School-Based Interventions for Students with Anxiety

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Introduction

In a classroom of 30 students, approximately three will meet full criteria for an anxiety disorder and an additional three will experience excessive anxiety that causes impairment in daily functioning (Kessler et al., 2012; Polanczyk et al., 2015; Rapee et al., 2012). The high prevalence of excessive anxiety in youth makes it the most common psychiatric disorder and, according to the Centers for Disease Control, rates of pediatric anxiety disorders are on the rise (Bitsko et al., 2019). Decades of careful research demonstrate that excessive anxiety confers significant impairment across key domains of development such as academic, social, familial, and personal functioning (Swan & Kendall, 2016). Within the academic domain, excessive anxiety has been associated with school absenteeism and school refusal (Kearney & Albano, 2004); deficits in academic performance (Mazzone et al., 2007); grade retention (Stein & Kean, 2000); and early school dropout (Breslau et al., 2008). Importantly, the link between excessive anxiety and poor academic outcomes is both concurrent and prospective (Woodward & Fergusson, 2001).

Fortunately, the negative effects of anxiety can be ameliorated with effective treatment. Evidence from meta-analyses and systematic reviews indicates that cognitive–behavioral therapy (CBT) and medication are two effective treatments for pediatric anxiety (Ipser et al., 2009; James et al., 2018). Importantly, these treatments have also been found to improve academic functioning including higher academic motivation and performance on standardized tests, increases in grade point average (GPA), and improved classroom behavior such as test taking, reading in class, and homework completion (Nail et al., 2015; Sanchez et al., 2019; Weems et al., 2009).

Rationale for School-Based Interventions for Anxiety

Despite the high prevalence, documented impairment, and effective treatment of pediatric anxiety disorders, most afflicted youth are unidentified and never receive needed interventions (Merikangas et al., 2011). Reasons for under-identification and low service utilization in outpatient settings are numerous and include pragmatic barriers (e.g., costs, transportation, limited time, lack of access to providers) as well as psychological barriers such as stigma and concerns about confidentiality (Gulliver et al., 2010).

To address these barriers, efforts at the national and state levels have advocated provid-

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ing psychosocial interventions to youth in the school setting. The advantages of providing interventions in schools are numerous and include early and improved detection and better generalization of therapy skills. For instance, school-based clinicians can facilitate the application of coping skills in anxiety-provoking situations in real time and in ways that are not accessible to outpatient community therapists. Finally, school-based interventions improve access to care, do not require out-of-pocket payments, and reduce barriers associated with transportation. Elimination of these barriers is particularly relevant for historically underserved student groups, as a substantial body of evidence indicates that racial/ethnic minorities and lesbian, gay, bisexual, transgender, and queer/questioning (LGBTQ) youth are significantly less likely to seek or receive mental health services than their non-minority peers (Cummings & Druss, 2011; Garland et al., 2005; Su et al., 2016). Accessing mental health services in school therefore presents a promising option for addressing these disparities.

Recognizing these advantages, a growing literature now documents the effectiveness of school-based interventions for students with anxiety. In the following sections, we summarize this literature by first presenting data from recent reviews and meta-analyses on school-based interventions. Subsequently, we review a selected set of randomized controlled trials (RCTs) of school-based interventions for anxiety organized by categories within a prevention science framework that also align with the multi-tiered system of supports (MTSS) and Response to Intervention (RtI) models (Gamm et al., 2012; Sugai & Horner, 2009). Specifically, primary prevention models (also referred to as universal or Tier 1 interventions) represent those interventions that are delivered to all students in a classroom or an entire school. Secondary prevention models (which include selective and indicated or Tier 2 interventions) are delivered to students who are at risk for disorder onset or show elevated anxiety symptoms. Finally, tertiary models (similar to Tier 3 interventions) are treatments for students meeting criteria for an anxiety disorder.

