Recognized as the nation’s most prevalent mental health burden, anxiety represents the most common reason for referral to mental healthcare teams.\(^1\)-\(^3\) Among youth, anxiety may lead to concentration and attention problems, difficulties with problem-solving (cognitive impairments), emotional dysregulation, excessive worry, and task avoidance.\(^4\) Anxiety disorders are highly comorbid with a range of psychiatric diagnoses, and have been associated with heightened risk for depression and substance abuse (self-medication), and academic underachievement.\(^1,5\)

A growing body of literature recognizes the relationship between adverse childhood experiences (ACEs), anxiety, and health outcomes later in life.\(^6\) Unresolved stressors drive and compound levels of anxiety experienced across the lifespan, repeatedly triggering activation of the central nervous system (stress response), known to change neurobiology, alter physiology and immunity, and produce behavior patterns that may manifest as one or more comorbid conditions.\(^7\)-\(^11\)

Increasing rates of anxiety and associated emotional and mental health difficulties, including lifelong implications on successful functioning and health outcomes, have long been a call for primary prevention through population-based public health interventions in community settings and schools.\(^12\) Evidence for universal, whole school approaches to mental health promotion has grown.\(^12\)-\(^14\) Universal whole school strategies can be essential, as children who experience anxiety do not always receive ser-
services or treatment, and symptoms may be primarily internalized, and not expressed through overtly disruptive or problematic behavior.\textsuperscript{15} Benefits to universal whole school approaches include: (1) reducing time and money spent on recruitment and screening; (2) elimination of stigmas, labels, and bullying associated with help-seeking; (3) avoidance of pulling selected students out of regularly-scheduled class time for special services; and (4) the potential of reaching the entire student population, including students with varying levels of risk for psychopathology, and reaching students who may not have access to mental health services.\textsuperscript{2,16-18} Due to the last matter, universal school-based approaches may be of particular benefit to youth from socio-economically disadvantaged backgrounds, who often experience a disproportionate burden of anxiety.\textsuperscript{13,19,20} Universal primary prevention approaches can also alleviate the need for overcoming barriers to access to external mental health services, such as scheduling, transportation, and financial cost.\textsuperscript{21,22} Because anxiety often precedes onset of depression in youth, a focus on universal primary prevention efforts might also impact onset of depressive symptoms.\textsuperscript{23,24}

Comprehensive whole school primary prevention approaches to addressing anxiety have been implemented around the globe with varying degrees of efficacy and fidelity,\textsuperscript{25,26} many in response to the global school health initiative led by the World Health Organization.\textsuperscript{27} Several factors determine fidelity, efficacy, and overall success of universal school-based trials. Of special interest has been the efficacy of teacher-implemented programs versus those implemented by mental health professionals, school support staff, or members of research teams.\textsuperscript{26} A considerable degree of responsibility for assuring students’ mental health and well-being has been placed on teachers, whose fidelity of implementation may be compromised by pressure to meet stakeholder expectations and assure students’ academic success.\textsuperscript{28} Although a predominant share of students’ time in school is spent with teachers, and teachers having great responsibility for students, rarely, if ever, are teachers trained to provide more than basic support or referral to students who display anxious behaviors. Participating in training and integrating an intervention into their curriculum might seem daunting and place an extra burden on teachers.

Conversely, obtaining training and support for implementing an evidence-based intervention might alleviate teachers’ burden to help anxious children by providing both the teachers and their students with skills and support that are focused upstream. Although it is unclear exactly how much responsibility, training, or ongoing support teachers had received compared to other school staff, including mental health personnel, a comprehensive review found that previous interventions led by school personnel had comparable positive outcomes in reducing anxiety as those conducted by mental health personnel.\textsuperscript{24} Differences in anxiety outcomes by age or grade level of students involved in those studies were not discussed. Long-term efficacy of universal school-based anxiety interventions and their clinical and practical significance continue to be investigated with mixed findings.\textsuperscript{29,32}

Though numerous reviews have examined efficacy, design, and overall impact of universal school-based anxiety interventions conducted around the globe,\textsuperscript{24,33-35} to our knowledge, none to date have examined the efficacy and quality of randomized controlled trials (RCT) of universal teacher-led anxiety interventions implemented in the United States (US).

