

Screening for Trauma in Early Adolescence: Findings from a Diverse School District

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Published online: 9 December 2015
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Abstract Abundant evidence demonstrates that traumatized adolescents are at increased risk of a host of negative psychoeducational and functional outcomes, but demographic disparities are often seen in access to and use of mental health services and supports. In light of this, the current study examines the prevalence of trauma experiences and traumatic stress in middle school students from a large urban school district serving a high proportion of diverse immigrant and low-income families. Descriptive statistics document the mean reported number of trauma experiences and posttraumatic stress subscale scores by participants' sociodemographic variables. Inferential statistics report significant differences associated with race/ethnicity, gender, and type of trauma—including exposure as a victim or a witness. Results show complex and significant racial/ethnic group differences in the experience and symptomatology of trauma among the entire screened sample as well as the subset of youth with elevated distress. Furthermore, findings document the predictive value of particular trauma events related to early adolescents' severity of self-reported traumatic stress. These in-depth findings underscore the need for routine, school-based screening to identify and bring culturally competent, trauma-informed support and interventions to middle school students experiencing traumatic stress.

Keywords Trauma · Traumatic stress · Middle school · Early adolescence

Introduction

Unlike many chronic health problems, most psychological disorders are first diagnosed in childhood (Copeland, Shanahan, Costello, & Angold, 2011; Kessler et al., 2005; Kim-Cohen et al., 2003), with conditions and consequences potentially affecting individuals throughout their entire life span (Copeland, Wolke, Shanahan, & Costello, 2015). According to recent analysis of the Global Burden of Disease (GBD)—a rubric used to quantify costs related to disease, injury, and risk—the leading causes of burden among youth ages 10–24 years were neuropsychiatric disorders (Erskine et al., 2015; Harhay & King, 2012). Although a small portion of this burden was due to the rare but highly impairing conditions such as schizophrenia and pervasive developmental disorders, the majority was from more common, moderately impairing emotional and behavioral problems, such as attention, conduct, and mood disorders (Erskine et al., 2015; Harhay & King, 2012). The GBD is calculated with consideration to both the *prevalence* and the *relative harm* a given disorder or risk causes, and these common problems create substantial burden for youth, their families, and the systems that serve them (Costello, Angold, & Keeler, 1999).

It is clear, however, that studying and treating only children meeting full criteria for neuropsychiatric disorders may severely underestimate and underserve the burden (Copeland, Wolke, Shanahan, & Costello, 2015). About half of children referred for clinical services do not meet full *DSM* diagnosis criteria for psychiatric disorders (Angold et al., 2002; Costello & Shugart, 1992), but their subthreshold

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problems are often significantly impairing (Angold, Costello, Farmer, Burns, & Erkanli, 1999; Lewinsohn, Shankman, Gau, & Klein, 2004). In fact, in a recent longitudinal study, children with subthreshold disorders were 5 times more likely to have multiple adverse outcomes in adulthood compared with children with no disorders (Copeland, Wolke, Shanahan, & Costello, 2015). Because these children make up a significant proportion of those referred for treatment, providing them and their families with evidence-based early intervention should be a public health priority, as such services are likely to forestall future impairment, distress, and societal burden (Angold et al., 1999).

One problem which may present as a subthreshold disorder but warrants particular attention due to its clinical implications is childhood traumatic stress, a condition that can significantly impact on children's well-being as well as their social and academic functioning. Exposure to trauma reaches its peak in adolescence (Breslau et al., 2004) and is therefore a critical time for intervening in the development of posttraumatic stress disorder (PTSD). Researchers and clinicians commonly recommend that interventionists target youth in middle school, because this age is proximal to highest risk period (Nooner et al., 2012). However, rarely are traumatized students identified with accurate and systematic screening methods; nor do they commonly receive mental health or special education services. In fact, most youth and their families—especially those from diverse racial/ethnic groups—experience barriers to receiving services in their schools and communities (Kataoka, Zhang, & Wells, 2002; Santiago et al., 2015). Yet schools are in a strategic position to provide prevention and early intervention services to help students cope with challenges proactively and effectively, thereby increasing learning opportunities and allaying the impact of traumatic events (Adelman & Taylor, 2012; Cole et al., 2005). Because children's psychological distress and mental health problems are risk factors for further victimization (Cuevas, Finkelhor, Clifford, Ormrod, & Turner, 2010; Turner, Finkelhor, & Ormrod, 2010), this current study aims to underscore the importance of trauma screenings early and routinely in middle schools to identify children at particular risk of its ill effects.

