (SE 0.45); p=0.002	Insufficient
	CGI-S	4 RCTs (N=458)[95-98]	Moderate	Consistent	Imprecise	Not detected	There were small improvements in CGI-S or CGI-I scores in four trials (N=458) of stimulant plus add-on risperidone (2 trials), quetiapine alone (1 trial) and risperidone maintenance (1 trial)	Insufficient
	OAS, MOAS, or R-MOAS	2 RCTs (N=45)[94,97]	Low	Inconsistent	Imprecise	Not detected	The effect of either add-on risperidone (1 trial) or quetiapine alone (1 trial) is unclear based on mixed results from 2 RCTs.	Insufficient

	Outcome	Studies (N)	Limitations	Consistency	Precision	Publication Bias	Summary of Findings	Strength of Evidence
	CBCL	2 RCTs (N=46)[94,96]	Moderate	Inconsistent	Imprecise	Not detected	One trial found add-on risperidone associated with greater improvements in scores than placebo at 8 weeks follow-up; the second of risperidone alone found no difference between groups at 10 week-follow-up.	Insufficient
Antipsychotics vs. antipsychotics	Response	2 RCTs (N=62)[99,100]	High	Consistent	Imprecise	Not detected	No statistically significant difference between risperidone and quetiapine (1 RCT; RR 1.20, 95% CI 0.56 to 2.56) or aripiprazole (1 RCT; RR 0.91, 95% CI 0.39 to 2.13)	Insufficient
	OAS, MOAS, or R-MOAS	2 RCTs (N=46)[99,101]	Moderate	Consistent	Imprecise	Not detected	No statistically significant difference between risperidone and clozapine (1 RCT; p=0.58) or quetiapine (1 RCT; p=0.62)	Insufficient
	CBCL	1 RCT (N=24)[101]	Moderate	Unknown	Imprecise	Not detected	No statistically significant difference between groups (p=0.17)	Insufficient
Antipsychotics vs. anticonvulsants	OAS, MOAS, or R-MOAS	1 RCT (N=36)[94]	Moderate	Unknown	Imprecise	Not detected	No statistically significant difference between groups (p=0.28)	Insufficient
	CBCL	1 RCT (N=36)[94]	Moderate	Unknown	Imprecise	Not detected	No difference between groups (p=0.56)	Insufficient
Anticonvulsants vs. placebo	Response	3 RCTs (N=65)[94,102,103]	Moderate	Consistent	Imprecise	Not detected	Absolute response rates were higher with divalproex (range 43% to 86%) than placebo (range 15% to 33%), but risk estimates were imprecise and not statistically significant	Insufficient
	R-MOAS	2 RCTs (N=50)[94,102]	Moderate	Unknown	Imprecise	Not detected	No statistically significant difference between groups (p=0.80) in one trial, marginal difference in the other trial favoring divalproex (p=0.046)	Insufficient
	CBCL	1 RCT (N=23)[94]	Moderate	Unknown	Imprecise	Not detected	A significant effect was found favoring divalproex (p=0.02)	Insufficient
High dose vs. low dose anticonvulsants	Response	1 RCT (N=58)[104]	Moderate	Unknown	Imprecise	Not detected	RR 6.35, 95% CI 1.62 to 24.86	Insufficient
	CGI-S	1 RCT (N=58)[104]	Moderate	Unknown	Imprecise	Not detected	Risk of moderate (RR 0.59, 95% CI 0.20 to 1.71), marked (RR 0.18, 95% CI 0.02 to 1.48), or severe illness (RR 0.35, 95% CI 0.10 to 1.27) was lower with high-dose divalproex	Insufficient

	Outcome	Studies (N)	Limitations	Consistency	Precision	Publication Bias	Summary of Findings	Strength of Evidence
Antidepressants vs. placebo	CGI-S	1 RCT (N=49)[105]	Low	Unknown	Imprecise	Not detected	No statistically significant difference between groups (p=0.85)	Insufficient
	Response	1 RCT (N=49)[105]	Low	Unknown	Imprecise	Not detected	RR 1.39, 95% CI 0.37 to 5.23	Insufficient
Stimulants vs. placebo	Response	2 RCTs (N=371)[106,107]	Moderate	Consistent	Imprecise	Not detected	Response rates were higher with methylphenidate (1 RCT; RR 5.74, 95% CI 2.46 to 13.40) and mixed amphetamine salts (1 RCT; RR 2.01 (95% CI 1.30 to 3.11)	Insufficient
Stimulants vs. nonstimulants	Response	1 RCT (N=17)[108]	High	Unknown	Imprecise	Not detected	RR 1.24, 95% CI 0.76 to 2.05	Insufficient

Abbreviations: CBCL = Child Behavior Checklist; CGI-I = The Clinical Global Impressions – Improvement Scale; CGI-S = The Clinical Global Impressions – Severity Scale; CI = confidence interval; MOAS = Modified Overt Aggression Scale; OAS = Overt Aggression Scale; R-MOAS = Retrospective Modified Overt Aggression Scale; RCT = randomized controlled trial; RR = relative risk.