METHODS

This review was guided by the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA).\textsuperscript{36} The specific aims of this study were to quantify and assess the quality of universal teacher-led randomized controlled anxiety intervention trials conducted in the US.

Data Sources and Searches

The research team with expertise in epidemiology, health promotion, school psychology, and library science generated a list of keywords (Appendix A) that were first used to search PubMed (Table 1) and then translated to expand the search to the Cochrane Central Register of Controlled Trials (CENTRAL), Embase, Cumulative Index to Nursing and Allied Health Literature (CINAHL), Scopus, PsycINFO, and Education Resources Information Center (ERIC), and the Google Scholar search engine. No limits were applied for dates of publication. An updated search was completed on July 5, 2018.
Results

We retrieved 6283 records from 6 databases and one search engine (Figure 1). After removing 1374 duplicates, we screened 4909 titles and abstracts for 4 inclusion criteria: universal/Tier 1, school-based [K-12], teacher-led, RCTs, and targeting general anxiety in youth (Appendix B). This resulted in the exclusion of 4823 records.

We examined the full text of the remaining 86 records at stage 2, identifying a total of 4 US studies that met all of our inclusion criteria (Table 2). Twenty-one43,44,45,46-61 records matched all but our final inclusion criteria; these were conducted outside of the US. We eliminated an additional 2162,63 records that did not meet our definition of universal/Tier 1. Two83,84 did not take place in a K-12 school setting, and 1385-87 did not qualify as randomized controlled trials. Four88-101 records were excluded because they did not assess general anxiety as an outcome, or because the anxiety measure was not specified. Eleven102-112 records were not teacher-led, or the program leaders were unknown. Another 5 records113-117 were eliminated because we were unable to retrieve their full text. One record118 was a non-English source, another119 was a dissertation, 2120,121 were gray literature, and one122 study only reported baseline outcomes.

A supplementary search was completed on July 5, 2018. This search returned 756 citations, none of which met our inclusion criteria.
of which met all the inclusion criteria. Three studies\textsuperscript{123,124,125} met all but our final inclusion criteria. These were conducted outside of the US. Two\textsuperscript{124,125} took place in Australia, and one\textsuperscript{123} in Sweden. Altogether we identified 24\textsuperscript{2,42,43,44-61,123-125} universal randomized controlled teacher-led anxiety intervention trials that were conducted outside of the US.
Interventions

**Study design.** Three of the final 4 studies used a cluster randomized design, and one was a single-blinded randomized trial.

**Content.** Intervention content varied across studies. One focused on cognitive-behavioral skills-building and healthy lifestyle choices, self-esteem, positive thinking, goal setting and problem solving, goal attainment strategies, physical activity promotion, and nutrition. Two were centered around...
anger and/or stress management, teaching coping skills such as deep breathing, movement, and guided imagery practices. A fourth\(^40\) taught social emotional skills and contained health promotion curricula including nutrition and physical activity.

**Mode of delivery.** Interventions varied in frequency, duration and number of sessions. The stress management intervention\(^41\) was presented daily for 10 minutes over the course of 4 months. The Williams LifeSkills\(^39\) program was delivered over the course of 12 sessions, each 50 minutes in length; frequency and total duration were unclear. The Creating Opportunities for Personal Empowerment (COPE TEEN)\(^38\) program was delivered in 15 sessions, 2-3 times per week, over the course of 9 weeks, in 2009. Positive Action\(^40\) was delivered 2-4 days a week for 70 to over 140 sessions for 15-20 minutes in length depending on the grade.

**Population and Settings**

All the studies were classroom-based, teacher-led interventions delivered during regular school hours in the US. One study\(^40\) was conducted between the years 2004 and 2010, another\(^38\) in 2007. Two studies published in 2012\(^39\) and 2014\(^41\) did not specify the intervention timeframe. Study settings included the Southwest,\(^38\) Augusta, Georgia,\(^39\) Chicago, Illinois,\(^40\) and Cleveland, Ohio.\(^41\) Two RCTs consisted of 2 clusters (ie, classrooms) with the number of students in each cluster varying from 6 to 15.\(^38,41\) One study included 14 clusters (schools), but did not report the number of students per cluster.\(^40\) A fourth RCT included 79 students in the intervention arm and 91 controls.\(^39\) Two studies\(^38,41\) did not provide descriptive characteristics for race/ethnicity; one study\(^39\) included predominantly African-American high school students; and another\(^38\) included mostly Hispanic high school students.

