

# ■ Effectiveness of psychological interventions for child and adolescent specific anxiety disorders: A systematic review of systematic reviews and meta-analyses

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## Abstract

Anxiety disorders are highly prevalent in children and adolescents. The associated functional limitations and the negative psychological consequences have led to increased research into effective psychological interventions. What is missing, however, is a comprehensive review of the literature addressing the effectiveness of these treatments for specific disorders. A systematic review of systematic reviews and meta-analyses evaluating the effectiveness of psychological treatments for specific anxiety disorders in children and adolescents was performed. The study followed PRISMA guidelines. Four bibliographic databases were searched: MEDLINE (PubMed), PsycINFO, Web of Science (Core Collection), and The Cochrane Library. Two authors independently screened the articles by title, abstract, and full-text, according to established inclusion and exclusion criteria. Two independent authors evaluated the methodological quality of the included reviews using AMSTAR-2. Five records were included in this systematic review. Four studies included children and adolescents with specific phobias, generalized anxiety disorder, and separation anxiety disorder and one focused solely on nocturnal fears. Cognitive behavioral therapy-based interventions have been shown to be effective for the treatment of these diagnoses in both short and long term. The methodological quality of the included studies was classified as critically low. Cognitive behavioral interventions are effective in treating specific phobias, generalized anxiety disorder, and separation anxiety disorder and nighttime fears in children and adolescents. The improvement of the methodological quality and the need for further studies focusing on the effectiveness of treatments for specific disorders are discussed.

*Keywords: children; adolescents; anxiety disorders; psychological treatment; systematic review.*

## Resumen

*Eficacia de las intervenciones psicológicas para el tratamiento de los trastornos específicos de ansiedad en niños y adolescentes: una revisión de revisiones sistemáticas y meta-análisis.* Los trastornos de ansiedad son muy comunes en la infancia y adolescencia y repercuten negativamente en la vida del niño y la familia. Pese al aumento en el número de investigaciones centradas en estudiar la eficacia de las intervenciones psicológicas, hasta la fecha no se ha llevado a cabo una síntesis que haya dado cuenta de la eficacia de estas intervenciones para cada uno de los trastornos de ansiedad de manera específica. Se realizó una revisión sistemática de revisiones sistemáticas y metaanálisis. Se realizaron búsquedas en cuatro bases de datos: MEDLINE (PubMed), PsycINFO, Web of Science (colección principal) y The Cochrane Library. Dos autores examinaron de forma independiente los artículos por título, resumen y texto completo, según unos criterios de inclusión y exclusión previamente establecidos. Dos autores evaluaron de forma independiente la calidad metodológica de las revisiones incluidas mediante AMSTAR-2. Se incluyeron cinco estudios. Cuatro incluyeron participantes con fobias específicas, ansiedad generalizada y ansiedad por separación y uno se centró en miedos nocturnos. Las intervenciones basadas en la terapia cognitivo conductual demostraron ser efectivas para el tratamiento de estos trastornos a corto y a largo plazo. La calidad metodológica de los estudios incluidos se clasificó como críticamente baja. Las intervenciones basadas en la terapia cognitivo conductual son eficaces para los trastornos de ansiedad en niños y adolescentes. Se discute la necesidad de mejorar la calidad metodológica y de aumentar los estudios centrados en la eficacia de los tratamientos para trastornos específicos.

*Palabras clave: infancia; adolescencia; trastornos de ansiedad; tratamientos psicológicos; revisión sistemática.*

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Anxiety disorders (ADs) are among the most common psychological difficulties in childhood and adolescence, with lifetime prevalence of up to 10% and 20%, respectively (Essau & Gabbidon, 2012). ADs are characterized by excessive fear and anxiety and are associated with disturbances in physiology, emotion, cognition, and behavior (American Psychiatric Association [APA], 2013; Ollendick & Byrd, 2001). The Diagnostic and Statistical Manual for Mental Disorders (DSM-5; APA, 2013) lists several specific ADs: separation anxiety disorder (SAD), selective mutism, specific phobia (SP), social anxiety disorder or social phobia (SOP), panic disorder (PD), agoraphobia (AG), generalized anxiety disorder (GAD), substance/medication-induced AD, AD due to another medical condition, other specified AD, and unspecified AD. Besides, there are other anxiety-based problems, such as nighttime fears that can be so impairing that children meet criteria for SAD or SPs.

According to a recent study conducted with Spanish school children, the weighted prevalence of any AD was 11.8%, with the most common subtypes being SPs (16.2%) and GAD (6.9%) (Canals et al., 2019). Other studies have reported prevalence rates of anxiety symptoms ranging from 26.41% to 47% in Spanish children and adolescents from the general population (Orgilés et al., 2012; Romero Acosta et al., 2010). Generally, the age of onset for ADs is 11 years (Kessler et al., 2005). However, SPs and SAD usually begin earlier, at around age 7, followed by SOP, AG without panic attacks and PD (Bandelow & Michaelis, 2015).

There is current general consensus on the fact that if ADs are not identified and correctly treated, they tend to become chronic and have widespread negative effects on social, familiar and academic performance (Essau et al., 2004; Lundy et al., 2010; Maldonado et al., 2013). Besides, children and adolescents usually show lower self-esteem compared to healthy groups and it has been demonstrated that more than 8% of adolescents will suffer from an AD with severe levels of impairment (Hammerness et al., 2008). Children and adolescents with ADs are at a higher risk of experiencing subsequent anxiety, mood and substance use disorders, suicidal behaviors, educational underachievement, and early parenthood when they reach young adulthood (Woodward & Ferguson, 2001).

