Journal of Child & Adolescent Trauma (2023) 16:783–793
https://doi.org/10.1007/s40653-023-00550-0

ORIGINAL ARTICLE

Exploring School Professionals' Definitions of Childhood Trauma

Amanda M. Ferrara[1] · **Carlomagno C. Panlilio**[1] · **Christy Tirrell-Corbin**[2]

Accepted: 24 April 2023 / Published online: 29 June 2023

Abstract

Purpose: Little is known about school professionals' definitions of trauma outside of the context of trauma-informed school trainings. Methods: The present study used thematic analysis to explore school professionals' open-ended definitions of childhood trauma ($N = 1271$). Follow-up chi-square tests of independence were used to investigate differences in professionals' definitions based on their professional role and education. Results: Five themes were identified: effects of trauma, events of trauma, solutions to trauma, emotional responses, and no knowledge. Effects of trauma and events of trauma contained ten and five subthemes, respectively. School professionals who identified long-term effects of trauma on students most commonly listed general negative effects (e.g., "An experience or event that can negatively impact that child") instead of effects on specific domains such as behavior or emotions (e.g., "An experience that negatively impacted a child emotionally"). School professionals who identified an event of trauma most commonly provided examples of trauma (e.g., child maltreatment) or a general definition of trauma. School professionals' roles and education were somewhat related to their definitions of childhood trauma. Findings suggest that childcare providers and professionals without a bachelor's degree have gaps in their knowledge of child trauma. Conclusions: These results suggest school professionals have some foundational knowledge about trauma, but it is not universal. To best serve school professionals working with this vulnerable population of students, researchers and practitioners should design future trauma-informed professional development opportunities around school professionals' prior knowledge and understanding of trauma as well as their potential misunderstandings of trauma.

Keywords School professionals' knowledge · Trauma-informed practices · Trauma-informed principles · Traumatic events · Professional development

Introduction

Childhood trauma is a widespread, harmful, and costly public health concern, which is defined as an event or set of events that are perceived to be physically or emotionally harmful, resulting in lasting adverse effects on an individual's functioning or well-being (Substance Abuse and Mental Health Services Administration [SAMHSA], 2014). In the United States, approximately 58% of children from birth to age 18 have experienced one traumatic event, and 35% have experienced two or more (e.g., child maltreatment, community and school violence, natural disasters; Giano et al., 2020). Of particular importance is complex trauma, which is defined as one or more traumatic events that begin in early childhood and are chronic, invasive, and interpersonal (Cook et al., 2003; Wamser-Nanney & Vandenberg, 2013). These events often occur with a caregiver and result

✉ Amanda M. Ferrara
amf5545@psu.edu

✉ Christy Tirrell-Corbin
ctc@umd.edu

Carlomagno C. Panlilio
ccp15@psu.edu

[1] Department of Educational Psychology, Counseling, and Special Education, The Pennsylvania State University, 228 CEDAR Building University Park, Pennsylvania, PA 16802, USA

[2] Department of Human Development and Quantitative Methodology, University of Maryland, 3304 Benjamin Building College Park, Maryland, MD 20742, USA

in long-term negative effects (The National Child Traumatic Stress Network, n.d.-a).

The early negative consequences of trauma often interfere with students' success in preK-12 school (Panlilio et al., 2018; Mullins & Panlilio, 2021; Schatz et al., 2008; Schultz et al., 2009). In particular, children and adolescents who have experienced early trauma often demonstrate poor mental health outcomes, such as increased anxiety, depression, posttraumatic stress, and suicide ideation (Jonson-Reid et al., 2012; Kaplow & Widom, 2007; Wamser-Nanney & Vandenberg, 2013), poor behavioral, cognitive, and emotion self-regulation outcomes, such as increased internalizing and externalizing behaviors (Hanson et al., 2017; Heleniak et al., 2016; Kim-Spoon et al., 2013; Moylan et al., 2010; Schatz et al., 2008; Teisl & Cicchetti, 2008; Wamser-Nanney & Vandenberg, 2013), poor interpersonal skills, such as increased social problems and aggression (Jimenez et al., 2016; Teisl & Cicchetti, 2008), and poor academic achievement (Crozier & Barth, 2005; Slade & Wissow, 2007). Given their daily interactions with children, school professionals, including teachers, administrators, and school counselors and psychologists, are in a unique position to address student needs associated with traumatic experiences (e.g., mental health counseling, self-regulation support, academic tutoring, differential instruction). To support school professionals in addressing these needs, there has been an increased attention to implementing trauma-informed principles and practices within schools (Stratford et al., 2020).

School-Based Trauma-Informed Principles and Practices

Trauma-informed principles are foundational ideas that guide beliefs and actions in a trauma-informed approach (SAMHSA, 2014; Wolpow et al., 2016). Trauma-informed principles are often generalizable across multiple types of settings and inform how all school professionals are to treat students and each other (SAMHSA, 2014; Wolpow et al., 2016). Examples include provision of unconditional positive regard; creation of spaces for physical and psychological safety; maintenance of high expectations; ongoing checking of assumptions; use of empowerment, peer support, and collaboration; and seeking to understand and respect cultural, historical, and gender issues (SAMHSA, 2014; Wolpow et al., 2016). Trauma-informed practices are specific procedures or strategies to help school professionals recognize the signs of trauma, respond to the effects of trauma, and avoid re-traumatization (SAMHSA, 2014). Such practices include screening for trauma, implementing socio-emotional learning curricula, using alternatives to suspension, holding workshops with students about coping with stress, building coordinated care teams, and implementing intensive and targeted services to address mental health issues for specific students (Dorado et al., 2016; Perry & Daniels, 2016; Shamblin et al., 2016; Walkley & Cox, 2013). Often, implementing trauma-informed principles and practices requires organizational change of the physical environment of schools; school policy and governance; cross-sector and community collaborations; screening, assessment, and treatment services; progress monitoring and quality assurance processes; financing; and evaluation techniques (McInerney & McKlindon, 2014; SAMHSA, 2014). However, before an organizational change can take place, schools must implement professional development around trauma for school professionals (Chafouleas et al., 2016; Cole et al., 2013; Dorado et al., 2016; Overstreet & Chafouleas, 2016; Perry & Daniels, 2016; Plumb et al., 2016).

