ORIGINAL ARTICLE

Trauma-Informed Programs Based in Schools: Linking Concepts to Practices and Assessing the Evidence

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Highlights

- Schools should play an important role in promoting resilience in children who experience trauma.
- Schools remain poorly equipped to address the needs of children with trauma histories.
- More research on classroom-based and school-wide trauma-informed interventions is required.
- Evaluation of school-based programs requires designs suited to complex environments.
- Questions remain as to how to position programs to improve access to services and sustainability.

Abstract When children experience stress and adversity in their homes and communities, schools become a critically important setting in which to intervene and foster their resilience. Changing practices within schools so that vulnerable and traumatized children are better understood and more compassionately served is a goal shared by many school professionals, yet schools remain poorly equipped to address the needs of these children. Any number of school-based programs have the potential to benefit children with an elevated risk for academic difficulties and mental health disorders, although questions remain as to which programs are most promising, effective, and sustainable. Questions also remain about which programs best serve diverse populations and which have potential to reach the largest number of children, including those who do not outwardly manifest behaviors consistent with an underlying disorder but nonetheless require support. In this review, we take stock of existing programs used in schools to address the social, emotional, and academic needs of children with trauma histories. We summarize components of a various trauma-focused programs, categorized as: (a) individual and group-based approaches, (b) classroom-based approaches, and (c) school-wide approaches. For each category, we review and comment on the state and quality of research findings and provide illustrative examples from the literature to show how programs address trauma in the school context. Findings of the review suggest that empirical evidence currently favors individual and group-based approaches, although classroom-based and school-wide programs may be better positioned for integration, access to services, and sustainability. Implications and recommendations center on future research, practice, and policy.

Keywords Trauma-informed · Schools · Adverse Childhood Experience · Resilience · Research and evaluation

Introduction

Children can face a range of adversities and traumatic experiences, some of which are more common for those who live under the constant stress and strain of poverty (Mendelson, Tandon, O'Brennan, Leaf, & Ialongo, 2015). Household risks to children include abuse and neglect, along with other stressors, such as physical and mental illness or substance abuse among parents and siblings (Dong et al., 2004; Felitti et al., 1998; Lang, Campbell, Shanley, Crusto, & Connell, 2016). In the community, crime and violence, availability of drugs and alcohol, bullying and gang involvement, and weak social connections among neighborhood residents add to the burden and hardship faced by some children, particularly those in poor urban and rural environments (Aisenberg & Herrenkohl, 2008;

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Shamblin, Graham, & Bianco, 2016). Within immigrant and refugee communities residing in the United States, experiences of separation and discrimination cause additional harm to children already impacted by displacement (Delva et al., 2013).

While research shows that many forms of adversity can impair children's cognitive, social, emotional, and physical development (Lang et al., 2016), the extent of their impairment depends on whether they have access to mental health services and whether they are kept safe from compounding traumatic events (Shamblin et al., 2016). Protective factors, including informal emotional and instrumental supports, also play an important role in children's recovery and the prevention of risks yet to be encountered (McLoyd, 1998; NCTSN Core Curriculum on Childhood Trauma Task Force 2012; Reblin & Uchino, 2008).

While many forms of adversity and traumatic experiences can cause harm and require intervention, our focus in this review is on ways that schools can mitigate the effects of Adverse Childhood Experiences (ACEs) and community stressors, such as violence (Hertel & Kincaid, 2016; Overstreet & Chafouleas, 2016; Wolpow, Johnson, Hertel, & Kincaid, 2009). ACEs include child abuse and neglect, as well as other problems in the household including mental illness and alcoholism (see Anda et al., 1999; Dong et al., 2004; Felitti et al., 1998). We focus on school-based programs (hereafter called "trauma-informed programs") because of the high prevalence of ACEs in the general population and mounting evidence of the harm they cause to children over their life-course (Blodgett & Lanigan, 2018; Middlebrooks & Audage, 2008), as well as to the functioning of families over successive generations (Herrenkohl, Klika, Brown, Herrenkohl, & Leeb, 2013). While trauma from other causes, including war and acts of terror, is equally if not more damaging at a group or population level, few programs in schools within the United States specifically target these events because they occur infrequently.

Research on resilience and protective factors is relevant to trauma-informed programs, in that both relate to processes of recovery and healing (Luthar, Cicchetti, & Becker, 2000; Masten, 1994). Resilience in the context of school-based programs refers to both formal and informal supports to help vulnerable and traumatized children regain their ability to succeed academically, and to learn skills of positive coping (Brooks, 2006; Chafouleas, Johnson, Overstreet, & Santos, 2016; Mulloy, 2014). To the extent that protective factors interact with risk factors to improve child functioning and promote resilience (Leadbeater, Schellenbach, Maton, & Dodgen, 2004; Rutter, 2001), goals for school-based trauma-informed programs are thus to minimize children's ongoing exposure to

adversity and unnecessary trauma triggers, while also strengthening supports and coping through individualized or more generalized approaches (Brooks, 2006; Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011). Educating staff, students, and parents about the prevalence and impacts of trauma, and providing referrals to services in the school or community are other ways that schools can become trauma-informed.

Where and for how long children encounter adversity influences their overall level of functioning and resilience (Blodgett & Lanigan, 2018). Protective factors associated with families, such as positive parenting and support from siblings, can help to mitigate risks and promote resilience in children who encounter adversity outside the home, such as witnessing violence in the community or being bullied or harassed by peers (Aisenberg & Herrenkohl, 2008). However, when adversity is experienced within the home, as when a child is physically, emotionally, or sexually abused by a family member, or when a parent is impaired and unresponsive to a child because of mental illness or addiction, protective factors in the school setting become increasingly more important, and even vital for some (Chafouleas et al., 2016). Thus, it is essential to understand how schools can approach the task of identifying and responding to trauma in children to promote their resilience and to lessen or mitigate risks, while also ensuring that services are accessible and non-stigmatizing (Chafouleas et al., 2016).