**Measures**

**Source.** All 4 studies used students’ self-report as the primary source of reporting of anxiety measures.

**Variable.** Although most studies assessed multiple outcome variables such as depression, social emotional skills, or blood pressure, our primary outcome of interest was general anxiety.

**Measurement.** Included studies employed different anxiety assessment tools. Melnyk et al utilized the Beck Youth Inventory, Second Edition (BYI-II) to measure anxiety symptomatology\(^38\) COPE TEEN trials. Both the Williams LifeSkills\(^39\) program and Positive Action\(^40\) studies used the Behavior Assessment System for Children (BASC) anxiety subscale, while the Stress Management\(^41\) intervention relied on the Revised Children's Manifest Anxiety Scale (RCMAS).

**Content**

**Framework.** One\(^38\) intervention was grounded in the Cognitive Behavioral Therapy (CBT) model,
and another\textsuperscript{40} in self-esteem enhancement theory. Whereas one\textsuperscript{39} study discussed a primary prevention public health framework, theoretical constructs were not specified. A fourth study\textsuperscript{41} did not discuss theoretical underpinnings of intervention introduced to students.

**Critical Appraisal.** We appraised the 4 eligible studies using the modified Cochrane Collaboration’s tool for quality assessment of RCTs (Table 3). Sequence generation and allocation concealment were unclear for 3 studies\textsuperscript{39-41} because the randomization method was not specified, and it was not clear whether children or their parents knew whether they were assigned to the intervention or control group. A coin was flipped in one study\textsuperscript{38} that marked as low risk for sequence generation and allocation concealment. Three studies\textsuperscript{39-41} did not discuss blinding procedures; one study\textsuperscript{38} only blinded students. Adequate outcome data and low drop-out rates were reported by all 4 included studies.\textsuperscript{38-41} Three\textsuperscript{38,40,41} interventions were cluster randomized trials, and one\textsuperscript{39} study was described as a single-blinded design, though it was not clear who was blinded. Overall, internal validity was unclear for three\textsuperscript{39-41} studies that met our final inclusion criteria. One\textsuperscript{38} study was marked as low risk for bias.

**Outcomes.** All included studies reported a reduction in anxiety levels among students who participated in the intervention group compared to the control group.

**DISCUSSION**

In this review, we aimed to quantify, assess the quality, and examine the characteristics of universal teacher-led randomized controlled anxiety intervention trials conducted in the US. Four studies met our inclusion criteria. The rigor and effectiveness of trials conducted in the US to date is largely unclear. Characteristics, content, and rigor of US-based teacher-led anxiety interventions varied across studies included. The Creating Opportunities for Personal Empowerment (COPE) Healthy Lifestyles TEEN (Thinking, Emotions, Exercise, and Nutrition) by Melnyk et al in 2009 was the only intervention firmly rooted in a Cognitive Behavior Therapy (CBT) framework.

Given the prevalence and growing burden of anxiety among US youth, the scarcity of large-scale trials conducted in US schools is perhaps one of the most surprising findings. Of the 4 US-based studies identified, 2 included children in primary schools. Early, upstream primary prevention efforts are critical given the large burden anxiety places on the US society at large. Anxiety interventions firmly rooted in a CBT framework have shown promise among younger children in studies conducted around the globe. None of the US-based studies identified in this review targeted primary school children with anxiety interventions rooted in a CBT framework. CBT is known to be a highly effective first-line treatment for anxiety disorders among children and youth,\textsuperscript{126} with proven efficacy even when delivered in group settings and classrooms.\textsuperscript{127-129} The COPE TEEN\textsuperscript{38} program was the only US-based study that earned a score of low risk for bias and showed efficacy on anxiety outcomes among high school students. It was also the only program grounded in the CBT framework.