In their blueprint for trauma-informed service delivery in schools, Chafouleas et al. (2016) recommend that trauma-informed professional development for school professionals begin with building a consensus on what trauma is, who experiences trauma and why, and how trauma affects children's development, behavior, relationships with others, and learning. Next, school professionals can be trained in the use of strategies to support students' functional responses to trauma (Cole et al., 2013; Perry & Daniels, 2016; Wolpow et al., 2016). Knowledge of trauma and the strategies to address traumatic responses are linked, as school professionals must understand how students' functional responses within the domains of mental health and self-regulation may be related to academic achievement.

School Professionals' Knowledge and Understanding of Trauma

Despite several trauma-informed professional development opportunities that have been introduced over the last decade, little work has been done to investigate school professionals' baseline understanding of trauma, the effects of trauma, or trauma-informed principles or practices (Stratford et al., 2020). In fact, a recent systematic review found that school professionals' understanding of trauma and use of trauma-informed practices was measured as an outcome in only 1 of the 25 experimental or quasi-experimental reviewed studies (Stratford et al., 2020). In this study, at the completion of a year in which school professionals implemented a multi-tiered trauma-informed framework, professionals completed a retrospective survey to assess their change in knowledge about trauma and its effects on children, trauma-informed practices, and burnout and vicarious re-traumatization (Dorado et al., 2016). Although the study found gains in each of these domains, the retrospective nature of the

survey obfuscates school professionals' knowledge about trauma prior to the intervention.

There has been some additional work to understand professionals' attitudes and knowledge about trauma-informed practices. Baker et al. (2016) developed the Attitudes Related to Trauma-Informed Care (ARTIC), which assesses understanding of underlying causes of problem behavior and symptoms, responses to problem behavior and symptoms, on-the-job behavior, self-efficacy at work, and reactions to work. Baker et al. (2016) found that individuals working in human services and health care endorsed more trauma-informed care principles than those working in schools. This suggests that school professionals may be lacking the foundational information needed to implement such trauma-informed principles and practices. In addition, although Baker et al. (2016) provided reliability and validity support for the measure, a recent study failed to replicate the original factor structure of the scale and raised other issues about some of the survey items included (e.g., double-barreled items, lack of mutually exclusive response options; Stokes et al., 2020). Considering these measurement problems, the results reported by Baker et al. (2016) concerning school professionals' ARTIC scores may be an inaccurate representation of professionals' true knowledge.

Outside of the context of schools, one study developed and implemented a trauma-informed care questionnaire. In this study, Kenny et al. (2017) had professionals working at a child advocacy center complete the questionnaire pre- and post-training about trauma-informed practices. On the pre-questionnaire, Kenny et al. (2017) found that White participants demonstrated higher trauma-informed practice knowledge scores than their Black and Hispanic counterparts, and those with bachelor's and graduate degrees had higher scores than those with high school diplomas. While this finding suggests that professionals with different backgrounds may have differences in knowledge of trauma, it does not clearly identify what professionals know at baseline. Upon finding a significant difference in participants' pre- and post-questionnaires, Kenny et al. (2017) identified the items on which there was a significant difference. The authors report these items represent two domains: characteristics of children with trauma (e.g., definition of trauma, common age of traumatic events, causes of secondary trauma) and optimizing treatment of children's trauma (e.g., essential components of trauma-informed care, maximizing feelings of safety for children, sensitivity to children's culture). This finding suggests that these are the domains that child advocacy center professionals have low knowledge of at baseline. However, it remains unclear which domains school professionals may have low knowledge of when it comes to trauma-informed principles and practices.

Without professional development, school professionals are often lacking the knowledge of trauma and its effects, meaning they are often unaware of the presence of traumatic events in students' lives as well as fail to connect behavioral indicators to events of trauma (Tishelman et al., 2010). Instead, school professionals may mislabel students as "lazy," "lacking cognitive capacity," or as "having a disorder" (Tishelman et al., 2010). A few studies have found that school professionals self-report needing additional training on identifying students with trauma and trauma reactions, as well as strategies to address these reactions (Alisic, 2012; Baweja et al., 2016). Indeed, few school professionals receive explicit training in their pre-professional programs to address the needs of children who have experienced traumatic events, leaving them to learn these skills on the job or through specialized professional development that focuses on trauma-informed principles and practices (Phifer & Hull, 2016; SAMHSA, 2014).

School professionals' knowledge and understanding of trauma and its effects on student learning is important in effectively designing and implementing professional development around trauma. Without a clear understanding of school professionals' prior knowledge or potential misconceptions around trauma, it is difficult to design a professional development targeting the necessary or most important topics. As the literature agrees that professional development is the core of a trauma-informed schools approach (Chafouleas et al., 2016; Cole et al., 2013; Dorado et al., 2016; McInerney & McKlindon, 2014; Overstreet & Chafouleas, 2016; Perry & Daniels, 2016; Plumb et al., 2016), any trainings delivered must be high-quality and consider school professionals' prior knowledge.

Regardless of prior experiences with professional development, school professionals' working definitions of trauma may not necessarily account for individual differences in the developmental effects of trauma (e.g., mental health problems, poor self-regulation, poor academic achievement) that result from the interactions between student characteristics and environmental factors (Jimenez et al., 2016; Jonson-Reid et al., 2012; Kim-Spoon et al., 2013; Moylan et al., 2010; Schatz et al., 2008). Moreover, definitions of trauma employed within current school-based trauma-informed professional development may not readily lend themselves to implementing trauma-informed practices. School professionals must be aware of the sequelae of childhood adversity and utilize trauma-informed classroom-based and school-wide practices in order to support students with experiences of trauma (Chafouleas et al., 2016; Shamblin et al., 2016; Walkley & Cox, 2013). Considering the lack of research about school professionals' knowledge and understanding of trauma as well as a need for school professionals to have an accurate working definition of traumatic events and their

impact on students' development and learning, the goal of the present study was to explore how school professionals define childhood trauma.

