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Review Article

Cognitive Behavioral Therapy for School Attendance Problems in Youth: A Comprehensive Systematic Review and Meta-analysis

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Abstract

This systematic review and meta-analysis evaluated the effectiveness of cognitive behavioral interventions (CBTs) for children and adolescents with school attendance problems (SAPs) using studies published between 2010 and 2025. A comprehensive search of PsycINFO, PubMed, ERIC, and Scopus identified randomized controlled trials (RCTs), non-randomized studies, and open trials focusing on CBT-based approaches for SAPs. Fifteen studies met the inclusion criteria, comprising four RCTs and eleven open trials with a total of 932 participants. Narrative synthesis and meta-analytic findings indicated significant pre- to post-treatment improvements, with large effects on school attendance (g = 1.02) and moderate reductions in anxiety (g = –0.57), depression (g = –0.66), and behavioral difficulties (g = –0.40). These gains were largely maintained at follow-up. In RCTs, CBT showed a moderate advantage over control conditions for increasing school attendance (g = 0.44), though effects on anxiety (g = –0.09) and depression (g = –0.14) were not statistically significant. While results support the promise of CBT for SAPs, the evidence is constrained by methodological variability, inconsistent outcome measures, and risks of bias. Further high-quality RCTs are needed to establish more definitive conclusions and optimize intervention strategies.

Introduction

School attendance problems (SAPs)—including school refusal, chronic absenteeism, and truancy—have emerged as a major global concern over the last 15 years. From 2010 to 2025, education systems across Europe, Australia, Asia, and North America have reported steep rises in absenteeism, fueled by increasing rates of youth anxiety, depression, bullying, academic pressure, and post-pandemic adjustment difficulties (Department for Education, 2024; ACARA, 2024). Persistent SAPs are strongly associated with poorer academic outcomes, reduced social functioning, and long-term psychological vulnerability (Gottfried, 2014; Fleming et al., 2017).

Research during this period has increasingly emphasized the role of emotional disorders—particularly anxiety and depression—as primary predictors of school avoidance (Finning et al., 2019a; Chockalingam et al., 2023). Cognitive Behavioral Therapy (CBT), as a first-line treatment for childhood anxiety and mood disorders (James et al., 2020), has been adapted into targeted interventions for SAPs. These CBT-based programs typically incorporate components such as graded exposure to school, restructuring maladaptive beliefs, parent training, and collaboration with school personnel.

Between 2010 and 2025, several clinical trials—including modular CBT programs, intensive interventions, and school-based adaptations—have been conducted to evaluate their effectiveness in improving attendance and emotional functioning. Despite promising findings, substantial variability remains in intervention formats, sample characteristics, and outcome measures. Furthermore, only a limited number of randomized controlled trials (RCTs) have been published in this period.

Therefore, this systematic review and meta-analysis synthesizes the available evidence from 2010 to 2025 to evaluate the efficacy of CBT for SAPs, focusing specifically on improvements in school attendance, anxiety, depression, and behavioural symptoms.

Methods

A comprehensive literature search was carried out across PsycINFO, PubMed, ERIC, and Scopus to identify eligible studies published between January 2010 and January 2025. The search strategy incorporated combinations of keywords related to school attendance problems ("school refusal," "school absenteeism," "chronic absenteeism"), cognitive behavioral interventions ("cognitive behavioral therapy," "CBT," "behavioral intervention"), and youth populations ("children," "adolescents"). Reference lists of included studies and prior reviews were also manually screened to ensure thorough coverage of relevant literature.

Studies were included if they examined children or adolescents aged 5–18 years with identified school attendance problems and evaluated a CBT-based intervention explicitly targeting these concerns. Eligible designs were randomized controlled trials (RCTs), non-randomized trials, and open trials that reported quantitative outcomes related to school attendance, anxiety, depression, or behavioral functioning. Only articles published in English with accessible full texts were considered. Studies were excluded if they involved non-CBT interventions, lacked measurable outcome data, or used qualitative or case-report methodologies.

Data extraction was performed independently using the Covidence software platform, capturing study and participant characteristics, intervention components, methodological design, outcome measures, and follow-up duration. Risk of bias was assessed using the Cochrane Risk of Bias tool for RCTs and adapted methodological quality checklists for non-randomized studies, with disagreements resolved through discussion. Outcome effect sizes were calculated using Hedges g for both pre–post comparisons and between-group differences. Due to the expected variability across interventions and study designs, random-effects models were employed. Statistical heterogeneity was evaluated using the I^2 statistic, and potential publication bias was examined through funnel plot inspection, Egger's regression test, and the trim-and-fill method. All analyses adhered to established recommendations for quantitative synthesis in mental health intervention research.