Table O-31. KQ 3. Strength of evidence for PCIT versus methylphenidate

Outcome	Studies (N)	Limitations	Consistency	Precision	Publication Bias	Summary of Findings	Strength of Evidence
ECBI-I	1 RCT[109] (N=35)	High	Unknown	Imprecise	Not detected	Mean score: 154 (26.5) versus 123 (SD 34.7); p=0.02. The validity of this finding is questionable due to multiple methodologic limitations.	Insufficient

Abbreviations: ECBI = Eyberg Child Behavior Inventory; PCIT = Parent-Child Interaction Therapy; RCT = randomized controlled trial; SD = standard deviation.

Table O-32. KQ 4. Strength of evidence for combined psychotherapy + pharmacotherapy versus psychotherapy alone

Outcome	Studies (n)	Limitations	Consistency	Precision	Publication Bias	Summary of Findings	Strength of Evidence
CBCL Aggression subscale	1 NRSI[110] (N=144)	High	Unknown	Imprecise	Not detected	In regression analysis, combined psychosocial and pharmacologic treatment was associated with lower CBCL aggression subscale scores at 12 months compared with the psychosocial intervention alone	Insufficient

Abbreviations: CBCL = Child Behavior Checklist; NRSI = non-randomized study of intervention.

Table O-33. KQ5. Strength of evidence for pharmacotherapy harms

	Outcome	Studies (n)	Limitations	Consistency	Precision	Publication Bias	Summary of Findings	Strength of Evidence
Any pharmacologic intervention vs. placebo	Withdrawal due to adverse events	6 RCTs (7 comparisons; N=911)[94,96,107,111-113]	Moderate	Consistent	Imprecise	Not detected	RR 3.44. 95% CI 1.36 to 8.75; I^2=0%	Moderate
	Total adverse events	5 RCTs (N=803) [95,102,105,111,113]	Moderate	Inconsistent	Imprecise	Not detected	Risk of any adverse event with was increased compared with placebo based on three trials (n=729), with no clear between-group differences in two smaller trials (n=74)	Low
	Serious adverse events	6 RCTs (N=1,045)[93-95,104,105,107]	Moderate	Inconsistent	Imprecise	Not detected	Serious AEs were infrequent with no clear differences between groups	Low
Antipsychotics vs. placebo	Withdrawal due to adverse events	2 RCTs (N=47)[94,96]	Moderate	Consistent	Imprecise	Not detected	RR 2.52, 95% CI 0.73-8.77; I^2=0%	Insufficient
	Total adverse events	1 RCT (N=335)[95]	Moderate	Unknown	Imprecise	Not detected	RR 1.12, 95% CI 0.70-1.47; I^2=52%	Insufficient
	Serious adverse events	3 RCTs (N=529)[93-95]	Moderate	Consistent	Imprecise	Not detected	Two RCTs reported no serious AEs, the other RCT reported few events and no difference between groups	Low
	Extrapyramidal symptoms	2 RCTs (N=363)[95,97]	Moderate	Consistent	Imprecise	Not detected	No clear differences between groups in one RCT of quetiapine and one RCT of risperidone maintenance	Insufficient
	Weight gain	3 RCTs[95,97,98] (N=447)	Moderate	Consistent	Imprecise	Not detected	Mean weight change: +1.4 kg (5.7%) vs. -0.62 kg (-2.4%); p<0.05 in one study; two studies found an increased risk of weight gain with antipsychotic use that was imprecise and not statistically significant (RR 3.33, 95% CI 0.42-26.58 and RR 1.90, 95% CI 0.17-20.70)	Low
Antipsychotics vs. anticonvulsants	Withdrawal due to adverse events	1 RCT[94] (n=34)	Moderate	Unknown	Imprecise	Not detected	RR 0.89, 95% CI 0.14-5.60	Insufficient
	Serious adverse events	1 RCT[94] (n=34)	Moderate	Unknown	Imprecise	Not detected	Narrative report of no serious AEs in either group	Insufficient