Table 1 Demographic Characteristics

Characteristic	*n*	%
Gender	40	4.3
Male	884	95.0
Female	1	0.1
Other	6	0.6
Do not wish to specify		
Role	290	22.8
Childcare provider (birth – age 3)	257	20.2
Early educator (pre-k – grade 1)	88	6.9
Primary school teacher (grades 2–5)	40	3.1
Middle school teacher (grades 6–8)	43	3.4
High school teacher (grades 9–12)	22	1.7
Special educator	14	1.1
Behavioral interventionist	59	4.6
School psychologist	26	2.0
School counselor	42	3.3
Social worker	38	3.0
Principal	19	1.5
Vice principal	188	14.8
Childcare center director	5	0.4
Superintendent	25	2.0
Home visitor	114	9.0
Other		
School type	479	37.7
Public school	157	12.4
Private school	21	1.7
Charter school	2	0.2
Cyber/virtual school	408	32.1
Childcare center	204	16.1
Other		
Race/Ethnicity	8	0.9
American Indian/Alaskan Native	704	75.7
White/Caucasian	121	13.0
Black/African American	10	1.1
Asian/Pacific Islander	8	0.9
Indian/South Asian	30	3.2
Hispanic/Latino(a)	26	2.8
Two or more	5	0.5
Other	18	1.9
Do not wish to specify		
Education	30	3.2
High school diploma/GED	80	8.6
Some college	78	8.4
Associate degree	188	20.1
Bachelor's degree	81	8.7
Some graduate	447	47.9
Master's degree	30	3.2
Doctorate		

Note. These variables have differing total sample sizes values due to attrition in the survey.

Method

As a precursor for the development of a classroom-based trauma-informed curriculum for teachers, a needs assessment was designed to capture the perspectives of school professionals.

Procedure

The survey was distributed via social media (i.e., Facebook and Twitter) and education-related listserv emails and utilized snowball sampling over the span of four months. Participants were incentivized to participate by being entered into a drawing for one of ten $50 Amazon gift cards. The current analysis focused on one open-ended question in the needs assessment to investigate school professionals' definitions of childhood trauma (i.e., "How would you define childhood trauma?") and participants' professional roles. Participants provided informed consent prior to participating in the study, which was approved by the Institutional Review Board.

Participants

We received partial responses from 1,754 childcare and pre-k to grade 12 school professionals across 40 states. Participants were list-wise deleted ($n=483$) if they did not answer the open-ended question used in the present study. Participants who responded to the open-ended question analyzed for this study did not differ from those who did answer in terms of their gender ($\chi^2(3, N=959)=3.27$, $p=.352$), the type of school they worked at ($\chi^2(5, N=1521)=3.832$, $p=.574$), or their education level ($\chi^2(6, N=963)=5.56$, $p=.474$). However, they did differ in their roles ($\chi^2(15, N=1734)=60.44$, $p<.001$) and race/ethnicity ($\chi^2(8, N=957)=16.67$, $p=.034$). Using an absolute value of three as a cutoff (Agresti et al., 2007), the standardized adjusted residuals suggested that there were fewer school professionals who answered the open-ended question in the "other" category than statistically expected. All standardized adjusted residuals were less than the absolute value of three in the analysis focused on participants' race/ethnicity, which suggests that while differences in race/ethnicity between those who answered the open-ended question and those who did not is statistically significant, it may not be practically significant. See Table 1 for demographics of the sample ($N=1271$).

Analytic Strategy

Using thematic analysis, the first author and two undergraduate research assistants coded open-ended responses to the

question, "How would you define childhood trauma?" To begin, the coding team read through all participant responses and inductively identified an initial set of 13 codes. After three rounds of practice coding, the team added 5 additional codes and agreed saturation had been reached. All responses were then coded by two team members. The coding team met weekly to discuss questions, progress, and inter-rater reliability. Inter-rater reliability (Cohen's κ) reached at least moderate agreement (between 0.41 and 0.60), with many reaching good (between 0.61 and 0.80) or very good (between 0.81 and 1.00) agreement (see Table 2).

Responses were coded using an essentialist, or realist, view that interprets participants' experiences and meanings are as they are presented. All codes focus on the semantic level by describing and interpreting what participants have said. After all the responses were coded, the coding team came to consensus for all codes. These final consensus codes are used in the present analyses. The final codes were then sorted into themes and subthemes by the first author. Follow-up chi-square tests of independence were used to investigate potential differences in definitions based on participants' professional role and education.

Results

The coding team identified five themes and 15 subthemes using 18 codes. The structure of the themes and subthemes, as well as the inter-rater reliability coefficients (Cohen's κ) for each code are presented in Table 2. Inter-rater reliability for each code reached at least the moderate agreement (between 0.41 and 0.60), with many reaching good (between 0.61 and 0.80) or very good (between 0.81 and 1.00) agreement.