School-Based Programs to Support Resilience and Well-Being of Children

For many years, prevention scientists have focused on schools as settings in which to intervene with children at higher risk for social, behavioral, and academic challenges (Brooks, 2006; Hawkins & Herrenkohl, 2003; Mulloy, 2014). Because children who experience trauma have difficulty adjusting to the routines and demands of formal schooling, they are thought to require both academic supports and targeted psychological and behavioral interventions (Chafouleas et al., 2016). Interventions are also sometimes needed to assist students who are less symptomatic but have trouble regulating their emotions, negotiating conflicts with their peers, and developing positive relationships (Durlak et al., 2011). Some children act out in ways that can lead to harsh and sometimes punitive responses on the part of school professionals, compounding their trauma and adding to their feelings of anger, sadness, and mistrust of adults (Day et al., 2015). These responses range from verbal reprimands to suspensions or even expulsions, which are known to impact students of color disproportionately (Hemphill et al., 2013; Skiba

et al., 2011). For children of any age, but particularly adolescents, negative experiences with adults can also add to feelings of disconnection, which are increasingly common among high school-aged students (Monahan, Oesterle, & Hawkins, 2010). Therefore, alternatives to punitive discipline strategies have been recommended (Hemphill et al., 2013).

Unfortunately, the behaviors of children who experience extreme and chronic forms of adversity that result in traumatic stress are often misunderstood as acts of defiance when they are more likely expressions of emotional pain and suffering, broken relationships, and lack of skill in certain areas, such as emotion regulation (Hertel & Kincaid, 2016). Changing practices within schools so that vulnerable and traumatized children are better understood and more compassionately served is a goal shared by many school and mental health professionals (Chafouleas et al., 2016; Hertel & Kincaid, 2016; Wolpow et al., 2009). However, most schools remain poorly equipped to address the needs of these children (Chafouleas et al., 2016). Increasing awareness of the ways that schools can become trauma-informed is an important and necessary step toward assisting and supporting vulnerable children. It is also necessary to identify programs and practices that appear well aligned with the key principles of trauma-informed systems (SAMHSA, 2014) and theories of resilience and empowerment (Brooks, 2006; Luthar, 2006; Masten, 1994, 2001).

School-Based Trauma-Informed Programs

Programs oriented to the needs of vulnerable children with trauma histories are usually considered Tier 2 and Tier 3 strategies within the Response to Intervention (RTI) framework, a multi-tiered approach based on the public health model (Chafouleas et al., 2016) that was introduced in the 1990s as a way to emphasize a continuum of services designed to enhance supports for students at high risk for school failure (Bruns et al., 2016; Chafouleas et al., 2016). School-Wide Positive Interventions and Supports is a one such multi-tiered framework that emphasizes the use of evidence-based programs and interventions of varying levels of intensity for at-risk students.

Tier 2 and Tier 3 strategies of the RTI model center on remediating problems and improving outcomes for children already manifesting signs and symptoms of mental and behavioral health disorders, whereas Tier 1 programs are intended for all students regardless of their levels of risk. These programs focus on enhancing school climate and promoting skill development for the entire student population. Tier 2 and 3 strategies include mental health treatment, behavior modification, and social skills training to reduce conduct problems, increase prosocial peer interactions, and promote academic achievement among students requiring intensive support and intervention at the individual, group, and classroom levels (Chafouleas et al., 2016). While these tiered strategies are often described and discussed as stand-alone programs, they can also be implemented together, as examples discussed later in this article will show.

Any number of school-based interventions can benefit children in need of academic and behavioral supports, although questions remain about which programs are most effective, scalable, and sustainable with limited resources (Durlak et al., 2011; Greenberg et al., 2003). Questions also remain about which school-based programs best serve diverse populations, attend to issues of access, and have the potential to reach the largest number of children, including those who have yet to manifest symptoms of an underlying disorder (Herrenkohl, 2019). These questions were of primary interest as we searched the literature and considered the merits and potential contributions of each program model.

Objectives

With this literature review, we sought to take stock of existing school-based programs used in schools in the United States to address the social, emotional, and academic needs of children with trauma histories. We included models used in schools outside the United States (e.g., United Kingdom, Canada) if they appeared to add relevant information and fit the selection criteria we used in this review. However, we did not include school programs in countries with very different cultural, social, and political environments because it was assumed these programs would be less directly comparable. We summarize components of a number of school-based models and synthesize the literature to identify common elements and characteristics. We also consider the strength of research findings relevant to the impacts of each program model, although we do not differentially weight evaluation results in our assessment of program contributions because we wanted to emphasize the possibilities that exist in the theories and concepts underlying each approach. We do speak in general terms, however, about the rigor of evaluation methods and implications for future research.

Method

To compile articles for this review, we searched databases available from the University of Michigan Library system, ERIC, PsycINFO, PubMed, and Google Scholar databases. Search terms include *trauma informed* *school based model* OR *school based intervention*, *title:

trauma AND title: school AND all_fields: intervention* and *title: trauma AND title: school* AND *all fields: intervention OR all fields: program*. We also examined the reference lists of relevant articles to identify sources not captured in our database searches. Two graduate-level research assistants conducted the same search of databases independently, and their results were compared before proceeding to our first level of abstract review.

After selecting relevant articles, the research team created a detailed spreadsheet that listed the titles, authors, and program focus for each article abstract. If deemed relevant to the review, the team conducted a full-text review of the article to extract more information about the program components, evaluation methods, and results.

Because we were particularly interested in looking at models relevant to the social ecology of schools, we grouped programs accordingly at the individual, classroom, and school levels. While these are useful organizing categories, they are not necessarily mutually exclusive. Thus, some programs, although primarily fitting within one category, may also have components that overlap with other categories.

Inclusion and Exclusion Criteria

Articles were included if programs were: (i) classified as trauma-informed school-based interventions and (ii) included research findings relevant to program efficacy. Findings were from both quantitative and qualitative studies. The search excluded trauma-informed interventions that were not based in schools, such as those conducted in community agencies or mental health clinics. Additionally, interventions in schools that were strictly limited to trauma screenings were not included because they did not include an intervention.