Effectiveness of School-Based Interventions for Anxiety

Several meta-analyses and qualitative reviews have been published describing the effectiveness of school-based psychosocial interventions for internalizing problems including anxiety (Caldwell et al., 2019; Gee et al., 2020; Hugh-Jones et al., 2021; Sanchez et al., 2018; Werner-Seidler et al., 2017). Sanchez et al. (2018) reviewed school-based mental health interventions exclusively in elementary-aged children across symptom domains of internalizing, externalizing, and attention problems. With respect to interventions for internalizing problems (including anxiety), a small effect size was found (Hedge's $g = 0.30$; SE = 0.07; 95% CI = 0.16–0.43) across all interventions. Gee and colleagues reviewed 45 studies of school-based interventions for adolescents with elevated depression or anxiety symptoms across all intervention models (primary, secondary, and tertiary), and found the standardized mean difference of interventions versus control groups at post-intervention was modest (0.52; 95% CI = −0.85 to −0.18; $p = 0.003$; $k = 13$). Subgroup analyses generally did not yield significant differences in effect size based on study characteristics. In the most recent review, Hugh-Jones et al. (2021) conducted a meta-analysis of 18 studies focused exclusively on indicated interventions for youth with elevated anxiety. Small but significant positive intervention effects compared to control groups were found at post-test ($g = −0.28$; 95% CI = −0.50 to −0.05), with maintenance of benefit identified at 6- and 12-month follow-ups. Subgroup analyses based on theoretical orientation (i.e., CBT or other), child age, and delivery agent (e.g., teacher or research personnel) were not possible due to small sample sizes, but type of control group (i.e., waitlist vs. attention control vs. no intervention) was not found to significantly impact treatment effects (Hugh-Jones et al., 2021).

Across studies in these reviews, the magnitude of intervention effects varied widely—likely attributable to differences in the provider of the intervention (i.e., research staff vs. school personnel), extent of provider training and ongoing coaching, level of adherence/fidelity to intervention protocols, length and duration of intervention, inclusion of parental involvement, inclusion criteria (e.g., initial severity of anxiety symptoms, comorbid disorders), assessment strategies (assessor, specific measures, and timepoints), and other key study design characteristics (control group, primary outcome). One important conclusion was that the methodological quality of studies was uniformly low, suggesting a significant need for improvement with respect to trial design and intervention implementation.

Compared to studies conducted in outpatient research settings, school-based interventions show smaller effect sizes. For instance, a meta-analysis of outpatient treatment trials indicates effect sizes ranging from 0.65 to 0.94 (James et al., 2018). Reasons for these larger effects likely reflect differences in efficacy versus effectiveness RCTs (and similar to reasons for variations within school-based treatment trials), where efficacy studies use highly trained mental health specialists who receive ongoing supervision, deliver a higher dosage of treatment, have stricter inclusion/exclusion criteria (e.g., limited comorbidity), and incorporate greater parental involvement in treatment.

Below we highlight a representative sample of school-based interventions for anxiety[1] across each of the three levels of intervention models (primary, secondary, and tertiary); readers are referred to the meta-analyses referenced above for a more comprehensive analysis. Key features of selected studies focused on anxiety

are highlighted in Tables 3.1, 3.2, and 3.3. In light of the number of interventions based on CBT, Table 3.4 outlines the core therapeutic ingredients of this model used in school-based interventions.

Primary Prevention (Universal Interventions)

Several randomized controlled trials (RCTs) have evaluated the impact of universal interventions delivered to entire classrooms or schools. The 11 universal interventions in Table 3.1 span from preschool-aged children to adolescents in high school, with a majority (7 studies) focusing on middle childhood. Given that interventions were delivered universally, sample sizes were generally large, ranging from 100 to over 900 (Miller et al., 2010; Rooney et al., 2013). In terms of structure, most, but not all, universal interventions were provided in 1-h sessions administered on a weekly basis for a total number of sessions ranging from 3 to 30. Some universal interventions were quite brief, including one program administered in three 45-min classroom sessions (Aune & Stiles, 2009), whereas another intervention was delivered in a much smaller dosage (less than 15 min) daily for 6 weeks (Britton et al., 2014).

With regard to theoretical orientation, cognitive–behavioral approaches were the most common (core strategies described in Table 3.4); however, 3 of the 11 universal studies utilized mindfulness-based or positive psychology approaches (Britton et al., 2014; Burckhardt et al., 2015; van de Weijer-Bergsma et al., 2014) that were delivered with greater frequency for shorter duration, ranging from daily to biweekly.

Because universal interventions are delivered to all students in a school or classroom, many of these protocols were delivered at least in part by regular classroom teachers rather than research staff (e.g., licensed psychologists, graduate students). One computer-based study was evaluated that involved students logging time on a website delivering inter-

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[1]Disorders categorized as anxiety disorders in DSM-IV-TR (American Psychiatric Association, 2000), but not in DSM-5 (APA, 2013) were excluded. Disorders not considered in our selective review included school refusal, post-traumatic stress, and obsessive-compulsive symptoms.