Due to the high prevalence of ADs among children and adolescents, their associated impairments in functioning, and their negative psychological consequences (Higa-McMillan et al., 2016), effective interventions for treating children and adolescents with ADs have been developed. The Society of Clinical Child & Adolescent Psychology (Division 53 of the American Psychological Association) recommends as evidence-based child and adolescent therapies for anxiety, the Cognitive-Behavioral Therapy (CBT), the CBT with parents, and the CBT with medication (Society of Clinical Child & Adolescent Psychology, 2020). Also, they present as therapies with a level one of evidence (therapies that work well), exposure interventions (a core component of the CBT interventions), modelling, and educational interventions (Society of Clinical Child & Adolescent Psychology, 2020). In England, the Coping Cat (CC) program, a generic CBT treatment for ADs in children and adolescents, is recommended for the treatment of GAD, SAD, SOP, and SPs (Children and Young People's Improving Access to Psychological Therapies Program [CYP IAPT], 2013). In sum, extensive data shows that cognitive-behavioral approaches are the most effective for treating ADs in children and adolescents (for a comprehensive review and meta-analysis of RCTs see, for example, the study by James et al., 2013). However, internationally well-

known practice guidelines (such as NICE guidelines in the UK or guidelines by the APA) recommend evidence-based interventions for ADs in general, but they do not offer specific interventions for each AD. Furthermore, as far as we know, there are no previous systematic reviews of systematic reviews and meta-analyses aimed at summarizing the available literature addressing the effectiveness of psychological interventions for specific ADs in children and adolescents.

Accordingly, the main objective of this work is to synthesize the evidence concerning the available treatments for treating specific ADs in this population along with their effectiveness. The specific objective of this study is to provide with a guidance on the evidence-based treatments for each specific AD included in this systematic review (i.e., SPs, GAD, SAD, and nighttime fears).

## Method

### Search Procedure and Eligibility Criteria

This systematic review followed the Preferred Reporting Items for Systematic Reviews and Meta-analysis (PRISMA) statement (Moher et al., 2009; Page et al., 2021). A systematic review of systematic reviews and meta-analyses published between 2000 and 2022, written in both English and Spanish, evaluating psychological interventions for the treatment of ADs in children and adolescents was conducted. Author TGL performed the database search in May 2022.

To identify relevant documents, four bibliographic databases were searched: MEDLINE (PubMed), PsycINFO, Web of Science (Core Collection), and The Cochrane Library. The following keywords were combined: ("children" OR "adolescents") AND ("psychological treatment") AND ("anxiety disorders"). See Appendix 1 for a detailed description of searches (<https://osf.io/3pxdn/>). The reference lists of retrieved records were examined to identify additional relevant articles. To be included in the review, published articles had to meet the following inclusion criteria:

1. Population: children and adolescents under 18 (included) years of age diagnosed with any specific AD.
2. Intervention: psychological treatments targeting anxiety disorders symptoms. Interventions were not limited to individual format in clinical settings. They could include group formats in clinical and non-clinical settings, and other settings such as schools or community services.
3. Outcomes: anxiety symptoms measured using structured clinical interviews or validated instruments (e.g., Spence Children's Anxiety Scale).
4. Study design: systematic reviews or meta-analyses aimed at examining the effectiveness (e.g., reduction of anxiety symptomatology) of psychological interventions.

Studies were excluded if they were not written in English or Spanish, did not aim to assess the effectiveness of a psychological intervention, focused on pharmacological treatments, or did not report data on the effectiveness of the psychotherapy for the specific disorder.

An Excel file was created to export all the results. Duplicates were removed. Two authors (TGL and MSO) independently screened titles and abstracts for eligibility. Then, TGL and MSO screened the full text of the articles to select those were finally included in this study. Disagreements were resolved through discussion and consultation of a third independent reviewer (MOA).

## Data Extraction

Two data collection forms were created to extract relevant information from the included papers. The first form included the following information: authors, year of publication; aims of the study; search strategy; type and number of included studies; participants' characteristics (i.e., diagnoses of children included, total number of participants, mean age of the children – and range if it was provided, and country / nationality); intervention characteristics (e.g., delivery format: individual, groups, school-based, etc.); professionals providing the intervention; outcome measures; and funding sources. The second form included the following information: risk of bias; main findings; and effect estimates (if it was a meta-analysis).

## Quality Assessment

Two independent authors, MOA and TGL, evaluated the methodological quality of the included reviews. The assessment was conducted using AMSTAR-2, an evaluation instrument developed to assess systematic reviews of randomized and non-randomized trials of healthcare interventions (Shea et al., 2017). In case of disagreement, consensus was reached by discussion.

## Results

### Identification of Articles

Search results are synthesized in the PRISMA flowchart (Fig. 1). The initial search identified a total of 1,918 records. After removing duplicates, 1,560 records were screened by title and abstract (initial screening). A total of 1,496 studies were excluded and the remaining 64 citations were full-text reviewed (second screening). Following the eligibility assessment, 59 studies were excluded “(reasons for exclusion are listed in Appendix 2, <https://osf.io/3pxdn/>)”. Finally, five records were included in this systematic review of systematic reviews and meta-analyses.