Table 2 Inter-Rater Reliability and Descriptive Statistics of Themes and Subthemes

Themes	Subthemes	Exemplar Response	Cohen's κ	*n*	*%*
Effects of trauma					
	Non-specific	"An experience or event that can negatively impact that child."	0.76	436	34.3
	Emotions	"An experience that negatively impacted a child emotionally."	0.87	248	19.5
	Physical being	"Events they are exposed to that cause emotional, psychological or physical harm."	0.90	138	10.9
	Stress	"An incident or incidents that happen to a child which cause…stress."	0.79	89	7.0
	Social interactions	"A life altering event in which a child's social [interactions are] disrupted."	0.93	84	6.6
	Learning	"Experiences that children have that…affect learning…in the classroom."	0.89	67	5.3
	Behaviors	"Any experience that creates negative behavior."	0.82	59	4.6
	Mental health	"Anything that negatively affects the child mentally."	0.82	58	4.6
	Well-being	"An event that negatively impacts a child's well-being."	0.93	57	4.5
	Psychological safety	"Anything that causes a child to feel unsafe and not being able to process what happened at another time."	0.82	57	4.5
Events of trauma					
	Examples	"abuse and neglect"	0.87	355	27.9
	General definition	"emotional situations in home or at school environment"	0.70	252	19.8
	Environment	"poverty"	0.63	141	11.1
	Physical events	"traumatic brain injury"	0.47	41	3.2
	Specific definition	"National Child Traumatic Stress Network definition"	0.92	12	0.9
Solutions to trauma		"school counselor"	0.52	17	1.3
Emotional response		"it makes me feel sad"	0.53	8	0.6
No knowledge		"I don't know"	0.86	8	0.6

Effects of Trauma

The first theme, effects of trauma, appeared in 701 of participants' responses (55.2%). These responses focused on the effects or outcomes due to traumatic experiences. Participants used words such as "impact," "influence," "disrupt," "alter," "effects," and "outcomes." The coding team identified ten subthemes within this theme. Most cited ($n=436$) were general or non-specific effects. For example, one school professional defined childhood trauma as "Events or situations that have lasting long term effects or consequences." Some school professionals ($n=248$) also identified emotional effects of trauma, with definitions such as "Any event that causes a child to have ongoing/chronic… emotional…problems," or definitions that focused on specific emotions such as "a horrible experience which left the child scared, worried, mad." Some school professionals ($n=138$) cited the effects of trauma on children's physical being: "Any event that leaves a lasting, negative impression on a child…physically and that impedes their success in daily life." Fewer school professionals wrote about effects on stress ($n=89$), social interactions ($n=84$), learning ($n=67$), behavior ($n=59$), mental health ($n=58$), well-being ($n=57$), or psychological safety. See Table 2 for exemplar quotes.

Events of Trauma

The second theme, events of trauma, appeared in 639 of participants' responses (50.3%). For school professionals who defined trauma as an event, understanding was typically limited to examples or a general definition. Most commonly, participants ($n=355$) cited examples of trauma, with definitions including "abuse and neglect," "student loses a loved one," "rape, robbery, violent crime," and "divorce, bullying." Other participants ($n=252$) defined childhood trauma more generally, with phrases such as "A horrible experience or accident/event," "A temporary inability for a child to cope with crisis," and "Experiences of extreme danger, fearful situations, or deprivation during childhood." While some participants did mention effects of trauma (e.g., stress, fear, inability to cope), it is important to note these were not long-term consequences of trauma and were therefore not included in the effects of trauma theme. Fewer participants ($n=141$) cited the environment of a child as the source of trauma, with answers such as "poverty," "witnessing violence," or "poor environment that is not conducive to a safe environment to learn." Few participants ($n=41$) identified physical events that result in trauma such as "illness," "accidents," "traumatic brain injury (falls)," and "shaken baby syndrome." Importantly, the physical events subtheme was created to capture physical events causing trauma (e.g., long-term hospitalization for a genetic condition) in contrast to traumatic events that result in physical effects of trauma (e.g., physical harm to a child as a result of child abuse). Finally, very few participants ($n=12$) provided specific definitions from sources providing information about childhood trauma. For example, one participant said, "NCTSN definition," referring to the National Child Traumatic Stress Network (The National Child Traumatic Stress Network, n.d.-b). Other participants referenced the Adverse Childhood Experiences study (Felitti et al., 1998), with phrases like "A child or parent's ACE score" or "Anything from the ACE."

Solutions to Trauma, Emotional Responses, and no Knowledge of Trauma

The third theme, solutions to trauma, was cited by 17 school professionals (1.3%). Some responses were surface level, with school professionals referring to school clinicians or administrators (e.g., "school counselor," "administration") or that trauma presents a problem (e.g., "Something to solve"). Others provided more thoughtful answers such as "An event…for which they need emotional support or counseling." The fourth theme, emotional responses, appeared in only eight responses (0.6%). All participants provided one-word responses, a few of which were "horrible," "hurtful," "overwhelming," and "sad." In the final theme, eight participants (0.6%) admitted having no knowledge of childhood trauma.

Differences in Definitions Based on Professionals' Roles and Education

Professionals in different roles (e.g., childcare providers, school psychologist, school administrator) have different levels of professional training, and thus may differ in their definitions provided (e.g., Baker et al., 2016; Kenny et al., 2017). The relationship between school professionals' roles and their definitions of childhood trauma was investigated using a series of chi-square tests of independence. Interpretations of associated variables were based on standardized adjusted residuals greater than an absolute value of three (Agresti et al., 2007). Fewer childcare providers than statistically expected gave a non-specific effect of trauma as part of their definition ($\chi^2(15, N=1271)=32.743, p=.005$). In addition, fewer childcare providers than statistically expected gave effects on emotions as part of their definition, while more early educators than statistically expected provided effects on emotions as part of their definition ($\chi^2(15, N=1271)=32.949, p=.005$). More childcare providers than statistically expected gave a general definition as part of their definition ($\chi^2(15, N=1271)=26.917, p=.029$). More "other" professionals (e.g., speech language pathologist,

librarian, academic adviser, curriculum specialist, nurse) than statistically expected gave a specific definition as their definition ($\chi^2(15, N=1271)=34.014, p=.003$). Finally, more childcare providers gave an emotional response than statistically expected ($\chi^2(15, N=1271)=27.233, p=.027$). There was not a relationship between school professionals' roles and any other aspect of their definition. For more information, see Table 3.