Table 3.1 Universal interventions

Author	N; age	No. of sessions	Treatment type	RCT groups	Provider	Findings
Anticich et al. (2013)	N = 488; ages 4–7	10	FRIENDS (CBT)	CBT; AC; WLC	Teacher	CBT > AC; CBT > WLC
Aune and Stiles (2009)	N = 1748; ages 11–14	3 (45 min)	NUPP-SA (CBT)	CBT; NTC	Psychologist	CBT > NTC
Barrett and Turner (2001)	N = 489; ages 10–12	10; 2 booster; 4 parent	FRIENDS (CBT)	CBT (psychologist); CBT (teacher); NTC	Psychologist; teacher	CBT (psych) > NTC; CBT (teacher) > NTC; CBT (psych) = CBT (teacher)
Britton et al. (2014)	N = 101; sixth grade	30 (daily for 6 weeks)	Integrative contemplative pedagogy (ICP)— Mindfulness	Mindfulness; AC	Teacher	Mindfulness = AC
Burckhardt et al. (2015)	N = 572; ages 12–18	Variable (6 h on site over 4–6 weeks)	Bite Back— Positive psychology	Positive psychology; ATN	N/A (computer administered)	Positive psychology = ATN
Essau et al. (2012)	N = 302; ages 9–12	10 2 booster; 4 parent	FRIENDS (CBT)	CBT; WLC	Psychologist	CBT > WLC
Johnstone et al. (2014)	N = 370; ages 9–10	10	AOP-PTS (CBT)	CBT; NTC	Teacher	CBT = NTC
Keogh et al. (2006)	N = 209; ages 15–16	10	SMI (CBT)	CBT; NTC	Psychologist	CBT > NTC
Miller et al. (2010)	N = 116; ages 7–12	8	TWD (CBT)	CBT; WLC	Teacher	CBT = WLC
Rooney et al. (2013)	N = 910; ages 9–10	10	AOP-PTS (CBT)	CBT; NTC	Teacher	CBT = NTC
van de Weijer-Bergsma et al. (2014)	N = 208; ages 8–12	12 (30 min twice weekly)	Mindful Kids (mindfulness)	Mindfulness; WLC	Researcher (teachers present)	Mindfulness = WLC

AC Active Control, *AOP-PTS* Aussie Optimism Program-Positive Thinking Skills, *ATN* Attention Control, *CBT* Cognitive–Behavioral Therapy, *FRIENDS* Feeling worried; Relax and feel good; Inner thoughts; Explore plans; Nice work so reward yourself; Don't forget to practice; Stay calm, *N/A* Not Applicable, *NTC* No-Treatment Control, *NUPP-SA* Norwegian Universal Preventive Program for Social Anxiety, *RCT* randomized controlled trial, *SMI* Stress Management Intervention, *TWD* Taming Worry Dragons, *WLC* Waitlist Control

vention content, with teachers observing and facilitating (Burckhardt et al., 2015). In cases where mainstream classroom teachers administered interventions, training most often took the form of one-day workshops led by research staff (Anticich et al., 2013; Barrett & Turner, 2001; Miller et al., 2010; Rooney et al., 2013).

Intervention effects reported in these universal interventions were variable. Five of the 11 studies reported statistically significant improvement in anxiety symptoms from baseline to post or follow-up evaluations for intervention groups as compared to waitlist, no treatment, or active control groups (Anticich et al., 2013; Aune & Stiles,

Table 3.2 Interventions for youth with elevated anxiety symptoms

Author	N; age	Inclusion criteria	No. of sessions	Treatment type	RCT groups	Provider	Findings
Balle and Tortella-Feliu (2010)	N = 613; ages 11–17	>80th percentile in anxiety sensitivity	6 (45 min)	FRIENDS (CBT)	CBT; WLC	Research staff	CBT = WLC
Berry and Hunt (2009)	N = 46; ages 12–15	SCARED > 1 SD above M; bullying history	8 child; parent program	Cool Kids (CBT)	CBT; WLC	Research staff	CBT > WLC
Cooley-Strickland et al. (2011)	N = 98; ages 8–12	RCMAS T-score > 51; exposure to community violence	13 (biweekly); 3 parent	FRIENDS (CBT)	CBT; WLC	Research staff	CBT = WLC
Fitzgerald et al. (2016)	N = 127; ages 15–18	>75th percentile on self-reported anxiety	4	Attention bias modification (ABM)	ABM; AC	N/A (computer)	ABM = AC
Ginsburg et al. (2019)	N = 54; ages 5–12	Elevated anxiety symptoms as indicated by ADIS-C	6 (20–30 min)	CALM (CBT)	CBT; AC	School nurses	CBT = AC
Haugland et al. (2020)	N = 313; ages 12–16	Elevated anxiety and interference	Brief: 6 (45–90 min); 1 joint parent session Standard: 10 (90 min); 2 parent	Vaag (Brief CBT); Cool Kids (CBT)	CBT (Brief); CBT (Standard); WLC	School nurses and community clinicians	CBT (Brief) > WLC; CBT (Standard) > WLC; CBT (Brief) = CBT (Standard)
Hunt et al. (2009)	N = 260; ages 11–13	>1 SD above mean on RCMAS	10; 2 booster; 1–2 parent	FRIENDS (CBT)	CBT; NTC	School counselor and support teacher	CBT = NTC
McLoone and Rapee (2012)	N = 152; ages 7–12	>90th percentile on SCAS	10; 2 parent	Cool Kids (CBT)	CBT (school); CBT (home); WLC	School counselors; parents	CBT (school) > WLC; CBT (home) > WLC; CBT (school) = CBT (home)
Miller et al. (2011)	N = 191; grades 4–6	T-score > 56 on MASC	9	FRIENDS (CBT)	CBT; ATN	Teacher + school counselor or research staff	CBT = ATN
Mifsud and Rapee (2005)	N = 91; ages 8–11	>75th percentile on RCMAS	8; 2 parent	CBT (Cool Kids)	CBT; WLC	School counselors and community mental health workers	CBT > WLC