It is well known that the population of school-age children in the US is growing increasingly diverse. Youth from socio-economically disadvantaged backgrounds often experience higher rates of anxiety and mental health difficulties. Strengthening reporting of school and student population characteristics is imperative in better understanding effectiveness of anxiety interventions across and between schools and student subgroups. Whereas 3 of the 4 studies reported on race and ethnicity of students, none specified intervention schools’ Title I designation, or what proportion of the student population was eligible for free or reduced-price lunch based on reported household incomes. Title I is a federally funded comprehensive school-wide program available to schools with a student base where at least 40% come from low-income families. Inadequate reporting on study population characteristics makes adaptation, translation, and comparison to other school populations challenging. Anxiety is the most prevalent mental health condition experienced among youth of all ages in the US, with socio-economically disadvantaged and minority youth, who are often overrepresented among Title I schools, experiencing a disproportionate burden.\textsuperscript{130-132}

Dependent variables included a student self-report measure of anxiety. Melnyk et al\textsuperscript{39} utilized the Beck Youth Inventories – Second Edition (BYI-2), a collection of 5 self-report instruments for chil-
Children and adolescents aged 7-18 with demonstrated reliability and validity. Barnes et al and Lewis et al utilized specific self-report subscales of the Behavior Assessment System for Children (BASC), a broadband instrument with strong psychometric properties reported at the time of publication. Finally, Bothe et al relied on the Revised Children’s Manifest Anxiety Scales (RCMAS) to assess participants’ anxiety. The RCMAS is a brief measure normed for children ages 6-19. One potential concern is that the BASC and the RCMAS have been revised multiple times since publication, and it appears that outdated versions were used by Barnes et al., Lewis et al (BASC), and Bothe et al (RCMAS). BASC was originally published in 1992 but was revised in 2003 (BASC-2) and 2015 (BASC-3). It is unclear when Barnes et al conducted their study, but the Lewis et al study appears to have occurred after the publication of BASC-2. Similarly, the RCMAS was originally published in 1985 and revised in 2008. The original version used by Bothe et al is known to under-represent minorities in the standardization sample and demonstrate poorer reliability among minority test-takers, a predominant portion of the Bothe et al sample.

Due to the overall unclear quality of studies conducted across the US to date, future reporting on universal school-based intervention programs may benefit from following reporting guidelines and checklists such as Strengthening the Reporting of Observational Studies in Epidemiology (STROBE), or the Reach, Effectiveness, Adoption, Implementation, and Maintenance (RE-AIM) framework. Among other things, such guidelines and frameworks help assure improved communication to members of the scientific community regarding study procedures, data sources and measurement, and reporting on intervention outcomes by population subgroups.

Further improvements in research on this topic include: (1) development of interventions and/or adaptations thereof, taking into consideration differences in developmental cohorts from early childhood through late adolescence; (2) comprehensive descriptions of the training and ongoing support provided to teachers; (3) evaluating teacher’s competence for delivery of intervention, and monitoring fidelity of implementation; (4) explanation of how children with clinically significant anxiety were identified or screened, and referred for treatment or services; (5) longitudinal studies to measure effectiveness of interventions over several years, into late adolescence and adulthood; (6) employment of data sources other than self-report, such as through teachers, parents, or other caretakers.

Strengths of this review include the use of multiple databases as study sources, and evaluation of articles by 2 independent reviewers. Although disagreements were resolved by a third reviewer, residual subjectivity in final decisions on study eligibility and quality may remain. The results of this review are not generalizable to Tier 2 or 3 level of interventions, or to interventions implemented by school administrators or research personnel, because the focus of this review was on universal teacher-led Tier 1 intervention trials. We limited the review to US-based studies because results from international trials may not be generalizable to the US. This led to the exclusion of other interesting interventions, such as the FRIENDS RESILIENCE programs. Of the 24 studies identified outside of the US, 14 were the FRIENDS RESILIENCE programs. Eligible studies contained a high degree of clinical and methodological heterogeneity that prevented the calculation of pooled estimates.

IMPLICATIONS FOR HEALTH BEHAVIOR OR POLICY

The information gained from this review suggests that there may be a need for more rigorous, large-scale universal teacher-led anxiety intervention trials in US K-12 schools. Higher rates of anxiety among socio-economically disadvantaged versus non-disadvantaged youth in school populations suggests that federal programs, such as Title I, should realign funding streams and require high-needs schools to test evidenced-based universal Tier 1 teacher-led anxiety interventions such as those conducted outside of the US to date.

