Minding the gap: Evidence, implementation and funding gaps in mental health services delivery for school-aged children

Carolyn J. Heinrich [a,*], Ann Colomer [a], Matthew Hieronimus [a]

[a] *Vanderbilt University, Nashville, TN, United States*

ABSTRACT

State and local educational agencies are grappling with growing mental health needs among school-aged children that intensified during the COVID-19 pandemic. We undertake a case study of the experiences of one state, Tennessee, to examine the landscape of mental health interventions that are being deployed and to illuminate contextual factors that can support their implementation or exacerbate state and local challenges in addressing children's fast-rising mental health needs. We begin with an examination of the knowledge base on interventions and approaches that are commonly employed in K-12 schools to address children's mental health needs, including in Tennessee, with the aim to identify notable gaps in what we understand about their implementation and impacts on student outcomes. We find a lack of rigorous research that can inform efforts to improve the implementation and effectiveness of school-based mental health interventions. We bring this insight to our case-study analysis, which shows that this lack of guidance from research is compounded by inadequate, time-limited and fluctuating public funding that hinders local efforts to establish strong, ongoing programs that provide or connect K-12 students to essential mental health services. We call for more federal funding to support state and local implementation of proven and promising interventions for addressing children's mental health needs and more rigorous evaluations to strengthen the evidence base on their implementation and impacts.

1. Introduction

School districts are facing a mounting crisis of mental health needs among K-12 students that is linked to longstanding, disparate access to healthcare and social supports among low-income and historically marginalized children. Since 2007, children's emergency department visits for deliberate self-harm have soared by 329 percent, while those for substance use disorders rose 159 percent, and mental health disorders overall increased by 60 percent (Lo et al., 2020). In addition, hospitalizations for suicide ideation and suicide attempts have more than doubled over the last decade, and suicide is now the second leading cause of death among children ages 10–19 years (Ruch et al., 2019). The closing of schools in the wake of the COVID-19 pandemic exacerbated inequities in access to health and education resources, particularly for children who spent more time in high-risk or low-resource home environments without access to school-based supports (Fegert et al., 2020). Early analyses indicated that mental health among children further deteriorated following the start of the pandemic, with more than a 40 percent increase in children exhibiting externalizing behaviors (Ananat

& Gassman-Pines, 2020).

Awareness is growing, informed by advances in neurobiology and developmental psychology (Shonkoff et al., 2012), that traditional approaches to responding to children's mental health needs are inadequate and that major changes in how we perceive and address children's mental health are necessary (Berardi & Morton, 2019). Delivering high-quality education and learning opportunities requires investing in interventions and supports that strengthen the foundations of children's mental health and reduce stress and adversity experienced by children. We frequently look to schools to aid in delivering such supports to school-aged children, as along with emergency departments, they are often firsthand observers of children with emerging or existing mental health care needs, particularly low-income and historically marginalized children. The expansion of school-based health centers (SBHCs) nationwide has helped to reduce costs associated with children's access to care, such as service fees and transportation costs, that frequently prevent underserved populations from receiving health care. Indeed, SBHCs increasingly serve as a "medical home" for vulnerable children; they provided access to care for 13 percent of all students nationally (in

2016–17) and disproportionally serve Black, Latinx and economically disadvantaged children in U.S. public schools (Love et al., 2019). Especially for children in rural and underserved communities, SBHCs may be their primary or only sources of access to basic health care, mental health care, and other supportive services (Newkirk, 2020).

Yet state and local educational agencies' efforts to address children's growing mental health needs continue to be limited by the patchwork of federal, state and local programs and public and private dollars available to support their endeavors (Sparks, 2019). Interventions and resources utilized in K-12 schools such as the federal AWARE (Advancing Wellness and Resiliency in Education) grants, statewide trauma-informed initiatives, and SBHCs have been inadequately funded and are falling short in addressing children's mental health needs. Moreover, a synthesis of nearly six decades of published research by the American Academy of Pediatrics (Flores, 2010) found significantly higher unmet needs for mental health care and lower probabilities of mental health visits, outpatient visits and treatment for any mental health condition or behavioral problems among children of color, including Black, Latinx, American Indian and Alaskan Native, and multiracial children. And despite the precipitous growth in the racial and ethnic diversity of U.S. children, their extensive review identified a dearth of research addressing these racial and ethnic health disparities and only two studies of interventions intended to reduce them.

Considering the perspective of state and local education policy leaders and professionals who are facing immense challenges in addressing children's increasing mental health needs in public schools, we undertake a case study of the experiences of one state, Tennessee, to examine the landscape of mental health interventions that are being deployed and to illuminate contextual factors that can support their implementation or exacerbate state and local challenges in addressing children's fast-rising mental health needs. We begin by scrutinizing the knowledge base on interventions and approaches that are commonly employed in K-12 schools to address children's mental health needs, drawing on existing research and research syntheses to assess the resources, interventions, and opportunities available to guide K-12 schools in improving school-aged children's mental health. We focus on what is known about the implementation and effectiveness of key interventions used by state and local educational agencies, with the aim to identify gaps in the knowledge base as well as promising approaches for more effectively treating school-aged children's mental health needs. We then delve into the case study analysis to examine the current landscape of federal, state and local resources potentially available to more effectively respond to children's mental health needs and how those resources are allocated and implemented in Tennessee to increase mental health services and supports for children in K-12 schools. We conclude with a call for action to undertake more rigorous evaluation of existing mental health services and more piloting of promising new initiatives for school-aged children.

2. Knowledge base for informing school-based interventions to address children's mental health needs

With U.S. public schools enrolling approximately 90 percent of all students,[1] many of whom spend their largest share of time under adult supervision in school, they are at the forefront of efforts to prevent and identify youth toxic stress, trauma and other mental health afflictions and to potentially deliver treatment and interventions as well (Odgers & Jaffee, 2013; Crosby, 2015; Saleem et al., 2020). As Crosby (2015: 224) asserted, schools serve as the "most common institutional entry point to mental health services" for youth, and they accordingly have a central role to play in connecting children with mental health and social services that can improve their health and educational outcomes. State and

local educational agencies across the U.S. have been working to promote awareness of youth mental health needs and to push for greater mental health services for school-aged youth, given their link with academic outcomes (Jaycox et al., 2018; Kase et al., 2017). Research evidence indicates that youth whose health care needs go unmet or are inadequately addressed are more likely to experience disciplinary problems, to be chronically absent from school, and to leave school without completing, which in turn increases the likelihood that they will struggle in their transition to adulthood and in the labor market (Love et al., 2019).

Because youth are more readily accessible in schools, school-based services and interventions have the potential to bypass some of the barriers that prevent them from receiving critical health supports (e.g., transportation, time, out-of-pocket costs), as well as to improve the continuity of care children receive (Stein et al., 2003; Love et al., 2019). Hence, schools have increasingly been the focus of many federal, state and local policy and program efforts to bring about systemic change and to reduce longstanding disparities in access and resources and in health and education outcomes for low-income and historically marginalized students. We have accordingly centered our examination of the knowledge base on the implementation and effectiveness of interventions to address children's mental health needs primarily on three main types of interventions that schools currently rely on in serving their students: SBHCs, federal AWARE grants, and trauma-informed initiatives (including multi-tiered trauma-informed approaches).

2.1. Examining the knowledge base on mental health interventions for School-aged children

The knowledge base on interventions to respond to children's mental health needs is diverse, wide-ranging, and interdisciplinary, and it was not our goal to undertake a comprehensive synthesis of the broad literature. Focusing on the three main types of interventions (SBHCs, federal AWARE grants, and trauma-informed initiatives) used in schools, we initiated a search of the literature for research evidence on their effectiveness and that could inform improvements in their implementation. We first conducted a broach search using Google Scholar, ERIC, and other databases available through university search engines (JSTOR, Science Direct, Web of Science, PubMed Central, and Directory of Open Access Journals), as well as other academic databases. The searches were conducted during the summer of 2020 (and updated throughout 2021), including the search terms: trauma-informed, school, intervention, professional development, and policy, as identified in the study records (abstract or text). We also consulted the bibliographies of selected studies, including research syntheses, to identify additional literature. Other inclusion criteria applied in the search were as follows: (a) the study was an intervention or treatment to improve one or more aspects of mental health or social-emotional functioning; (b) the sample included children or youth over the age of 4 years; (c) the intervention was delivered in a P-12 school setting; and (d) the article was published in English. We did not restrict our search for literature by research design or limit it to any specific field or area, and we also did not specify a date range, so as to minimize the exclusion of potentially relevant studies.

