

2-3-2018

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### Recommended Citation

Tutsch, Sonja F.; Fowler, Patrick; Kumar, Gaurav; Weaver, Adam; McKeivitt, Brian; Britigan, Denise; Minter, Christian I.J.; and Baccaglioni, Lorena, "A systematic review of universal, teacher-led interventions targeting anxiety in U.S. schools" (2018). *Posters and Presentations: College of Public Health*. 10.

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# A systematic review of universal, teacher-led interventions targeting anxiety in U.S. schools

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## Abstract

Implications of anxiety symptomatology experienced among children and adolescents in the US constitute a major public health crisis, calling for promising universal mental health interventions in K-12 schools. Schools represent an ideal setting for the implementation of population based, public health interventions, as children and adolescents spend a significant proportion of time in school. Discussions within the scientific community document several advantages to utilization of universal, Tier1 interventions. However, the efficacy of universal, school-based anxiety interventions in the US are not consistently documented. The purpose of this study is to systematically review the literature to identify the efficacy of universal teacher-led school-based anxiety interventions in the U.S. A comprehensive literature search was conducted employing PubMed, Cochrane Central Register of Controlled Trials (CENTRAL), Embase, Cumulative Index to Nursing and Allied Health Literature (CINAHL), Scopus, PsycINFO, Education Resources Information Center (ERIC), and Google Scholar databases up to December 2016. Each of the articles was independently reviewed for relevance and inclusion criteria, with five studies meeting these criteria. Overall, the quality of the included studies was moderate. All reviewed studies found that universal teacher-led anxiety interventions in school-based programs had a positive impact on the anxiety outcomes of students when compared to control groups. However, several methodological and design concerns were identified across studies. While our findings suggest that universal teacher-led anxiety interventions have the potential to reduce anxiety symptomatology among school-aged children in the U.S., further research is needed.

## Cochrane Quality Assessment

Article No	Sequence Generation	Allocation Concealment	Blinding of participants and personnel	Blinding of outcome assessment	Incomplete outcome data	Selective outcome reporting	Other source of Bias	Overall Rating
Barnes, et al. (2012)	Unclear	Unclear	High Risk	Low Risk	Low Risk	Low Risk	Unclear	Moderate
Bothe, et al. (2014)	Unclear	Unclear	Unclear	Unclear	Low Risk	Low Risk	High Risk	Moderate
Lewis et al. (2013)	Unclear	Unclear	High Risk	Low Risk	Low Risk	Low Risk	High Risk	Moderate
Melnik et al. (2009)a	Low Risk	Low Risk	Low Risk	Unclear	Low Risk	Low Risk	Low Risk	High
Melnik et al. (2013)b	High Risk	Low Risk	Low Risk	Low Risk	High Risk	High Risk	Unclear	Moderate

