Community Preventive Services Task Force

Mental Health: Targeted School-Based Cognitive Behavioral Therapy Programs to Reduce Depression and Anxiety Symptoms

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Finding and Rationale Statement
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CPSTF Finding and Rationale Statement

Context

Anxiety and depression are common among children and adolescents. Among children aged 3¬¬ to 17 years, 7.1% have been diagnosed with anxiety and 3.2% with depression (Ghandour et al., 2018). These mental health conditions can persist into adulthood and increase risks for suicide, risk-taking behavior (e.g., substance abuse, sexual experimentation), teenage pregnancy, conduct disorder, delinquency, and poor academic outcomes (Anxiety and Depression Association of America, 2018; Weller et al., 2000; Werner-Sielder et al., 2017).

Schools can play an important role in preventing and reducing anxiety and depression as 56.6 million children attend elementary and secondary schools in the United States (National Center for Education Statistics, 2018). Cognitive behavioral therapy (CBT), the most commonly used therapy for anxiety and depression, helps children and adolescents change negative thoughts into more positive, effective behaviors. Implementing CBT programs in schools supports several components of the Whole School, Whole Community, Whole Child (WSCC) Model focused on promoting students' health (CDC, 2018).

Intervention Definition

Targeted school-based cognitive behavioral therapy (CBT) programs to reduce depression and anxiety symptoms are delivered to students who are assessed to be at increased risk for these conditions (e.g., subclinical symptoms, familial risk). These targeted programs help students develop strategies to solve problems, regulate emotions, and establish helpful patterns of thought and behavior.

Trained school staff (e.g., school mental health professionals, trained teachers, nurses) or external mental health professionals (e.g., non-school psychologists, social workers) use therapeutic approaches outlined in an intervention protocol to engage with students in individual or group settings. They deliver the interventions during two or more sessions that are designed to reduce depression or anxiety symptoms, and promote well-being.

CPSTF Finding (February 2019)

The Community Preventive Services Task Force (CPSTF) recommends targeted school-based cognitive behavioral therapy programs to reduce depression and anxiety symptoms among school-aged children and adolescents assessed to be at increased risk for these mental health conditions. The finding is based on strong evidence of effectiveness that children and adolescents participating in targeted programs show small decreases in depression and anxiety symptoms.

Programs for depression and anxiety led by external mental health professionals reported larger effects than programs led by school staff.

The CPSTF recommends Universal School-Based Cognitive Behavioral Therapy Programs to Reduce Depression and Anxiety Symptoms [www.thecommunityguide.org/findings/mental-health-universal-school-based-cognitive-behavioral-therapy-programs-reduce-depression-anxiety-symptoms]. The CPSTF also recommends group [www.thecommunityguide.org/findings/violence-psychological-harm-traumatic-events-among-children-and-adolescents-cognitive-behavioral-therapy-group] and individual [www.thecommunityguide.org/findings/violence-psychological-harm-traumatic-events-among-children-and-adolescents-cognitive-behavioral-therapy-individual] CBT to reduce psychological harm from traumatic events among children and adolescents.

Rationale

Basis of Finding

The CPSTF uses recently published systematic reviews to conduct accelerated assessments of interventions that could provide program planners and decision makers with additional, effective options. The following published review was selected and evaluated by a team of specialists in systematic review methods, and in research, practice, and policy related to mental health:

> Werner-Seidler A, Perry Y, Calear AI, Newby JM, Christensen H. School-based depression and anxiety prevention programs for young people: a systematic review and meta-analysis. *Clinical Psychology Review* 2017;51;30-47.

The published systematic review included 81 studies (77 studies included in meta-analysis; search period through 2015). The Community Guide systematic review team examined CBT programs for targeted school-based programs (29 studies) and universal school-based programs (38 studies) separately. This document outlines evidence for the targeted programs. Ten studies from the published review were excluded because they either did not evaluate CBT programs or they did not provide data for analysis.

The team modified the intervention definition and examined the subset of 11 targeted studies from the United States in order to determine applicability. The team collected additional data on study, intervention, and population characteristics; calculated medians and interquartile intervals (IQI) for the summary effect estimates; and performed stratified analyses. Data from the subset were compared with the overall body of evidence. The final CPSTF assessment considered the findings of the published review, additional information from the included studies, and expert input from the team and the CPSTF.

Depression symptoms were most frequently measured with the Children's Depression Inventory, followed by the Beck Depression Inventory, and the Kiddie-Schedule for Affective Disorders and Schizophrenia. Anxiety symptoms were most frequently measured with the Spence Children's Anxiety Scale, followed by the Revised Children's Manifest Anxiety Scale. Evidence from included studies showed targeted school-based CBT interventions led to small reductions in depression and anxiety symptoms among children and adolescents when compared to control groups. Outcomes were similar in the subset of studies from the United States and the overall body of evidence for depression (see Table 1). There were too few U.S. studies to compare anxiety outcomes.