### Study Characteristics

The characteristics of the included reviews and meta-analyses are presented in Table 1. The five systematic reviews were published between 2002 and 2021 and report the results from 105 studies, including: 77 randomized clinical trials (RCTs), 15 long-term follow-up studies (LTFUs), 3 single-case multiple baseline studies (MBLs), 17 empirical treatment research studies, and 8 wait-list control studies (WLCs). Only two studies included only RCTs (Oldham-Cooper & Loades, 2017; Öst & Ollendick, 2017).

The total number of participants was 6,120. Four studies included a variety of anxiety diagnoses (i.e., OAD, SAD, SOP, AG, GAD, AD, SP, school phobia, OCD and PTSD) and only one focused exclusively on nighttime fears (Lewis et al., 2021). The ages of the participants ranged from 3 to 17 years.

### Characteristics of Psychological Interventions

All five studies aimed to examine the effectiveness of psychological interventions for the treatment of anxiety disorders. Four reviews included CBT interventions (Gibby et al., 2017; Oldham-Cooper & Loades, 2017; Santacruz et al., 2002) or CBT-based techniques (Lewis et al., 2021), and one included brief, intensive, or concentrated (BIC)

treatments (Öst & Ollendick, 2017). The study of Oldham-Cooper & Loades (2017) included CBT along with other therapeutic approaches (e.g., acceptance and commitment therapy, family-based interventions, or educational support). There was a high variability in the delivery format. Psychotherapy was delivered in university and community clinics in individual and group formats, involving children only, parents only, or both children and parents. Some studies were also conducted in the school context.

The psychological interventions reported ranged from 1 (one-session interventions) to 29 sessions, and the duration could last between 1 day and 20 weeks. Three reviews did not report the mean number of sessions and the duration of the treatments (Gibby et al., 2017; Lewis et al., 2021; Oldham-Cooper & Loades, 2017). Three studies reported the professionals providing the interventions: clinical psychologists with high level of expertise (Santacruz et al., 2002); clinical psychologists, counselors, and students (Öst & Ollendick, 2017); and all the aforementioned along with social workers and family therapists (Oldham-Cooper & Loades, 2017).

To assess anxiety symptoms, the measures most frequently used were structured and semi-structured interviews: the Anxiety Disorders Interview Schedule for DSM-IV – Child and Parent Versions (ADIS-C/P; Silverman & Albano, 1996) (Gibby et al., 2017; Lewis et al., 2021; Oldham-Cooper & Loades, 2017), the Diagnostic Interview Schedule for Children (DISC; Shaffer et al., 2000) (Oldham-Cooper & Loades, 2017), and the Kiddie-Schedule for Affective Disorders and Schizophrenia (K-SADS-PL; Kaufman et al., 1997); independent assessor ratings, such as the Child Behavior Checklist (CBCL; Achenbach & Edelbrock, 1991) (Lewis et al., 2021; Santacruz et al., 2002); and self-report measures: the Spence Children's Anxiety Scale (SCAS; Spence, 1998) (Lewis et al., 2021; Öst & Ollendick, 2017), the Multidimensional Anxiety Scale for Children (MASC; March et al., 1997) (Lewis et al., 2021), the Revised Children's Manifest Anxiety Scale (RCMAS; Reynolds & Richmond, 1985) (Oldham-Cooper & Loades, 2017; Santacruz et al., 2002), the State-Trait Anxiety Inventory for Children (STAI-C; Spielberger, 1973) (Santacruz et al., 2002), the Screen for Child Anxiety Related Emotional Disorders (SCARED; Birmaher et al., 1997) (Lewis et al., 2021); and the Fear Survey Schedule for Children-Revised (FSSC-R; Ollendick, 1983) (Lewis et al., 2021; Santacruz et al., 2002).

### Effectiveness of Psychological Interventions

The summary of the main findings of the systematic reviews and meta-analyses is presented in Table 2. Of the five studies, all of them reported a narrative synthesis of the main results of the individual studies and two also performed meta-analyses (Öst & Ollendick, 2017; Santacruz et al., 2002). Four studies reported data concerning the effectiveness of the psychological interventions in post-treatment and follow-up assessments (Lewis et al., 2021; Oldham-Cooper & Loades, 2017; Öst & Ollendick, 2017; Santacruz et al., 2002). One study (Gibby et al., 2017) summarized the findings of studies presenting long-term follow-up outcomes (from 2 to 19 years after treatment).

For SPs, BIC were found to be as effective as CBT interventions (the effect sizes for comparison of BIC vs. CBT was not significant [0.01]) in both after-treatment and follow-up assessments (Öst & Ollendick, 2017). Both therapies were effective when compared to placebo and control conditions (Öst & Ollendick, 2017). However, lower attrition rates were found in BIC interventions (2.3% vs. 6.5% in CBT interventions). For SAD, both disorder-specific CBT interventions and the CC program (a generic CBT intervention commonly