The Outcomes of Trauma Exposure

There is strong and compelling evidence that links traumatic stress, even at subthreshold levels, and other chronic physical diseases such as obesity and heart disease; problems in emotional regulation, social-emotional development, cognitive development, and intellectual functioning; and risk of suicide, mental illness, and substance abuse (Bunker, Colquhoun, & Esler, 2003; Delaney-Black et al., 2002; Edwards, Holden, Anda, & Felitti, 2003; Kibler,

Joshi, & Ma, 2009; Kotler, Iancu, Efroni, & Amir, 2001; McFarlane, 2010; Perkonig, Owashi, & Stein, 2009; Ryb, Soderstrom, Kufera, & Dischinger, 2006). Children who have been traumatized show significant decreases in cognitive abilities, such as deficits in attention, abstract reasoning, reading ability, and long-term memory for verbal information (Beers & De Bellis, 2002; Delaney-Black et al., 2002). Research also demonstrates that adolescents exposed to violence are at increased risk of a variety of adverse psychoeducational and functional outcomes, including impaired self-esteem, learning difficulties, and risk-taking behaviors such as running away, drug or alcohol use, suicide attempts, truancy, and inappropriate sexual activities (American Academy of Child and Adolescent Psychiatry, 1998; Cavaola & Schiff, 1988; Collins & Bailey, 1990; Farrell & Bruce, 1997; Garbarino et al., 1992; Hurt et al., 2001; Jaycox et al., 2002; Kilpatrick, Acierno, Saunders, Resnick & Best, 2000; Saigh, Mroueh, & Bremner, 1997). Studies have also linked trauma in adolescence with long-term developmental disturbances, including disrupted interpersonal and professional relationships and moral development (Goenjian et al., 1999; Layne, Pynoos, & Cardenas, 2001; Malinkosky-Rummell & Hansen, 1993; Pynoos, Steinberg, & Piacentini, 1999; Pynoos, Steinberg, & Wraith, 1995).

There are numerous studies that examine the impact on youth of a specific type of trauma, such as physical abuse (e.g., Cox, Kenardy & Hendrikz, 2008; Flannery, Wester, & Singer, 2004; Kitzmann, Gaylord, Holt & Kenny, 2003; LeBrocq, Hendrikz & Kenardy, 2010; Olafson, 2011; Overstreet, Salloum, Burch & West, 2011), but few compare the symptomatology and outcomes of youth—particularly early adolescents (i.e., youth aged 11–14)—based on different categories of trauma exposure. A few recent studies distinguish between trauma that is perpetrated against the victim (*interpersonal* trauma) versus *non-interpersonal* or *accidental* trauma (Alisic et al., 2014; Forbes et al., 2012; McLaughlin et al., 2013; Price, High-McMilan, Kim, & Frueh, 2013); the findings tend to show that interpersonal trauma renders higher incidences of negative mental health outcomes such as PTSD (Alisic et al., 2014; Forbes et al., 2012; McLaughlin et al., 2013). Still fewer studies have distinguished between witnessing (indirect) trauma versus victimizing (direct) experiences, but recent literature indicates that direct experiences result in increased traumatic stress symptoms (Price et al., 2013; Tierens et al., 2012). When researchers have examined the effects of polyvictimization or cumulative trauma (i.e., multiple instances of perpetrated traumas), findings indicate a strong association between the number of traumatic experiences in childhood and likelihood of developing PTSD or other negative mental health outcomes in adolescence (Copeland et al., 2007; Cyr et al., 2013; Finkelhor,

Ormrod, & Turner, 2007; Nooner et al., 2012; Schilling, Aseltine, & Gore, 2007; Turner, Finkelhor, & Ormrod, 2010; Vranceanu, Hobfoll, & Johnson, 2007).

The Prevalence and Presentation of Trauma in Children and Youth

Each year in the USA, more than 5,000,000 children experience some extreme traumatic event—such as abuse and neglect, community violence, war and refugee experiences, poverty, health and medical issues, and the loss of a loved one (Spitalny, Gurian, & Goodman, 2002). Although a traumatic event can occur from a direct experience, threat, or witnessing of a life-threatening event, it triggers a common response of intense fear, horror, and helplessness that overwhelms an individual's capacity to cope (Finkelhor, Turner, Shattuck, & Hamby, 2013; Galea et al., 2002; Schwab-Stone et al., 1995; Stein et al., 2004). Whether a child develops a severe trauma reaction that becomes chronic or has a reaction that is moderate, responsive to intervention, and time limited depends on several factors, including the nature of the experience (e.g., frequency, severity, duration), the characteristics of the child (e.g., age, trauma history, coping skills), and the way the family, school, and community respond (Harvey, 1996). For example, repetitive traumatic experiences, especially those perpetrated intentionally by a parent or caregiver, are likely to result in a different set of symptoms and levels of impairment than a single traumatic event (Carlson, Furby, Armstrong, & Shales, 1997; Herman, 1997).