Individual and Group-Based Interventions

Programs within this category screened, identified, and enrolled students in programs at the individual and group levels. Programs were typically administered by mental health clinicians or school professionals with training in cognitive behavioral therapy and trauma care more broadly. Most programs were implemented outside of the standard academic curriculum.

Classroom-Based Interventions

Classroom-based interventions include programs that were delivered in classroom settings, often by teachers with specialized training. Programs in this category focus on increasing awareness of the prevalence and impacts of trauma, enhancing social interactions skills, and building trust and compassion among students.

School-Wide Interventions

Most full-school models are multicomponent, multi-tiered interventions that include psychoeducation, teacher training, and targeted services for students with trauma histories. These programs are designed to span the entire school system and to provide outreach and education to parents and providers in the local community. Some programs in this category include separate classrooms that provide students alternative spaces to receive counseling and support to aid in problem solving and emotion regulation.

Results

Initial database searches produced 139 relevant articles. A first-level review of abstracts reduced this number to 72 (67 articles were determined unsuited or outside the scope of the review). Of these 72 articles, an additional 42 articles were eliminated after full-text reviews of program and evaluation content. Those eliminated from this second level review were mainly conceptual and lacked intervention findings.

Table 1 provides details of the 30 articles selected for final review. Following the table, we provide short narrative descriptions of programs within each intervention category in order to give readers a general idea of their primary components and findings. Programs described in the narrative summary were not necessarily considered more promising or noteworthy than others in Table 1 and are solely used to illustrate models for each category. More information about each program can be found in the original sources cited in the table.

For each program, we provide information on relevant program components, evaluation elements, and results relevant to student outcomes (e.g., behavior, academic achievement). Evaluations include descriptive case studies, pre-experimental or quasi-experimental group-based designs, and a small number of randomized trials. In the discussion section at the end of the article, we address the quality and rigor of these methods in general terms.

Individual and Group-Based Interventions

As shown in Table 1, the majority of programs are individual and group-based interventions ($n = 14$) designed to lessen the symptoms of trauma by attending to the emotional, psychological, and behavioral challenges of students. Programs within this category are primarily based on the concepts of cognitive behavioral therapy and rely on trained mental health clinicians to work with students one-on-one or in small groups. Students who participate in these sessions usually show signs of Post-Traumatic Stress Disorder (PTSD) and attention problems.

Table 1 School-based trauma-informed programs

Lead author (Year)	Program components	Evaluation design	Results
Individual and group-based			
Hansel (2010)	Individual therapy delivered by clinicians trained in TF-CBT over a period of 1–38 months	115 students; pre–post evaluation, single group design	Reduction in PTSD symptoms (e.g., avoidance/numbing and arousal)
Ehntholt (2005)	6 group sessions of manualized CBT; topics included psychoeducation, coping techniques, imagery techniques using EMDR method, dreams and sleep hygiene, relaxation techniques, activity scheduling	26 refugee students in UK; pre–post evaluation, with comparison group (wait-list control)	Reductions in PTSD and anxiety symptoms and improvement in behavior for intervention students compared to controls; no documented intervention effects at 2-month follow-up
Kataoka (2003)	8 weekly group sessions of manual CBT (adopted version of CBITS) in Spanish delivered by bilingual and bicultural school social workers	198 students exposed to trauma; pre–post evaluation, with comparison group (wait-list control, randomized); 3-month follow-up	Reductions in PTSD and depression symptoms for intervention students compared to controls at 3-month follow-up
Gudiño (2016)	STAIR-A: 16 weekly group sessions of skills training in emotion regulation, interpersonal connectedness, and social support (weeks 1–8); developing coping strategies, and practicing skills by applying them to trauma narratives (weeks 9–16); delivered by a therapist	46 racial/ethnic minority female students with trauma exposures; pre–post evaluation, single group design	Increased resilience (e.g., stress management and relationship improvement); reductions in depression and anxiety symptoms; no change in PTSD symptoms at the program's completion
Mendelson (2015)	RAP Club: 12 twice weekly group sessions including CBT, mindfulness and other psychotherapy techniques; psychoeducation for students; delivered by mental health counselors and young adult community members	49 predominantly African-American students; pre–post evaluation, with comparison group	Increased teacher reports of students' emotional regulation, social, academic competence, classroom behavior, and discipline; no change in student-reported symptoms of depression
Jaycox (2009)	Support for Students Exposed to Trauma (SSET): 10 group-based therapy sessions based on elements the CBITS model and provided by teachers and school counselors trained in the model; no parent psychoeducation or individual session components	76 students exposed to violence; pre–post evaluation, with comparison group (wait-list control, randomized)	Reductions in PTSD and depression symptoms for intervention students compared to controls
Hoover (2018)	CBITS: 10 weekly group sessions and 1–3 individual student sessions for students; psychoeducation for parents and teachers delivered by school-based clinicians including school social workers	316 children with trauma exposures; pre–post evaluation, single group design	Reductions in PTSD symptoms and problem severity; increase in child functioning (e.g., managing everyday activities) at the program's completion
Allison (2017)	CBITS: 10 weekly group sessions for students; 1–3 individual student sessions focused on trauma narratives delivered by a Spanish speaking school social worker	23 students with trauma symptoms, stratified by grade (grades 5–7); pre–post evaluation, single group design	Reductions in trauma and depression symptoms at completion; no gender or grade differences in intervention effects
Kataoka (2011)	CBITS: 10 weekly group sessions for students; 1–3 individual student sessions	126 sixth-grade students exposed to community violence; pre–post evaluation, with comparison group (wait-list control, randomized)	Improvement in math grades and increased passing grades in language arts for intervention students
Chemtob (2002)	4 weekly individual or group sessions focused on safety, coping, and overcoming trauma; group sessions included cooperative play and discussion delivered by school-based counselors	248 students with trauma; pre–post evaluation, with comparison group (wait-list control, randomized)	Reduction in PTSD symptoms at the program's completion and at one-year follow-up