Table 1. Characteristics of the Included Systematic Reviews and Meta-Analyses

Authors, year of publication	Aims	Search strategy	Type and no. of studies	Participants' characteristics	Intervention's characteristics	Professionals providing the intervention	Outcome measures	Funding sources
Gibby et al., 2017	(1) To synthesize data on LTFU studies on treatments for anxiety disorders, (2) to examine predictors of LT outcomes, and (3) to discuss the studies' strengths and limitations to make recommendations for future follow-up studies.	Databases searched: PsycInfo and Pubmed. Search terms: (cognitive OR behavior* OR exposure OR treatment OR treat* OR program* OR intervention OR therapy) AND (anxiety OR anxious OR social OR separation OR phobia OR disorder) AND (child* OR youth OR adolescen* OR pediatric) AND (long OR long term OR follow OR follow up OR year* OR month* OR after OR later) NOT (autism) NOT (post traumatic) NOT (obsess*).	N = 21 21 RCTs and 15 LTFU cohorts	a) OAD, SAD, SOP, AG, GAD, SP; b) N = 1,796; mean not reported (range 6 to 17); d) % of Caucasian race only reported for some samples.	a) CBT, CBT + FAM, CBT + PAM, API CBT, LPI CBT, group/family CBT, ICBT, FCBT, GCBT, FESA, parent-only CBT, SET-C, SET-Asv, CBGT-A, IAFSG, group/family ACT, OST, EST, CM, SC, ES, sertraline; b) child-only, parent-only, parent and child, family, group; c) 1 to 29 sessions; d) 1 day to 17 weeks; e) 2 to 19 years (with a mean of 5.85 years between treatment and LTFU)	Not reported	ADIS-C ADIS-C/P ADIS-IV ADIS-IV-L CIDI	Grant awarded to Dr. Golda Ginsburg by the National Institute of Mental Health (K24MH096760)
Lewis et al., 2021	To examine empirical literature from the past 25 years that investigated the assessment of nighttime fears in young children and the efficacy and effectiveness of psychosocial treatments for children's nighttime fears.	Databases searched: PsycINFO and PubMed. Search terms: "nighttime fears" OR "nighttime fear" OR "night-time fears" OR "co-sleeping" OR "fear of darkness" OR "fear of the dark" OR "darkness phobia" AND "treatment" OR "intervention" OR "therapy."	N = 12 9 RCTs and 3 MBLs	a) nighttime fears; b) N = 659; c) mean not reported 21(range 3 to 12 years); d) United States, Australia, Israel, Spain, Holland, Hungary, and Brazil	a) graduated exposure, emotive imagery, cognitive restructuring, cognitive defusion, bibliotherapy, and parent intervention; b) only reported for 1 MBL: home-based; c) RCTs: 1 to 6 sessions, MBLs: 5 to 8 sessions (not reported in one study); d) RCTs: 1 to 6 weeks, MBLs: 1 to 5 weeks; e) 2 weeks to 6 months	Not reported	ADIS-C/P BATs BCSQ CBCL CDPQ FSSC-II FSSC-R FSSIP KFQ MASC PAS SAAI-P SCARED SCAS WICDAN	Not reported

Authors, year of publication	Aims	Search strategy	Type and no. of studies	Participants' characteristics	Intervention's characteristics	Professionals providing the intervention	Outcome measures	Funding sources
Oldham-Cooper & Loades, 2017	To undertake a critical, narrative review of whether disorder-specific cognitive-behavioral interventions, as favored in the treatment of anxiety disorders in adults, are more effective compared to the disorder-generic CC treatment approach for SAD, GAD, SA, or SP, in CYP aged 7–17, based on treatment outcomes assessed using validated measures relating to anxiety symptoms, including remission rates.	Databases searched: Science Direct and APA Psychnet. Search terms not reported.	N = 24 24 RCTs	a) OAD, SAD, SOP, AD, GAD, SP; b) N = 1,478; c) mean not reported (range 7 to 17 years); d) North America, Sweden, and Switzerland	a) CBT, CC, Coping Koala; b) university and community clinics; c) 1 to 20 sessions; d) 1 week to 20 weeks; e) 1 month to 7.4 years	PhD candidates, clinical psychologists, masters level therapists, psychotherapists, social workers, and family therapists	ADIS-C/P ADIS-C-R CGI DISC4.0-C/P DSM-IV-TR diagnostic interview-P/C K-SADS-PL RCMAS t-score SPAI-C	National Institute for Health Research (Doctoral Research Fellowship: DRF-2016-09-021)
Öst & Ollendick, 2017	To address the following questions: (1) are BIC acceptable to youth with anxiety disorders?, (2) are BIC effective for youth anxiety disorders?, (3) are BIC specific, i.e. better than a condition controlling for nonspecific factors, in youth anxiety disorders?, (4) are the effects of BIC maintained at follow-up?, (5) do BIC lead to remission and recovery?, and (6) how does BIC compare with standard CBT?	Databases searched: PsycINFO and PubMed. Search terms: (anxiety disorder OR OCD OR PTSD) AND (randomized controlled trial OR RCT OR random*) AND (youth OR child* OR adolescent OR pediatric).	N = 23 23 RCTs	a) SP, SOP, PD, OCD, PTSD, SAD, mixed anxiety; b) N = 1,444; c) M = 10.9 (range 4 to 18 years); d) Holland, United States, Australia, Sweden, Austria, England, and Germany	a) type of BIC treatment: brief (n = 7), intensive (n = 11) and concentrated (n = 5); b) individual (n = 19) and grupal (n = 4); c) 1 to 12 sessions (mean = 4.2 sessions); d) mean = 16.4 days of duration; e) 1 month to 1 year (9 studies did not report follow-up)	Clinical psychologists, counselors, and students.	Independent assessor ratings (e.g., CSR and CY-BOCS), behavioral approach tests and self-report measures (e.g., SCAS and SPAI).	No external funding was obtained