Although reactions to potentially traumatic events can vary, from relatively mild responses to severe and debilitating disruptions in an individual's functioning (Carlson et al., 1997; Harvey, 1996; Herman, 1997), children suffering from traumatic stress typically have difficulty regulating their emotions and behavior. They may have stomachaches and headaches, startle easily, be fearful and clingy, difficult to console, aggressive and angry, and impulsive. They may also have sleep disturbances and show regression in developmental skills and functioning, such as bed wetting and learning disabilities. The combination and extent of some children's reactions to trauma may warrant a formal diagnosis, such as PTSD. To be diagnosed with PTSD according to the DSM-V, children must have experienced or witnessed a traumatic event and present one *intrusive* symptom (e.g., intrusive recollections, distressing dreams), one *avoidant* symptom (e.g., avoiding activities, places, feelings), two *negative alterations in cognitions and mood* (e.g., dissociative amnesia, distorted blame of self, estrangement from others), and two *hyperarousal/reactivity* symptoms (e.g., aggression, sleep disturbances, hypervigilance). In addition, children's symptoms must have persisted for more than 1 month, and

they must show significant functional impairment at home, in school, and/or with peers (American Psychiatric Association, 2013). However, PTSD may not capture the full range of symptoms often seen in traumatized children (Cole et al., 2005); many children's reactions may present themselves in a range of problems that do not meet the standards for a formal diagnosis, or may manifest as depression, attention deficits, anxiety, or conduct disorders (Famularo, Fenton, Kinscherff, & Augustyn, 1996).

The extent to which trauma impacts adolescents within their homes, neighborhoods, and schools is still somewhat unclear. Estimates of the prevalence of trauma among youth vary widely in the current literature based on study location and youth sociodemographic characteristics (e.g., age, gender, race/ethnicity, urbanicity of residence). These prevalence studies also differ in the types of incidents included in the definition of "trauma" and the degree to which they measure the impact or symptomatology of traumatic stress. Most studies of trauma exposure find that the great majority of youth have experienced at least one traumatic event or victimization by age 21 (e.g., Breslau, Wilcox, Storr, Lucia & Anthony, 2004; Copeland, Keeler, Angold, & Costello, 2007; Finkelhor, Turner, Ormrod & Hamby, 2009), but the prevalence of PTSD in adolescence is typically less than 15 %. In a recent meta-analysis of 32 studies conducted with adolescents (mean ages 10–22 years), for instance, researchers found that 70–80 % of youth met DSM criteria for exposure to a serious traumatic event, and a wide-ranging 3–57 % of those youth met diagnostic criteria for PTSD, with an average PTSD rate of 14 % (Nooner, Linares, Batinjane, Kramer, Silva, & Cloitre, 2012). That study also confirmed that overall risk of trauma exposure and PTSD peaked in late adolescence (at ages 16–17), and the researchers attributed this finding to older teens' increased exposure to traumatic events coupled with their predilection for high-risk behavior and activities.

Gender differences related to trauma exposure and symptomatology among adolescents are particularly interesting. Most studies find slightly higher incidences of trauma in males, but nearly twice the rate of PTSD in female populations (Breslau et al., 2004; Brosky & Lally, 2004; Elklit, 2002; Hatch & Dohrenwend, 2007; Kilpatrick et al., 2003; McLaughlin et al., 2013; Read et al., 2011; Reebye, Moretti, Wiebe, & Lessard, 2000). Additional studies also confirm that gender differences vary by the type of trauma experience (Schilling, Aseltine & Gore, 2007; McLaughlin et al., 2013). For example, girls are more likely to experience maltreatment and sexual victimization, and boys are more likely to witness violence and experience property victimization or physical assault (Finkelhor, Turner, Shattuck, & Hamby, 2013).

In terms of racial/ethnic variations, African American, Native American, and Latino youth have shown higher

rates overall of trauma exposure and multiple victimizations when compared to White, Asian, or “other” racial/ethnic groups (Finkelhor, Ormrod, & Turner, 2007; Kilpatrick et al., 2003). Additional studies demonstrate that prevalence rates of trauma exposure vary among racial/ethnic groups by type of traumatic event. For example, in a national survey of more than 6000 adolescents aged 13–17 years, McLaughlin et al. (2013) found that White youth more commonly witnessed domestic violence, whereas Latinos were more often physically assaulted, and African Americans more commonly suffered the unexpected death of a loved one.