## Results

Study	Design	Intervention	Population & Setting	Primary Measure(s)	Summary of Findings
Barnes, et al. (2012)	Single-Blinded RCT	Program name: Williams LifeSkills® (WLS) Content: Anger & stress management, coping skills Leaders: teachers Sessions: 12 (50-minutes each)	Place (year): Augusta, GA, US Age/grade: (M=15.7 ± 1.4 years)/9 <sup>th</sup> Sample size: 170 Control group: 91	Source: students Variable: anxiety Measurement: Basic Assessment System for Children; anxiety subscale	Beneficial impact of WLS upon self-reported anxiety levels in the natural environment in nonmetropolitan youth (p=.010).
Bothe, et al. (2014)	Cluster RCT	Program name: Stress Management Content: deep breathing, movement, guided imagery Leaders: teachers Sessions: Daily (10-minutes each) for 4 months	Place (year): Cleveland, OH, US Age/grade: 8/3 <sup>rd</sup> Sample size: 14 Control group: 11	Source: students Variable: anxiety Measurement: Revised Children's Manifest Anxiety Scale (RCMAS)	Significantly lower levels of anxiety in the intervention group at 1-year follow-up (p=0.25).
Lewis et al. (2013)	Cluster RCT	Program name: Positive Action Content: Social emotional skills, health promotion Leaders: teachers Sessions: K-6: 4 days/week, 140 (15-20 minutes each) 7-8: 2 days/week, 70 (20 minutes each)	Place (year): Chicago, IL, US (2004-2010) Age/grade: /K-8 Sample size: 1,170 Control group: not specified	Source: students Variable: anxiety Measurement: Behaviors Assessment System for Children	Positive Action proved efficacious in lowering anxiety among intervention group over six-year period (p<.05, CI -.64, -.10).
Melnik et al. (2009)a	Cluster RCT	Program name: Creating Opportunities for Personal Empowerment (COPE) Healthy Lifestyles TEEN (Thinking, Emotions, Exercise, and Nutrition) Content: Cognitive skills-building program, healthy lifestyle choices as well as mental and physical health outcomes. Leaders: Teachers Sessions: 2 to 3 days/week, 15 sessions (50 minutes) over 9 weeks	Place (year): Southwest, US (2007) Age/grade: 14-16/HS Sample size: 17 Control group: 6	Source: students Variable: anxiety Measurement: Beck Youth Inventory	COPE program was effective in reducing anxiety among student in intervention group (p=.03).
Melnik, et al. (2013)b	Cluster RCT	Program name: Creating Opportunities for Personal Empowerment (COPE) Healthy Lifestyles TEEN (Thinking, Emotions, Exercise, and Nutrition) Content: Cognitive skills-building program, healthy lifestyle choices as well as mental and physical health outcomes. Leaders: teachers Sessions: 15 sessions (50-57 minutes)	Place (year): Southwest, US (2010-2011) Age/grade: 14-16/9 <sup>th</sup> , 10 <sup>th</sup> Sample size: 779 Control group: 421	Source: students Variable: anxiety Measurement: Beck Youth Inventory	This paper reported baseline outcomes only.

## Background & Significance

Anxiety is among the most prevalent of psychiatric disorders affecting youths and adolescents and represents the most common referral to mental healthcare teams.<sup>1</sup> Recent estimates suggest approximately one-third of adolescents may meet DSM-5 criteria for an anxiety disorder, prior to the age of 18, with an average age of onset at 11-years-old.<sup>2</sup> Involving affective, behavioral, physiological, and cognitive components, anxiety disorders can severely impair youth and adolescents' success at school and at home, as well as interfere with their social-emotional development.<sup>3</sup> Adolescent anxiety disorders significantly increase the likelihood of comorbid depression, substance abuse, psychiatric disorders, and low academic achievement.<sup>4</sup> While there exist treatments available for childhood anxiety disorders, adolescents face many barriers to receiving help, including the underidentification of symptoms by adults and limited access to community-based resources.<sup>5</sup> Given the prevalence and scope of concerns associated with anxiety disorders, schools represent the ideal location for the provision of mental health services to students. Within a tiered system of school-based mental health services, interventions at the universal level are designed to promote positive well-being, increase protective factors for at-risk students, instruct in adaptive coping and problem-solving skills, and encourage a positive school climate for all students.<sup>6</sup> While prior research has demonstrated positive effects in examining mental health interventions at the universal level, there remains a relative lack of evidence-based treatments within the U.S., which impedes the growth of these preventative programs at a larger scale.