2.2. School-based health centers

SBHCs were first launched in the late 1960s to address adolescent health issues (such as teen pregnancy) in urban areas, recognizing that community mental health services for children were inadequate and not reaching a large majority of those who were socioeconomically disadvantaged. Yet it was never intended that schools alone would sufficiently alleviate the burdens of student mental health problems and the challenges they pose for their learning, or that they would become the primary source of mental health services for children (Atkins et al., 2017). As Atkins et al.'s (2017: 126) concluded in their assessment of

---

school-based mental health resources and services, "Schools in most communities, and especially in high-poverty communities, have neither the capacity nor the expertise to deliver effective academic programming and mental health services concurrently."

By the late 1990s, SBHCs numbered over 1,000 and had expanded into middle and elementary schools and rural and suburban communities in 45 states. The 1990s Medicaid expansions—combined with increases in federal support for community health centers and the 1995 Congressional earmark of community health center funds specifically for SBHCs—contributed to their sustainability as a model for delivering care to low-income, historically underserved children and families (Love et al., 2019). Between 1998–99 and 2016–17, the number of SBHCs more than doubled again, boosted in part by $200 million allocated through the 2010 Affordable Care Act (ACA) for SBHCs via competitive grants to Local Education Agencies (LEAs) and health service provider partners (Swain, 2018). Their rate of growth in rural areas since 2010 has been three times that of urban areas, as indicated in the 2016–17 School-Based Health Alliance's National Census of SBHCs.[2] The School-Based Health Centers Reauthorization Act of 2020 recently extended federal funding for SBHCs through fiscal year 2025, recognizing the particularly important role they serve in addressing the health needs of low-income, school-aged children underserved by our healthcare infrastructure.

Studies of SBHCs that emphasize the convenient access to mental health services they offer when based in school (and offered for free or significantly lower fees); Vernberg et al. (2008) and Doll et al. (2017) point to the advantages of services made available in familiar places that can reduce stigma for children and families. The presence of mental health professionals in the school setting enables them to more readily and regularly observe children's behaviors and gain first-hand knowledge of changes in their health over time. That said, research on the implementation of SBHCs describes different models enacted in practice. Doll et al. (2017) distinguished SBHCs with school-employed (i.e., school-based) providers—which were more likely to use systemic interventions and to work toward shifting practices in the school—from those that primarily referred children to community-employed providers for services (i.e., school-linked). Harris (2009) underscored the importance of going beyond simply co-locating mental health services with other primary care services in schools to cultivating connections with teachers and school administrators and their commitment to promoting children's mental health.

Research on the effectiveness of SBHCs to date has primarily focused on health care access and children's education outcomes. Studies by Kerns et al. (2012) and Lovenheim et al. (2016) reported mixed findings on outcomes for older youth. Kerns et al. followed a cohort of students who entered high school, comparing those who used SBHCs at any time while enrolled to students who never used SBHCs, to assess their high school outcomes. In prior research, they identified positive associations between SBHC use and student grade point averages and attendance, particularly for students at greater risk of academic failure, and their quasi-experimental analysis over four years found a strong negative relationship between SBHC use and high school dropout, again for those at higher relative risk for dropout. Lovenheim et al. used differences-in-differences estimation—drawing on variation in student exposure to health care services through SBHCs that was driven by an increase in school-based health center openings and an expansion of services provided—but did not find effects on high school completion, although they did identify reductions in teen births associated with SBHC openings. Reback and Cox (2016) employed a similar estimation strategy—examining the effects of SBHC openings on student test scores and attendance in New York City Public Schools—and found improvements in student test scores but not school attendance rates. In addition, Swain

(2018) used the substantial ramp up in SBHC openings in Tennessee (following the ACA) to examine the effects of rural SBHCs on school-level test scores and rates of absenteeism. He found improvements in test scores and reductions in absenteeism in non-urban SBHCs that were larger with more years of exposure to an SBHC.

A systematic review of SBHCs conducted by the Centers for Disease Control and Prevention (Knopf et al., 2016) concluded that, overall, SBHCs play a key role in promoting health equity and improved educational and health outcomes for low-income children and children of color, who were less likely to have a regular source of medical care and more likely to develop chronic health problems in the absence of SBHCs. The review only included studies that compared exposure to or use of SBHC services to a non-exposure or non-use comparison condition; it found lower rates of school suspension and high school dropout and increases in grade point averages, grade promotion and healthcare utilization, including immunizations and other preventive services. However, the only mental health outcome examined in the studies was self-reported mental health (in eight studies), and the findings were mixed. This review of research on SBHCs suggests a notable gap in the study of SBHC effects on children's mental health outcomes and limited evidence of their effects on other child health and education outcomes.

2.3. Advancing wellness and resilience in education (AWARE) grants

The Substance Abuse and Mental Health Services Administration (SAMHSA) first began awarding Project AWARE grants to state educational agencies (SEAs) and local educational agencies (LEAs) in 2014. The intent of Project AWARE is to aid SEAs and LEAs in developing a sustainable infrastructure for delivering school-based mental health programs and services, and more specifically, to increase awareness of youth mental health issues, train school personnel and other adults to identify and respond to youth mental health needs, and connect youth with behavioral health issues and their families to appropriate services. The grants are limited to five years if awarded to an SEA and to one-time awards if provided to an LEA, and it is expected that recipients will collaborate with community-based providers to implement mental health related promotion, awareness, prevention, intervention and resilience activities for school-aged youth.

To date, a total of 60 AWARE grants have been awarded in five rounds of grant awards (in 2014, 2018, 2019, 2020 and 2021), with maximum awards ranging from $1,800,000 to $1,950,000 per year and total funding (nationwide) varying from $15 million to $42 million in a given year. A total of 40 states and Puerto Rico have received an AWARE-SEA grant in at least one round, with seven states winning grants in more than one round. Yet there is currently little research on the effectiveness of the AWARE grants in achieving their core objectives of increasing awareness of youth mental health issues, training school personnel, and connecting youth with mental health services.

In a Washington state study, Maike et al. (2019) presented descriptive information on how a five-year Project AWARE grant was used in three school districts where access to mental health services was previously limited or nonexistent. They reported that more students received mental health services in the 2014–2019 grant period, and by project end, all students in the three school districts were receiving some type of AWARE-funded service, support or intervention. The report also suggested that among teachers, staff and students, mental health literacy improved, stigma was reduced, and a more diverse and culturally competent workforce was emerging to improve the districts' capacity to address children's mental health needs. A California Department of Education AWARE grant evaluation (also in three LEAs) likewise described the hiring of more mental health professionals and school social workers, the opening of a Family Resource Center, and subsequent reductions in suspensions, substance use and suicide ideation among

---

[2] https://www.sbh4all.org/school-health-care/national-census-of-school-based-health-centers/

students.[3] A study by Haggerty et al. (2019) used a pre–post, three-month follow-up design with voluntary participants from three Michigan counties who engaged in Youth Mental Health First Aid (YMHFA) trainings (funded by AWARE) to assess whether the training increased their capability to notice youth mental health problems and connect them with treatment. Although they found that YMHFA training was effective for staff without mental health credentials, it was likely too basic to make a difference for mental health professionals.

Only one unpublished study we could identify (a doctoral dissertation) included a comparison group to assess the effects of the AWARE grants (Wilson, 2018). Wilson's dissertation research focused on one county in West Virginia that used Project AWARE funding to provide a licensed therapist at each school and pay for therapy for uninsured students. Wilson assessed the effects by comparing students (pre and post) in three Project AWARE schools (of 10 secondary schools) to those in the non-project schools. The regression analyses indicated that the AWARE funding contributed to reductions in student absences and disciplinary referrals (with exclusionary consequences) and, depending on the level of services received (especially for students with more serious mental health issues), grade point averages improved for some students as well. On the whole, this review points to a substantial need for more rigorous research on the effects of AWARE grants on school-based capacities for meeting children's mental health needs and on students' health and education outcomes.

2.4. Trauma-informed initiatives

While the literature and program reports suggest that teachers and other school staff are increasingly aware of the potential effects of trauma and stress on children's development, many still lack specific knowledge and training on how to identify and respond to children exposed to trauma and adversity, and they also struggle to understand their role in supporting the mental health needs of children (Alisic, 2012; Reinke et al., 2011; Stratford et al., 2020). The limited reach of existing programs and available funding to date means that despite their crucial roles, many teachers and other school staff have inadequate pre-service training to support them in responding to students' mental health issues and implementing trauma-informed practices (Thomas et al., 2019). Accordingly, interventions designed to inform school personnel of trauma-informed practices and promote their adoption are often delivered in the form of educator professional development (Oehlberg, 2008; Cavanaugh, 2016). Trauma-informed trainings frequently take the form of districtwide professional development (PD), drawing on resources from organizations such as the National Child Traumatic Stress Network (NCTSN), the Massachusetts Advocates for Children, and Trauma Aware Schools (Thomas et al., 2019). Thomas and colleagues' (2019) review of state department of education websites to identify trauma-informed care resources available to school personnel suggested that core content areas of PD typically include an introduction to trauma and its neurobiological effects, strategies intended to help teachers address student behavior in a trauma-informed approach, and educator self-care.