The Current Study

In the current study, we universally screened a population of early adolescents in their middle school environments for exposure to trauma events and for presentation of traumatic stress. We examined the results in depth to learn more about factors predictive of elevated stress levels. Without a systematic process to identify the extent and severity of the problem as well as individuals’ resiliency and ability to cope after traumatic experiences, our child and family-serving systems cannot adequately respond with appropriate services and supports to prevent the harmful long-term effects of untreated traumatic stress. Furthermore, although research on the prevalence of childhood trauma experiences has grown in the last two decades, few studies focus exclusively on the critical period of early adolescence, and we know of no studies that provide in-depth, disaggregated sociodemographic characteristics for students in this particular age group. The current study aims to address these gaps and the following research questions (RQs).

RQ1: In a population of early adolescents in an urban school district:

- What is the prevalence of students’ self-reported exposure to trauma events?
 - Does prevalence differ by student demographics or type of event (e.g., witness or victim)?
- For those students exposed to a trauma event, what are their self-reported traumatic stress levels?

RQ2: In a subpopulation of early adolescents who reported elevated traumatic stress:

- What is the prevalence of self-reported exposure to trauma events?
 - Does the occurrence of elevated traumatic stress differ by demographics or type of trauma event?

RQ3: What factors (e.g., type of trauma event, gender, race/ethnicity) predict elevated traumatic stress?

Methods

Setting and Participants

This study was conducted during the 2011–2015 school years in 12 middle schools of a large urban school district in northern California serving a high proportion of immigrant and low-income families. On average, the district educates more than 60,000 students annually, and more than 50 languages are spoken among its families. During the study’s duration, the district’s middle schools (serving grades 6–8) had an average enrollment of 806 students (range = 410–1303), and a diverse population: nearly 25 % were English learners, 63 % received free or reduced-price lunches, 14 % were identified for special education, and more than half (52 %) were identified as Asian, 23 % as Hispanic, 12 % as African American, 8 % as White, and 5 % as mixed races.

In all, 4076 students entering sixth grade over the course of four academic years consented to participate in a trauma screening. Informed consent was obtained from all participating students’ parents or guardians included in the study. The sample ($n = 4076$) represents 45 % of sixth-grade students across four school years ($N = 9007$) who were provided with consent forms and 69 % of all students who returned consent forms. To assess the degree to which the students who participated in the screening reflected the demographics of the school district student population during the study years, we compared student race/ethnicity as reported in district records across all schools and in the subsample of screening participants. Student race/ethnicity data were only accessible from the 12 participating schools for three academic years (2011–2014), which aligns to the first three cohorts of students in the screening sample ($n = 2600$). Demographics, reported in Table 1, show that the racial/ethnic makeup of the screening sample varied slightly from the district population—with a slightly higher proportion of White, Latino, and Native American students and a slightly lower proportion of African American and Asian students included in the screened subsample. Chi-square tests revealed, after adjusting for multiple comparisons across each pair of racial/ethnic groups, that African American students were the least likely to participate in the screening compared to White, Latino, or Asian students ($p < .01$).

Measures

Researchers screened participating students using two standardized measures that documented the occurrence of trauma events and self-reported symptoms of traumatic stress, as described below.

Table 1 Race/ethnicity of district student population and trauma screening sample, 2011–2014

Student population	Race/ethnicity ^a				
	White (%)	African American (%)	Latino (%)	Asian (%)	Native American (%)
District (<i>N</i> = 25,033)	11.1	9.7	25.4	53.2	0.6
Screened (<i>n</i> = 2600)	16.2	6.3	26.7	49.9	0.9

^a Decline or missing race/ethnicity data were omitted from the Chi-square analysis

Traumatic Events Screening Inventory-Child Report Form-Revised (TESI-CRF-R; Ippen et al., 2002)

The TESI-CRF-R is a brief self-report survey that assesses the occurrence of trauma events by children (aged 6–18), including hospitalizations, domestic or community violence, natural disasters, accidents, and physical assault. Developers designed the TESI-CRF-R to be sensitive to traumatic episodes that young children may experience. Specific items included, for example, “Have you ever been in a serious accident, where you could have been badly hurt or even killed?” Children respond by indicating “yes” if the event left them feeling very afraid or overwhelmed, or “no” if the stressful event never happened to them. Although “bullying” is not specified as a traumatic event exclusively on the measure, the TESI-CRF-R operationalizes the occurrence of bullying by querying respondents on their experiences as a victim of or witness to physical assault and the threat of harm. Although developers have not yet provided psychometric properties specific to the TESI-CRF-R, the original TESI-C interview (from which the survey was adapted) was validated on pediatric trauma patients, indicating interrater reliability of clinician’s scoring of videotaped interviews ($\alpha = 0.81$ – 0.85) and convergent validity with the TESI-Parent version ($\alpha = 0.42$ – 0.91) for eight different types of trauma (Ribbe, 1996).