Table 1 Continued

Lead author (Year)	Program components	Evaluation design	Results
Goodkind (2010)	Teen Health Resilience Intervention for Violence Exposure (THRIVE): Cultural adaptation of CBITS; 10 weekly group sessions for students; 1–3 individual student sessions focused on trauma narratives; psychoeducation for parents and teachers; delivered by research team affiliated clinical staff and a co-facilitator	24 American Indian students exposed to violence; pre–post evaluation, single group design	Reductions in anxiety, PTSD, depression, and avoidant coping at completion; reductions in depression and anxiety symptoms at 6-month follow-up
Langley (2015)	Bounce Back: 10-week group sessions, 2–3 individual sessions, and 1–3 parent education sessions; integrated TF-CBT and CBITS; delivered by school-based clinicians	74 elementary school children exposed to trauma and their caregivers; pre–post evaluation, with comparison group	Reductions in PTSD and anxiety symptoms at the program's completion and 3-month follow-up for intervention students compared to controls; reduction in student PTSD symptoms at post-test as reported by parents (Langley et al., 2015)
Santiago (2018)	Bounce Back: 10-week group sessions, 2 individual sessions, and 1–3 parent education sessions; integrated TF-CBT and CBITS; delivered by school-based clinicians; It is a first replication trial of Bounce Back conducted by Santiago (2011)	52 predominantly Latino elementary school children with trauma stratified by grade; pre–post evaluation, with comparison group (wait-list control, randomized)	Reduction in PTSD symptoms; improvement in coping skills (e.g., problem solving, emotional expression and regulation) for intervention students compared to controls (Santiago et al., 2018)
Morsette (2009)	Cultural adaptation of CBITS; 10 weekly group sessions for students; psychoeducation for parents and teachers; delivered by school-based mental health counselors	4 Native Americans students (ages 11–12) exposed to violence; pre–post evaluation, single group design	Reductions in PTSD and depression symptoms for 3 of 4 students
Classroom-based			
Brown (2006)	School-Based Trauma Intervention Program: 10 sessions in classroom, skill-based classroom intervention composed of psychoeducation (group sessions 1–2), coping skills (group sessions 3–8), and safety planning (group sessions 9–10); 6 individual sessions offered to students with enduring PTSD symptoms delivered by clinical social workers focused on coping skills learned in the group component (individual session 1), engaging in imaginal (re-experiencing) exposure (individual sessions 2–5), and individualized safety planning (individual session 6)	63 inner city students (grades 3–7) exposed to World Center attacks on September 11th, 2001; pre–post evaluation, single group design	Reductions in PTSD symptoms, depression, and anger after group and individual sessions
Ijadi-Maghsoodi (2017)	The Resilience Classroom Curriculum: 9 modules including skill building on emotion regulation, communication, problem solving, goal settings, and managing stress reminders; weekly/monthly sessions delivered by school social workers during class time; voluntary teacher trainings	100 urban, ethnically diverse 14–18 year-old students exposed to violence; pre–post evaluation, with comparison group; qualitative (focus group) post evaluation	Improvement in overall resilience scores and subscales of problem solving and empathy among intervention students

Table 1 Continued

Lead author (Year)	Program components	Evaluation design	Results
McConnico (2016)	The Supportive Trauma Interventions for Educators (STRIVE) Project: Teacher training on STRIVE curriculum; a classroom-level intervention that aims to help the school system increase its capacity to provide quality support for young children who have experienced trauma; delivered by school teachers	12 teachers and 250 students in STRIVE classrooms; pre–post evaluation, with comparison group	Increased teacher awareness of the impact of trauma on children; no change in teacher awareness of available resources; increased educational support and classroom organization skills
Moore (2017)	Teacher-facilitated exercises on trauma-informed literature with middle school students	25 students in one classroom in Vancouver; qualitative (one case study) post evaluation	Increased teacher-reported empathy and compassion for abuse victims; increased teacher-reported willingness to intervene on behalf of victims
School-wide			
Baroni (2016), Crosby (2018), Day (2015)	Modified Heart of Teaching and Learning Curriculum (with alternative classroom): Trauma-informed curriculum presented in two half-day staff trainings with monthly booster trainings providing psychoeducation and resources; classroom observations and individual coaching for teachers by a certified therapist; alternative classroom intervention with brief de-escalation support including problem solving, talk therapy, and sensory-motor activities (Monarch room)	70 + court-involved female students in a residential treatment facility; pre–post evaluation, single group design	Increase in the use of alternative classroom time; positive reports of the experience by students; reduction in use of suspensions following implementation; reduction in PTSD symptoms at post-intervention assessment
Shamblin (2016)	Linking Action to Unmet Needs (LAUNCH): Tiered systems of support; teacher training on trauma-informed social-emotional development and curriculum; individual consultations for targeted strategies and student behavior plans; therapy with individuals, group and families to address mental health challenges	217 students living in disadvantaged social contexts and 11 teachers; pre–post evaluation of teacher's outcomes, single group design	Increase in teachers' confidence and reduction in hopelessness regarding students' futures; more positive orientation to working with students at the program's completion
Beehler (2012)	Cultural Adjustment and Trauma Services (CATS): Clinical and outreach services for immigrant students and families including therapeutic techniques, psychoeducation, family therapy and parent training; incorporating TF-CBT and CBT modalities; delivered by program staff members who are licensed clinicians	1043 immigrant students exposed to trauma receiving services (clinical services = 149; outreach services = 894); pre–post evaluation, single group design	Reduction in PTSD symptoms and improved functioning
Dorado (2016)	Healthy Environments and Response to Trauma in Schools (HEARTS): Tiered systems of support; professional development; psychoeducation; individual skill building for high-risk students; care coordination The school	1243 students from four schools (kindergarten to grade 8); pre–post evaluation on number of disciplinary office referrals and suspensions for 1 school, single group design; pre–post evaluation on treatment outcomes among 46 tier-three students, single group design; pre–post evaluation on implementation effectiveness for 175 school staff, single group design	Increased understanding of trauma and trauma-informed practice among school staff; increased school-related functioning among all students; reduction in trauma-related symptoms for tier-3 students