School professionals' education may have also contributed to differences in their definitions provided (e.g., Baker et al., 2016; Kenny et al., 2017). Therefore, the relationship between school professionals' education and their definitions of childhood trauma was also investigated using a series of chi-square tests for independence. Again, interpretations of associated variables were based on standardized adjusted residuals greater than an absolute value of three (Agresti et al., 2007). Professionals with some graduate credits were less likely than statistically expected to provide non-specific effects of trauma as part of their definition, while professionals with a doctorate were more likely than statistically expected to provide non-specific effects of trauma as part of their definition ($\chi^2(6, N=943)=22.589, p<.001$). Professionals with a doctorate were also more likely than statistically expected to provide a specific definition of trauma ($\chi^2(6, N=943)=15.895, p=.014$). Professionals with a high school diploma were more likely than statistically expected to provide a solution to trauma as their definition ($\chi^2(6, N=943)=21.618, p=.001$). Finally, professionals with some college credits were more likely than statistically expected to provide an emotional response ($\chi^2(6, N=943)=15.350, p=.018$). There was not a relationship between school professionals' education and any other aspect of their definition. For more information, see Table 3.

Discussion

The present study explored school professionals' definitions of childhood trauma by using thematic analysis to examine responses to an open-ended online survey question. Overall, the results of the present study show that school professionals do not have a unified definition of childhood trauma. Approximately half of school professionals identified the long-term effects of trauma on students. However, most commonly, school professionals listed general negative effects instead of effects on specific domains such as behavior or emotions. This may suggest that many school professionals have some foundation in identifying the effects of trauma, but this knowledge is not universal. Approximately half of school professionals also identified an event of trauma, with many school professionals providing examples of trauma (e.g., child maltreatment, poverty) or a more general definition of trauma. This may suggest many school professionals may have a superficial understanding of childhood trauma. That is, it seems that the school professionals with these definitions can understand what events can cause traumatic responses but may lack a deeper understanding of what

Table 3 Chi-Square Analyses Investigating the Relationships Between School Professionals' Role, Education, and Definitions

Themes	Subthemes	School Professionals' Role χ^2 ($df=15, N=1271$)	School Professionals' Education χ^2 ($df=6, N=934$)
Effects of trauma			
	Non-specific	32.743*	22.589*
	Emotions	32.949*	10.737
	Physical being	14.335	4.896
	Stress	20.185	6.819
	Social interactions	18.170	4.518
	Learning	18.601	11.126
	Behaviors	18.458	3.819
	Mental health	12.695	8.168
	Well-being	19.786	4.355
	Psychological safety	19.986	7.776
Events of trauma			
	Examples	15.044	10.811
	General definition	26.917*	4.617
	Environment	21.002	7.101
	Physical events	15.112	2.489
	Specific definition	34.014*	15.895*
Solutions to trauma		10.731	21.618*
Emotional response		27.233*	15.350*
No knowledge		10.504	6.485

* $p<.05$

traumatic events mean for students in their schools (e.g., effects on behavior, socioemotional development, learning).

A few school professionals provided solutions; however, their definitions suggested they meant for other professionals such as school counselors or administrators to address problems associated with trauma. For the few school professionals who provided emotional responses, it appeared that their understanding was limited to sympathy for students who have experienced trauma. Furthermore, a few participants admitted having no knowledge of childhood trauma. This is particularly concerning, given that school professionals are in a position to notice changes in students' behavior and emotional responses as well as provide support to these students. Without any knowledge or awareness of trauma, school professionals may miss these warning signs, and students may slip through the cracks without receiving the support they need. These last three themes (i.e., solutions to trauma, emotional responses, and no knowledge) appear to suggest these school professionals do not view childhood trauma as an issue they can or should address in their day-to-day work.

School professionals' roles were somewhat related to their definitions of childhood trauma. Specifically, childcare providers, early educators, and professionals who endorsed the "other" category demonstrated differences in their definitions of childhood trauma. Childcare providers were less likely to provide non-specific effects (i.e., general negative effects on a child's life instead of negative effects on specific domains such as behavior, emotion, or learning) of trauma as well as trauma effects on emotions, and they were more likely to provide a general definition of childhood trauma or an emotional response to trauma. This finding may suggest that childcare providers understand trauma as an event or something sad that happens to a child instead of thinking first of how traumatic events impact children. This finding is also reflects prior research, which found that childcare providers have gaps in their knowledge about early childhood development (Zambo, 2008). Thus, childcare providers may have an increased need for trauma-informed professional development. Early educators were more likely to provide effects of trauma on children's emotions as part of their definition, which may be due to the strong predictive relationship between emotion regulation and early academic success (e.g., Graziano et al., 2007). In other words, early educators may be more attuned to children's emotion dysregulation as a warning sign indicating students need further support. Finally, professionals who endorsed the "other" category were more likely to provide a specific definition (e.g., NCTSN's definition) of childhood trauma. This finding may suggest that these professionals (e.g., speech language pathologist, academic adviser, curriculum specialist) have more specialized training in trauma-informed principles and practices. For example, many school nurses have participated in workshops on trauma-informed care (Bergren, 2021).