The TESI-CRF-R includes multiple dimensions of trauma commonly reported in the literature, and we coded 12 of the 13 items according to two subtypes of general experiences to assist in the analysis and interpretation of the data: (1) witness: the 6 items pertaining to events that were not experienced directly by the child but rather were seen by the child or experienced by a relative, including *death of loved one*, *witness physical assault*, *witness assault involving weapon*, *injury or sickness of loved one*, *witness serious accident*, and *witness natural disaster*; and (2) victim: the 6 items pertaining to events that were experienced directly by the child, including *physical assault*, *threat of physical assault*, *separation from caregiver*, *serious illness or injury of self*, *experience of serious accident*, and *attack by animal*. The last item, *other traumatic event*, remained uncategorized.

Trauma Symptom Checklist-Child Version-Posttraumatic Stress Subscale (TSCC-PTS; Briere, 1996)

The TSCC evaluates the impact of trauma as manifest in symptoms of posttraumatic stress disorder and related psychological symptomatology. To screen students for general traumatic stress in a format and length that was appropriate for early adolescents’ self-reporting, required minimal facilitation, and asked less threatening but insightful questions that expedited identification of students in distress, we used the 10-item posttraumatic stress subscale (PTS) of this measure. PTS items relate to intrusive memories and sensations of painful past events, nightmares, fears, and cognitive avoidance of painful feelings. The TSCC is suitable for children aged 8–16, is available in multiple languages, and is scored on a 4-point Likert scale (0 = *never*, 1 = *sometimes*, 2 = *lots of times*, 3 = *almost all of the time*). The TSCC was standardized on a large normative sample of more than 3000 racially and economically diverse children without histories of trauma. The TSCC clinical scales yield high internal consistency ($\alpha = 0.82$ – 0.89 ; Briere, 1996; Sadowski & Friedrich, 2000); results also indicate strong concurrent and discriminant validity (Lanktree & Briere, 1995) with parent and youth measures of emotional and behavioral problems (Achenbach, 1991a, 1991b). In this sample, the Cronbach’s alpha coefficient of the 10-item TSCC-PTS was $\alpha = 0.86$. We scored the TSCC-PTS according to manualized directions, which include gender-specific age bands.

Procedures

At the beginning of the school year, the principal of each participating middle school provided parents/guardians of all incoming sixth-grade students with an informational flyer and consent form (in English, Spanish, and Chinese) describing a brief screening process to assess students’ experiences and levels of traumatic stress. Parents were asked to actively consent to their child’s participation (and to provide their student’s gender, preferred language, and race/ethnicity designations) or to indicate their preference for exclusion from the screening.

The research team conducted the screening within the first 2 months of the school year via a group administration of the trauma screener (including the TESI-CRF-R and the TSCC-PTS), which took approximately 15 min for students to complete, usually in the classroom setting. If the classroom included students without consent to participate in the screening, they were provided with word games and puzzles (or another teacher-selected activity) to occupy their time, facilitate privacy, and reduce interruptions. Administrators read all instructions aloud to the screening participants and provided an example of how to rate their trauma experiences and distress levels using each scale. The administrators informed students that they had a right to decline participation in the screening at any point, could refuse to answer any question, and that their parents/guardians would be informed of general results but not their specific answers. If the screening revealed violence or harm to the student or family, researchers strictly adhered to mandated reporting procedures as warranted. Administrators provided students with one-on-one guidance to clarify any item on the screener as needed. Once completed, researchers scored the screening protocols according to manualized guidelines and informed parents/guardians of the general results by mail. Researchers also personally telephoned all parents of students with elevated traumatic stress to discuss results and trauma-related services available in the school district and surrounding community.

All procedures performed in this study involving human participants were in accordance with the ethical standards of our institutional and/or national research committee and with the 1964 Declaration of Helsinki and its later amendments or comparable ethical standards.