The National Institutes of Mental Health (NIMH) in its most recent strategic vision emphasizes the need for shifting thinking away from mental health services provided through the traditional healthcare system (inside clinic walls), to community settings, including schools. Given the large number of children and youth who do not have access to traditional healthcare services, schools have
become the primary providers of mental health services.11

Endorsed by the World Health Organization as best practice,137 FRIENDS programs were among the first to establish efficacy of universal teacher-led anxiety interventions through large-scale randomized controlled trials implemented in schools around the globe2,42,52,54,55,57,138 showing effectiveness up to 3 years post-intervention for both anxiety and depression symptoms reported, and increases in resilience, self-confidence, self-efficacy, self-esteem, and social emotional skills. The CBT-based FRIENDS programs equip students with life skills that enable them to overcome and manage challenges, perceived threats, or anxieties (fears) that may arise across the lifespan. The Ministry of Education in New Zealand is actively implementing FRIENDS as a universal strategy in its school systems.139

Although improving mental health through prevention is a goal identified by the Office of Disease Prevention and Health Promotion in the Healthy People 2020 report,140 presently the information for consumers page is lacking recommendations for evidence-based public health interventions such as universal mental health promotion programs in schools.141 Effective upstream population-based primary prevention approaches include those firmly rooted in a CBT framework, with a focus on cognitive skills building and problem solving, such as the US-trialed COPE TEEN, and the FRIENDS universal intervention trials2,42,50-57,59-61,123 previously conducted outside of the US.

Generalized anxiety disorders are often associated with task performance, and individuals’ ability to work through problems and overcome challenges that present in life. Teachers serve as a natural vehicle for demonstrating and inculcating youth with coping and resilience skills as part of their daily interaction with students. In addition to trialing a larger number of universal teacher-led cognitive skills building anxiety intervention trials in schools across the US, teacher education programs should embed cognitive skills building strategies in all aspects of its required course curricula, and train teachers to deliver universal school-based mental health promotion programs.

Human Subjects Approval Statement
As a literature review paper, this study did not involve human subjects in the collection of original data.

Conflict of Interest Disclosure Statement
All authors of this article declare that they have no conflicts of interest to report.

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46. Roberts CM, Kane R, Bishop B, et al. The prevention of anxiety and depression in children from disadvantaged
Universal Anxiety Interventions in United States Schools: A Systematic Review


Appendix A

PubMed

Cochrane Library
#1 universal*[tiab] or classroom*[tiab] or classes or whole-school or whole school or “school wide” or school-wide or “large scale” or large-scale or “Tier 1” or “Tier One” or “primary intervention” or teacher*[tiab] or curriculum*[tiab]
#2 MeSH descriptor: [School Health Services] explode all trees
#3 MeSH descriptor: [Schools] explode all trees
#4 “school health” or school-age*[tiab] or “elementary school”*[tiab] or “primary school”*[tiab] or “middle school”*[tiab] or middle-school*[tiab] or “junior high”*[tiab] or “junior-high”*[tiab] or “high school”*[tiab] or high-school*[tiab] or “senior high”*[tiab] or “senior-high”*[tiab] or “secondary school”*[tiab] or Kindergarten*[tiab] or “first grade”*[tiab] or “second grade”*[tiab] or “third grade”*[tiab] or “fourth grade”*[tiab] or “fifth grade”*[tiab] or “sixth grade”*[tiab] or “seventh grade”*[tiab] or “eighth grade”*[tiab] or “ninth grade”*[tiab] or “tenth grade”*[tiab] or “eleventh grade”*[tiab] or “twelfth grade”*[tiab] or K-12*[tiab]
#5 #2 or #3 or #4
#6 MeSH descriptor: [Mental Health] explode all trees
#7 MeSH descriptor: [Anxiety Disorders] explode all trees
#8 MeSH descriptor: [Anxiety] explode all trees
#9 MeSH descriptor: [Resilience, Psychological] explode all trees
#10 MeSH descriptor: [Adaptation, Psychological] explode all trees
#11 MeSH descriptor: [Stress, Psychological] explode all trees
#12 MeSH descriptor: [Mental Health Services] explode all trees
#13 MeSH descriptor: [Psychotherapy, Group] explode all trees
#14 MeSH descriptor: [Adolescent Psychiatry] explode all trees
#15 MeSH descriptor: [Child Psychiatry] explode all trees
#16 MeSH descriptor: [Preventive Psychiatry] explode all trees
#17 “mental health” or mental or anxious or stress or neurosis or neuroses or neurotic or resilient or affective or socio-emotional or socioemotional or emotion or cope or coping or adapt
#18 #6 or #7 or #8 or #9 or #10 or #11 or #12 or #13 or #14 or #15 or #16 or #17
#19 MeSH descriptor: [Randomized Controlled Trial] explode all trees
#20 MeSH descriptor: [Controlled Clinical Trial] explode all trees
#21 randomized or randomly or placebo or “drug therapy” or trial or groups
#22 #19 or #20 or #21
#23 MeSH descriptor: [Animals] explode all trees
#24 MeSH descriptor: [Humans] explode all trees
#25 #23 not #24
#26 #22 not #25
#27 #1 and #5 and #18 and #26 Publication Year to 2016