Table 1: Depression and Anxiety Symptoms, Overall and U.S. Studies

	Overall (29 studies)		**U.S. Subset (11 studies)**	
Outcome	Studies (Comparisons)	Calculated Median Hedges' g	Studies (Comparisons)	Calculated Median Hedges' g
Depression Symptoms	21 (31)	0.25 (IQI: 0.12 to 0.56)	8 (16)	0.30 (IQI: 0.18 to 0.53)
Anxiety Symptoms	14 (15)	0.13 (IQI: 0.04 to 0.47)	3 (3)	0.55 (Range: 0.02 to 0.84)

Interquartile Interval (IQI) is calculated for 5 or more comparison groups; range is reported for 4 or less comparison groups.

Estimated interpretations for Hedges' g effect sizes: 0.2-0.49 = small effect; 0.5-0.79 = moderate effect; ≥0.8 or greater = large effect; 1 = two groups differ by 1 standard deviation.

Study counts are not mutually exclusive.

Stratified Analyses

The team performed stratified analyses to examine the potential influence of intervention and participant characteristics on outcomes (see Tables 2 and 3). Interventions delivered by external mental health professionals showed larger effects than those delivered by trained school staff.

Table 2: Depression Symptoms Stratified by Intervention and Participant Characteristics, Overall and U.S. Studies

		Overall		U.S. Subset	
		Studies (Comparisons)	Calculated Median Hedges' g	Studies (Comparisons)	Calculated Median Hedges' g
Personnel delivering program[a]	Trained School Staff	7 (10)	0.15 (IQI: 0.02 to 0.43)	2 (4)	0.15 (Range: 0.03 to 0.25)
	External Mental Health Professional	14 (21)	0.37 (IQI: 0.18 to 0.56)	6 (12)	0.46 (IQI: 0.22 to 0.81)
Student Age	Child (<10 years)	3 (3)	0.37 (Range: 0.25 to 0.88)	0	--
	Younger adolescents (10–14 years)	6 (7)	0.21 (IQI: 0.14 to 0.43)	3 (4)	0.18 (Range: 0.14 to 0.43)
	Older adolescents (> 14 years)	10 (18)	0.29 (IQI: 0.07 to 0.59)	4 (10)	0.42 (IQI: 0.21 to 0.71)
Number of sessions	2-7 sessions	6 (12)	0.30 (IQI: 0.18 to 0.66)	5 (11)	0.36 (IQI: 0.19 to 0.69)
	8-12 sessions	13 (16)	0.23 (IQI: 0.09 to 0.45)	4 (5)	0.21 (IQI: 0.15 to 0.45)
	13-24 sessions	3 (3)	0.56 (Range: 0.02 to 0.82)	0	--

[a] Personnel delivering program: external mental health professionals—mental health professionals or researchers; trained school staff— classroom teachers, counselors, or nurses

Interquartile Interval (IQI) is calculated for 5 or more comparison groups; range is reported for 4 or less comparison groups.

Estimated interpretations for Hedges' g effect sizes: 0.2-0.49 = small effect; 0.5-0.79 = moderate effect; ≥0.8 or greater = large effect; 1 = two groups differ by 1 standard deviation.

Table 3: Anxiety Outcomes Stratified by Intervention and Participant Characteristics, Overall and U.S. Studies

		Overall		U.S. Subset	
		Studies (Comparisons)	Calculated Median Hedges' g	Studies (Comparisons)	Calculated Median Hedges' g
Personnel delivering program[a]	Trained School Staff	5 (6)	0.09 (IQI: 0.01 to 0.55)	1 (1)	0.55
	External Mental Health Professional	9 (9)	0.15 (IQI: 0.6 to 0.59)	2 (2)	(Range: 0.02 to 0.84)
Student Age	Child (<10 years)	7 (7)	0.09 (IQI: 0.03 to 0.47)	1 (1)	0.02
	Younger adolescents (10–14 years)	4 (4)	0.31 (Range: 0.12 to 0.55)	1 (1)	0.55
	Older adolescents (> 14 years)	3 (4)	0.09 (Range: 0.01 to 0.84)	1 (1)	0.84
Number of sessions	2-7 sessions	1 (1)	0.13	0	--
	8-12 sessions	10 (11)	0.15 (IQI: 0.06 to 0.55)	2	Range: 0.54 to 0.84
	13-24 sessions	3 (3)	0.03 (Range: 0.02 to 0.33)	1	0.02

[a] Personnel delivering program: external mental health professionals—mental health professionals or researchers; trained school staff— classroom teachers, counselors, or nurses

Interquartile Interval (IQI) is calculated for 5 or more comparison groups; range is reported for 4 or less comparison groups.