Results

Data Analysis

We examined difference in exposure to trauma events by student gender and race/ethnicity using cross-tabulation and Chi-square tests. If statistical significance was established on race/ethnicity by trauma event in the cross-tabs, we conducted follow-up comparison tests to determine which pairs of ethnicities showed significant difference in prevalence. Six race/ethnicity categories resulted in 15 paired ethnicity comparisons; therefore, to reduce type I error, we used an adjusted Bonferroni alpha of $p = .003$.

Similarly, we examined differences in self-reported traumatic stress (on the TSCC) by gender and ethnicity, and occurrences of *witness*, *victim*, and *total* traumatic events, using an independent sample *t* test and ANOVA, respectively. When ANOVA yielded a significant *F* value, we conducted post hoc comparisons using an adjusted

Bonferroni alpha of $p = .003$. We calculated and reported effect sizes (Cohen's *d*) as a difference in means divided by root-mean-square error for the model when testing for average differences in the number of trauma events, and as an odds ratio when examining differences in percentages (e.g., between students of different race/ethnicities).

RQ 1: Prevalence of Trauma Experiences and Stress by Student Characteristics and Type of Event

The sociodemographic characteristics of students in the screening sample ($N = 4076$), their mean number of self-reported trauma experiences, and their posttraumatic stress scores are presented in Table 2. We report the occurrences of traumatic events as the average sum of the 6 *witness* items, the 6 *victim* items, and the 13 *total* items on the TESI-CRF-R. Across the participating population, students reported experiencing on average 3.62 trauma events. Males reported more *total* (3.86 versus 3.38, $p < .003$, $d = 0.19$) trauma events than females. Males also reported more trauma events as *victims* (1.66 versus 1.17, $p < .003$, $d = 0.37$) than females. Similarly, male students reported significantly higher posttraumatic stress on the PTS than female students (46.92 versus 46.21, $p = .02$, $d = 0.06$), but the clinical and practical significance of this difference appears minimal. There were no significant group differences by race/ethnicity related to trauma symptomatology (Table 3, lower diagonal); however, African American and Native American youth tended to report more events as witnesses and victims, and Asian youth reported the fewest occurrences; we describe these complex racial/ethnic distinctions below.

Trauma Experiences by Race/Ethnicity

Table 3 (upper diagonal) documents that African American and Native American students reported more *total* trauma events than Asian students ($p < .003$; $d = 0.76$, $d = 0.64$, respectively). African American students also reported more trauma occurrences than Latino ($p < .003$, $d = 0.44$), White ($p < .003$, $d = 0.63$), and students not reporting ethnicity ($p < .003$, $d = 0.65$). Finally, Latino students reported more trauma events than White ($p < .003$, $d = 0.19$) and Asian students ($p < .003$, $d = 0.32$).

Table 4 (upper diagonal) documents that African American students reported significantly more trauma events as *witnesses* than Latino ($p < .003$, $d = 0.43$), White ($p < .003$, $d = 0.63$), Asian ($p < .003$, $d = 0.71$), and students not reporting ethnicity ($p < .003$, $d = 0.60$). Latino students reportedly witnessed significantly more occurrences than White ($p < .003$, $d = 0.20$) and Asian students ($p < .003$, $d = 0.28$). Similarly, African American students reported significantly more trauma events

Table 2 Student characteristics, reported number of trauma events, and mean PTS *T*-scores of screening sample

Characteristic	Number (% of total sample)	Number of trauma events			PTS <i>T</i> -score ^d Mean (SD)
		Witness ^a Mean (SD)	Victim ^b Mean (SD)	Total ^c Mean (SD)	
All	4076 (100)	1.93 (1.41)	1.41 (1.39)	3.62 (2.57)	46.57 (9.64)
Gender					
Male	2047 (50.2)	1.97 (1.40)	1.66 (1.45)*	3.86 (2.58)*	46.92 (9.49)*
Female	2029 (49.8)	1.89 (1.41)	1.17 (1.28)	3.38 (2.53)	46.21 (9.77)
Race/ethnicity					
White	567 (13.9)	1.85 (1.39) ²	1.40 (1.38) ^{2,3}	3.54 (2.54) ^{2,3}	45.83 (9.32) ¹
African American	203 (5.0)	2.72 (1.44) ¹	2.05 (1.52) ¹	5.12 (2.72) ¹	47.79 (10.30) ¹
Latino	910 (22.3)	2.13 (1.47) ^{3,4}	1.57 (1.47) ²	4.02 (2.72) ⁴	46.89 (10.72) ¹
Asian	1661 (40.8)	1.74 (1.33) ²	1.23 (1.29) ³	3.21 (2.37) ³	46.46 (9.00) ¹
Native American	23 (0.6)	2.55 (1.37) ^{1,2,3}	2.00 (1.63) ^{1,2,3}	4.82 (3.02) ^{1,2,4}	46.73 (9.37) ¹
Decline/missing	712 (17.5)	1.97 (1.39) ^{2,4}	1.45 (1.41) ^{2,3}	3.70 (2.53) ^{2,3,4}	46.64 (9.70) ¹