Table 1 Continued

Lead author (Year)	Program components	Evaluation design	Results
Frydman (2017)	ALIVE: Tiered systems of support; psychoeducation for all students; individual stress reduction sessions delivered by school social workers	Students in one middle school (number of enrollment not listed); qualitative (two case studies) post evaluation	Anecdotal reports from case studies show a positive impact of implementing a public health trauma intervention model
Holmes (2015)	Head Start Trauma Smart (HSTS): Tiered systems of support; caregiver and teacher trainings; intensive individual trauma-focused, attachment, self-regulation, and competency (ARC) model intervention; classroom consultations; mentoring for parents and teachers delivered by master's level clinicians	81 children referred for assessment received intensive therapy; pre–post evaluation, single group design	Reductions in externalizing behavior and oppositional defiance; increased school readiness and academic performance among students who received intensive therapy; improved emotional and instructional support and organization in classrooms
Parris (2015)	Trust-Based Relational Intervention: Teacher training module on evidence-based principles (e.g., empowering, connecting, and correcting) to strengthen teachers' capacities to create an environment of structure and nurture in school for students with trauma	School staff and administrators in a charter school at a residential facility for adolescents; qualitative (interview) post evaluation on their experiences and views regarding the efficacy of the intervention	Teacher-reported reduction in referrals for fighting and aggressive behaviors
Perry (2016)	Tiered systems of support; professional development for teachers focused on increasing capacity in responding to students in a trauma-informed approach; instruction focused on teaching students coping mechanisms and stress management; CBITS for identified students with PTSD	32 school staff and community members and 71 students with high signs of distress; pre–post evaluation, single group design	High satisfaction with professional development sessions reported by school staff and community members; reduction in PTSD symptoms after the intervention for CBITS participants; symptoms of re-experiencing, avoidance, and increased arousal remained
von der Embse (2019)	Tiered systems of support; use of Positive Behavioral Interventions and Supports (PBIS) framework to improve classroom management; screening for social, academic and emotional risks; relaxation training and cognitive behavioral therapy for tier-two students	570 elementary school students from one school in a low-income and racially diverse school district; pre–post evaluation, single group design	Reduction in risks for social, academic, and emotional disorders; reduction in discipline referrals at the program's completion
Waghorn (2012)	STAGES (Support, Trauma and Grief - Enabling Schools): Tiered systems of support; training for school staff through Child Bereavement UK e-modules; psychoeducation for all students in class and for all parents through materials sent home; bereavement support for identified students; targeted support for caregivers	40 students with symptoms of trauma in UK; qualitative (anecdotal) pre–post evaluation, single group design	Anecdotal evidence of reduced frequency of student suspensions and increased student attendance

One example is an application of Trauma-Focused Cognitive Behavioral Therapy (TF-CBT) described by Hansel et al. (2010). The program was part of a larger effort to respond to the mental health needs of students from low-income rural areas of Louisiana and was intended to mitigate risks associated with PTSD and other trauma-related symptoms (e.g., depression, anxiety, behavioral problems) in students in the first through 12th grades. Students received weekly individual therapy sessions during the school day and throughout the summer months outside of the primary classroom. The intervention ranged from a 1 month to 38 months for some children.

Standardized assessments of student outcomes (self-reported trauma symptoms) were completed before the intervention began (baseline) and upon its completion (or at the point a student exited the intervention for other reasons, such as transferring schools). One hundred and fifteen students, 14 years of age on average, completed both the baseline and post-intervention assessments. Results showed reduction in students' self-reports of PTSD,

intrusion, avoidance/numbing, and arousal, as well as scores for depression and anxiety. Tests of moderation for age, gender, length of treatment, and degree of trauma exposure (total traumas) to assess for baseline to post-intervention differences were not significant.

In another example, Mendelson et al. (2015) implemented and evaluated the RAP Club intervention, a 12-session group therapy model for middle school students. The program included cognitive behavioral therapy and mindfulness strategies. These strategies were designed to help students become aware of the impacts of stress on emotions; develop a mindful approach to school and relationships; and strengthen skills in communication, problem solving, and distress tolerance. Groups were co-facilitated by a mental health professionals and "young adult community members from a local employment training program" (p. 144) who were trained on the intervention model and supervised by a content expert. The majority of those who participated in the program were African–American.

An evaluation of the RAP Club program included 29 intervention and 20 control 7th and 8th grade students who were randomly assigned to intervention and comparison conditions. Results showed improvements in teachers' reports of students' emotion regulation and social and academic performance those in the intervention condition. However, groups did not differ on student self-reports of psychosocial functioning, according to responses on the Mood and Feelings Questionnaire, Adolescent Self-Regulatory Inventory, and Children's Coping Strategies Checklist. Teachers' ratings showed a connection between program "dosage" (low vs. high session attendance) and academic and behavioral student outcomes, such that higher dosage resulted in generally better outcomes.

Certain models, like Cognitive Behavioral Intervention for Trauma in Schools (CBITS), a school-based manualized program for students in the 5th–12th grades at risk of community violence exposure, added psychoeducation for parents and teachers to group and individual therapy. Psychoeducation, a key trauma-informed practice (SAMHSA, 2014), broadens the focus from individual students to others in the school community, thereby adding an important dimension to an approach otherwise focused on individual deficits in cognitive processing, emotions, and behavior.

One application of the CBITS model was summarized in an article by Hoover et al. (2018), who studied a statewide effort in Connecticut to build capacity within schools for trauma-informed care. The program grew out of a partnership between the Connecticut Department of Children and Families and Child Health and Development Institute (CHDI), which served as an intermediary organization linking the state office to schools statewide. CHDI and CBITS trainers worked with school professionals in two learning communities over a 9-month period to develop basic and more advanced skills in content related to the model, such as group management techniques, self-care, and traumatic grief. Clinicians, in turn, delivered services in the schools and documented their adherence to the program model using a self-report fidelity measure. They also administered standardized pre–post assessments.