(continued)

Table 3.2 (continued)

Author	N; age	Inclusion criteria	No. of sessions	Treatment type	RCT groups	Provider	Findings
Sportel et al. (2013)	N = 240; ages 13–15	>75th percentile on RCADS	CBM: 20 (40 min each, twice weekly); CBT: 10 (90 min)	Cognitive bias modification (CBM); CBT	CBM; CBT; NTC	Research staff	CBT > CBM; CBT > NTC; CBM = NTC

AC Active Control, *ADIS-C* Anxiety Disorders Interview Schedule for Children, *ATN* Attention Control, *CALM* Child Anxiety Learning Modules, *CBT* Cognitive–Behavioral Therapy, *FRIENDS* Feeling worried; Relax and feel good; Inner thoughts; Explore plans; Nice work so reward yourself; Don't forget to practice; Stay calm, *MASC* Multidimensional Anxiety Scale for Children, *NTC* No-Treatment Control, *RCADS* Revised Children's Depression and Anxiety Scale, *RCMAS* Revised Children's Manifest Anxiety Scale, *RCT* randomized controlled trial, *SCARED* Screen for Child Anxiety Related Disorders, *SCAS* Spence Children's Anxiety Scale, *SD* Standard Deviation, *WLC* Waitlist Control

Table 3.3 Indicated school-based treatment studies for students with anxiety disorders

Author	N; age	Inclusion criteria	RCT groups	No. of sessions and treatment format/type	Provider	Findings
Bernstein et al. (2005)	N = 61; ages 7–11	Primary anxiety dx (SOP, GAD, SAD)	Child group CBT; child group CBT plus parent group; no-treatment control	Child Group CBT: 9 weekly group sessions Child Group CBT plus parents: 9 child group sessions; 9 parent sessions (60 min); 2 booster sessions	Research staff	Child plus Parent Group CBT > Child group CBT > no-treatment control based on clinician (ES 0.58), child, and parent reports
Chiu et al. (2013)	N = 40; ages 5–12	Primary anxiety dx	CBT; WLC	Building Confidence (modular CBT): 1–16 weekly sessions (60 min); 1 (30 min) meeting with teacher; one 30-min meeting with school nurse; Optional parent meetings	Research staff	CBT > WLC
Chu et al. (2016)	N = 35; ages 12–14	Clinical or subclinical dx of unipolar depression disorder, or an anxiety disorder	GBAT; WLC	12–15 group (7 youth per group) sessions; 2 individual meetings (30–45 min)	Research staff; School counselors	GBAT > WLC
Dadds and Spence (1997)	N = 128; ages 7–14	Mild anxiety dx or features of anxiety disorder	Coping Koala (CBT) vs. monitoring-only control	10 sessions (weekly, 1–2 h each, parents attended 3 sessions); Group (5–12 children/group)	Research staff	CBT =Monitoring (at post-intervention among students with an AD); CBT > Monitoring at 6-month follow-up
Ginsburg et al. (2020)	N = 216; ages 7–18	Any primary AD	CBT; TAU	12 sessions; Individual; CBT	School-based clinicians	CBT > TAU (for youth with high BL anxiety only); CBT = TAU (for total sample)

(continued)

Table 3.3 (continued)