* $p < .05$ (comparison by gender)

^a Trauma events categorized as “Witness” include a total of 6 possible items

^b Trauma events categorized as “Victim” include a total of 6 possible items

^c Trauma events categorized as “Total” include 13 possible items, including a general “other” item not categorized as witness or victim type

^d PTS *T*-score = Posttraumatic stress subscale *T*-score from the *Trauma Symptom Checklist-Child Version* (TSCC; Briere, 1996)

^{1,2,3,4,5,6} Superscripts indicate significant differences among ethnic/racial groups adjusted for multiple comparisons ($p < .003$), using Bonferroni post hoc contrasts. Groups within a column that share the same superscript are *not* significantly different

Table 3 Average differences in reported total number of trauma events and PTS *T*-score by race/ethnicity of screening sample

Race/ethnicity	Mean (SD)	Mean (SD)	Average difference (effect size) ^c					
			Total trauma events in upper diagonal and PTS in lower diagonal					
	Total trauma events^a	PTS^b	White	African American	Latino	Asian	Native American	Decline or missing
White	3.54 (2.54)	45.83 (9.32)	—	1.58* (0.63)	0.48* (0.19)	−0.33 (0.13)	1.28 (0.51)	−0.05 (0.02)
African American	5.12 (2.72)	47.79 (10.30)	1.96 (0.20)	—	−1.10* (0.44)	−1.91* (0.76)	−0.30 (0.12)	−1.63* (0.65)
Latino	4.02 (2.72)	46.89 (10.72)	1.06 (0.11)	−0.90 (0.09)	—	−0.81* (0.32)	0.80 (0.13)	−0.53* (0.21)
Asian	3.21 (2.37)	46.46 (9.00)	0.63 (0.07)	−1.32 (0.14)	−0.42 (0.04)	—	1.61* (0.64)	0.28 (0.11)
Native American	4.82 (3.02)	46.73 (9.37)	0.90 (0.09)	−1.06 (0.11)	−0.16 (0.02)	0.26 (0.03)	—	−1.34 (0.53)
Decline or missing	3.70 (2.53)	46.64 (9.70)	0.41 (0.04)	−1.55 (0.16)	−0.65 (0.07)	−0.22 (0.02)	−0.49 (0.05)	—

* Significant differences between ethnic/racial groups adjusted for multiple comparisons ($p < .003$), using Bonferroni post hoc contrasts

^a Trauma events categorized as “Total” include 13 possible items, including a general “other” item not categorized as witness or victim type

^b PTS = Posttraumatic stress subscale *T*-score from the *Trauma Symptom Checklist-Child Version* (TSCC; Briere, 1996)

^c Effect size is mean difference divided by root-mean-square error for the model

as *victims* (lower diagonal) than Latino ($p < .003$, $d = 0.35$), White ($p < .003$, $d = 0.48$), Asian ($p < .003$, $d = 0.60$), and students not reporting ethnicity ($p < .003$,

$d = 0.50$). Latino students reported significantly more occurrence as victims than Asian students ($p < .003$, $d = 0.24$).

Table 4 Average differences in reported number of trauma events as witness and victim by race/ethnicity of screening sample

Race/ethnicity	Mean (SD)	Mean (SD)	Average difference (effect size) ^c Witness in upper diagonal and Victim in lower diagonal					
			White	African American	Latino	Asian	Native American	Decline or missing
White	1.85 (1.39)	1.40 (1.38)	–	*0.87 (0.63)	0.28* (0.20)	–0.11 (0.08)	0.70 (0.50)	0.04 (0.03)
African American	2.72 (1.44)	2.05 (1.52)	–0.65* (0.48)	–	–0.59* (0.43)	–0.98* (0.71)	–0.17 (0.12)	–0.83* (0.60)
Latino	2.13 (1.47)	1.57 (1.47)	–0.17 (0.12)	0.48* (0.35)	–	–0.39* (0.28)	0.42 (0.30)	–0.24 (0.18)
Asian	1.74 (1.33)	1.23 (1.29)	0.17 (0.12)	0.82* (0.60)	0.33* (0.24)	–	0.81 (0.58)	0.15 (0.11)
Native American	2.55 (1.37)	2.00 (1.63)	–0.60 (0.44)	0.05 (0.04)	–0.43 (0.32)	–0.77 (0.56)	–	–0.66 (0.48)
Decline or missing	1.97 (1.39)	1.45 (1.41)	0.03 (0.02)	0.68* (0.50)	0.20 (0.14)	–0.14 (0.10)	0.63 (0.46)	–