It is also increasingly understood that to be effective, trauma-informed school initiatives need buy-in from administrators and strong working relationships among educators and mental health professionals to align both policy (e.g., disciplinary policies) and pedagogy with a trauma-sensitive approach (Crosby, 2015). Teachers and staff need to be willing to shift their perspectives toward a trauma lens and to be motivated to examine and change their classroom practices. Despite the rapidly growing interest in trauma-informed approaches in K-12 education and the corresponding increase in trauma-informed PD, there is little agreement on the most effective approaches to trauma-informed training, and minimal research to guide state and local educational

agency decisions about how to roll out trauma-informed PD (Cohen and Barron, 2021; Purtle, 2020).

The existing research base on trauma-informed PD focuses largely on measuring teachers' knowledge of trauma, attitudes toward trauma-sensitive practices, and satisfaction with trainings, using primarily qualitative research methods such as the analysis of self-reported surveys results. While evaluation efforts to date suggest that interventions to train school personnel have the potential to change school staff attitudes toward student mental health and trauma, the studies do not extend to a thorough examination of their effects on school capacities or student outcomes (Cohen and Barron, 2021; Dorado, 2016; McIntyre, Baker, and Overstreet, 2019; Perry & Daniels, 2016; Peterson, 2019). For example, Perry and Daniels (2016) studied a two-day all-staff trauma-informed professional development training intended to influence school culture and staff attitudes prior to the start of the academic year. Out of 32 teachers and administrators who participated, nearly all found the training useful (94%) and reported an increase in knowledge (91%), but there was no exploration of whether this changed educator practices or student experiences (Perry & Daniels, 2016). Cohen and Barron's (2021) review of trauma-informed interventions at the high school level identified similar limitations in the research base and described studies in this area as being in their "infancy."

A few studies, such as an evaluation of the Healthy Environments and Response to Trauma in Schools (HEARTS) program (implemented in San Francisco Unified School District), used a retrospective pre-post design to evaluate changes in knowledge and practices among training participants following a whole-school, multi-tiered training for implementing trauma-informed schools (Dorado et al., 2016). Trainings for staff (n = 280) consisted of an all-staff half-day workshop focused on introducing a common language and awareness of trauma, follow-up trainings, and consultation throughout the school year. Analysis of the survey data (n = 175) found a 57 percent reported increase in knowledge about trauma, a 61 percent increase in understanding of how to help youth exposed to trauma, a 68 percent increase in knowledge about trauma-informed practices, and a 49 percent increase in the use of trauma-informed practices (Dorado et al., 2016). In another pre-post design study of 183 teachers in six New Orleans public charter schools, McIntyre, Baker, and Overstreet (2019) likewise found significantly increased knowledge following a two-day foundational professional development training in trauma-informed approaches. Their findings also suggested that pre-training knowledge was strongly and positively associated with acceptability of trauma-informed practices, underscoring the importance of systemwide alignment and stakeholder buy-in. Limitations of these studies, however, include the potential for bias due to socially desirability in survey responses, and the fact that classroom observations were not conducted to validate self-reported increases in the use of trauma-informed practices.

In a survey study of trauma-informed professional development in one Wisconsin county, Peterson (2019) compared the effectiveness of in-district PD facilitated by a peer or employee of the same district, and out-of-district PD, led by a consultant or professional not employed by the district. Teachers that participated in in-district PD reported being more comfortable implementing trauma-informed practices and having more time and resources than those that were trained via out-of-district PD. A stronger positive correlation was found between the perceived effectiveness of in-district training (compared to out-of-district PD) and teachers' comfort level in implementing trauma-informed classroom practices. However, the study and its generalizability were limited by unknown validity of the researcher-developed survey and an 11 percent response rate.

Although these studies offer preliminary evidence that trauma-informed professional development can change teacher attitudes and potentially influence classroom practices, Purtle's (2020) review of 23 studies (of interventions with a staff training component on trauma-informed practices) concluded that evidence of their effectiveness is limited by study designs with no comparison group, short follow-up

---

[3] https://www.cde.ca.gov/ls/cg/mh/projectcalwell.asp.

periods, and inconsistent use of validated instruments. In addition, others have pointed out that consensus is lacking on a framework for implementing, adapting, and evaluating the effectiveness of trauma-informed initiatives (Chafouleas et al., 2016; Keels, 2016).

SAMHSA and NCTSN have encouraged the use of multi-tiered programs for addressing children's mental health services needs at multiple levels, including student services, teachers, and leadership (Fondren et al., 2020; NCTSN, 2017; SAMHSA, 2014). The most common multi-tiered trauma-informed approaches include three tiers of support with increasingly targeted interventions (Berger, 2019). Tier 1 provides a universal approach to trauma-informed care, with a focus on establishing a trusting, safe school environment for all students (NCTSN, 2017). Supports often emphasize prevention by targeting skill development and social-emotional learning (SEL) for all children within a school. Evaluations of SEL in schools suggest evidence of increased skills and decreased behavioral issues in the classroom, but there is no current research evaluating the effectiveness of Tier 1 interventions on reducing or preventing trauma symptoms (Fondren et al., 2020).

Universal mental health screening is a crucial component of Tier 1 interventions to identify students that may need Tier 2 or 3 support, although the best practices and methods for identifying children impacted by trauma are unknown (Chafouleas et al., 2016; Fondren et al., 2020). Tier 1 interventions also typically involve all-school staff training and the review and evaluation of policies and procedures through a trauma-informed lens by school leadership, such as policies relating to behavior and disciplines (e.g., suspensions and office referrals), but limited research exists on the effectiveness of these reviews (Thomas et al., 2019).

Within the multi-tiered approach, Tier 2 offers targeted small-group interventions focused on early identification of students exposed to or at at-risk of being exposed to trauma (NCTSN, 2017). Interventions provide psychoeducation and help students develop self-regulation and coping skills, typically in a group format (Chafouleas et al., 2016). Fondren et al.'s (2020) systematic review of trauma-informed approaches identified 27 evaluations of Tier 2 interventions, with many involving unique treatments or a combination of therapies, and 17 out of the 27 including some form of cognitive behavioral therapy (CBT). CBT has been described as the "gold standard of evidence-based treatment for trauma-related stress" (Chafouleas et al., 2016, p. 149), although it is important to note that it is a therapy approach that encompasses a number of distinct methods, from mindfulness training to cognitive processing therapy (Hofman and Gomez, 2017). Fondren et al.'s review of the study findings suggests that Tier 2 interventions decrease children's symptoms associated with trauma, although relatively few of the studies employed a rigorous approach to evaluation. Yohannan and Carlson (2018) concluded in their *meta*-analysis of school-based trauma interventions that the implementation of CBT-related interventions had the most research in support of their use in schools, and that these interventions were effective for students from a range of diverse backgrounds, including race/ethnicity, age, and type of trauma. However, both Yohannan and Carlson and Fondren and colleagues caution about the generalizability of the research findings and call for further research and more in-depth exploration of the Tier 2 interventions being implemented in school settings, including how students are selected for Tier 2 interventions and what interventions are most effective based on the type of trauma exposure.

Children and adolescents who have experienced significant trauma exposure may receive individualized interventions in Tier 3 programs (NCTSN, 2017). The most common treatments offered in Tier 3 include individual CBT or trauma-focused cognitive behavioral therapy (Fondren et al., 2020). Research has found these interventions to significantly reduce symptoms of post-traumatic stress disorder and improve school performance and functioning (Stein et al., 2003; Jaycox et al., 2010; Farina et al., 2018). Tier 3 interventions offer more intensive therapy treatments and are often implemented through referrals to community-based mental health centers or in cross-sector

collaborations, where schools partner with community mental health agencies to provide outside treatment, telehealth, or co-locate within the school. Community partnerships increase professional capacity, although students may be less likely to receive treatment when access is provided through referrals rather than school-based services, given additional burdens such as time and transportation costs (Chafouleas et al., 2016). Shamblin et al. (2016) highlighted the importance of embedded mental health professionals in school settings in their study of partnerships across schools and agencies; they found improved ratings of child resilience and increased teacher-reported feelings of competence and confidence when mental health consultants were present in schools compared to as-needed consultant services (Shamblin, Graham & Bianco, 2016). Despite effective interventions at the Tier 3 level, youth access to treatment may still be limited by a lack of staff capacity in schools, suggesting a need for additional research evaluating the impacts of mental health services delivered in schools compared to community-based care. Stratford et al. (2020: 473) also suggest a need for stronger collaborations among schools, public agencies, and nonprofit providers in using existing data to better monitor the effectiveness of these interventions, arguing that they should not "wait for a list of evidence-based interventions" shown to be effective in a similar population.