	Outcome	Studies (n)	Limitations	Consistency	Precision	Publication Bias	Summary of Findings	Strength of Evidence
	Other specific adverse events	1 RCT[94] (n=34)	Moderate	Unknown	Imprecise	Not detected	No difference between groups in risk of tremor (no incidence), depression (RR 1.07, 95% CI 0.40-2.83), or apathy (RR 1.78, 95% CI 0.37-8.44).	Insufficient
Antipsychotics vs. antipsychotics	Withdrawal due to adverse events	2 RCTs[100,101] (N=64)	Moderate	Consistent	Imprecise	Not detected	Risperidone was associated with a lower rate of withdrawals due to adverse events when compared with clozapine (RR 0.20, 95% CI 0.01 to 3.77) and aripiprazole (RR 0.50, 95% CI 0.10 to 2.43) based on one study each.	Insufficient
	Weight gain	1 RCT[99] (N=22)	High	Unknown	Imprecise	Not detected	RR 2.40, 95% CI 0.80-7.23	Insufficient
Anticonvulsants vs. placebo	Withdrawal due to adverse events	1 RCT[94] (N=23)	Moderate	Unknown	Imprecise	Not detected	RR 2.94, 95% CI 0.16-55.31	Insufficient
	Total adverse events	1 RCT[102] (N=27)	Moderate	Unknown	Imprecise	Not detected	Narrative report of no difference between groups	Insufficient
	Serious adverse events	1 RCT[94] (N=23)	Moderate	Unknown	Imprecise	Not detected	Narrative report of no serious AEs in either group	Insufficient
	Other specific adverse events	1 RCT[94] (N=23)	Moderate	Unknown	Imprecise	Not detected	No difference between groups in risk of tremor (RR 0.08, 95% CI 0.00-1.46), depression (RR 0.56, 95% CI 0.22-1.43), or apathy (RR 0.38, 95% CI 0.08-1.84).	Insufficient
Antidepressants vs. placebo	Total adverse events	1 RCT[105] (N=49)	Low	Unknown	Imprecise	Not detected	Mean number of adverse events: 14.3 vs. 11.5; p=0.14	Insufficient
Stimulants vs. placebo	Withdrawal due to adverse events	1 RCT[107] (N=308)	Moderate	Unknown	Imprecise	Not detected	RR 7.10, 95% CI 0.43-117.44	Insufficient
	Weight loss	1 RCT[107] (N=308)	Moderate	Unknown	Imprecise	Not detected	RR 12.49, 95% CI 0.77-202	Insufficient
Nonstimulants vs. placebo	Withdrawal due to adverse events	3 RCTs[111-113] (N=531)	Moderate	Consistent	Imprecise	Not detected	RR 3.31, 95% CI 0.72-13.89; I^2=3%	Low
	Total adverse events	2 RCTs[111,113] (N=394)	Moderate	Consistent	Imprecise	Not detected	RR 1.51, 95% CI 1.09 to 2.60; I^2=66%	Low

	Outcome	Studies (n)	Limitations	Consistency	Precision	Publication Bias	Summary of Findings	Strength of Evidence
	Other specific adverse events	1 RCT[112] (N=137)	Moderate	Unknown	Imprecise	Not detected	Risk of anorexia/decreased appetite was increased with nonstimulant use (RR 4.57, 95% CI 1.52 to 13.73)	Insufficient
Stimulants vs. nonstimulants	Total adverse events	1 RCT[108] (N=37)	High	Unknown	Imprecise	Not detected	RR 0.86, 95% CI 0.44 to 1.66	Insufficient

Abbreviations: AEs = adverse events; CI = confidence interval; RCT = randomized controlled trial; RR = relative risk.

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Appendix P. Included Studies List

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Appendix Q. Excluded Studies

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5. Acri M, Chun Y, Yin S, et al. Male Caregivers and Engagement in a Family Strengthening Program for Child Disruptive Behavior Disorders. Community Ment Health J. 2022 11;58(8):1513-21. doi: 10.1007/s10597-022-00966-2. PMID: 35362804. **Exclusion reason:** Ineligible comparator

6. Acri M, Hamovitch E, Mini M, et al. Testing the 4Rs and 2Ss Multiple Family Group intervention: study protocol for a randomized controlled trial. Trials. 2017 Dec 04;18(1):588. doi: 10.1186/s13063-017-2331-7. PMID: 29202867. **Exclusion reason:** Ineligible publication type