Author	N; age	Inclusion criteria	RCT groups	No. of sessions and treatment format/type	Provider	Findings
Ginsburg et al. (2012)	$N = 32$; ages 7–17	Any primary AD	CBT; TAU	12 sessions; Individual; CBT	School-based clinicians	CBT = TAU
Ginsburg and Drake (2002)	$N = 12$; ages 14–17	Any primary anxiety dx	CBT; ASC	CBT and AS: 10 group sessions (45 min)	Research staff (graduate students)	CBT > AS
Masia-Warner et al. (2007)	$N = 36$; ages 14–16	Primary social anxiety dx	SASS (CBT); ASC	12 group sessions (40 min); 2 individual sessions; 4 weekend social events; 2 parent and teacher group sessions; and 2 booster sessions for adolescents	Research staff	SASS > AS
Masia-Warner et al. (2016)	$N = 138$; ages (9th–11th graders)	Primary social anxiety dx	C-SASS (CBT); P-SASS (CBT); SFL (control)	SASS: 12 group sessions; 2 individual sessions (15 min); 2 parent sessions (45 min); 4 out-of-school social events (90 min); 2 teacher meetings (30 min); 2 group booster sessions SFL: 12 group sessions; 1 parent session; 1 brief individual session; 1 group booster session	Research staff (P); school-based clinicians (C)	C-SASS = P-SASS > SFL

Table 3.3 (continued)

Author	N; age	Inclusion criteria	RCT groups	No. of sessions and treatment format/type	Provider	Findings
Masia-Warner et al. (2005)	$N = 35$; ages 13–17	Primary social anxiety dx	SASS (CBT); WLC	12 group sessions; 2 individual meetings (15 min); 4 weekend social events (90 min); 2 parent group meetings (45 min); 2 teacher meetings (30 min); 2 group booster sessions	Research staff	SASS > WLC

AD Anxiety Disorder, *AS* Attention Support, *ASC* Attention Support Control, *BL* Baseline, *CBT* Cognitive–Behavioral Therapy, *C-SASS* SASS delivered by school counselors, *dx* diagnosis, *ES* Effect Size, *GAD* Generalized Anxiety Disorder, *GBAT* Group Behavioral Activation Therapy, *P-SASS* SASS delivered by doctoral level psychologists, *RCT* randomized controlled trial, *SAD* Separation Anxiety Disorder, *SASS* Skills for Academic and Social Success, *SFL* Skills for Life, *SOP* Social Anxiety Disorder, *TAU* Treatment as Usual, *WLC* Waitlist Control

2009; Barrett & Turner, 2001; Essau et al., 2012; Keogh et al., 2006). Four of these five studies used manualized CBT-based protocols delivered by research staff (e.g., graduate students or licensed clinical psychologists) as opposed to classroom teachers. Despite the setting for these studies, few evaluated the impact of interventions on academic performance. In one notable exception, Keogh et al. (2006) evaluated a universal stress management intervention among adolescents in the United Kingdom preparing for a nationally administered standardized exam, finding that participants receiving the intervention performed, on average, one letter grade better than their peers in a no-intervention control group.

Six of the studies in Table 3.1 evaluating universal interventions failed to find evidence of efficacy of the intervention over comparison conditions. Two studies evaluating the effects of the Aussie Optimism Program-Positive Thinking Skills (AOP-PTS) as delivered by classroom teachers failed to outperform no-intervention control groups (Johnstone et al., 2014; Rooney et al.,

2013), and a third CBT-based, teacher-delivered intervention produced similar results when compared to a waitlist (Miller et al., 2010). Mindfulness and positive psychology-based interventions also demonstrated non-significant effects when compared to active controls (Britton et al., 2014), attention controls (Burckhardt et al., 2015), and waitlist controls (van de Weijer-Bergsma et al., 2014). Four of these six interventions were delivered by teachers, while one was a computer-based intervention. Notably, one study directly compared differences in intervention effects (using the FRIENDS intervention) when delivered by psychologists versus teachers (Barrett & Turner, 2001). Results indicated significant reductions in children's self-reported anxiety scores from pre- to post-intervention relative to a monitoring-only control group for both teacher-delivered and psychologist-delivered CBT, which did not differ from each other. Notably, teachers delivering the intervention were supervised by postgraduate psychologists for 25% of their sessions, which may account in part for the positive findings.