Authors, year of publication	Aims	Search strategy	Type and no. of studies	Participants' characteristics	Intervention's characteristics	Professionals providing the intervention	Outcome measures	Funding sources
Santacruz et al., 2002	To study the effectiveness of psychological treatment in various anxiety problems in childhood and adolescence: GAD, SAD, and SOP. The specific objectives are: (1) to quantitatively integrate the results of CBT and family interventions, (2) to analyze the characteristics of the studies that influence the results, and (3) to suggest future actions and perspectives based on the results.	Databases searched: CSIC -ISOC-, MEDLINE y ERIC, Psychological Abstract and Current Contents: Social and Behavioral Sciences. Reference checking. Search terms: fobia escolar, rechazo escolar, ansiedad generalizada, ansiedad por separación, infan*, adolescen*, tratamiento, terapia, school phobia, school refusal, generalized anxiety, separation anxiety, infan*, child*, adolescen*, treatment, therapy.	N = 25 8 WLC and 17 treatment	a) GAD, SAD, SOP, and school phobia/refusal; b) N = 743; c) M = 10.73 (SD = 1.32) (range 5 to 17 years); d) not reported	a) CBT, FI and imipramine; b) university (n = 10) and community (n = 2) clinics, schools (n = 2) and not reported (n = 11) / group (n = 11), individual (n = 7) and not reported (n = 11); c) 5 to 24 hours of treatment (mean = 14.58 hours); 4 to 18 weeks of treatment (mean = 10.40); 3 to 12 months (mean = 10.20)	Clinical psychologists with high level of expertise	CBCL CBCL-TRF CDI FSSC RCMAS STAIC	Spanish Ministry of Science and Technology (BSO2001-0491)

Note. LTFU = Long-Term Follow-Up; LT = Long Term; OAD = Overanxious Anxiety Disorder; SAD = Separation Anxiety Disorder; SOP = Social Anxiety Disorder / Social Phobia; AG = Agoraphobia; GAD = Generalized Anxiety Disorder; SP = Specific Phobia; CBT = Cognitive Behavioral Therapy; FAM = Family Management; PAM = Parental Anxiety Management; API = Active Parental Involvement; LPI = Limited Parental Involvement; ICBT = Individual (child) Cognitive Behavioral Management; FCBT = Family Cognitive Behavioral Therapy; GCBT = Group Cognitive Behavioral Therapy; FESA = Family Based Education; SET-C = Social effectiveness Training for Children; SET-Asv = Social Effectiveness Training for Adolescents - Spanish Version; CBGT-A = Cognitive Behavioral Group Therapy for Adolescents; IAFIG = Therapy for Adolescents with Generalized Social Phobia; ACT = Acceptance and Commitment Therapy; OST = One-Session Exposure Therapy; EST = Education Support Treatment; CM = Contingence Management (exposure-based); SC = Cognitive Self-Control; ES = Education Support; ADIS = Anxiety Disorders Interview Schedule; C = Child version; P = Parent version; ADIS-IV = Anxiety Disorders Interview Schedule for DSM-IV adult; ADIS-IV-L = Anxiety Disorders Interview Schedule for DSM-IV lifetime adult; CIDI = Composite International Diagnostic Interview; RCTs = Randomized Control Trial; MBLs = Multiple Baseline Design Studies; BATs = Behavioral Approach Tasks; FSSC-R = Fear Survey Schedule for Children-Revised; KFQ = Koala Fear Questionnaire; FSSIP = Fear Survey Schedule for Infants and Preschoolers; FSSC-II = Fear Survey Schedule for Children - II version; SCAS = Spence Child Anxiety Scale; PAS = Preschool Anxiety Scale; CDPQ = Child Darkness Phobia Questionnaire; SAAI-P = Separation Anxiety Avoidance Inventory; BCSQ = Brief Child Sleep Questionnaire; WICDAN = What I Think I Can Do at Night; CBCL = Child Behavior Checklist; SCARED = Childhood Anxiety and Related Disorders; MASC = Multidimensional Anxiety Scale for Children; CC = Coping Cat; CYP = Children and Young People; AD = Avoidant Disorder; RCMAS = Revised Children's Manifest Anxiety Scale; DISC4.0 = Diagnostic Interview Schedule for Children; CGI = Clinical Global Impressions Scale; SPAI = Social Phobia and Anxiety Inventory; K-SADS-PL = Kiddie-Schedule for Affective Disorders & Schizophrenia - Present and Lifetime version; BIC = Brief, Intensive, and Concentrated; PD = Panic Disorder; OCD = Obsessive Compulsive Disorder; PTSD = Post Traumatic Stress Disorder; CSR = Clinician Severity Rating; CY-BOCS = Children's Yale-Brown Obsessive Compulsive Scale; STAIC = State-Trait Anxiety Inventory for Children; CDI = Children's Depression Inventory; CBCL-TRF = Child Behavior Checklist - Teacher's Report Form.

used to treat ADs in children and adolescents) were found to be effective (Oldham-Cooper & Loades, 2017). GAD and SAD were found to respond better to the CC program compared to SOP in follow-up assessments. Santacruz and colleagues (2002), reported medium-high effectiveness in the post-test ( $d_+ = 0.78$ ) and high effectiveness in a ten-month follow-up assessment ( $d_+ = 1.06$ ) for children and adolescents with GAD, SAD and school phobia treated with CBT, CBT + family intervention, and CBT + imipramine (only one RCTs). For

nighttime fears, behavioral interventions and CBT were found to be effective in reducing fears and disruptive nighttime behaviors post-test and in follow-up when comparing intervention groups to control and WLC groups (Lewis et al., 2021).