(continued on next page)
Appendix A (continued)

Embase
( universal* OR classroom* OR classes OR whole-school OR “whole school” OR “school wide” OR school-wide OR “large scale” OR large-scale OR “Tier 1” OR “Tier One” OR teacher* OR curriculum OR curricula OR “primary intervention”:ab,ti AND (‘school health service’/exp OR ‘school’/exp OR (school* OR “school health” OR school-age* OR “elementary school”* OR “primary school”* OR “middle school”* OR middle-school* OR “junior high”* OR “junior-high” OR “high school”* OR highschool* OR high-school* OR “senior high”* OR senior-high* OR “secondary school”* OR Kindergarten OR “first grade” OR “second grade” OR “third grade” OR “fourth grade” OR “fifth grade” OR “sixth grade” OR “seventh grade” OR “eighth grade” OR “ninth grade” OR “tenth grade” OR “eleventh grade” OR “twelfth grade” OR first-grade OR second-grade OR third-grade OR fourth-grade OR fifth-grade OR sixth-grade OR seventh-grade OR eighth-grade OR ninth-grade OR tenth-grade OR eleventh-grade OR twelfth-grade OR K-12):ab,ti) AND (‘mental health’/exp OR ‘anxiety disorder’/exp OR ‘anxiety’/exp OR ‘coping behavior’/exp OR ‘adaptive behavior’/exp OR ‘mental stress’/exp OR ‘mental health service’/exp OR ‘group therapy’/exp OR ‘child psychiatry’/exp OR ‘social psychiatry’/exp OR (“mental health” OR anxiet* OR anxious OR stress OR neurosis OR neuroses OR neurotic OR resilient* OR affective OR socio-emotional OR socioemotional OR emotion* OR cope OR coping OR adapt*):ab,ti) AND (random*:ab,ti OR (clinical NEXT/1 trial*):de,ab,ti OR ‘health care quality’/exp) AND ((embase):lim NOT [medline]:lim)


Scopus
(TITLE-ABS-KEY (universal* OR classroom* OR classes OR whole-school OR “whole school” OR “school wide” OR school-wide OR “large scale” OR large-scale OR “Tier 1” OR “Tier One” OR teacher* OR curriculum OR curricula OR “primary prevention”)) AND (TITLE-ABS-KEY (school* OR “school health” OR school-age* OR “elementary school”* OR “primary school”* OR “middle school”* OR middle-school* OR “junior high”* OR “junior-high” OR “high school”* OR highschool* OR high-school* OR “senior high”* OR senior-high* OR “secondary school”* OR Kindergarten OR “first grade” OR “second grade” OR “third grade” OR “fourth grade” OR “fifth grade” OR “sixth grade” OR “seventh grade” OR “eighth grade” OR “ninth grade” OR “tenth grade” OR “eleventh grade” OR “twelfth grade” OR first-grade OR second-grade OR third-grade OR fourth-grade OR fifth-grade OR sixth-grade OR seventh-grade OR eighth-grade OR ninth-grade OR tenth-grade OR eleventh-grade OR twelfth-grade OR K-12)) AND (TITLE-ABS-KEY (“mental health” OR anxiet* OR anxious OR stress OR neurosis OR neuroses OR neurotic OR resilient* OR affective OR socio-emotional OR socioemotional OR emotion* OR cope OR coping OR adapt* OR “control group” OR “random trial” OR placebo OR “control group” OR “random trial”) OR “controlled clinical trial” OR random* OR trial OR placebo OR “control group” OR “random trial”) AND (random*:ab,ti OR (clinical NEXT/1 trial*):de,ab,ti OR ‘health care quality’/exp) AND ((embase):lim NOT [medline]:lim)