<sup>1</sup>Higa-McMillan, Francis, & Chorpita, 2014; Miller et al., 2011

<sup>2</sup>Doll & Cummings, 2008; Higa-McMillan et al., 2014

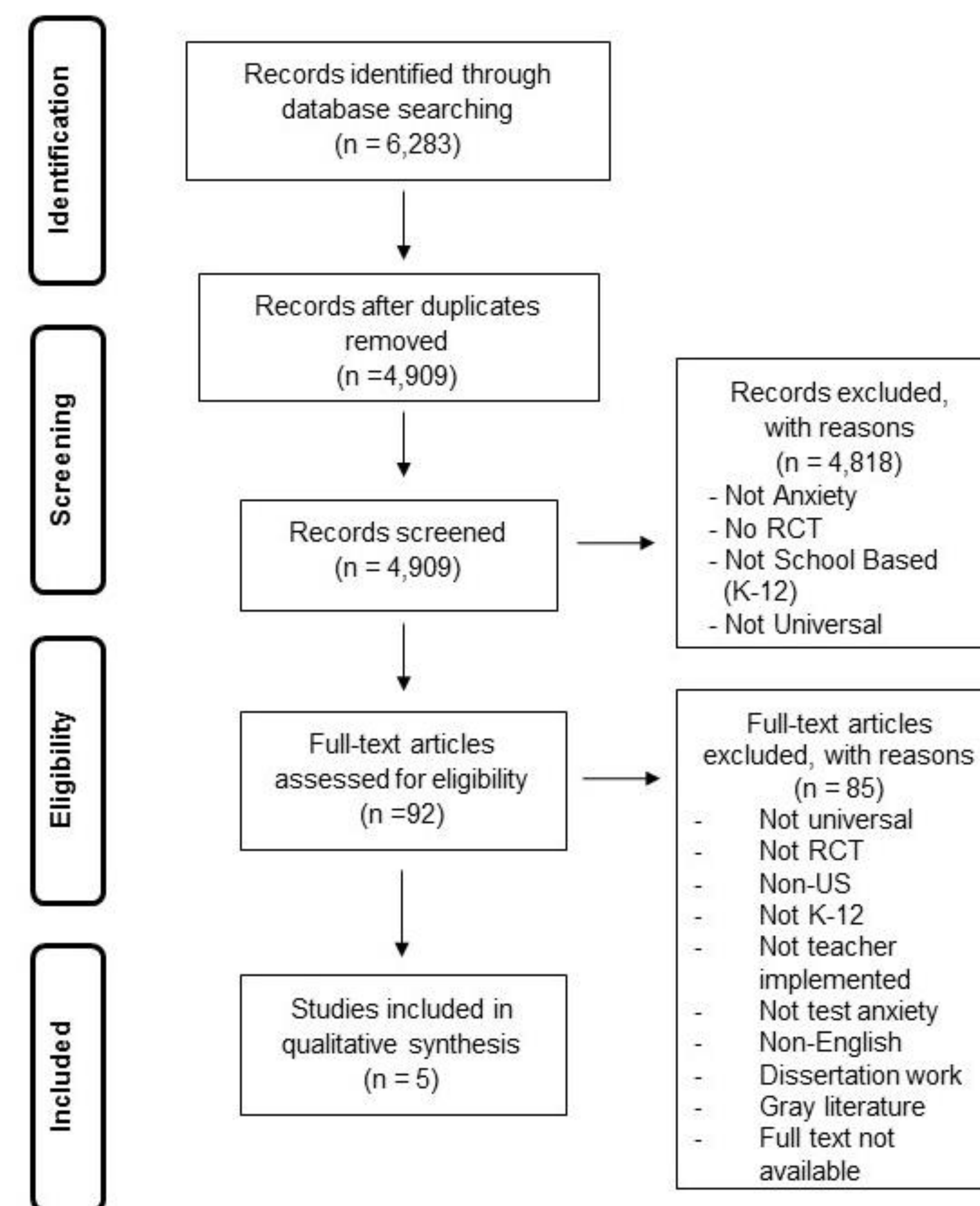
<sup>3</sup>Huberty, 2014; Miller et al., 2011

<sup>4</sup>Stallard et al., 2014

<sup>5</sup>Doll, Cummings, & Chapla, 2014; Stallard et al., 2014

<sup>6</sup>Doll et al., 2014

## PRISMA 2009 Flow Diagram



## Conclusions and Future Directions

Following an extensive review of the literature, we found five randomized controlled trial studies that examined the effectiveness of universal school-based anxiety interventions in the United States.

- Risk and bias of studies included in qualitative synthesis was moderate.
- Our findings support the growing notion that there is a need for universal school-based mental health promotion programs in schools (Dawson, et al., 2004; Weare & Markham, 2005; Barrett, et al., 2006; Domitrovich, et al., 2008; Weare & Nind, 2011), as such programs have previously shown much potential in reducing the mental health burden and advancing public health outcomes in schools outside of the United States (Barrett, et al., 2006; Werner-Seidler, et al., 2017).
- A meta-analysis examining efficacy of studies in addressing anxiety was not possible due to the small number of studies that met our inclusion criteria.
- Our review identified a range of tools employed to measure anxiety among children/youth. Future studies of universal anxiety interventions in schools should align instrumentation to measure intervention effectiveness.
- Study populations were inadequately described in articles that met our inclusion criteria. From a health equity perspective, special consideration should be given to trialing and testing universal school-based anxiety interventions in disadvantaged communities (Iizuka, et al., 2014), where implications of the burden of anxiety on health outcomes are often most prevalent.