Three hundred and fifty students were enrolled in this statewide initiative. Of these, somewhat smaller numbers completed both "intake" and "discharge" measures, allowing for the assessment of child functioning, according to self-reports of PTSD symptoms and internalizing and externalizing behaviors. There was no comparison group in the analysis. Results showed significant reductions in PTSD symptoms and problem severity for enrolled students. Small improvements in students' social functioning were also documented using the Ohio Scales, a standardized instrument.

Kataoka et al. (2003) evaluated the effects of a manualized, 8-week, group-based CBT intervention for Latino immigrant students in 3rd through 8th grade with depression and PTSD-related symptoms stemming from violence exposure. The program was described as having a similar format to CBITS and was delivered in Spanish by bilingual and bicultural school social workers. Sessions consisted of didactic presentations and use of cartoons and games to introduce a series of techniques emphasizing relaxation, cognitive therapy, exposure, and social problem solving, which were adapted to the needs of participating students.

Students were randomly assigned to intervention ($n = 152$) and wait-list control ($n = 47$) conditions and assessed before the intervention (baseline) and after 3 months. Results of both bivariate and multivariate analyses showed mean-level differences favoring the intervention group in depression and PTSD symptoms, as measured by standardized instruments (e.g., Children's Depression Inventory, CDI; Child PTSD Symptom, CPSS); that is, intervention students had fewer depression and PTSD symptoms following the intervention with and without controls for baseline CDI and CPSS symptoms scores, child and parent demographics, and levels and types (weapon-related and non weapon-related) of violence exposure.

Kataoka et al. (2011) conducted another evaluation of a similar CBITS intervention delivered to 6th grade students in two middle schools located in East Los Angeles. Students, primarily from low-income, Mexican-American families, were screened for trauma symptoms and then randomly assigned to an early intervention ($n = 59$) or delayed/control intervention ($n = 64$) condition. Those in the intervention condition received group and individual

therapy consistent with the CBITS model over a 10-week period. Compared to controls, students who received the intervention had better math and language arts grades, after accounting for their prior test scores and other covariates.

There have been various cultural adaptations of the CBITS (Allison & Ferreira, 2017; Goodkind, LaNoue, & Milford, 2010; Morsette et al., 2009), which tailor program content to specific groups of students by incorporating relevant language and content (e.g., images, descriptions, referenced customs), and engaging parents and members of the community to build trust and understanding of the program model. CBITS has also been modified for different age groups to align content to students' age and developmental status (Langley, Gonzalez, Sugar, Solis, & Jaycox, 2015).

Goodkind et al. (2010) piloted an adaptation of CBITS for American Indian (AI) students. Students from AI communities were screened for trauma histories and then recruited to the study. A total of 24 students were enrolled in the THRIVE (Teen Health Resiliency Intervention for Violence Exposure) program, of which CBITS was the primary component. At each school, two facilitators implemented the intervention, following the CBITS manual. The intervention consisted of weekly group meetings with 5–10 students, and one or two individual meetings with each student. These sessions included information about the impacts of stress and trauma, as well as strategies to modify negative thoughts and support positive imagery to lessen stress. Participants were tracked at the completion of the 10-week program and at 3 and 6 months post-intervention following a baseline assessment to determine effects of the intervention. Results of a single group analysis showed that intervention students experienced fewer symptoms of depression and PTSD at the program's completion. Positive changes in anxiety and depression were scores were observed 6 months later.

Classroom-Based Interventions

At the classroom level (e.g., Brown, McQuaid, Farina, Ali, & Winnick-Gelles, 2006; Ijadi-Maghsoodi et al., 2017; McConnico, Boynton-Jarrett, Bailey, & Nandi, 2016), programs focus on creating safe and supportive learning environments by increasing awareness of the prevalence and effects of trauma, and by working on students' skills to help them manage stress, regulate emotions, and lessen conflict with their peers. Certain models also help students deepen their understanding of trauma and develop empathy for trauma survivors by providing case examples and illustrating the various manifestations of traumatic stress and the ways one can assist to lesson stress reactions (SAMHSA, 2014).

In one study, Ijadi-Maghsoodi et al. (2017) adapted a curriculum originally developed for youth from military families facing the stress of a parent's deployment called "The Resilience Classroom Curriculum." The intervention was delivered to 100 9th grade students in two schools in an urban school district that served mostly low-income Latino and African-American families, many of whom were known to have a high level of violence exposure. The program was administered by school social workers and consisted of nine content modules, each about 55 minutes in length and delivered to students in groups during the school day (during advisory period or health class). Modules were designed to teach "internal resilience" skills of emotion regulation, communication, problem solving, goal setting, and stress management. Written narratives about stressful and challenging situations were used to prompt conversation between students and to provide them opportunities to practice skills and receive additional information relevant to each skill area. Teachers were encouraged to participate in the sessions to gain insights into students' experiences and to learn about the curriculum so that they could incorporate skill-related content into other areas of the academic curriculum.

Evaluation of the program used a pre–post design and included surveys and focus groups with students and social workers who delivered the intervention. Survey data showed positive changes from baseline to post-intervention scores in students' empathy and problem solving, but not self-awareness or self-efficacy. In focus groups, social workers and students alike described stronger connections among students and teachers and more support for students. Social workers also found the program helpful in lessening the stigma associated with mental health problems, and both groups expressed overall satisfaction with the curriculum.

In another study, Moore and Begoray (2017) implemented a small-scale, critical literacy program designed to increase students' understanding of trauma and empathy for trauma survivors by exploring trauma literature. The researchers used a qualitative case study approach to explore how 25 10th grade students in two classrooms reacted to a story about a sexual abuse survivor. It was unclear from the report whether participating students were themselves trauma victims. The program was implemented over a 5-week period and included a number of related activities (e.g., blog posts, diary entries, and poems), which had students express opinions and communicate with each other about their feelings and reactions to various aspects of the story. The teacher encouraged students to think of the ways they could support and take action on behalf of abuse survivors. Although the program was not formally evaluated, anecdotal evidence suggests the students were more aware of the impacts of trauma

and increasingly motivated to support others who experience trauma.