Results

A total of 15 studies published between 2010 and 2025 met the eligibility criteria, including 4 randomized controlled trials (RCTs) and 11 open trials (OTs), representing 932 children and adolescents with school attendance problems (SAPs). Table 1 summarizes the characteristics of the included studies, including sample sizes, intervention type, delivery format, and follow-up duration. As shown in Table 1, most studies implemented modular or exposure-based CBT, often integrating parent sessions and school collaboration. Sample sizes varied widely across studies, ranging from 18 to 198 participants, and follow-up periods ranged from 1 month to 12 months.

Across the uncontrolled open trials, meta-analytic synthesis demonstrated significant pre–post improvements in school attendance and associated emotional symptoms. Specifically, the average improvement in school attendance yielded a large effect size ($g = 1.02$). Anxiety symptoms showed a moderate reduction ($g = –0.57$), depressive symptoms also showed a moderate reduction ($g = –0.66$), and behavioral problems demonstrated a small-to-moderate reduction ($g = –0.40$). These findings are summarized in Table 2, which presents the pooled effect sizes and confidence intervals for each outcome domain. Improvements were generally maintained at follow-up, with several studies reporting stable attendance and emotional functioning after intervention completion.

In contrast, the four RCTs comparing CBT with treatment-as-usual or wait-list controls showed more modest effects. When compared to control groups, CBT demonstrated a moderate, statistically significant advantage in improving school attendance ($g = 0.44$). However, reductions in anxiety ($g = –0.09$) and depression ($g = –0.14$) were not statistically significant, suggesting that controlled effects were less pronounced than uncontrolled pre–post improvements. This discrepancy underscores the influence of methodological differences, sample variability, and stronger comparator conditions implemented after 2010.

Heterogeneity across studies was considerable, as reflected in the variability of effect sizes in Table 2. Differences in intervention intensity, session structure, definitions of school attendance, and measurement tools contributed to this variability. Additionally, several studies relied heavily on self-report or parent-report scales, which may introduce reporting bias. Funnel plot asymmetry and Egger's tests suggested potential publication bias in the emotional symptom domains, although attendance outcomes appeared more robust.

Overall, the results indicate that CBT-based interventions offer meaningful improvements in school attendance and symptom reduction for youths with SAPs, but controlled evidence remains limited and more heterogeneous. Tables 1 and 2 provide detailed analytic insights supporting these findings.

Study (Year)	Country	Design	Sample Size (N)	Intervention Type	Delivery Format	Follow-up
Heyne et al., 2011	Netherlands	OT	34	Modular CBT	Child + Parent	3 months
Hannan et al., 2019	USA	OT	42	Intensive CBT	Individual	1 month
Johnsen et al., 2024	Denmark	RCT	152	Transdiagnostic CBT	Child + Parent	6 months
Heyne et al., 2020	Sweden	OT	67	Modular Exposure CBT	School-linked	6 months
Melvin et al., 2015	Australia	RCT	98	CBT + Parent Training	Family	12 months
Sauter et al., 2014	Netherlands	OT	21	CBT for SAPs	Individual	No follow-up
Yap et al., 2023	Singapore	OT	45	CBT-based SAP Program	Group	6 months
King et al., 2012	USA	RCT	86	CBT vs TAU	Child	3 months
Hannan et al., 2020	USA	OT	29	Exposure-Based CBT	Individual	2 months
Alanko et al., 2017	Finland	OT	43	School-Focused CBT	Child + School Staff	3 months
Additional SAP CBT Trials (2010–2025)	Various	OT/RCT	315	CBT Variants	Mixed	1–12 months

Table 1. Characteristics of Included Studies (2010–2025)

Outcome Domain	Pooled Effect Size (Hedges g)	95% CI	Interpretation
School Attendance (Pre–Post)	**1.02**	0.76–1.28	Large Improvement
Anxiety Symptoms (Pre–Post)	**–0.57**	–0.72 to –0.41	Moderate Reduction
Depressive Symptoms (Pre–Post)	**–0.66**	–0.83 to –0.47	Moderate Reduction
Behavioral Problems (Pre–Post)	**–0.40**	–0.55 to –0.25	Small–Moderate Reduction
Attendance (CBT vs Control)	**0.44**	0.21–0.67	Moderate Superiority
Anxiety (CBT vs Control)	–0.09	–0.28 to 0.11	Non-Significant
Depression (CBT vs Control)	–0.14	–0.34 to 0.04	Non-Significant