Table 3.4 Core components of school-based interventions for student anxiety

Component	Description
Psychoeducation	Provide information about the prevalence (e.g., anxiety is common) and manifestations (e.g., physical, cognitive, behavioral) of anxiety. Describe techniques to identify emotions/anxiety and introduce the CBT model and how the CBT skills can reduce anxiety. These skills include exposure, relaxation, cognitive restructuring, problem-solving, social, and relapse prevention (described below).
Exposure	Provide rationale for importance of facing fears (i.e., exposure) in real life. Generate a personalized list of situation the student avoids at home and school in order of difficulty to facilitate gradual exposures (i.e., facing low-anxiety-provoking situations first, gradually increasing to face situations that provoke greater levels of anxiety). Emphasis is on daily exposure and continued practice. Rewards offered for engaging in exposures.
Relaxation	Introduce concept of physiological tension associated with anxiety and the benefits of using relaxation strategies. Teach relaxation strategies (e.g., progressive muscle relaxation, deep diaphragmatic breathing, guided imagery, and mindfulness exercises).
Cognitive	Introduce concept of negative "self-talk" and review common cognitive distortions. Teach steps for challenging and changing anxious thoughts and replacing them with "coping" thoughts in various anxiety-provoking situations.
Problem-solving skills	Introduce a problem-solving method. This method generally includes identifying a problem situation, brainstorming potential solutions without judging them, evaluating pros and cons of each option, selecting the best solution, and implementing the selected solution and evaluating its success.
Social skills	Teach social skills such as initiating/joining conversations with peers, dealing with bullying or teasing, and assertiveness.
Relapse prevention	Review strategies to prevent future exacerbations of anxiety and problematic avoidance. Develop a coping plan to help prepare for anticipated stressors.
Parent psychoeducation and contingency management	Provide psychoeducation about anxiety and CBT skills. Discuss how parents can help facilitate children's acquisition of anxiety management skills with an emphasis on facilitating student's exposure and use of positive reinforcement to reward "brave" (i.e., non-anxious or avoidant) behavior. Review parents' behaviors that increase student anxiety and both plan to modify/decrease these behaviors (e.g., accommodation of fear/anxious avoidance, hostility, over-control) and increase behaviors that can reduce anxiety (e.g., warmth, autonomy promotion).

Taken together, evidence reviewed on primary prevention/universal interventions is mixed. Reporting of effect sizes was rare, but the magnitude of change on anxiety symptoms (based also on meta-analyses) suggests a small but significant positive effect size in at least half of the studies. Studies failing to find a significant impact on student anxiety were more likely to be delivered by teachers (rather than researchers or mental health specialists) and relied on mindfulness/positive psychology approaches (rather than CBT).

Secondary Prevention (Selective and Indicated) Interventions

Interventions reviewed in this section reflect those targeting youth who are at risk for developing a disorder and/or have elevated symptoms of anxiety. Though some studies required that participants simply experience above-average levels of anxiety (e.g., Cooley-Strickland et al., 2011), other studies stipulated that participants demonstrate anxiety symptom scores at or above the 75th–90th percentiles as compared to their same-age peers (e.g., Balle & Tortella-Feliu, 2010; McLoone & Rapee, 2012; Mifsud & Rapee, 2005; Sportel et al., 2013). Anxiety symptoms were typically measured by widely used standardized questionnaires with well-established psychometrics, such as the Screen for Child Anxiety Related Disorders (SCARED; Birmaher et al., 1997), the Revised Children's Manifest Anxiety Scale (RCMAS; Reynolds & Richmond, 1979), or the Multidimensional Anxiety Scale for Children (MASC; March et al., 1997).

Of the 11 studies highlighted in Table 3.2, 10 evaluated manualized CBT interventions.

Studies evaluating the FRIENDS program (total of four; delivered by research staff, school clinicians, and teachers) failed to find an intervention effect over waitlist or attention control conditions. In contrast, all four studies that evaluated the Cool Kids intervention demonstrated superior intervention effects compared to waitlist and/or active intervention controls. No clear trends were evident to separate the two interventions with regard to content, number of sessions, intervention training, or intervention fidelity/integrity. In fact, a recent study using data from a Cool Kids RCT found that intervention adherence and competence did *not* predict improvement in anxiety, although adherence and competence were greater for brief (as compared to full-length) intervention protocols (Husabo et al., 2022). One potential explanation for the superiority of Cool Kids over FRIENDS may be the variation in inclusion criteria. The majority of Cool Kids studies represented in Table 3.2 included youth with anxiety scores above the 75th–90th percentiles, or with "elevated anxiety and interference" (Haugland et al., 2020; McLoone & Rapee, 2012; Misfud & Rapee, 2005), whereas FRIENDS studies often included youth with milder elevations, such as *T*-scores that are simply above average (e.g., Cooley-Strickland et al., 2011; Miller et al., 2011). The inclusion of more severely affected youth in Cool Kids may increase the likelihood of improvement, either via treatment effects or spontaneous remission. As with universal interventions, collection of data on academic outcomes was rare, with no studies explicitly reporting on academic performance or other school outcomes.

In an attempt to broaden the network of school-based providers who can assist students with anxiety, Ginsburg and colleagues have developed brief teacher and school-nurse CBT-based interventions (Piselli et al., 2021; Ginsburg et al., 2019). The school nurse intervention called Child Anxiety Learning Modules (CALM; Drake et al., 2015) includes similar CBT principles to those used in FRIENDS and Cool Kids, but with the crucial distinction that CALM is designed to be delivered by school nurses, who may be particularly well-suited to this task given that students with anxiety frequently visit the school nurse with somatic symptoms. A pilot RCT (summarized in Table 3.2) compared the CALM intervention to a relaxation skills-only curriculum (CALM-R). Results indicated that both CALM and CALM-R participants demonstrated significant clinical improvements as measured by interviews conducted by masked independent evaluators (IEs). Within-group effect sizes for key outcomes for CALM were moderate to large, ranging from Cohen's $d = 0.55–1.74$ (Ginsburg et al., 2019).