In general, CBT interventions showed good results for treating ADs in children and adolescents and outcomes were maintained at follow-up (Gibby et al., 2017). In the study of Gibby and colleagues, they included samples with GAD, SAD, SPs, and also on agorapho-

Table 2. Summary of Results

First author (year of publication)	Risk of bias	Main findings	Effect estimates
Gibby et al., 2017	Not reported	On average, 64.57% of youth were in remission (range 49.17–85.71%), 57.01% were free of all anxiety disorders specified in the RCT inclusion criteria (range 46.52–67.5%), and 76.76% no longer met criteria for their primary disorder (range 47.83–92.5%). 4 LTFUs looked at type of primary anxiety diagnosis in relation to anxiety outcomes: 1 reported that youth with non-GAD disorders at baseline had higher anxiety severity based on parent report, 1 reported that the presence of SOP and/ or symptoms was associated with higher anxiety at follow-up, and 2 found no relation between type of baseline diagnosis and the presence of an anxiety disorder at LTFU.	Not performed
Lewis et al., 2021	Not reported	Results demonstrated significant improvements in children's nighttime fears and reductions in disruptive nighttime behaviors using behavioral interventions and CBT. RCTs data indicated that an active CBT treatment group is likely to outperform a control or WLC. Evaluated longitudinal treatment effects, with the longest follow-up period being 1 year and all studies reporting maintenance of treatment gains. Results from all three MBLs revealed similar positive changes in reported fear and nighttime behaviors. Emotive performance therapy, a variant of desensitization, significantly improved children's fears of the dark as well as other specific phobias, and the gains were maintained at 6-month follow-up. Similarly, using a multicomponent manualized treatment reduced children's nighttime fear, as evidenced by fewer phobic symptoms, and improved nighttime behaviors that were maintained one month later.	Not performed
Oldham-Cooper & Loades, 2017	Low risk of bias (n = 16) and medium risk of bias (n = 9)	When compared with a disorder-specific CBT intervention, there were no significant differences in terms of the percentage of the sample free of their primary SAD disorder diagnosis at either 4 weeks or 1 year posttreatment. 3 studies included a comparison group that received CC plus a family-based intervention, one compared group versus individual CC, one used a nondirective "child centered therapy," and one compared CC with "usual care." Most studies reported no significant differences in outcomes for CC versus the active control based on diagnostic status, although 1 study reported CC + family-based intervention outperformed CC alone. However, 2 studies reported significantly poorer remission rates for children with SOP compared to GAD and SAD at 7.4 year and 12-week follow-up, respectively. Across the studies of disorder-specific interventions, there was also variability in the percentage of individuals who no longer met criteria for their primary anxiety disorder or were considered "clinically improved". There were differences between studies in the way that diagnostic outcomes (e.g., rates of remission) were assessed. 3 studies reported stable remission or clinically significant improvement rates from posttreatment to follow-up, and in 1 study the percentage of "remitted" patients who received the individual disorder-specific treatment dropped between posttreatment and 6-month follow-up. In summary, there does not seem to be a clear overall advantage of disorder-specific CBT interventions over the currently recommended CC.	Not performed
Öst & Ollendick, 2017	Total scores on risk of bias were 1.36 (SD = 0.48) for brief treatment, 1.09 (SD = 0.58) for intensive treatment and 1.50 (SD = 0.61) for concentrated treatment. Scores ranged from 0 to 5 (low to high risk of bias)	(1) BIC approaches were acceptable to youth and their parents as only about 6% of families declined to enter into RCTs of these interventions and only about 2% withdrew once the treatment had actually begun. (2) BIC was effective in comparison to wait-list control conditions with an average effect size of 1.47. (2) BIC was effective when compared to placebo and control conditions such as education/ support and non-directive therapy (average effect size ¼ 0.97). (4) The effects were maintained up to 1-year following treatment with within group effect sizes averaging 1.50 at post-treatment and 1.53 at follow-up. (5) BIC interventions not only led to treatment response but also to 54% remission rates and 64% recovery rates. (6) BIC interventions compared favorably on all of the above indices to standard, full dose CBT interventions.	BIC vs. WLC = 1.47; BIC vs. placebo = 0.91; BIC vs. standard CBT = 0.01 (non-significant). Within-group post and follow up: 1.50 and 1.53 (BIC), 0.98 and 1.05 (CBT).
Santacruz et al., 2002	Not reported	The treatments reached an overall medium-high effectiveness in the post-test and a high effectiveness in an average ten-month follow-up. With the exception of 1 study, CBT was applied, either on its own or together with family intervention of imipramine and proved to be highly effective. The components of the program proved to be highly effective, especially contingency management, relaxation, exposure, and self-instruction.	0.73 - 1.22