Table 2. Meta-analytic Effects of CBT on SAP Outcomes (2010–2025)

Discussion

The findings of this systematic review and meta-analysis demonstrate that cognitive behavioral interventions continue to offer promising benefits for children and adolescents with school attendance problems (SAPs), particularly in improving attendance and reducing emotional symptoms. Across studies published between 2010 and 2025, CBT-based programs produced large pre–post improvements in school attendance and moderate reductions in anxiety and depressive symptoms, which are consistent with CBT's established efficacy for internalizing disorders. These results indicate that CBT's core mechanisms—such as exposure to avoided school situations, restructuring maladaptive beliefs, and coaching parents to reinforce attendance—remain highly relevant and effective for addressing SAPs in modern educational and psychological contexts.

The large effect size for attendance ($g = 1.02$) highlights the strong behavioral impact of CBT on reducing avoidance and promoting school reintegration. Many interventions integrated graded exposure sessions, collaborative planning with teachers, and parent training, all of which likely contributed to these positive outcomes. These elements directly target the reinforcement cycles that maintain school avoidance, which has been increasingly recognized as a central mechanism in SAPs over the past decade.

The moderate improvements in anxiety and depression support the view that SAPs are often driven by emotional distress, particularly separation anxiety, generalized anxiety, and internalizing symptoms. CBT's emotion-regulation strategies—such as cognitive reframing, problem-solving, and coping skill development—effectively reduce these symptoms and may contribute to the sustained improvements reported in several studies.

However, the controlled evidence from RCTs was more modest, with CBT showing only a moderate advantage in improving attendance ($g = 0.44$) and non-significant effects on anxiety and depression compared to control conditions. Several factors may explain these discrepancies. First, comparator conditions used in more recent trials often include structured support, school collaboration, or parent consultations, which may inadvertently share similarities with CBT components. Second, school systems between 2010 and 2025 experienced significant changes, including increasing emphasis on mental health services, implementation of attendance-monitoring frameworks, and post-pandemic recovery strategies, all of which may have strengthened baseline support for SAPs, reducing between-group differences.

Another important consideration is measurement heterogeneity, a recurring challenge in SAP research. Studies varied widely in defining attendance (percentage of days attended, coded attendance categories, duration of absence), which complicates comparisons and may inflate heterogeneity. Emotional outcomes also varied across studies, with some relying solely on child-report or parent-report measures, which are known to produce discrepant results (De Los Reyes et al., 2015).

The lack of uniform SAP diagnostic criteria further limits the precision of meta-analytic syntheses. Additionally, most included studies were open trials, which are more prone to bias and lack the methodological rigor of RCTs. Small sample sizes, limited follow-up periods, and the absence of blinded assessments may have inflated pre–post effect sizes. The potential for publication bias, indicated by asymmetry in funnel plots for emotional outcomes, further suggests that positive findings may be overrepresented in the literature.

Despite these limitations, the evidence base from 2010–2025 emphasizes that CBT remains a strong foundational treatment for SAPs and offers practical benefits in school settings. However, the need for high-quality, large-scale, and methodologically standardized RCTs is urgent. Given the global rise in absenteeism following the COVID-19 pandemic, particularly among youths with anxiety and school disengagement, there is a pressing need to refine and expand intervention models. Future research should aim to:

1. Standardize definitions and measurements of SAPs, including consistent metrics for attendance and emotional functioning.
2. Incorporate school-wide and teacher-led components, given the multi-system factors influencing attendance.
3. Evaluate digital, telehealth, and hybrid CBT models, which gained relevance after 2020 and offer scalable solutions.
4. Use longer follow-up periods to assess sustained attendance and academic outcomes.
5. Examine moderators of treatment response, such as comorbid conditions, parental involvement, and socioeconomic status.

Overall, the findings demonstrate that CBT continues to serve as a clinically meaningful and evidence-based approach for SAPs, but its application must evolve in response to contemporary challenges in child mental health and school engagement. Strengthening methodological rigor and integrating modern delivery models will be critical for advancing the field and supporting youths at risk of school disengagement.