School-Wide Interventions

Programs at the school level ($n = 12$) extend beyond the classroom to other aspects of the school environment. Often, these programs are structured around two or more tiers of the RTI or related (e.g., PBIS) framework and include universal and more targeted (selective and indicated) interventions to address trauma symptoms in a segment of the student population. Interventions include trauma screenings and cognitive behavioral interventions based on TF-CBT, CBITS, as well as other components designed to teach and enhance skills among all students. Certain programs also involve community outreach and partnerships that bring additional services to students and their families who need them (e.g., Beehler, Birman, & Campbell, 2011; Shamblin et al., 2016).

One example of a school-wide approach is described in articles by Baroni, Day, Somers, Crosby, and Pennefather (2016), Day et al. (2015), and Crosby, Day, Somers, and Baroni (2018). Their work was based in an alternative school for court-involved adolescent girls with trauma histories. The program included staff trainings on a trauma-informed curriculum, as well as psychoeducation and individual coaching for teachers by a certified therapist. The program also incorporated an alternative classroom intervention with brief de-escalation support, including problem solving, coaching, and sensory-motor activities. Evaluations of the various program components, details of which are provided in Table 1, showed an increase in the use of the alternative classroom, positive reports of the experience by students, reductions in PTSD symptoms, and decreased use of suspensions to control poor behavior.

In another study, Shamblin et al. (2016) investigated a system-focused, early childhood intervention based in rural Appalachian counties of Ohio. The program looked at ways to strengthen the preparation of teachers as frontline workers who could engage in the practice of promoting children's social-emotional development and assist in addressing their mental health needs. The program combined the Early Childhood Mental Health Consultation model (Cohen & Kaufman, 2000), with Project LAUNCH, a SAMHSA-funded effort that targets children birth to age 8 and includes screening, family engagement, and school outreach. The combined approach embedded content experts in schools to support teachers in their trauma-informed work and provided onsite mental health expertise. Clinicians based in schools were trained in TF-CBT and Parent-Child Interaction Therapy, both evidence-based models. Professional development trainings were also included in support of these interventions.

An evaluation was conducted over a 1-year period (2011–2012) and included children, teachers, and staff of 11 preschool classrooms across five schools. Assessments focused on teacher confidence and competence; quality of the learning environment; and social, emotional, and behavioral functioning of the students. Results after 1 year showed improvements in teacher confidence in teaching students skills to cope with adversity. Teacher ratings on the Devereux Early Childhood Assessment also revealed some improvement in students' resiliency.

Another example of a school-wide approach is the Cultural Adjustment and Trauma Services (CATS) program described by Beehler, Birman, and Campbell (2012). CATS was designed for immigrant children and their families. The model consisted of three components, one focused on relationship building, another on outreach, and a third on clinical services. Relationship-building involved placing project staff in schools to help school professionals identify students with mental health issues, providing consultation to teachers, assisting school staff with student issues, and offering professional development trainings on cultural and mental health issues.

Outreach services, coordinated by project staff, were designed to provide students rapid access to mental health services outside the school to assist in addressing adjustment problems and psychological issues as they surfaced. The overarching goals were to address problems before they escalated, to increase awareness about services in the community, and to link families to programs that were tailored to their specific needs.

Clinical services, the third component of CATS, emphasized the importance of one-on-one, targeted interventions for vulnerable students. These involved supportive therapy, psychoeducation, and TF-CBT. Efforts also focused on mobilizing school staff to respond to student issues across a range of need areas, including scheduling and transportation. The program incorporated parent training, family therapy, and psychoeducation about the impacts of trauma.

Service utilization and patterns of service use were documented for 149 students. Changes in functional impairment and PTSD symptoms were also measured to track changes in student outcomes. Among other results, CBT and supportive therapy appeared to improve student functioning for those receiving the CATS intervention. TF-CBT improved functioning and lessened symptoms of PTSD.

Still another project, Healthy Environments and Response to Trauma in Schools (HEARTS), is a full-school approach also structured around the RTI model (Dorado, Martinez, McArthur, & Leibovitz, 2016). Tier 1 focused on universal supports, which includes training and psychoeducation for teachers and parents on stress

and coping, behavioral supports, and trauma-informed practices. At Tier 2, there was an emphasis on supporting the needs of "high-risk" students. This involves assembling teams of school professionals to plan coordinated responses to student and school-wide concerns, wellness support for school staff to address issues of secondary trauma and burnout, and psychoeducation and skill-focused work with vulnerable students. At Tier 3, students with more complex needs due to trauma exposure were supported through crisis intervention, service referrals, and individual, group, and family therapy. Consultation was also provided to teachers to address details of students' Individual Education Programs.

Evaluation of HEARTS was based on case studies in four schools, varying in service implementation length. One school had participated in the program for 5 years; a second for 4 years; a third for 2 years; and a fourth for a year and a half. Three of the four schools were elementary schools, and one was a kindergarten to 8th grade school.

A staff survey was administered annually at each participating school. The survey asked respondents a number of "before-and-after" questions about their knowledge of trauma and trauma-sensitive practices, vicarious or secondary trauma, use of trauma-sensitive practices, and students' performance. HEARTS project staff also evaluated disciplinary office referrals, as well as clinical data on students who participated in therapy.

Analyses of these different data sources indicated that HEARTS improved knowledge of trauma and trauma-sensitive practices among school staff; that higher-risk students appeared more engaged, task-focused, and attended school more consistently; and that schools experienced declines in office disciplinary referrals. Stronger effects of the intervention on student outcomes appeared linked to the duration of programming (as reflected in the length of time the intervention was present in each school), although the absence of comparison schools makes it difficult to draw definitive conclusions.