School professionals' education was also somewhat related to their definitions of childhood trauma. Specifically, professionals without a bachelor's degree, professionals without a graduate degree, and professionals with a doctorate demonstrated differences in their definitions of childhood trauma. Professionals without a bachelor's degree (i.e., high school diploma or equivalent or have some college credits) were more likely to provide a solution or an emotional response. On one hand, it may be encouraging that these professionals are more likely to refer students to another professional who has specific expertise in addressing trauma. On the other hand, this finding may suggest that professionals who do not have a bachelor's degree have limited knowledge of how to address student-level trauma. In fact, prior research has found that after in-service professional development, paraeducators (i.e., typically educators without bachelor's degrees) demonstrated lower knowledge of training content compared to their general education peers (Bertuccio et al., 2019). In addition, Kenny et al. (2017) found that child advocacy center professionals with bachelor's and graduate degrees demonstrated higher trauma-informed practice knowledge scores compared to those with high school diplomas. Thus, these professionals may have an increased need for trauma-informed professional development with a focus on connecting their prior knowledge and experiences to the to-be-learned content. Professionals without a graduate degree (i.e., some graduate credits) were less likely to provide non-specific effects of trauma as part of their definition. This finding may suggest they understand trauma as an event or as having specific effects on children (e.g., effects on emotions, behavior, learning) instead of thinking first of more general effects of trauma. Furthermore, this may suggest that these professionals have a foundation to understand childhood trauma, but they are looking for specific warning signs instead of taking a holistic approach. Finally, professionals with a doctorate were more likely to provide non-specific effects of trauma as part of their definition as well as a specific definition (e.g., NCTSN's definition). This finding may suggest that these professionals have more expertise in, experience with, or tools to locate information concerning trauma-informed principles and practices. In fact, one study found that educators were more likely to complete their doctoral degree if they engaged in professional development as part of their degree (Burton, 2020), which suggests that by the time educators have received their doctoral degree they have not only specialized expertise but also increased experiences and professional development.

Implications for Trauma-Informed Professional Development

In line with recommendations to develop trauma-informed schools, the results of this study imply that sustained

professional development about trauma is warranted for all school professionals (Chafouleas et al., 2016). As the current study found that school professionals did not have a common understanding of childhood trauma, those designing professional development opportunities may wish to consider including very basic information about childhood trauma (e.g., prevalence rates, types of events considered traumatic) as well as strategies for how to recognize and respond to the effects of trauma within the school (Compton et al., 2023; Chafouleas et al., 2016) recommend school professionals develop "an appreciation of the complexity of trauma exposure" (p. 146), which suggests that school professionals not only require comprehensive training, but also need to arrive at a school-wide perspective shift. Then, this perspective shift can drive trauma-informed practices implemented within the school.

Furthermore, the results of this study may indicate that school professionals—in particular, professionals without a bachelor's degree and childcare providers—have some misunderstandings of what trauma is and how it can be addressed in a school setting. For example, the solutions and emotional reponses definitions suggest that school professionals providing these responses feel that they have little control or impact over the effects of trauma on students. That is, by recommending that other professionals address children's trauma or only sympathizing with students, they seem to lack the knowledge of agency to respond to trauma themselves. The school professionals' responses that failed to name effects of trauma may suggest that these school professionals know what trauma is but not how to recognize and respond to its effects. It is unclear whether these respondents did not choose to include the effects of trauma in their definition, are not aware of the effects of trauma, or have misunderstandings about the long-term effects of traumatic events. However, understanding these effects on students is critical to build a trauma-informed school, especially because emerging evidence suggests the presence of symptoms of trauma rather than traumatic events is predictive of academic performance (Ferrara & Panlilio, 2020; Mullins & Panlilio 2021). Future professional development should consider not only potential gaps in knowledge of trauma, but also potential misunderstandings about who is responsible (e.g., trauma is something for a mental health practitioner to solve) for supporting students who have experienced trauma.

Limitations

The present study is limited by its sampling recruitment. As the study employed snowball sampling via education-related list-servs and social media, the sample was not purposeful. Although the sample may not be representative of all school professional roles (i.e., majority childcare and early education), the demographic characteristics of the sample are characteristic of the field of school professionals in the continental United States as a whole (i.e., majority female, White/Caucasian, bachelor's or master's degree holders; McFarland et al., 2019). In addition, although the study employed a lottery incentive, survey participation was voluntary. This may mean that school professionals who participated in the study were interested in the topic area. However, the results of the study suggest that although the sample may be interested in the topic, they are not necessarily well-informed of what traumatic experiences entail.

Future Research Implications and Directions

Future work is needed to further unpack school professionals' definitions and understanding of trauma both within and outside of professional development. Within the context of professional development, school professionals' definitions and understanding of trauma is important to the development, implementation, and evaluation of such professional development opportunities. As previously mentioned, those designing professional development need accurate information about school professionals' knowledge and potential misunderstandings to develop and implement appropriate and effective professional development targeting the necessary or most important topics. For the evaluation of professional development, it is imperative to accurately measure school professionals' change in their knowledge of trauma from pretest to posttest. Kenny et al. (2017) and Baker et al. (2016) have begun to develop standardized measures to assess knowledge of trauma-informed practices; however, more work in this area is warranted, especially regarding differential knowledge of school professionals. For example, the present study suggests that childcare providers and professionals without a bachelor's degree have gaps in their knowledge of child trauma. More work is needed to understand these gaps and how to properly address them.

Outside of the context of professional development, there is little research examining school professionals' definitions or understanding of trauma, but it has been suggested that school professionals are often unaware of the presence of traumatic events in students' lives as well as fail to connect behavioral indicators to events of trauma (Tishelman et al., 2010). Future research is needed to examine what school professionals know about trauma at a baseline level, as this may relate to the way they interact with students (Tishelman et al., 2010).

Conclusion

This study is an important exploration of school professionals' definitions of childhood trauma outside of the context of trauma-informed professional development. School

professionals included in the present study demonstrated a range of definitions of childhood trauma, with many failing to provide an understanding of the effects of trauma. Without a clear understanding of childhood trauma and its effects on child development and learning, school professionals are at a disadvantage to identify students who have experienced trauma or provide effective supportive strategies. Trauma-informed professional development for all school personnel is a necessary first step in creating a trauma-informed school (Chafouleas et al., 2016), and training of this nature should be aware of and respond to school professionals' prior knowledge and potential misunderstandings of trauma and effective supports for students.

Acknowledgments We also wish to acknowledge the qualitative coding efforts of Molly Milani and Justin Goldberg, who helped make this project possible.

Author Contributions All authors contributed to the study conception and design, material preparation, and data collection. Funding acquisition and project administration were performed by Christy Tirrell-Corbin and Carlomagno Panlilio. Analyses were performed by Amanda Ferrara. The first draft of the manuscript was written by Amanda Ferrara and all authors commented on previous versions of the manuscript. All authors read and approved the final manuscript.