In general, there is clearly a need for more rigorous, longitudinal studies to determine the effectiveness of prevailing programs and initiatives—SBHCs, AWARE grants and trauma-informed initiatives—not only on school resources and practices in educational settings, but also on student health, mental health, and education outcomes and school-related academic and climate outcomes (Perfect et al., 2016; Kataoka et al, 2018; Thomas et al., 2019). Moreover, there has been insufficient scrutiny in existing studies of the effects of these interventions on equity in access to resources and services by race, ethnicity, socioeconomic status or place, and to what extent these interventions are reducing opportunity gaps and addressing the drivers of enduring inequities in children's health and education outcomes. Alvarez (2020) points out that this body of research has failed to acknowledge the structural racism and White supremacy that have left out diverse voices in addressing systems, policies, and practices that have adversely affected the lives and school experiences of trauma-exposed youth. Recognizing that youth of color have significantly more trauma exposure than White youth, Alvarez argues for developing more race-conscious and culturally sensitive approaches for supporting trauma-exposed youth. Anyon et al. (2014) similarly called for more research to better understand the cultural and contextual influences on youth help-seeking after they found that Asian youth were significantly less likely than their Black, Latinx, and multiracial peers to access and use school-based mental health prevention services. A focus group study of Asian American youth (Arora & Algios, 2019) found that limited awareness as well as misconceptions about the types of services offered through school-based mental health programs (and for whom they are appropriate) deterred Asian American youth from reaching out for those supports.

3. Case analysis of mental health services delivery for school-aged children in Tennessee

The knowledge base described above points to many gaps in our understanding about how mental health services interventions should be designed, deployed, and supported to effectively reach school-aged children with the mental health services they need. Beyond what we can learn from the literature, it is important to consider contextual factors, including resources made available for the implementation of mental health interventions, that may support their efficacy or exacerbate state and local challenges in addressing school-aged children's mental health needs. In research conducted through the Vanderbilt Policies for Action Research Hub between the spring of 2019 and spring of 2020, we collected data in interviews with staff in schools and SBHCs, county health departments, federally qualified health centers (FQHCs)

and other community-based organizations on the "front lines" of serving the mental health needs of children in Tennessee. In these interviews, we gathered information on the types of services these organizations provide, who they serve, and strategies adopted to increase access to health and behavioral health supports for children, and we also compiled documentation on the funding sources for mental health services delivery to children.

We used purposive and random sampling to prioritize and select organizations from the 95 counties and 137 school districts in Tennessee for interviews. In purposively sampling, we focused on indicators of distressed counties—those that rank in the bottom 10 percent in the nation based on an index that factors in poverty rates, per capita market income, and unemployment rates, as well as other measures of children known to be at greater risk for mental health issues, such counties with high rates of neonatal abstinence syndrome—because distressed counties are currently a priority of the state for targeting services to children. In conducting the random sampling, we used administrative data to first stratify the sample based on CORE region (west, middle, east) and urbanicity (town, city, suburb, rural). Mahalanobis distances were calculated using the percent of students in each county that were economically disadvantaged or at higher risk for mental health disorders, and within each core-urbanicity region, the two observations closest to the average Mahalanobis score of the core-urbanicity region were selected.

Table 1 provides information on the organizations with which 47 interviews were conducted, including a total of 80 interview participants. Among the interviews, 15 involved coordinated school health directors or SBHCs, including six of those in school districts (of the seven) that had received an AWARE-SEA grant. In addition, 12 interviews involved county health departments, community mental health centers, and/or FQHCs, which are frequent partners of SBHCs in Tennessee. Fig. 1 presents a visual description of where the interviews took place across Tennessee and highlights the distressed counties (with and without interviews). Fig. 1 shows that our sampling approach yielded a broad representation of counties across the state, including 9 of the 15 distressed counties.

The interviews were transcribed verbatim and analyzed using a qualitative software program. Categories and a priori themes were derived from the interview protocol, and deductive codes emerged within the categories. The qualitative analysis codebook was piloted three times by two research team members, and the codes were modified until there was a 90 percent agreement when coding a sample of responses. After establishing intercoder agreement, each interview was coded twice. In presenting the findings below, we illustrate (with excerpts) the key themes that emerged in our interviews with those on the "front lines" in school-based and community settings who are striving to meet children's growing mental health needs.

3.1. Inadequate funding and staffing support

To address children's unmet mental health care needs, school districts in Tennessee, as in many states, draw on a patchwork of relatively unstable funding streams and typically operate on "shoestring budgets" to provide mental health services to school-aged children (Haeder, 2021). For example, within SAMHSA, the Center for Mental Health Services (CMHS) is authorized to provide funds and technical assistance in support of efforts to increase access to mental health services and improve their quality, and one of the funding streams within this allocation (Community Mental Health Services Block Grant or MHBG) includes resources for children, particularly for those with serious emotional disturbances. For fiscal years 2018 through 2020, $701.5 million in MHBG funds were appropriated each year to all 50 states and territories, however, these funds only cover an average of 1 percent of the expenses for state mental health agencies, reflecting the block grant's design as a *supplementary* source of financial support for mental health services (SAMHSA, 2017). In Tennessee, of the $13–14 million in

MHBG funds received annually, a yearly average of $4.6 million was directed towards 15–16 *youth* mental health programs operating in the state.[4]

More specifically targeted to serving the mental health needs of children in schools, Tennessee was one of a handful of states to receive an AWARE-SEA grant in multiple rounds (as well as three AWARE-LEA awards). Although they amount to a trickle in a sea of rising children's mental health needs, the experience of Tennessee suggests that they may help to fill critical gaps in school district capacity for identifying and responding to children's mental health needs (Heinrich et al., 2021). Tennessee was one of 20 states to receive the first state five-year awards (totaling just under $2 million per year) in 2014, and three Tennessee LEAs—one school district and two behavioral health care system partners—received AWARE-LEA awards in 2014 or 2015 (of $100,000-$125,000 each).[5] Tennessee was also one of only five states that received an AWARE-SEA grant in the 2019 round of funding, and it received another three AWARE-SEA grants in 2021 that will continue through 2026.

AWARE grants are often used to strengthen existing school-based mental health services, such as those facilitated by school health coordinators. In Tennessee, the Coordinated School Health Improvement Act of 2000 first piloted the creation of a school health coordinator position in school districts, following the coordinated school health model developed by the Centers for Disease Control and Prevention (CDC) in 1988. In 2006, Public Chapter 1001 authorized funding to extend coordinated school health to all districts across the state. At that time, the number of SBHCs in Tennessee was still relatively small (approximately a dozen); the largest expansion of Tennessee's SBHCs came with funding that followed the passage of ACA. A May 2021 "environmental scan" by the Tennessee Department of Education (TDOE) identified 22 school districts with school-based health clinics and 29 school districts with school-linked health clinics, the latter of which include telehealth, telemedicine, and mobile clinics, as well as linkages with community clinics where students receive services off-site during the school day.

SBHCs have been strategically located in communities that serve higher percentages of students of color, from low-income families, and that have been underserved by healthcare systems, and they typically operate in schools in partnership with an external healthcare provider that subsequently bills Medicaid for services provided to students who qualify for public health insurance. The 2016–17 School-Based Health Alliance's National Census of SBHCs indicated that about two-thirds of SBHCs in 2016–17 included behavioral health professionals, in addition to a primary care provider (most commonly a nurse practitioner). In contrast, however, the typical staffing of SBHCs in Tennessee consisted of a strong emphasis on primary care delivered by doctors, nurse practitioners or physician's assistants, with relatively few licensed counselors to provide mental health services.

We mapped the AWARE grants that have already been distributed in Tennessee, as well as the location of SBHCs in 2019, relative to indicators of children's mental health disorders and community economic disadvantage. We found that of the 23 counties with the highest mental health disorder prevalence rates among school-aged children, 11 received either a state or local AWARE grant or were served by an SBHC, and the other 12 (more than half) have yet to benefit from an infusion of additional resources to expand mental health services capacity. The deficit in funding to address school-aged children's mental health needs and the inadequacy of personnel resources to meet them was unquestionably, the most persistent theme to emerge in our interviews with

---

Table 1
County, Number of Interviews, Number of Participants and Types of Organizations Interviewed.