Estimated interpretations for Hedges' g effect sizes: 0.2-0.49 = small effect; 0.5-0.79 = moderate effect; ≥0.8 or greater = large effect; 1 = two groups differ by 1 standard deviation.

Applicability and Generalizability Issues

The systematic review included 11 studies from the United States. Information in this section describes this subset of studies.

Intervention settings

All four studies that reported school setting were conducted in public schools. Studies were conducted in high schools (4 studies), middle schools (3 studies), elementary schools (2), or high schools and colleges (1 study).

Demographic characteristics

Most of the included studies targeted adolescents (10-17 years of age); only one study included children under age 10. The majority of students were white in four studies and black in one study. Several studies included white, black, Asian, Hispanic, and Native American students. Studies included a balance of male and female students across all socioeconomic groups.

Intervention characteristics

Number of sessions:

The included CBT programs delivered between 4-13 sessions. One program offered booster sessions.

Personnel delivering program:

Interventions conducted by external mental health professionals reported greater effects than those conducted by trained school staff. External mental health professionals included psychologists, researchers, psychology graduate students, mental health nurses, or social workers (8 studies). Trained school staff who delivered interventions were teachers, guidance counselors, or school psychologists (3 studies).

Parental involvement:

Three of the targeted school-based CBT programs included a parental component during which parents were taught strategies to help support their child's use of new and developing skills.

Data Quality Issues

All studies were randomized control trials.

Werner-Seidler et al. used reporting criteria set by the Preferred Reporting Items Systematic Reviews and Meta-Analyses (PRISMA) Guidelines (Moher et al., 2009) and Cochrane Collaboration 'Risk of Bias' tool (Higgins et al., 2011).

Common limitations in the body of evidence included selection bias, with 41% of studies reporting the allocation sequence had been adequately generated while 59% of studies did not report enough information or had high risk of bias. There was potential contamination between study conditions in 69% of the studies. In addition, participants enrolled in control groups may have had access to material covered in the intervention sessions.

Other Benefits and Harms

Other benefits and harms were not addressed in the Werner-Seidler et al. systematic review. The CPSTF postulates the intervention could improve social interactions among students with shared or similar experiences, students' learning abilities (e.g., standardized math and reading test scores), classroom function, and family management of youth with anxiety.

The CPSTF also noted potential harms of the intervention. Students sharing intimate feelings and experiences might be vulnerable to harmful consequences (e.g., bullying, mockery, rumors, and privacy concerns). Discussions could also trigger student emotions that require professional attention exceeding the capacities of those delivering the intervention.

Considerations for Implementation

The following considerations for implementation are drawn from studies included in the existing evidence review, the broader literature, and expert opinion.

- Confidentiality of student information should be a priority, and policies should be clearly communicated to parents and students, especially when there will be group sessions.
    - Programs should provide students with information about the group process, general risks associated with participation (e.g., privacy, confidentiality concerns or limitations), and rules for participation.
- Parents should be notified when students participate in programs or receive mental health services (though this must be balanced with student confidentiality).

- Students should have access to additional mental health services in case issues arise (either on-site or by referral).
- Referral processes should be in place and consistently followed by staff who detect possible child maltreatment or risk of harm to self or others.
- Schools should decide whether trained school personnel or external mental health professionals will deliver program components (balancing potential effects against resource limitations).
    - School staff may be familiar with the student population and school environment, and there may be greater opportunities for program sustainability. They may not, however, have mental health training that would prepare them to handle additional issues.
    - External mental health professionals are professionally trained for mental health issues, but they may not be as familiar with individual students, and additional funding may be required.
- Schools should decide whether universal CBT programs, targeted CBT programs for at-risk individuals, or both, are best suited for their student population. Some schools may prefer a stepped approach to deliver universal CBT programs first followed by targeted CBT programs for at-risk, symptomatic individuals who do not respond to the universal program. Other schools may prefer to deliver one program only.

Evidence Gaps

Werner-Seidler et al. suggested a need for additional research and evaluation to answer the following research questions and fill existing gaps in the evidence base.

- How can advances in technology be used to improve intervention reach and availability at a population level?
- How do program results differ when asymptomatic youth participate?
- What effect does parental involvement have on outcomes? Which strategies work best to incentivize and engage parents or caregivers?
- What are the infrastructure and personnel needs required to sustain programs?

The CPSTF further identified the following evidence gaps as areas for future research:

- Which strategies best balance the need for parental awareness with child confidentiality?
- What are the long-term effects of early interventions to reduce anxiety and depression symptoms?
- Are programs as effective if implemented in private schools?
- What are the follow-up approaches that best support the maintenance of program effects over time?

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Disclaimer

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