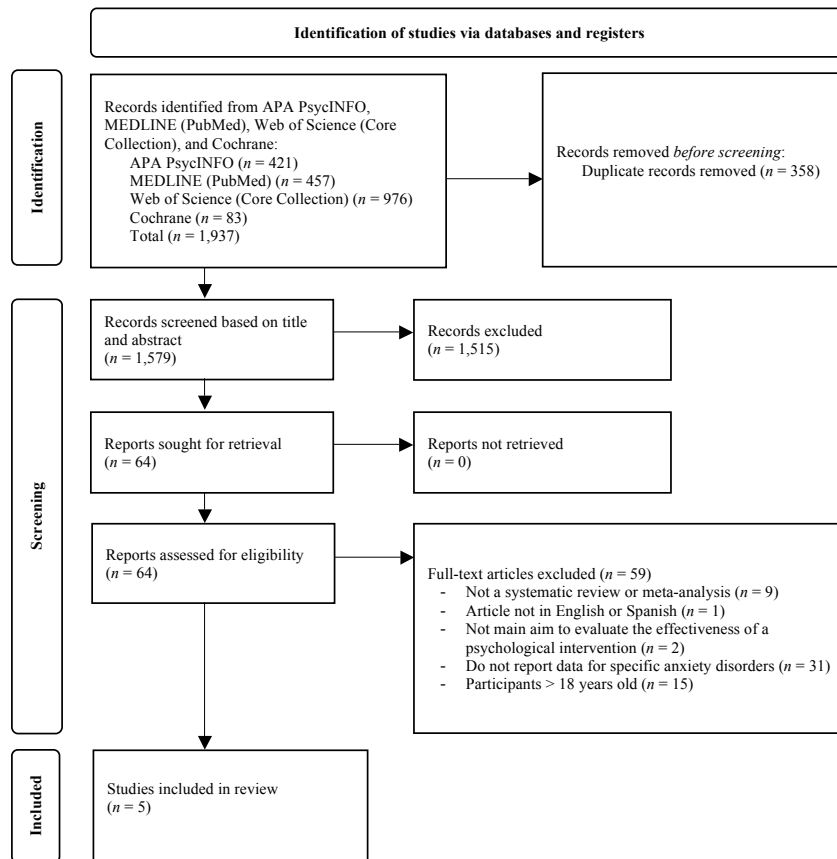
Note. RCT = Randomized Controlled Trial; LTFUs = Long Term Follow-Up Studies; GAD = Generalized Anxiety Disorder; SOP = Social Anxiety Disorder; LFTU = Long Term Follow-Up; CBT = Cognitive Behavioral Therapy; WLC = Waiting List Control; MBLs = Multiple Baseline Design Studies; n = number of studies; SAD = Separation Anxiety Disorder; CC = Coping Cat; SOP = Social Anxiety Disorder / Social Phobia; SD = Standard Deviation; BIC = Brief, Intensive or Concentrated Treatments.

Table 3. Assessment of the Risk of Bias of the Included Studies

Study	AMSTAR-2 items																Quality rating
	Item 1	Item 2	Item 3	Item 4	Item 5	Item 6	Item 7	Item 8	Item 9	Item 10	Item 11	Item 12	Item 13	Item 14	Item 15	Item 16	
Gibby et al., 2017	+	-	-	-	-	-	-	+	-	-	NM	NM	+	+	NM	+	Critically low
Lewis et al., 2021	+	-	+	+/-	-	+	-	+/-	-	-	NM	NM	-	-	NM	+	Critically low
Oldham-Cooper & Loades, 2017	+	-	+	+/-	-	+	-	+/-	-	-	NM	NM	-	+	NM	+	Critically low
Öst & Ollendick, 2017	+	+/-	+	+/-	-	-	-	+	+/-	-	+	+	+	+	+	+	Critically low
Santacruz et al., 2002	+	-	+	+/-	-	-	-	+	+/-	-	+	+	+	-	-	+	Critically low

Note. Yes: +; Partial Yes: +/-; No: -; Not meta-analysis: NM.

Figure 1. PRISMA Flowchart



Note. From “The PRISMA 2020 statement: an updated guideline for reporting systematic reviews”, by M. J. Page et al., 2021, *BMJ*, 372(71), p. 5 (<https://doi.org/10.1136/bmj.n71>). Distributed under the terms of the Creative Commons Attribution License.

bia and social phobia. In a range of 2 to 19 years, around 64.57% of children and adolescents were in remission, 57.01% were free of all anxiety disorders specified in the RCT inclusion criteria, and 76.76% no longer met criteria for their primary disorder. Regarding the differences among specific diagnoses, one RCT reported that youth with non-GAD disorders at baseline had higher anxiety severity based on parent report and two RCTs found no relation between type of baseline diagnosis and the presence of an anxiety disorder at LTFU.

**Risk of Bias**

The results of the assessment of the methodological quality and the risk of bias of the included systematic reviews and meta-analyses using AMSTAR-2 are summarized in Table 3. The quality of the five studies was rated critically low because they had more than one critical flaw. All the studies had the following critical flaws: (1) no registered protocol present/reported



and (2) not reporting the individual studies excluded along with justifications. Two of the five studies did not report or discuss the risk of bias of the individual studies (Lewis et al., 2021; Oldham-Cooper & Loades, 2017).

## Discussion

The present systematic review of systematic reviews and meta-analyses aimed at summarizing the available scientific literature addressing the effectiveness of psychological treatments for specific ADs in children and adolescents. Systematic reviews of the studies published have revealed that psychological interventions, particularly CBT, have good results for treating ADs in children and adolescents in post-treatment and follow-up assessments (e.g., James et al., 2015). However, to our knowledge, no previous systematic efforts have been made to synthesize available data on the effectiveness of evidence-based treatments for specific ADs, as most of the works include different types of ADs and do not study the effectiveness of the interventions for each disorder separately. Thus, the objective of this study was to summarize the existing literature assessing the effectiveness of evidence-based treatments for specific ADs in children and adolescents (i.e., SPs, SAD, GAD, and nighttime fears). Due to the heterogeneity of the studies and for ease of understanding, results for each of the anxiety problems included in this work will be discussed separately.