Funding Funding for this project was provided by the Bainum Family Foundation.

Declarations

Conflicts of Interest/Competing Interests The authors have no relevant financial or non-financial interests to disclose.

Ethics Approval The questionnaire and methodology for this study was approved by the Institutional Review Board (IRB) at the University of Maryland (IRB approval number: 1074917-5).

Informed Consent to Participate Informed consent was obtained from all individual participants included in the study.

References

Agresti, A. (2007). An introduction to categorical data analysis (2nd ed.). Wiley.

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

Baker, C. N., Brown, S. M., Wilcox, P. D., Overstreet, S., & Arora, P. (2016). Development and psychometric evaluation of the Attitudes related to trauma-informed care (ARTIC) Scale. School Mental Health, *8*(1), 61–76. https://doi.org/10.1007/s12310-015-9161-0

Baweja, S., Santiago, C. D., Vona, P., Pears, G., Langley, A., & Kataoka, S. (2016). Improving implementation of a school-based program for traumatized students: Identifying factors that promote teacher support and collaboration. School Mental Health, *8*(1), 120–131. https://doi.org/10.1007/s12310-015-9170-z

Bergren, M. D. (2021). Post-COVID-19: Trauma-informed care for the school community. The Journal of School Nursing, *37*(3), 145–145. https://doi.org/10.1177/10598405211004709

Bertuccio, R. F., Runion, M. C., Culler, E. D., Moeller, J. D., & Hall, C. M. (2019). A comparison of autism-specific training outcomes for teachers and paraeducators. Teacher Education and Special Education, *42*(4), 338–354. https://doi.org/10.1177/0888406419839771

Burton, E. (2020). Factors leading educators to pursue a doctorate degree to meet professional development needs. International Journal of Doctoral Studies, *15*, 75–87. https://doi.org/10.28945/4476

Chafouleas, S. M., Johnson, A. H., Overstreet, S., & Santos, N. M. (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

Cole, S. F., Eisner, A., Gregory, M., & Ristuccia, J. (2013). *Helping traumatized children learn: Creating and advocating for trauma-sensitive schools*. Trauma and Learning Policy Initiative. https://traumasensitiveschools.org/tlpi-publications/

Cook, A., Blaustein, M., Spinazzola, J., & van der Kolk, B. A. (Eds.) (2003). *Complex trauma in children and adolescents*. National Child Traumatic Stress Network. https://www.nctsn.org/sites/default/files/resources//complex_trauma_in_children_and_adolescents.pdf

Compton, A. B., Panlilio, C. C., & Humphreys, K. L. (2023). What's the matter with ACEs? Recommendations for considering early adversity in educational contexts. Child Abuse & Neglect, 142, 106073. https://doi.org/10.1016/j.chiabu.2023.106073

Crozier, J. C. & Barth, R. P. (2005). Cognitive and academic functioning in maltreated children. Children and Schools, *27*(4), 197–206. https://doi.org/10.1093/cs/27.4.197

Dorado, J. S., Martinez, M., McArthur, L. E., & 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

Ferrara, A. M., & Panlilio, C. C. (2020). The role of metacognition in explaining the relationship between early adversity and reading comprehension. Children and Youth Services Review, 112, 1–10. https://doi.org/10.1016/j.childyouth.2020.104884

Felitti, V. J., Anda, R. F., Nordenberg, D., Williamson, D. F., Spitz, a M., Edwards, V., Koss, M. P., & Marks, J. S. (1998). Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults. The adverse childhood experiences (ACE) study. American Journal of Preventive Medicine, *14*(4), 245–258. https://doi.org/10.1016/S0749-3797(98)00017-8

Giano, Z., Wheeler, D. L., & Hubach, R. D. (2020). The frequencies and disparities of adverse childhood experiences in the U.S. BMC Public Health, *20*(1). https://doi.org/10.1186/s12889-020-09411-z

Graziano, P. A., Reavis, R. D., Keane, S. P., & Calkins, S. D. (2007). The role of emotion regulation in children's early academic success. Journal of School Psychology, *45*(1), 3–19. https://doi.org/10.1016/j.jsp.2006.09.002

Hanson, J. L., van den Bos, W., Roeber, B. J., Rudolph, K. D., Davidson, R. J., & Pollak, S. D. (2017). Early adversity and learning: Implications for typical and atypical behavioral development. Journal of Child Psychology and Psychiatry and Allied Disciplines, *58*(7), 770–778. https://doi.org/10.1111/jcpp.12694

Heleniak, C., Jenness, J. L., Vander Stoep, A., McCauley, E., & McLaughlin, K. A. (2016). Childhood maltreatment exposure and disruptions in emotion regulation: A transdiagnostic pathway to adolescent internalizing and externalizing psychopathology. Cognitive Therapy and Research, *40*(3), 394–415. https://doi.org/10.1007/s10608-015-9735-z

Jimenez, M. E., Wade, R., Lin, Y., Morrow, L. M., & Reichman, N. E. (2016). Adverse experiences in early childhood and kindergarten outcomes. Pediatrics, *137*(2), e20151839–e20151839. https://doi.org/10.1542/peds.2015-1839

Jonson-Reid, M., Kohl, P. L., & Drake, B. (2012). Child and adult outcomes of chronic child maltreatment. Pediatrics, *129*(5), 839–845. https://doi.org/10.1542/peds.2011-2529

Kaplow, J. B., & Widom, C. S. (2007). Age of onset of child maltreatment predicts long-term mental health outcomes. Journal of Abnormal Psychology, *116*(1), 176–187. https://doi.org/10.1037/0021-843x.116.1.176

Kenny, M. C., Vazquez, A., Long, H., & Thompson, D. (2017). Implementation and program evaluation of trauma-informed care training across state child advocacy centers: An exploratory study. Children and Youth Services Review, *73*, 15–23. https://doi.org/10.1016/j.childyouth.2016.11.030