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48. Bakker MJ, Greven CU, Buitelaar JK, et al. Practitioner Review: Psychological treatments for children and adolescents with conduct disorder problems - a systematic review and meta-analysis. J Child Psychol Psychiatry. 2017 01;58(1):4-18. doi: 10.1111/jcpp.12590. PMID: 27501434. **Exclusion reason:** Systematic review used as source document

49. Balia C, Carucci S, Coghill D, et al. The pharmacological treatment of aggression in children and adolescents with conduct disorder. Do callous-unemotional traits modulate the efficacy of medication? Neurosci Biobehav Rev. 2018 08;91:218-38. doi: 10.1016/j.neubiorev.2017.01.024. PMID: 28137460. **Exclusion reason:** Systematic review used as source document

50. Balia C, Carucci S, Donno F, et al. Do callous-unemotional traits modulate pharmacological treatment of aggression in children and adolescents with conduct disorder? Eur Neuropsychopharmacol. 2016;26:S731. **Exclusion reason:** Systematic review used as source document

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60. Barroso NE, Mendez L, Graziano PA, et al. Parenting Stress through the Lens of Different Clinical Groups: a Systematic Review & Meta-Analysis. J Abnorm Child Psychol. 2018 04;46(3):449-61. doi: 10.1007/s10802-017-0313-6. PMID: 28555335. **Exclusion reason:** Background only

61. Barterian JA, Arnold LE, Brown NV, et al. Clinical Implications From the Treatment of Severe Childhood Aggression (TOSCA) Study: A Re-Analysis and Integration of Findings. J Am Acad Child Adolesc Psychiatry. 2017 Dec;56(12):1026-33. doi: 10.1016/j.jaac.2017.09.426. PMID: 29173736. **Exclusion reason:** Ineligible intervention

62. Bastiaens L. A non-randomized, open study with aripiprazole and ziprasidone for the treatment of aggressive behavior in youth in a community clinic. Community Ment Health J. 2009 Feb;45(1):73-7. doi: 10.1007/s10597-008-9154-7. PMID: 18597173. **Exclusion reason:** Ineligible population

63. Battagliese G, Caccetta M, Luppino OI, et al. Cognitive-behavioral therapy for externalizing disorders: A meta-analysis of treatment effectiveness. Behav Res Ther. 2015 Dec;75:60-71. doi: 10.1016/j.brat.2015.10.008. PMID: 26575979. **Exclusion reason:** Systematic review used as source document

64. Baumel A, Pawar A, Mathur N, et al. Technology-Assisted Parent Training Programs for Children and Adolescents With Disruptive Behaviors: A Systematic Review. Journal of Clinical Psychiatry. 2017 Sep/Oct;78(8):e957-e69. doi: 10.4088/JCP.16r11063. PMID: 28493653. **Exclusion reason:** Systematic review used as source document

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66. Baweja R, Waschbusch DA, Pelham WE, 3rd, et al. The Impact of Persistent Irritability on the Medication Treatment of Paediatric Attention Deficit Hyperactivity Disorder. Front Psychiatr. 2021;12:699687. doi: 10.3389/fpsyt.2021.699687. PMID: 34366928. **Exclusion reason:** Ineligible population

67. Bearss K. 3.6 Parent Training for Disruptive Behaviors in Children with Autism Spectrum Disorder. J Am Acad Child Adolesc Psychiatry. 2021 to 2021-10-30;Vol.60(10):S126-S7p. doi: 10.1016/j.jaac.2021.07.505. PMID: CN-02336726. **Exclusion reason:** Systematic review used as source document

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72. Bell Scott B, Doss S, Myers D, et al. Addressing externalized behavioral concerns in primary care: Listening to the voices of parents. Soc Work Health Care. 2019 01;58(1):14-31. doi: 10.1080/00981389.2018.1508114. PMID: 30130473. **Exclusion reason:** Background only

73. Bennett SD, Cross JH, Coughtrey AE, et al. M.I.C.E—Mental Health Intervention for Children with Epilepsy: a randomised controlled, multi-centre clinical trial evaluating the clinical and cost-effectiveness of MATCH-ADTC in addition to usual care compared to usual care alone for children and young people with common mental health disorders and epilepsy—study protocol. Trials. 2021;22(1):132. doi: 10.1186/s13063-020-05003-9. PMID: 33573674. **Exclusion reason:** Ineligible publication type

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Appendix R. Patient-Centered Outcomes Research Institute (PCORI) Methodology Checklist

Shown in associated Excel file.