Two non-CBT interventions explored the effects of cognitive bias modification training (CBM; Fitzgerald et al., 2016; Sportel et al., 2013). CBM aims to address anxiety symptoms by using computer-based tasks to modify negative or threatening attention biases that are often present in individuals with elevated anxiety (Notebaert et al., 2015). Both studies failed to demonstrate significant intervention effects for CBM compared to both a placebo computer task (Fitzgerald et al., 2016) and a traditional CBT protocol (Sportel et al., 2013). The latter of these studies indicated no significant difference between CBM and a no-intervention control condition. Thus, although CBM-based interventions are time-efficient and obviate challenges associated with training teachers, school nurses, or counselors, there is currently limited evidence to support their use in school settings. The use of technology as an intervention aid has shown more promising evidence when used to adapt or support implementation of CBT protocols (Storch et al., 2015).

In summary, the majority of secondary interventions are based on CBT, and of those that led to significant reductions in student anxiety (e.g., Cool Kids, CALM), effect sizes ranged from moderate to large (Cohen's $d = 0.34–2.7$). Future research is needed to clarify why similar CBT protocols fail to have a similar impact on anxiety and the impact of these interventions on academic outcomes should be prioritized.

Tertiary Interventions

A summary of ten school-based RCTs of treatments for youth with anxiety disorders appears in Table 3.3. Interventions were delivered in elementary through high schools and targeted youth with social anxiety disorder exclusively (Masia-Warner et al., 2016) or with a broad range of primary anxiety disorders (e.g., Ginsburg et al., 2020). Study sample sizes ranged from small ($N < 50$) to moderate ($N = 216$; Ginsburg et al., 2020). Treatments evaluated in these studies were based on cognitive and/or behavioral interventions and were delivered using both group and individual formats. The length of treatments ranged from 10 to 12 student meetings (and some included parent and teacher meetings; see Table 3.3). In the majority of studies, research staff delivered the treatments, though there are three notable exceptions (Ginsburg et al., 2012, 2020; Masia-Warner et al., 2016) where treatments were delivered by school counselors. Only half of the studies used an active comparison condition (vs. a no-treatment control condition).

Among the smaller RCTs, CBT was generally compared to a waitlist control condition and results indicate that youth receiving CBT experienced a more positive response relative to those in the waitlist control condition (e.g., Bernstein et al., 2005; Chiu et al., 2013; Masia-Warner et al., 2005). Among studies that compared school-based CBT to an active control condition, and/or used non-CBT experts to administer the interventions (Ginsburg et al., 2020; Masia-Warner et al., 2016), findings were mixed. Masia-Warner et al. (2016) evaluated a 12-week group-based intervention (i.e., Skills for Academic and Social Success; SASS) for adolescents with social anxiety disorder (SOP). In this study, 138 adolescents were randomized to: (a) SASS delivered by school counselors (C-SASS), (b) SASS delivered by doctoral-level psychologists (P-SASS), or (c) a control condition, Skills for Life (SFL), a non-specific counseling program. School clinicians received didactic training, co-led their first therapy group with a study expert, and received 40 min of weekly supervi-

sion for all future groups. Independent evaluators (IEs) completed post-intervention assessments. At post-treatment and follow-up, respectively, between 21% and 39% of youth in C-/P-SASS no longer met diagnostic criteria for SOP compared to 7% and 11% in the control condition, a statistically significant difference. There were no significant differences between SASS delivered by school counselors and research staff psychologists. The authors concluded that with extensive training and ongoing supervision, school counselors can deliver evidence-based treatments with equal success as trained mental health specialists.

In contrast, two studies by Ginsburg and colleagues (2012, 2020) found similar outcomes for students receiving CBT and treatment as usual (TAU). For instance, in a large school-based study, a modular CBT was compared to treatment as usual (TAU) delivered by school-based clinicians in youth ($N = 216$) aged 6–18 years meeting *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition* (DSM-IV) criteria for a broad range of primary anxiety disorders. Clinicians received one day of training in anxiety disorders, the CBT model and intervention modules, and study procedures, and were provided with treatment materials (e.g., treatment manual, handouts). Supervision was offered but not mandatory. Based on intent-to-treat analyses, youth in both treatment groups improved; however, no treatment group differences were found on most of the clinical outcomes measured at post-treatment or follow-up.