ERIC
TX(universal* OR classroom* OR classes OR whole-school OR “whole school” OR “school wide” OR school-wide OR “large scale” OR large-scale OR “Tier 1” OR “Tier One” OR teacher* OR curriculum OR curricula OR “primary intervention”) AND

DE “School Health Services” OR DE “Education” OR DX (school* OR “elementary school”* OR “primary school”* OR “middle school”* OR “junior high”* OR “junior-high”* OR “high school”* OR highschool* OR high-school* OR “senior high”* OR senior-high* OR “secondary school”* OR Kindergarten OR “first grade” OR “second grade” OR “third grade” OR “fourth grade” OR “fifth grade” OR “sixth grade” OR “seventh grade” OR “eighth grade” OR “ninth grade” OR “tenth grade” OR “eleventh grade” OR “twelfth grade” OR first-grade OR second-grade OR third-grade OR fourth-grade OR fifth-grade OR sixth-grade OR seventh-grade OR eighth-grade OR ninth-grade OR tenth-grade OR eleventh-grade OR twelfth-grade OR K-12)

AND

DE “Mental Health” OR DE “Anxiety Disorders” OR DE “Anxiety” OR DE “Resilience (Psychology)” OR DE “Adjustment (to Environment)” OR DE “Stress Management” OR DE “Mental Health Programs” OR DE “Group Therapy” OR DE “School Psychology” OR TX (“mental health” OR anxiet* OR anxious OR stress OR neurosis OR neuroses OR neurotic OR resilient* OR affective OR socio-emotional OR socioemotional OR emotion* OR cope OR coping OR adapt*) OR TI (mental*)

AND

TX (“Controlled Clinical Trial” OR random* OR placebo OR trial OR “control group” OR “random trial”) (continued on next page)
Appendix A (continued)

PsychINFO
TI (universal* OR classroom* OR classes OR whole-school OR (whole W1 school) OR (school W1 wide) OR school-wide OR (large W1 scale) OR large-scale OR (Tier W1 1) OR (Tier W1 One) OR teacher* OR curriculum OR curricula OR (primary W1 intervention)) OR AB (universal* OR classroom* OR classes OR whole-school OR (whole W1 school) OR (school W1 wide) OR school-wide OR (large W1 scale) OR large-scale OR (Tier W1 1) OR (Tier W1 One) OR teacher* OR curriculum OR curricula OR (primary W1 intervention) OR KW (universal* OR classroom* OR classes OR whole-school OR (whole W1 school) OR (school W1 wide) OR school-wide OR (large W1 scale) OR large-scale OR (Tier W1 1) OR (Tier W1 One) OR teacher* OR curriculum OR curricula OR (primary W1 intervention)