Conclusion and Implications

This review examined school-based interventions intended to serve the needs of children who have encountered adversity and trauma, primarily from ACEs and community violence. Programs include those at the classroom and school levels (school-wide interventions), as well as others focused on individuals and groups, which are mainly Tier 2 and Tier 3 programs of the RTI framework. School-wide interventions are considered multi-tiered initiatives that include universal components (e.g., psychoeducation for students, teachers, and/or parents; skill building for students), as well as selective and indicated

approaches for students requiring more intensive interventions. These interventions are typically geared to students with symptoms of internalizing (e.g., depression, withdrawal) and externalizing (e.g., aggression, defiance) disorders or PTSD.

At the individual (student) and group levels, TF-CBT, CBITS, and related cognitive behavioral interventions have become increasingly common. CBITS is a manualized approach based on cognitive therapy techniques that focuses on skills to promote emotion regulation, relaxation, social problem solving, and strategies to lessen intrusive memories (Grave & Blissett, 2004). The model also includes psychoeducation for teachers and parents, which is important for sensitizing others in the school community to the ways that trauma impacts children's functioning, and to increasing social support and empathy for trauma survivors. As evidenced by studies included in this review, CBITS has been widely used, evaluated, and adapted for different cultural groups. Both CBITS and TF-CBT show promise for addressing trauma symptoms in students at the elementary and secondary levels, and both appear well suited to schools and community settings (Cohen et al., 2016). However, evidence suggests that CBT-based interventions are best suited to older children (11 years or older) with internalizing symptoms, not younger children or those with conduct problems (Grave & Blissett, 2004). Thus, it is assumed that these interventions will not serve all children with trauma histories adequately because of their age or symptom profile. In addition, because these are often "add on" programs that rely on trained professionals from outside the school setting (or those with specialized training within a school), programs like CBITS and TF-CBT are possibly less sustainable than other programs that become fully integrated into the school setting (SAMHSA, 2014). The costs of these programs can also exceed what some schools or districts can afford, which is of particular concern for schools that serve children from high poverty neighborhoods (Dryfoos, 1994; Oakes, Maier, & Daniel, 2017).

Several examples of school-wide strategies were summarized and discussed. A notable strength of programs like CATS and HEARTS is their reach into the school community. Through psychoeducation, knowledge about adversity and trauma is distributed among constituents, and the community itself is mobilized around goals for reform that center on health and wellness. The work serves to shift the culture and climate of schools so that students feel safe and supported and the environment is conducive to healthy and nurturing relationships. In addition, efforts are made to increase access and reduce barriers to mental health services (i.e., screenings, referral, treatment), lessen the stigma of service use, and strengthen compliance to treatment for students already

receiving mental health care (Hansel et al., 2010). Quite possibly, school-wide approaches will have an added benefit of reducing the use of punitive discipline strategies, which can lead to disengagement and compounding trauma for some students (Hemphill et al., 2013; Skiba et al., 2011), because school professionals will become more attuned to the needs and challenges of traumatized students and also better equipped to handle classroom disruption proactively and without the need for threats or punishment. This is especially important for students who are struggling socially and academically, but not yet identified as in need of individualized intervention. Embedding targeted interventions within a broad model of support allows schools, as systems, to serve more students and normalize the needs for mental health services (Hanson & Lang, 2016). These ideas are reflected in the design of "community schools," which are based on an integrated service model (Oakes et al., 2017).

While there are benefits of classroom-based and school-wide programs, including that they, more than individualized and some group-based programs, can be fully integrated into a school's operations and better positioned for sustainability, evidence supporting the use and impact of these intervention is generally weak according to accepted standards for scientific rigor (https://www.blueprintsprograms.org/criteria). In part, because of the complexity associated with measuring systems change, efforts to evaluate and track student progress within these programs, beyond descriptive, case-based studies, have not yet succeeded. Systematic efforts to strengthen evaluation efforts are very clearly needed if more complex programs and structural reforms are to proceed, as has been recommended (Chafouleas et al., 2016). Ideally, future efforts to implement multi-tiered interventions should include embedded evaluation strategies that fit the complex environment of schools and also address questions related to fidelity and program quality (Gopal, 2015; Patton, 2006).

SAMHSA's six key principles of a trauma-informed approach (SAMHSA, 2014) are instructive, in that they link screening and intervention to systemic reform designed to support recovery in trauma survivors by enhancing supports and strengthening relationships that nurture and build trust. This model emphasizes the importance of universal (Tier 1) and multi-tiered interventions, while also acknowledging the need for interventions of high intensity (Tiers 2 and 3) for children with more complex learning and behavioral challenges. It assumes that ACEs and traumatic stress are widespread in the general student population, and that children who experience adversity are best served by a system that is safe and supportive of children regardless of need and level of risk for future impairment. The SAMHSA framework posits a goal of avoiding the re-traumatization of children, which is also better positioned and more likely to be achieved in framework built on these and related principles of equity and inclusion. At the same time, challenges exist with replicating and scaling interventions structured on general practice principles, which is why some experts recommend manualized and more scripted approaches that can be closely monitored for fidelity (Durlak et al., 2011).

In closing, findings from this review highlight the promise of school-based programs, but also draw attention to notable gaps in research and evaluation. As noted in earlier publications on this topic, it is critical to advance efforts to study the development and implementation of trauma-informed programs, particularly as schools are pressed to do more to support children with complex learning and behavioral needs, while also trying to meet state and federal mandates related to student performance. An important first step in bringing trauma-informed programs even more fully into schools is to reach consensus about the core and most essential components of these programs and then to relate these components to theories of change that can be tested empirically and validated through replication. Additional consideration must also be given to matching group and classroom interventions to the local contexts of schools; to ensuring programs are accessible and tailored to students based on need; and to determining that services are developmentally and age appropriate and sensitive to cultural differences. It is also critical to prioritize goals for sustainability so that programs are not easily replaced when resource shortages or policy changes occur because these have a tendency to drive accountability to academic standards and draw attention away from student health and wellness supports (Oakes et al., 2017).

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