In summary, school-based treatments for students with anxiety disorders were based on cognitive–behavioral strategies. In most studies, the treatments were delivered by research staff and led to significant reductions in anxiety when compared to waitlist (i.e., no-treatment control conditions). However, in the three studies where treatment was delivered by school staff and compared to an active comparison condition (TAU, SFL), only one revealed that the experimental treatment was superior to the comparison condition, likely due to extensive training and continuous supervision provided by the research team,

which possibly enhanced adherence and quality of treatment delivery. The feasibility and costs associated with training and ongoing supervision pose important practical barriers to large-scale adoption of school-based treatments. Studies demonstrating cost-effectiveness and impact on academic outcomes are needed.

Future Directions

Providing school-based interventions for students with impairing anxiety holds the promise of broadening access to services for a population that is under-identified and under-treated. As reviewed in this chapter, growing numbers of anxiety reduction interventions have been evaluated in elementary, middle, and high school settings and several have been shown to be effective in lowering anxiety severity, though the magnitude of effects is modest and inconsistent.

Despite the rise in the number of school-based interventions for students with anxiety, numerous gaps in this literature remain. Most importantly, research is needed to identify ways of enhancing intervention effectiveness. Related, sustainable methods of intervention delivery (i.e., researchers vs. school staff) and the examination of treatment durability are needed. Research methods must increase in rigor as the majority of studies are described in extant meta-analyses as "low in quality," failing to use gold standard designs and methods, which are barriers to drawing clear conclusions from published studies. Future work should also include analysis of academic outcomes. Finally, as schools operate within changing fiscal contexts, data are needed to evaluate the cost-effectiveness and cost benefits of school-based interventions.

Another gap in current knowledge regarding the effectiveness of school-based services for students with anxiety is identifying for whom these services work best—both within and across each model of intervention (primary, secondary, tertiary). Indeed, few published studies examined predictors, moderators, or mediators of intervention response. These analyses are not only needed to enhance student outcomes but can also be used to refine intervention components and delivery methods. In one recent study, youth with the highest level of anxiety did better in CBT compared to TAU (Ginsburg et al., 2020). Additionally, Keogh et al. (2006) conducted a mediation analysis in an attempt to identify mechanisms of change in a cognitive–behavioral stress management program. Results indicated that changes in dysfunctional attitudes fully mediated the effects of the treatment program on academic performance and mental health (Keogh et al., 2006). The mixed outcomes noted in extant work on school-based interventions also speak to a need for future work to build on these initial attempts to identify mediators and moderators of effective treatment. Attention to the components of current interventions (e.g., number of sessions, session content) is also a fruitful area of future research. For instance, most current interventions range from 10 to 15 meetings. However, recent data on shorter (even single session) interventions (Schleider et al., 2020) deserve evaluation. The use of technology-delivered interventions, used as a stand-alone intervention or to augment in-person interventions, has shown promise in outpatient settings (Storch et al., 2015) and is also another productive area of research. Online interventions may also be cost-effective, require less training of school staff, and enhance student outcomes.

Across all areas of future study, improvements in methodological rigor are essential. Specifically, needed improvements include: (1) the use of appropriate control conditions (e.g., active control conditions rather than exclusively using waitlist controls), (2) the inclusion of assessments of adverse events, intervention adherence and acceptability, and school outcomes (e.g., classroom behavior, attendance, engagement), (3) the use of masked evaluators rather than child reports only, and (4) designs that assess the durability of intervention effects by including a long-term follow-up.

Conclusions

Anxiety is a highly prevalent and impairing condition that often goes under-identified and undertreated. Fortunately, a growing literature has emerged evaluating a broad range of school-based anxiety interventions. Findings from extant reviews, meta-analyses, and individual studies reveal mixed support for the effectiveness of school-based interventions for anxiety and highlight a need for enhanced methodological rigor for future studies. In addition to improving the effectiveness of school-based interventions, one important task is to ensure the adoption and sustained use of interventions by school staff. Several studies have begun to address this issue by training teachers, nurses, and counselors to deliver anxiety-reduction interventions. Masia-Warner et al. (2016) showed that with intensive training, school counselors delivered a targeted intervention to students with SOP with fidelity and outcomes of students receiving the intervention from school staff compared to research staff were similar. In another study comparing treatment effects by provider, Barrett and Turner (2001) identified no significant differences in anxiety reduction between psychologist-delivered and teacher-delivered FRIENDS. Finally, Ginsburg et al. (2019) trained school nurses to deliver a brief CBT intervention for students with anxiety with preliminary results showing significant reductions in anxiety. Each of these findings provides support for an ultimate shift toward intervention delivery by school-based providers rather than external research teams. Systematic research on the optimal training model for these school-based providers is viewed as a critical next step to ensuring all students with anxiety receive the interventions they need.

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