County	Interviews	Participants	Organization
01 Anderson	2	3	CSHD
04 Bledsoe*	1	1	CSHD
05 Blount	1	1	CAO
14 Clay*	1	3	COADC
19 Davidson	8	10	CAO (3), NHC (2), OTP (1), MED (1)
24 Fayette	1	1	CSHD
31 Grundy*	1	2	SBCH
32 Hamblen	5	5	COADC (1), CMHC (1), CSHD (1), CHD (1), FQHC (1)
34 Hancock*	1	2	CMHC
41 Hickman	1	1	CMHC
44 Jackson*	1	1	CSHD
45 Jefferson	1	1	CAO
47 Knox	4	4	COADC (1), CHD (1), FQHC (1), NCH (1)
48 Lake*	1	1	CSHD (1)
49 Lauderdale*	2	11	COADC (1), CSHD (1)
50 Lawrence	1	9	COADC (1)
53 Loudon	1	1	CSHD
63 Montgomery	1	1	CMHC (1)
65 Morgan*	3	3	CHD (1), FQHC (1), SBCH (1)
66 Obion	1	3	COADC
76 Scott*	3	8	COADC (1), CSHD (1), CHD (1)
78 Sevier	1	1	CSHD
79 Shelby	2	3	COADC (1), CSHD (1)
83 Sumner	1	2	CHD (1)
85 Trousdale	1	1	CSHD (1)
86 Unicoi	1	1	CSHD (1)
Total	47	80	

Community Advocacy Organization (CAO)	Federally Qualified Health Center (FQHC)
County Health Department (CHD)	Medicaid (MED)
Community Mental Health Center (CMHC)	Neighborhood Health Center (NHC)
Community Anti-Drug Coalition (COADC)	Opioid Treatment Program (OTP)
Coordinated School Health Directors (CSHD)	School Based Health Center (SBHC)

Note(s): *Indicates economically distressed counties as of fiscal year 2019. Source: https://www.tn.gov/transparenttn/state-financial-overview/open-ecd/openecd/tn ecd-performance-metrics/openecd-long-term-objectives-quick-stats/distressed-counties.html.

coordinated school health directors, SBHCs, and their service delivery partners.

For instance, one director of coordinated school health explained that while their district met the requirement of one psychologist per 1,000 students, "it's really hard for a psychologist with all of the need that there is to serve 1,000 students. Or even for a counselor at an elementary level to serve 400 students. You know, I think realistically, that isn't enough to serve the students the way that they need… So, I actually have to rely a lot on securing other grants for further needs that we have in our district." This same coordinated school health director described how she felt that staffing expectations were not being adjusted to reflect the overwhelming need among their students:

Nobody understands what it's like. I was a nurse for several years before coming to the school. Never ever would I have thought the school system would have been so busy and can be very stressful. Never would I have thought that these kids would have the problems that they have. And one of our SRO officers, he's a retired state trooper, and I said: "Did you ever think that schools were like this?," and he was like, "I had no idea that our kids have as many issues as they have."

A coordinated school health director in a rural community with particularly high rates of substance misuse and reported child abuse cases explained that they shared three social workers across eight schools. Their school district had formerly benefited from a five-year AWARE grant, which in addition to covering the cost for the social workers, had enabled them to contract with a mental health agency that provided therapists who came into the schools weekly to meet with students. After the grant ended, the cost of the social workers was incorporated into the school district budget, and they tried to work with the therapists on a sliding fee scale. However, given the large volume of

students whose families could not pay, they were unable to sustain the arrangement and reverted to a situation where children with serious mental health issues were no longer receiving those services. The coordinated school health director described why that therapy was so critical:

We felt like they needed intensive therapy, somebody to make a daily contact with them… you've got to see a child often to build that relationship with them to get anywhere, and then you've got to work inside the family. In working with children with mental health issues that have been abused and neglected… if you don't incorporate the family in most of it, all that therapy is going out the window.

Similarly, another former AWARE grant recipient described how the grant had enabled them to establish a lot of direct services for children in partnership with a FQHC. The caseloads were so high, she said, that when the grant ended, many children were "dropped right in the middle of services. So that has been devastating, absolutely devastating," she exclaimed.

In one very distressed county, the director of coordinated school health noted that they had "no mental health services for a long time." When three new employees were hired through a (2019) AWARE grant, they were immediately overwhelmed with the extent of unmet student mental needs in the county. Another director of coordinated school health in a district that had newly received an AWARE grant described the very deep level of mental health needs among their student population: "we are just scraping the surface" with the grant resources. The school district personnel managing the AWARE grants recognized the many ways they were beneficial and taking "a little bit of that load off" for teachers, but they also knew the grants were time-limited and that service gaps would reemerge: "Then they're going to be left with trying to manage that on their own again, and I think that's going to be a
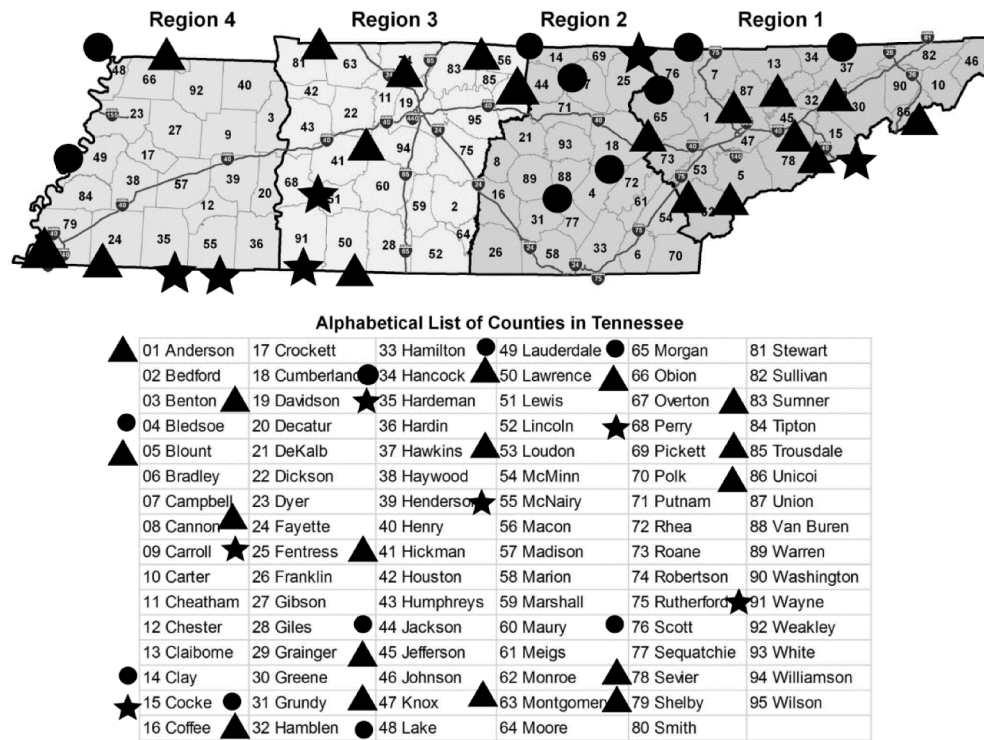
Map Key: Interviewed – non-distressed county   ▲

Interviewed – distressed county   ●

Not interviewed – distressed county   ★

Fig. 1. Map of Interviews Conducted in Tennessee.

huge disservice for students and our teachers," lamented a director of coordinated school health.

For the Fiscal Year 2021 budget, the Tennessee General Assembly approved, $7.6 million in new, recurring state funding for the creation of a Children's Behavioral Health Safety Net (BHSN). The program is intended to offer a range of mental health services for uninsured children ages three to 17 years in households with income either at or below 138 percent of the federal poverty level. Although the legislature and governor are taking concerted steps towards addressing children's mental health needs in Tennessee, we consistently heard from "the front lines" that the total amount of funding that is earmarked specifically for school-based and community youth mental health services is still inadequate to meet the growing level of need.

3.2. Serious mental health concerns emerging at younger ages

In nearly every interview we conducted with SBHC staff or other school personnel with a role in addressing children's mental health needs, the rising incidence of serious mental health concerns or disorders among younger children was one of the factors identified as contributing to the growing strain on available resources and the inadequacy of existing supports. Although school-based health services were first introduced in high schools, problems that some might still assume would not arise until the teenage years, such as suicide ideation, were being identified in younger and younger children:

I actually heard from one of our counselors back in January that she had a kindergarten student come to her that was contemplating

suicide, and I thought, at five years old, the mountain in front of them was so large they didn't think they could get over it, and they're five.