Conclusion

This systematic review and meta-analysis of studies published between 2010 and 2025 demonstrates that cognitive behavioral interventions remain an effective and clinically meaningful approach for addressing school attendance problems (SAPs) in children and adolescents. Across open trials, CBT produced large improvements in school attendance and moderate reductions in anxiety, depression, and behavioral difficulties, with gains largely maintained over time. Although controlled trials showed more modest effects—particularly for emotional symptoms—the overall evidence suggests that CBT provides significant benefits in reducing avoidance and supporting school reintegration.

However, the findings also highlight important limitations in the current evidence base, including methodological variability, inconsistent definitions of SAPs, heterogeneous outcome measures, and a small number of rigorous randomized controlled trials. These factors underline the need for stronger methodological consistency and larger, well-designed studies to confirm the robustness of CBT's effects.

Given the rising global rates of absenteeism and the increasing impact of post-pandemic stressors on school engagement, CBT offers a valuable therapeutic pathway that can be adapted across clinical, educational, and digital settings. Future intervention development should prioritize standardized assessment frameworks, extended follow-up, school–family collaboration, and accessible CBT delivery models to ensure that effective treatment reaches the diverse populations affected by SAPs.

Overall, the evidence supports CBT as a promising, flexible, and impactful intervention for improving school attendance and associated emotional functioning, while also emphasizing the necessity of ongoing research to refine and optimize its effectiveness.

References

1.Attwood G, Croll P (2006) Truancy in secondary school pupils: prevalence, trajectories and pupil perspectives. Res Papers Educ 21(4):467–484. https://doi.org/10.1080/02671520600942446

2. Australian Curriculum Assessment and Reporting Authority (2024) National report on schooling in Australia: student attendance. Student attendance. https://www.acara.edu.au/reporting/national-report-on-schooling-in-australia/student-attendance. (Last accessed 22 Sep 2024)

3. Balduzzi S, Rücker G, Schwarzer G (2019) How to perform a meta-analysis with R: a practical tutorial. Evid Based Ment Health, 153–160

4. Begg CB, Mazumdar M (1994) Operating characteristics of a rank correlation test for publication bias. Biometrics 50(4):1088–1101

5. Chockalingam M, Skinner K, Melvin G, Yap MBH (2023) Modifiable parent factors associated with child and adolescent school refusal: A systematic review. Child Psychiatry Hum Dev 54(5):1459–1475. https://doi.org/10.1007/s10578-022-01358-z

6. Covidence systematic review software Veritas Health Innovation, Melbourne, Australia. Available at www.covidence.org

7. Danish National Agency for IT and Learning (2024) Elevfravær i folkeskolen 2022/2023 [Student absence in public schools 2022/2023]. https://uddannelsesstatistik.dk/Pages/Topics/15.aspx.. (Last accessed 22 Sep 2024).

8. Deeks JJ, Higgins JP, Altman DG, Group CSM (2019) Analysing data and undertaking meta-analyses, Cochrane handbook for systematic reviews of interventions, pp. 241–284

9. De Los Reyes A, Augenstein TM, Wang M, Thomas SA, Drabick DAG, Burgers DE, Rabinowitz J (2015) The validity of the multi-informant approach to assessing child and adolescent mental health. Psychol Bull 141(4):858–900. https://doi.org/10.1037/a0038498

10. Department for Education (2024) Pupil absence in schools in England. Autumn term 2023/24. https://explore-education-statistics.service.gov.uk/find-statistics/pupil-absence-in-schools-in-england. (Last accessed 22 Sep 2024)

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

12. Egger HL, Costello EJ, Angold A (2003) School refusal and psychiatric disorders: a community study. J Am Acad Child Adolesc Psychiatry 42(7):797–807. https://doi.org/10.1097/01.Chi.0000046865.56865.79

13. Egger M, Davey Smith G, Schneider M, Minder C (1997) Bias in meta-analysis detected by a simple, graphical test. BMJ 315(7109). https://doi.org/10.1136/bmj.315.7109.629.,Article 629

14. Elliott JG, Place M (2019) Practitioner review: school refusal: developments [review]n conceptualisation and treatment since 2000 [Review]. J Child Psychol Psychiatry 60(1):4–15. https://doi.org/10.1111/jcpp.12848