Regarding the specific phobias, the review of Öst & Ollendick (2017) found a great support for BIC interventions. Most of the studies included in their review focused on studying the effectiveness of these interventions for specific phobias and concluded that BIC approaches were effective with them. When they compared BIC interventions with standard CBT treatments, they found that clinical effectiveness was similar. They outlined several advantages related to the benefits for the families (e.g., shorter duration of the therapy or the money saving), the cost-effectiveness on a long-term basis for families and for those paying for the therapies (e.g., primary health care system), the maximizing effects of the therapy due to the massed practice, and the dissemination of evidence-based practice by removing economical and structural barriers in outpatient clinics that provide service to many families and children. On the other hand, the review by Oldham-Cooper & Loades (2017) reported that there was not enough data to conclude that the generic cognitive-behavioral intervention CC was effective for the treatment of SPs in children and adolescents. What's more, the limited evidence tends to favor disorder-specific interventions over CC.

Concerning separation anxiety disorder, Oldham-Cooper and Loades (2017) found that CC was equally effective as standard CBT for the treatment of its symptoms in children and adolescents. These results are backed up by the evidence in Santacruz and colleagues (2002), who reported that 94% of the children included in their systematic review were treated with CBT interventions, and the effectiveness was high in post-treatment and follow-up assessments. Besides, they reported that CC is the most used manualized program for treating SAD and GAD. They highlight the three essential components of CBT interventions for treating these disorders: gradual exposure, contingency management, and cognitive processing learning (especially coping strategies, relaxation, and self-instructions training). Even though the study of Santacruz and colleagues did not perform the analyses for the disorders separately, they only included GAD, SAD, and school phobia, as they are closely related during infancy and allowed us to summarize the effectiveness of the treatments independently from the other DSM-5 ADs.

With relation to generalized anxiety disorder, Öst & Ollendick (2017) reported that it was not possible to conclude how effective was BIC for its treatment. They suggest that this type of intervention may be less suitable for GAD, because the exposure component of the treatment might be extended to various natural situations, thus requiring longer interventions. As previously mentioned, Santacruz and colleagues found evidence of the effectiveness of CBT interventions for this disorder.

Finally, with reference to nighttime fears, Lewis and colleagues (2021) found that CBT techniques were effective to reduce significantly nighttime fears in children. They discuss the adaptation of the classic CBT-based techniques (i.e., systematic desensitization, relaxation, and self-instructions; also reported by Santacruz et al., 2002) to more age-appropriate ones: emotive imagery, bibliotherapy (e.g., *Uncle Lightfoot* [Coffman, 2014]), reinforced exposure, modeling, relaxation and positive self-statements. Besides, the authors point to novel strategies such as ACT for treating nighttime fears and encourage researchers to explore further the effectiveness of CBT-based treatments including ACT modules.

To tackle the question on the effectiveness of well-established CBT treatments for these disorders, we included the review by Gibby and colleagues (2017). They examined diagnostic outcome rates at follow-up on GAD, SAD, SPs, and also on agoraphobia and social phobia. In the overall analysis, which included all disorders, they found that around 2 out of 3 of children and adolescents were in remission (not having any ADs), 3 out of 5 had none of the ADs specified in the study inclusion criteria, and 4 out of 5 did not meet the criteria for their primary AD. After examining the relationship between the type of primary AD and long-term outcomes, they found controversy on the results: one study found that GAD had lower anxiety symptoms at follow-up, while others reported no differences among ADs. Further work to clarify this question is proposed.

## Limitations and Future Studies

Despite the novel contributions of this work to the growing body of literature aimed at expanding the knowledge of evidence-based treatments for ADs in children and adolescents, the findings have to be seen in light of some limitations. First, the heterogeneity of the studies included made it impossible in some cases to provide evidence for a disorder from more than one systematic review (e.g., nighttime fears). Second, this study is limited by the fact that all the systematic reviews and meta-analyses included were rated critically low, which means that they should not be fully relied on with regards to providing an accurate summary of the available studies. However, this work represents a thorough effort to understand what the real picture of the evidence-based treatment for specific ADs is. Even though there is extensive available literature addressing the effectiveness of treatments for ADs, there is a clear lack of research that can provide guidance on the treatment of specific disorders. Future work should therefore seek to address this issue.

## Conclusion

From the systematic review of systematic reviews and meta-analyses performed, it can be concluded that CBT-based interventions are effective in treating SPs, SAD, GAD, and nighttime fears in children and adolescents. Along with the standard CBT-based interventions, BIC treatments are recommended for SPs, and certain programs such as CC are reported to work well in children with SAD and GAD. Regarding

nighttime fears, authors discuss the adaptation of classic CBT-based techniques to more age-appropriate ones. Although there are many studies looking at the effectiveness of treatments for ADs, there is a clear lack of research that can provide guidance on how to treat specific conditions. Further studies are suggested in an attempt to address this issue.

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## Declaration of conflicting interest

The authors declare that they have no conflict of interest.

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