We have students in elementary school with suicidal ideation, and that, to me, is devastating… you know, you're going to have to dig way deeper into that, and you really need a clinical person to do that. Well, if you don't have a clinical person to address that…

A director of coordinator school health indicated that self-harm or threats of self-harm had quadrupled and quintupled over the last few years. While they used to see it only at the middle or high school, now they were seeing it in elementary school, including cutting, bulimia, and anorexia. Another school health coordinator in a small rural community reported that in the first five weeks of the school year, six elementary students were admitted for inpatient psychiatric treatment and two 6th graders attempted suicide in unrelated incidents.

Tennessee continues to have one of the highest opioid prescription rates in the country, as well as a high drug overdose death rate, and rural areas hard-hit by the opioid crisis were seeing particularly dramatic increases in children's mental health needs from pre-K through high school.

Right now, what we're faced with is the case loads are growing tremendously, so we're having to sort of reprioritize and say, "Okay, we've got to go with the kids with the highest risk." You know, and that's kind of sad, because those that are Tier 1 are not going to be the highest priority. There's not enough time in the day for that, so we've got to go to our Tier 2-Tier 3.

Turnover rates for teachers and other school personnel in school districts severely affected by the opioid (and other drug) crisis were especially high, in part because of the pressures they felt with so few resources to respond to "horrific" levels of need (including sexual abuse, neglect, homelessness, deep poverty, etc.).

> It affects them mentally and emotionally every single day... We need something for teachers so that they can deal with the secondary trauma of what we are seeing inside the classroom... Nobody wants to come here. We have been through five school-based mental health counselors in the last three years... And you know, it's really impacting the kids, because we also have a very high suicide rate. For example, you know, our youngest one is nine years old.

Recognizing the more serious mental health issues that school-based mental health staff were encountering among children, TDOE recently launched a Trauma-Informed Schools (TIS) program to help train school staff to identify and understand symptoms and behaviors in children who have experienced trauma, create structures and supports for safe school environments, and develop tools to respond appropriately and improve school climates. In the first wave of the program, TDOE chose 80 schools (of 150 applicants) to participate and held trainings for key school staff during the summers of 2018 and 2019. After the first year of participation, it was expected that participating schools would submit a TIS action plan to TDOE, as well as a second plan after the second training. However, consistent with findings in the literature on trauma-informed approaches, the "buy-in" that is essential to align policy and practice appears to have lagged in Tennessee as well; only 19 of the 80 schools submitted a TIS action plan after the first year of training, and only about half of those submitted a second plan to TDOE. It is possible that the resources constraints and associated pressures on staff described above hamper their ability to participate in training and planning in these initiatives; this is an important area for ongoing investigation.

3.3. Partnering and procuring to fill resource gaps

SBHCs by design work with public and private community-based partners in delivering health and mental health services to students in school, with the large majority collaborating with FQHCs. Tennessee has intentionally located its SBHCs primarily in rural areas of Eastern Tennessee, so many coordinated school health directors across Tennessee have developed their own partnerships outside the structure of a formal SBHC. In our interviews, they described partnerships with local health councils, county health departments, area medical centers, university extension centers, and a range of community-based nonprofit organizations.

> I work closely with the health department in ___ county. We meet monthly in the health council, and that gives me a lot of opportunities to branch out and make relationships there.
> We partner with ___ Children's Hospital, University of Tennessee Medical Center, the county health department, the County Health Council... Walmart has been a good partner for us. I established a new partnership with the Lion's Club this year to expand our vision, because of the partnership with Vanderbilt.... I have a lot of local partners, such as our local pharmacy. They have been really good to either come to events or give us things, give us information to hand out.

Even with a range of community partners, however, coordinated school health personnel were constantly searching for grant opportunities and writing grant proposals to secure additional funding to better support the behavioral health needs of their students. Their success in bringing in grants, large and small, was often critical to sustaining basic infrastructure for school-based mental health services delivery.

> I was able to secure $91,500 in the area of social-emotional learning and mental health through the Department of Children's Services last

year, and so what that provided for us as a district was a great component of education for social-emotional curricula, calming rooms. But more importantly, it has funded a social worker's position.
> I do want it to go on record that coordinated school health and family resources has brought that program to the table, among many other programs. Last year I was able to secure over $300,000 in in-kind and grant funding for our district, and that is a huge help to us, especially when you know, you're in a really small district, and we don't get a lot of funding anyway.

Sometimes it was essential to apply for these opportunities in collaboration with community or regional partners.

> We're working now with ___ University. They have submitted a grant for the high school, and it's for counselors. And we have an after school grant, and you know, through the years we've had different things, but those kind of grants for a small county, you know, you can do a lot in ___ County with $15,000 a year compared to what that is in a big city.

One limitation of mental health services coordinated and provided through a network of partnering organizations is that with each link in the chain of relationships, follow-through may be more difficult to monitor or ensure. Some school-based health personnel described what a difference it made when they had behavioral health personnel based in their school for at least part of the day or multiple times each week.

> I'm going to try to convince them to put more money into health services to support the school nurses, because we need someone that's going to be tracing these kids when they're coming to the nurse's station, whether they're sent home, sent back to class. I'm writing up a request to put some of the CARES Act money into health services so we can build it up, where we have someone being able to track that.

In some of the communities where poverty and need were especially high, there were also many competing demands for grant funds made available.

> I serve on the community advisory board and the health council, and the thing that we keep saying the most is we need to have better access to the resources. If they get a grant to serve ___, why are we not aware of who has the grant, what services they provide, and how to reach them? There is nothing in place for us to know how to reach out to everyone that's receiving funding to serve this county.
> And the problem is when I talked to the county mayor, he said, "Well, how much can the school district put in here, or how much can we put in?", and it's back and forth, like they won't give money; school district don't have the money specifically for a Family Resource Center, and the county won't provide it because they think the school district needs to be the one to provide it.

School district staff also pointed out in our interviews that per-pupil funding streams for school districts failed to take into account the fact that when more economically stable and able families departed rural areas, they left more disadvantaged households behind. They also explained that county economic indicators may fail to capture pockets of greater need within counties that are the product of legacies of discrimination or afflictions such as the opioid crisis. A Coordinated School Health Director who had served in that role since 2006 suggested that their SBHC budget allocation had not changed since 2006, despite the dramatic increase in students' mental health needs. "We're just lacking in knowledge of how to better serve these young kids who are coming in with problems you haven't seen before, and you know, having the money to pay – we can find people to come in, but then you've got to have the money to pay them." This quote underscores a key finding of the examination of the research base and the case study analysis of the implementation of mental health interventions for school-aged children

in Tennessee: the "front line" staff in organizations positioned to meet the mental health needs of children are gravely lacking both the knowledge and resources to serve them well.

4. Conclusion

Recognizing the considerable challenges faced by state and local educational agencies in responding to children's increasing mental health needs in schools today, we sought to identify knowledge and guidance from the current research base that can help policymakers and professionals to more effectively utilize resources and promising interventions to increase services and supports for children with unmet mental health needs. Our review shows that resources flowing from the federal level to state and local levels are often either inadequate or time-limited, with fluctuations in funding amounts that hinder efforts to establish strong, ongoing programs that provide or connect K-12 students to essential mental health services. While it is understood that federal block grant programs and other steadier funding streams are intended to supplement rather than supplant state and local efforts, they currently cover a very small percentage of state and community mental health expenditures. As we observed in our case study of Tennessee, state and local education agencies are piecing together many different grants and cooperative arrangements in the effort to create sustainable systems of care for children's mental health services, yet the funding still falls short in enabling them to cover large gaps in mental health services and supports. This is unfortunate given that cost–benefit analyses of mental health programs find both their monetary and societal benefits exceed their costs when such programs are implemented effectively (Kern et al., 2017).

Our examination of the research base on the primary interventions that state and local educational agencies are using to address school-aged children's mental health needs reveals significant gaps in our understanding of the effectiveness of SBHCs, AWARE grants and trauma-informed initiatives, in part because of a lack of rigorous research that examines both the implementation and effects of these initiatives. Few studies assess children's mental health outcomes (in addition to other child health and education outcomes) following the implementation of interventions, and many lack comparison groups or rely largely on reports from school staff and other professionals to assess the extent to which they affect school capacities for serving children's mental health needs or student outcomes. This makes realizing consensus about the most effective approaches to responding to children's mental health needs more difficult. Furthermore, the limited reach of existing programs, as constrained by available funding, also makes achieving widespread "buy-in" and participation more challenging, which is critical to fostering strong working relationships between educators and mental health professionals and to bringing about systemic change and shifts in practice and policy in schools and communities (Massey, Vroom and Weston, 2021).