AND

DE “School Based Intervention” OR DE “Schools” OR TI (school* OR (school W1 health) OR school-age* OR (elementary W1 school*) OR (primary W1 school*) OR (middle W1 school*) OR middle-school* OR (junior W1 high*) OR (high W1 school*) OR highschool* OR high-school* OR (senior W1 high*) OR senior-high* OR (secondary W1 school*) OR Kindergarten OR (first W1 grade) OR (second W1 grade) OR (third W1 grade) OR (fourth W1 grade) OR (fifth W1 grade) OR (sixth W1 grade) OR (seventh W1 grade) OR (eighth W1 grade) OR (ninth W1 grade) OR (tenth W1 grade) OR (eleventh W1 grade) OR (twelfth W1 grade) OR first-grade OR second-grade OR third-grade OR fourth-grade OR fifth-grade OR sixth-grade OR seventh-grade OR eighth-grade OR ninth-grade OR tenth-grade OR eleventh-grade OR twelfth-grade OR K-12) OR AB (school* OR (school W1 health) OR school-age* OR (elementary W1 school*) OR (primary W1 school*) OR (middle W1 school*) OR middle-school* OR (junior W1 high*) OR (high W1 school*) OR highschool* OR high-school* OR (senior W1 high*) OR senior-high* OR (secondary W1 school*) OR Kindergarten OR (first W1 grade) OR (second W1 grade) OR (third W1 grade) OR (fourth W1 grade) OR (fifth W1 grade) OR (sixth W1 grade) OR (seventh W1 grade) OR (eighth W1 grade) OR (ninth W1 grade) OR (tenth W1 grade) OR (eleventh W1 grade) OR (twelfth W1 grade) OR (first-grade OR second-grade OR third-grade OR fourth-grade OR fifth-grade OR sixth-grade OR seventh-grade OR eighth-grade OR ninth-grade OR tenth-grade OR eleventh-grade OR twelfth-grade OR K-12)) OR KW (school* OR (school W1 health) OR school-age* OR (elementary W1 school*) OR (primary W1 school*) OR (middle W1 school*) OR middle-school* OR (junior W1 high*) OR (high W1 school*) OR highschool* OR high-school* OR (senior W1 high*) OR senior-high* OR (secondary W1 school*) OR Kindergarten OR (first W1 grade) OR (second W1 grade) OR (third W1 grade) OR (fourth W1 grade) OR (fifth W1 grade) OR (sixth W1 grade) OR (seventh W1 grade) OR (eighth W1 grade) OR (ninth W1 grade) OR (tenth W1 grade) OR (eleventh W1 grade) OR (twelfth W1 grade) OR (first-grade OR second-grade OR third-grade OR fourth-grade OR fifth-grade OR sixth-grade OR seventh-grade OR eighth-grade OR ninth-grade OR tenth-grade OR eleventh-grade OR twelfth-grade OR K-12))

AND

DE “Mental Health” OR DE “Anxiety Disorders” OR DE “Anxiety” OR DE “Resilience (Psychological)” OR DE “Adaptability (Personality)” OR DE “Stress” OR DE “Stress Management” OR DE “Mental Health Services” OR DE “Group Psychotherapy” OR DE “Adolescent Psychiatry” OR DE “Child Psychiatry” OR TI (mental W1 health) OR anxiet* OR anxious OR stress OR neurosis OR neuroses OR neurotic OR resilient* OR affective OR socio-emotional OR socioemotional OR emotion* OR cope OR coping OR adapt* OR mental* OR AB (mental W1 health) OR anxiet* OR anxious OR stress OR neurosis OR neuroses OR neurotic OR resilient* OR affective OR socio-emotional OR socioemotional OR emotion* OR cope OR coping OR adapt*) OR KW (mental W1 health) OR anxiet* OR anxious OR stress OR neurosis OR neuroses OR neurotic OR resilient* OR affective OR socio-emotional OR socioemotional OR emotion* OR cope OR coping OR adapt*)

AND

TI ((Controlled W1 Clinical W1 Trial) OR random* OR placebo OR trial OR (control W1 group) OR (control W1)) AND AB ((Controlled W1 Clinical W1 Trial) OR random* OR placebo OR trial OR (control W1 group) OR (control W1)) OR KW ((Controlled W1 Clinical W1 Trial) OR random* OR placebo OR trial OR (control W1 group) OR (control W1))

Google Scholar
Search 1:
school* AND (random* OR trial OR rct) AND ("mental health" OR anxiet* OR stress OR resilient* OR socioemotional) AND (universal* OR “whole school” OR “Tier 1” OR “Tier One” OR “primary intervention”)

Search 2:
school* AND (random* OR trial OR rct) AND ("mental health" OR anxiet* OR stress OR resilient* OR socioemotional) AND (class* OR curriculum OR curricula OR teacher*)
Appendix B

Universal

School-Based

Randomized Controlled Trial
(“Randomized Controlled Trial” [Publication Type] OR “Controlled Clinical Trial” [Publication Type] OR randomized*[tiab] OR randomly*[tiab] OR placebo*[tiab] OR drug therapy*[tiab] OR trial*[tiab] OR groups*[tiab]) NOT (animals[MeSH] NOT humans[MeSH])

General Anxiety