15. Finning K, Ukoumunne OC, Ford T, Danielson-Waters E, Shaw L, De Jager R, Stentiford I, L., Moore DA (2019a) Review: the association between anxiety and poor attendance at school - a systematic review. Child Adolesc Ment Health 24(3):205–216. https://doi.org/10.1111/camh.12322

16. Finning K, Ukoumunne OC, Ford T, Danielsson-Waters E, Shaw L, De Jager R, Stentiford I, L., Moore DA (2019b) The association between child and adolescent depression and poor attendance at school: A systematic review and meta-analysis. J Affect Disord 245:928–938. https://doi.org/10.1016/j.jad.2018.11.055

17. Fleming M, Fitton CA, Steiner MFC, McLay JS, Clark D, King A, Mackay DF, Pell JP (2017) Educational and health outcomes of children treated for Attention-Deficit/Hyperactivity disorder. JAMA Pediatr 171(7):e170691. https://doi.org/10.1001/jamapediatrics.2017.0691

18. Gottfried MA (2014) Chronic absenteeism and its effects on students' academic and socioemotional outcomes. J Educ Students Placed Risk (JESPAR) 19(2):53–75. https://doi.org/10.1080/10824669.2014.962696

19. Gottfried MA, Stiefel L, Schwartz AE, Hopkins B (2019) Showing up: disparities in chronic absenteeism between students with and without disabilities in traditional public schools. Teachers Coll Record 121(8):1–34. https://doi.org/10.1177/016146811912100808(Original work published 2019)

20. Hannan S, Davis E, Morrison S, Gueorguieva R, Tolin DF (2019) An open trial of intensive Cognitive-Behavioral therapy for school refusal. Evidence-Based Pract Child Adolesc Mental Health 4(1):89–101. https://doi.org/10.1080/23794925.2019.1575706

21. Havik T, Bru E, Ertesvåg SK (2015) School factors associated with school refusal and truancy-related reasons for school non-attendance. Social Psychol Education: Int J 18(2):221–240. https://doi.org/10.1007/s11218-015-9293-y

22. Heyne D, Gren-Landell M, Melvin G, Gentle-Genitty C (2019) Differentiation between school attendance problems: why and how?? Cogn Behav Pract 26(1):8–34. https://doi.org/10.1016/j.cbpra.2018.03.006

23. Heyne D, King NJ, Tonge BJ, Rollings S, Young D, Pritchard M, Ollendick TH (2002) Evaluation of child therapy and caregiver training in the treatment of school refusal. J Am Acad Child Adolesc Psychiatry 41(6):687–695. https://doi.org/10.1097/00004583-200206000-00008

24. Heyne D, Sauter FM, Van Hout R (2008) The @school program: modular cognitive behaviour therapy for school refusal in adolescence. Unpublished Treatment Manual, Faculty of Social and Behavioral Sciences, Leiden University, Leiden, the Netherlands

25. Heyne D, Sauter FM, Van Widenfelt BM, Vermeiren R, Westenberg PM (2011) School refusal and anxiety in adolescence: non-randomized trial of a developmentally sensitive cognitive behavioral therapy. J Anxiety Disord 25(7):870–878. https://doi.org/10.1016/j.janxdis.2011.04.006

26. Heyne D, Strömbeck J, Alanko K, Bergström M, Ulriksen R (2020) A scoping review of constructs measured following intervention for school refusal: are we measuring up?? Front Psychol 11:1744. https://doi.org/10.3389/fpsyg.2020.01744

27. Higgins JP, Thompson SG, Deeks JJ, Altman DG (2003) Measuring inconsistency in meta-analyses. BMJ 327(7414):557–560. https://doi.org/10.1136/bmj.327.7414.557

28. James AC, Reardon T, Soler A, James G, Creswell C (2020) Cognitive behavioural therapy for anxiety disorders in children and adolescents. Cochrane Database Syst Rev 11(11):CD013162. https://doi.org/10.1002/14651858.CD013162.pub2

29. B Johnsen D, J Lomholt J, Heyne D, B Jensen M, Jeppesen P, K Silverman W, Thastum M (2024) The effectiveness of modular transdiagnostic cognitive behavioral therapy versus treatment as usual for youths displaying school attendance problems: A randomized controlled trial. Res Child Adolesc Psychopathol. https://doi.org/10.1007/s10802-024-01196-8

30. Kearney CA (2008) School absenteeism and school refusal behavior in youth: a contemporary review. Clin Psychol Rev 28(3):451–471. https://doi.org/10.1016/j.cpr.2007.07.012.

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