The research base on more recently developed interventions for reaching children with more acute mental health needs or trauma (beyond Tier 1) suggests that there are a number of promising approaches that we have yet to explore or test and rigorously assess in school-based settings. Tier 2 interventions such as CBT have shown to be effective for a range of students and types of trauma, including children of younger ages, although we lack evidence from U.S. contexts that could provide valuable guidance on their implementation in public schools here. As we heard in our interviews in Tennessee, there are growing numbers of children presenting at younger and younger ages with trauma and serious mental health needs, and many schools lack adequate staffing to respond to them. Schools frequently rely on their community-based partners (e.g., community mental health centers, FQHCs) to connect children with more intensive therapy, including Tier 3 interventions that offer more intensive individual CBT or trauma-focused CBT. But as we heard in Tennessee, particularly in rural areas, funding for public and nonprofit community-based agencies is likewise

stretched thin, and it is difficult to retain mental health professionals who encounter large caseloads of youth in resource-constrained settings.

Given the expectation for even greater mental health needs in the aftermath of the COVID-19 pandemic, this might be an opportune time to invest in the rollout and evaluation of group therapy approaches, such as the Cognitive Behavioral Intervention for Trauma in Schools (CBITS) program that was specifically developed to provide group therapy in a school setting (Jayco et al., 2018). And in light of the urgency of reaching more children nationwide with an expanded set of effective and affordable mental health treatment options in schools and the importance of generating better guidance for their implementation, a larger federal infusion of *steady, multi-year* funding for school-based mental health interventions and their evaluation would be timely and critical.

CRediT authorship contribution statement

Carolyn J. Heinrich: Conceptualization, Methodology, Investigation, Formal analysis, Project administration, Writing – original draft, Writing – review & editing. **Ann Colomer:** Investigation, Writing – original draft. **Matthew Hieronimus:** Investigation, Writing – original draft.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

Deidentified data will be made available on request.

References

Alisic, E. (2012). Teachers' perspectives on providing support to children after trauma: A qualitative study. *School Psychology Quarterly, 27*(1), 51–59. https://doi.org/10.1037/a0028590

Alvarez, A. (2020). Seeing race in the research on youth trauma and education: A critical review. *Review of Educational Research, 90*(5), 583–626.

American Academy of Pediatrics (2020). *Coding for pediatric preventive care 2020*. Itasca, IL.

Ananat, E. O. & Gassman-Pines, A. (2020). Snapshot of the COVID crisis impact on working families. The econofact network, March 30: https://econofact.org/snapshot-of-the-covid-crisis-impact-on-working-families.

Anyon, Y., Ong, S. L., & Whitaker, K. (2014). School-based mental health prevention for Asian American adolescents: Risk behaviors, protective factors, and service use. *Asian American Journal of Psychology, 5*(2), 134–144. https://doi.org/10.1037/a0035300

Arora, P. G., & Algios, A. (2019). School-based mental health for Asian American immigrant youth: Perceptions and recommendations. *Asian American Journal of Psychology, 10*(2), 166–181.

Atkins, M. S., Cappella, E., Shernoff, E. S., Mehta, T. G., & Gustafson, E. L. (2017). Schooling and children's mental health: Realigning resources to reduce disparities and advance public health. *Annual Review of Clinical Psychology, 8*(13), 123–147. https://doi.org/10.1146/annurev-clinpsy-032816-045234. Epub 2017 Mar 24 PMID: 28375726.

Berardi, A. A., & Morton, B. M. (2019). *Trauma-informed school practices: Building expertise to transform schools*. George Fox University.

Berger, E. (2019). Multi-tiered approaches to trauma-informed care in schools: A systematic review. *School Mental Health, 11*(4), 650–664. https://doi.org/10.1007/s12310-019-09326-0

Cavanaugh, B. (2016). Trauma-informed classrooms and schools. *Beyond Behavior, 25*(2), 41–46. https://doi.org/10.1177/107429561602500206

Centers for Disease Control. The Drug Overdose Epidemic: Behind the Numbers. https://www.cdc.gov/drugoverdose/data/index.html.

Chafouleas, S., Johnson, A., Overstreet, S., & Santos, N. (2016). Toward a blueprint for trauma-informed service delivery in schools. *School Mental Health, 8*(1), 144–162. https://doi.org/10.1007/s12310-015-9166-8

Cohen, C. E., & Barron, I. G. (2021). Trauma-informed high schools: A systematic narrative review of the literature. *School Mental Health, 13*, 225–234. https://doi.org/10.1007/s12310-021-09432-y

Crosby, S. D. (2015). An ecological perspective on emerging trauma-informed teaching practices. *Children & Schools, 37*(4), 223–230. https://doi.org/10.1093/cs/cdv027

Doll, B., Nastasi, B. K., Cornell, L., & Song, S. Y. (2017). School-based mental health services: Definitions and models of effective practice. *Journal of Applied School Psychology, 33*(3), 179–194. https://doi.org/10.1080/15377903.2017.1317143

Dorado, J., Martinez, M., McArthur, L., & Leibovitz, T. (2016). Healthy environments and response to trauma in schools (HEARTS): A whole-school, multi-level, prevention and intervention program for creating trauma-informed, safe and supportive schools. *School Mental Health, 8*(1), 163–176. https://doi.org/10.1007/s12310-016-9177-0

Fegert, J. M., Vitiello, B., Plener, P. L., et al. (2020). Challenges and burden of the Coronavirus 2019 (COVID-19) pandemic for child and adolescent mental health: A narrative review to highlight clinical and research needs in the acute phase and the long return to normality. *Child and Adolescent Psychiatry and Mental Health, 14*, 20. https://doi.org/10.1186/s13034-020-00329-3

Farina, V., Salemi, S., Tatari, F., Abdoli, N., Jouybari, T. A., Alikhani, M., et al. (2018). Trauma-focused cognitive behavioral therapy a clinical trial to increase self-efficacy in abused primary school children. *Journal of Education and Health Promotion, 7*(1), 1–6. https://doi.org/10.4103/jehp.jehp_80_17

Flores, G.; Committee on Pediatric Research. (2010). Technical report—racial and ethnic disparities in the health and health care of children. *Pediatrics*, 125(4). Available at: www.pediatrics.org/cgi/content/full/125/4/e979.

Fondren, K., Lawson, M., Speidel, R., McDonnell, C., & Valentino, K. (2020). Buffering the effects of childhood trauma within the school setting: A systematic review of trauma-informed and trauma-responsive interventions among trauma-affected youth. *Children and Youth Services Review, 109*, Article 104691. https://doi.org/10.1016/j.childyouth.2019.104691

Haeder, S. F. (2021). 17. As schools reopen, it's time to increase funding for school-based health centers. *Health Affairs Blog*, August 20, 2021. doi: 10.1377/hblog20210816.308933.

Haggerty, D., Carlson, J. S., McNall, M., Lee, K., & Williams, S. (2019). Exploring youth mental health first aider training outcomes by workforce affiliation: A survey of project AWARE participants. *School Mental Health*, 11, 345–356. doi: 10.1007/s12310-018-9300-5.

Harris, B. (2009). "Extra appendage' or integrated service? School counsellors' reflections on their professional identity in an era of education reform. *Counseling and Psychotherapy Research, 9*, 174–181. https://doi.org/10.1080/14733140903032208

Heinrich, C. J., Camacho, S., Clark Henderson, S., Hernández, M., & Joshi, E. (2021). Consequences of administrative burden for social safety nets that support the healthy development of children. *Journal of Policy Analysis and Management*. https://doi.org/10.1002/pam.22324

Jaycox, L. H., Cohen, J. A., Mannarino, A. P., Walker, D. W., Langley, A. K., Gegenheiber, K. L., et al. (2010). Children's mental health care following Hurricane Katrina: A field trial of trauma-focused psychotherapies. *Journal of Traumatic Stress, 23*(2), 223–231. https://doi.org/10.1002/jts.20518

Jaycox, L. H., Langley, A. K., & Hoover, S. A. (2018). *Cognitive behavioral intervention for trauma in schools (CBITS)* (second edition). Santa Monica, CA: RAND Corporation.

Kase, C., Hoover, S., Boyd, G., West, K. D., Dubenitz, J., Trivedi, P. A., et al. (2017). Educational outcomes associated with school behavioral health interventions: A review of the literature. *Journal of School Health, 87*(7), 554–562. https://doi.org/10.1111/josh.12524

Kataoka, S., Vona, P., Acuna, A., Jaycox, L., Escudero, P., Rojas, C., et al. (2018). Applying a trauma informed school systems approach: Examples from school community-academic partnerships. *Ethnicity & Disease, 28*(Suppl. 2), 417–426. https://doi.org/10.18865/ed.28.S2.417

Keels, M. (2016). *A whole school approach to improving the outcomes of children living in high crime communities*. Center for the Study of Race Politics and Culture Policy Brief.