Kim-Spoon, J., Cicchetti, D., & Rogosch, F. A. (2013). A longitudinal study of emotion regulation, emotion lability-negativity, and internalizing symptomatology in maltreated and nonmaltreated children. Child Development, *84*(2), 512–527. https://doi.org/10.1111/j.1467-8624.2012.01857.x

McFarland, J., Hussar, B., Zhang, J., Wang, X., Wang, K., Hein, S., Diliberti, M., Cataldi, E. F., Mann, F. B., & Barmer, A. (2019). *The condition of education 2019* (NCES 2019 – 144). National Center for Education Statistics. https://nces.ed.gov/pubs2019/2019144.pdf

McInerney, M., & McKlindon, A. (2014). *Unlocking the door to learning: Trauma-informed classrooms and transformational schools*. Vermont-National Education Association. http://www.vtnea.org/uploads/files/Trauma-Informed-in-Schools-Classrooms-FINAL-December2014-2.pdf

Mullins, C. A., & Panlilio, C. C. (2021). Exploring the mediating effect of academic engagement on math and reading achievement for students who have experienced maltreatment. Child Abuse and Neglect. Advance online publication. https://doi.org/10.1016/j.chiabu.2021.105048

Overstreet, S., & Chafouleas, S. M. (2016). Trauma-informed schools: Introduction to the special issue. School Mental Health, *8*(1), 1–6. https://doi.org/10.1007/s12310-016-9184-1

Panlilio, C. C., Jones Harden, B., & Harring, J. (2018). School readiness of maltreated preschoolers and later school achievement: The role of emotion regulation, language, and context. Child Abuse & Neglect, 75, 82–91. https://doi.org/10.1016/j.chiabu.2017.06.004

Perry, D. L., & Daniels, M. L. (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

Phifer, L. W., & Hull, R. (2016). Helping students heal: Observations of trauma-informed practices in the schools. School Mental Health, *8*(1), 201–205. https://doi.org/10.1007/s12310-016-9183-2

Plumb, J. L., Bush, K. A., & Kersevich, S. E. (2016). Trauma-sensitive schools: An evidence-based approach. School Social Work Journal, *40*(2), 37–60. https://eric.ed.gov/?id=EJ1100331

Schatz, J. N., Smith, L. E., Borkowski, J. G., Whitman, T. L., & Keogh, D. A. (2008). Maltreatment risk, self-regulation, and maladjustment in at-risk children. Child Abuse and Neglect, *32*(10), 972–982. https://doi.org/10.1016/j.chiabu.2008.09.001

Schultz, D., Tharp-Taylor, S., Haviland, A., & Jaycox, L. (2009). The relationship between protective factors and outcomes for children investigated for maltreatment. Child Abuse & Neglect, *33*(10), 684–698. https://doi.org/10.1016/j.chiabu.2009.04.004

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*(1), 189–200. https://doi.org/10.1007/s12310-016-9181-4

Slade, E. P., & Wissow, L. S. (2007). The influence of childhood maltreatment on adolescents' academic performance. Economics of Education Review, *26*(5), 604–614. https://doi.org/10.1016/j.econedurev.2006.10.003

Stokes, Y., Jacob, J.-D., Squires, J., & Vandyk, A. (2020). Using the ARTIC-35 to measure nurses'attitudes related to trauma-informed care. Journal of Nursing Measurement, *28*(1), 185–198. https://doi.org/10.1891/JNM-D-18-00073

Stratford, B., Cook, E., Hanneke, R., Katz, E., Seok, D., Steed, H., Fulks, E., Lessans, A., & Temkin, D. (2020). A scoping review of school-based efforts to support students who have experienced trauma. School Mental Health. Advance online publication. https://doi.org/10.1007/s12310-020-09368-9

Substance Abuse and Mental Health Services Administration. (2014). *SAMHSA's concept of trauma and guidance for a trauma-informed approach* (HHS Publication No. (SMA) 14–4884). Substance Abuse and Mental Health Services Administration. https://ncsacw.samhsa.gov/userfiles/files/SAMHSA_Trauma.pdf

Teisl, M., & Cicchetti, D. (2008). Physical abuse, cognitive and emotional processes, and aggressive/disruptive behavior problems. Social Development, *17*(1), 1–23. https://doi.org/10.1111/j.1467-9507.2007.00412.x

The National Child Traumatic Stress Network. (n.d.-a). *Complex trauma*https://www.nctsn.org/what-is-child-trauma/trauma-types/complex-trauma

The National Child Traumatic Stress Network. (n.d.-b). *What is child trauma?*https://www.nctsn.org/what-is-child-trauma

Tishelman, A. C., Haney, P., O'Brien, J. G., & Blaustein, M. E. (2010). A framework for school-based psychological evaluations: Utilizing a 'trauma lens.' Journal of Child & Adolescent Trauma, *3*(4), 279–302. https://doi.org/10.1080/19361521.2010.523062

Walkley, M., & Cox, T. L. (2013). Building trauma-informed schools and communities. Children & Schools, *35*(2), 123–126. https://doi.org/10.1093/cs/cdt007

Wamser-Nanney, R., & Vandenberg, B. R. (2013). Empirical support for the definition of a Complex Trauma Event in Children and Adolescents. Journal of Traumatic Stress, 26(6), 671 678. https://doi.org/10.1002/jts.21857

Wolpow, R., Johnson, M. M., Hertel, R., & Kincaid, S. O. (2016). *The heart of learning and teaching: Compassion, resiliency, and academic success* Washington State Office of Superintendent of Public Instruction (OSPI) Compassionate Schools. https://www.k12.wa.us/sites/default/files/public/compassionateschools/pubdocs/theheartoflearningandteaching.pdf

Zambo, D. (2008). Childcare workers' knowledge about the brain and developmentally appropriate practice. Early Childhood Education Journal, *35*(6), 571–577. https://doi.org/10.1007/s10643-007-0223-2