Kern, L., Mathur, S. R., Albrecht, S. F., Poland, S., Rozalski, M., & Skiba, R. J. (2017). The need for school-based mental health services and recommendations for implementation. *School Mental Health, 9*, 205–217. https://doi.org/10.1007/s12310-017-9216-5

Kerns, S. E. U., Pullmann, M. D., Walker, S. C., Lyon, A. R., Cosgrove, T. J., & Bruns, E. J. (2012). School-based health center use and high school dropout rates—reply. *Archives of Pediatrics and Adolescent Medicine Journal, 166*(7), 675–677. https://doi.org/10.1001/archpediatrics.2012.553

Knopf, J. A., Finnie, R. K. C., Peng, Y., Hahn, R. A., Truman, B. I., Vernon-Smiley, M., Johnson, V. C., Johnson, R. L., Fielding, J. E., Muntaner, C., Hunt, P. C., Jones, C. P., Fullilove, M. T., & Preventive Services Task Force. (2016). School-based health centers to advance health equity: A community guide systematic review. *American Journal of Preventive Medicine, 51*(1), 114–126. https://doi.org/10.1016/j.amepre.2016.01.009

Lo, C. B., Bridge, J. A., Shi, J., Ludwig, L., & Stanley, R. M. (2020). Children's mental health emergency department visits: 2007–2016. *Pediatrics, 145*(6), e20191536.

Love, H., Schlitt, J., Soleimanpour, S., Panchal, N., & Behr, C. (2019). Twenty years of school-based health care growth and expansion. *Health Affairs (Project Hope), 38*(5), 755–764. https://doi.org/10.1377/hlthaff.2018.05472

Lovenheim, M. F., Reback, R., & Wedenoja, L. (2016). *How does access to health care affect teen fertility and high school dropout rates? Evidence from school-based health centers* (No. w22030). National Bureau of Economic Research.

Maike, M.M., Osborne, M. & Nixon, A. (2019). Washington State (SM061861) Final Evaluation Report, October 2014 – September 2019. Report to the Office of Superintendent of Public Instruction.

Massey, O. T., Vroom, E. B., & Weston, A. N. (2021). Implementation of school-based behavioral health services over time: A longitudinal, multi-level qualitative study. *School Mental Health, 13*, 201–212. https://doi.org/10.1007/s12310-020-09407-5

McIntyre, E. M., Baker, C. N., & Overstreet, S. (2019). Evaluating foundational professional development training for trauma-informed approaches in schools. *Psychological Services, 16*(1), 95–102. https://doi.org/10.1037/ser0000312

Network, N. C. T. S., & Committee, S. (2017). *Creating, supporting, and sustaining trauma-informed schools: A system framework*. Los Angeles, CA, and Durham, NC: National Center for Child Traumatic Stress.

Newkirk, V. R. (2020). The Kids Aren't All Right. *The Atlantic*, March 24.

Odgers, C. L., & Jaffee, S. R. (2013). Routine versus catastrophic influences on the developing child. *Annual Review of Public Health, 34*, 29–48.

Oehlberg, B. (2008). Why schools need to be trauma informed. *Trauma and Loss: Research and Interventions, 8*(2), 1–4.

Perfect, M., Turley, M., Carlson, J., Yohanna, J., & Saint Gilles, M. (2016). School-related outcomes of traumatic event exposure and traumatic stress symptoms in students: A systematic review of research from 1990 to 2015. *School Mental Health, 8*(1), 7–43. https://doi.org/10.1007/s12310-016-9175-2

Perry, D., & Daniels, M. (2016). Implementing trauma—informed practices in the school setting: A pilot study. *School Mental Health, 8*(1), 177–188. https://doi.org/10.1007/s12310-016-9182-3

Peterson, K. E. (2019). *Teacher perspectives of trauma-informed professional development and implementing trauma-informed classroom procedures* (Order No. 13807126). Available from ProQuest Dissertations & Theses Global. (2205712308). Retrieved from http://login.proxy.library.vanderbilt.edu/login?url=https://search-proquest-com.proxy.library.vanderbilt.edu/docview/2205712308?accountid=14816.

Purtle, J. (2020). Systematic review of evaluations of trauma-informed organizational interventions that include staff trainings, 152483801879130–152483801879740 *Trauma, Violence, & Abuse, 21*(4). https://doi.org/10.1177/1524838018791304.

Reback, R., & Cox, T. (2016). Primary health care and children's academic achievement (Working Paper). Retrieved from http://www.csd.wustl.edu/publications/documents/wp13-15.pdf.

Reinke, W. M., Stormont, M., Herman, K. C., Puri, R., & Goel, N. (2011). Supporting children's mental health in schools: Teacher perceptions of needs, roles, and barriers. *School Psychology Quarterly, 26*(1), 1–13. https://doi.org/10.1037/a0022714

Ruch, D. A., Sheftall, A. H., Schlagbaum, P., Rausch, J., Campo, J. V., & Bridge, J. A. (2019). Trends in suicide among youth aged 10 to 19 years in the United States, 1975 to 2016. *JAMA, 2*(5), e193886.

Saleem, F. T., Anderson, R. E., & Williams, M. (2020). Addressing the "Myth" of racial trauma: developmental and ecological considerations for youth of color. *Clinical Child and Family Psychology Review, 23*, 1–14. https://doi.org/10.1007/s10567-019-00304-1

Shamblin, S., Graham, D., & Bianco, J. A. (2016). Creating trauma-informed schools for rural Appalachia: The partnerships program for enhancing resiliency, confidence and workforce development in early childhood education. *School Mental Health, 8*, 189–200. https://doi.org/10.1007/s12310-016-9181-4

Shonkoff, J. P., & Garner, A. S.; Committee on Psychosocial Aspects of Child and Family Health; Committee on Early Childhood, Adoption, and Dependent Care; Section on Developmental and Behavioral Pediatrics. (2012). Technical Report: The Lifelong Effects of Early Childhood Adversity and Toxic Stress, *Pediatrics,* 129(1): e232–e246.

Sparks, S. (2019). "Nobody Learns It in a Day": Creating Trauma-Sensitive Schools; With little to guide them, schools scramble to create learning environments for students in chronic stress. *Education Week, 39*(1).

Stein, B., Jaycox, L., Kataoka, S., Wong, M., Tu, W., Elliott, M., et al. (2003). A mental health intervention for schoolchildren exposed to violence: A randomized controlled trial. *JAMA: The Journal of the American Medical Association, 290*(5), 603–611. https://doi.org/10.1001/jama.290.5.603

Stratford, B., Cook, E., Hanneke, R., Katz, E., Seok, D., Steed, H., et al. (2020). A scoping review of school-based efforts to support students who have experienced trauma. *School Mental Health, 12*, 442–477. https://doi.org/10.1007/s12310-020-09368-9

Substance Abuse and Mental Health Services Administration. (2014). *Trauma-informed care in behavioral health services*. Treatment Improvement Protocol (TIP) Series 57. HHS Publication No. (SMA) pp. 13-4801. Rockville, MD: Author.

Substance Abuse and Mental Health Services Administration, Funding and Characteristics of Single State Agencies for Substance Abuse Services and State Mental Health Agencies, 2015 (2017). HHS Pub. No. (SMA) SMA-17-5029. Rockville, MD: Substance Abuse and Mental Health Services Administration.

Swain, W. (2018). School-Based Benefits of School-Based Health Services: Test Score and Attendance Effects of Non-Urban SBHCs. Working paper, University of Georgia.

Thomas, M. S., Crosby, S., & Vanderhaar, J. (2019). Trauma-informed practices in schools across two decades: An interdisciplinary review of research. *Review of Research in Education, 43*(1), 422–452. https://doi.org/10.3102/0091732X18821123

Vernberg, E. M., Roberts, M. C., & Nyre, J. E. (2008). The intensive mental health program: Development and structure of the model of intervention for children with serious emotional disturbances. *Journal of Child and Family Studies, 17*, 169–177. https://doi.org/10.1007/s10826-007-9157-y

Wilson, K. L. (2018). Effects of School Based Therapy and Expanded School Mental Health Initiatives on Student, School, and District Academic Success. Dissertation, Shenandoah University, May.

Yohannan, J., & Carlson, J. S. (2018). A systematic review of school-based interventions and their outcomes for youth exposed to traumatic events. *Psychology in the Schools, 56*(3), 447–464. https://doi.org/10.1002/pits.22202