* Significant differences between ethnic/racial groups adjusted for multiple comparisons ($p < .003$), using Bonferroni post hoc contrasts

^a Trauma experiences categorized as “Witness” include a total of 6 possible items

^b Trauma experiences categorized as “Victim” include a total of 6 possible items

^c Effect size is mean difference divided by root-mean-square error for the models

Occurrences of Specific Trauma Events

Table 5 disaggregates reported trauma events by type and by race/ethnicity and gender. Prevalence rates indicate that across all descriptive categories, nearly half or more of early adolescents have experienced the death or sickness of a loved one and most have witnessed a physical assault. Nearly one-third to one-half of the population has been a victim of physical assault and serious illness or injury. Where there were significant differences, males reported more events than female students across almost all of the categories except death of a loved one and “other” traumatic events, and they reported significantly more occurrences as *victims*. In general, African American youth reported more trauma experiences across almost all items, except witnessing a natural disaster, and Asian students reported the fewest occurrences.

RQ 2: Prevalence of Trauma Experiences and Stress and Predictive Factors by Characteristics of Students with Elevated Stress

We isolated data from students who reported elevated traumatic stress as indicated by a *T*-score of 58 or higher on the PTS ($n = 550$; 13.5 % of total screening sample). We chose a *T*-score of 58 because it represents the top 20 % (or

80 percentile) of students reporting traumatic stress—a percentile that encompasses both clinical and subthreshold significance. Table 6 documents the mean number and standard deviation of reported trauma events by type (i.e., *victim* or *witness*) and by gender and race/ethnicity of this subset of students with elevated traumatic stress. These students reported experiencing on average 6.27 events, and males reported more traumatic events as *victims* than females (3.01 versus 2.51, $p < .003$, $d = 0.35$). There were no significant group differences (gender or race/ethnicity) related to trauma symptomatology, as the selected subset all reported elevated traumatic stress symptoms with an average *T*-score of 64.56 (Table 7, lower diagonal).

Trauma Experiences by Race/Ethnicity

African American students with elevated traumatic stress reported more *total* trauma (Table 7, upper diagonal) than similarly distressed White ($p < .003$, $d = 0.84$), Asian ($p < .003$, $d = 1.09$), and students not reporting ethnicity ($p < .003$, $d = 1.06$). Distressed Latino students reported more trauma than Asian counterparts ($p < .003$, $d = 0.61$). Similarly, African American and Latino students with elevated traumatic stress reported significantly more trauma events as *witnesses* (Table 8, upper diagonal) than Asian counterparts ($p < .003$; $d = 0.86$, $d = 0.66$, respectively). Distressed African American students also

Table 5 Percentage of students reporting the occurrence of trauma events by type, race/ethnicity, and gender

Type of trauma event	Race/ethnicity							Gender	
	All <i>N</i> = 4076 (%)	White <i>n</i> = 567 (%)	African American <i>n</i> = 203 (%)	Latino <i>n</i> = 910 (%)	Asian <i>n</i> = 1661 (%)	Native American <i>n</i> = 23 (%)	Decline/ missing <i>n</i> = 713 (%)	Male (<i>n</i> = 2047 (%))	Female (<i>n</i> = 2029 (%))
Witness									
Death of loved one	48.4	48.2	69.7	49.6	45.3	54.5	46.3	45.3	51.5
Witnessed physical assault	43.5	36.8	61.1	44.2	41.7	54.5	44.7	48.5	38.4
Witnessed assault with weapon	6.2	4.1	16.7	10.4	2.9	9.1	7.3	7.1	5.4
Injury or sickness of loved one	52.4	54.5	68.7	56.8	47.7	68.2	49.1	52.3	52.6
Witnessed serious accident	26.7	22.7	37.9	32.7	22.4	40.9	27.5	28.9	24.4
Witnessed natural disaster	16.0	18.6	17.7	19.2	13.8	27.3	13.7	15.2	16.8
Victim									
Physically assaulted (e.g., slapped, hit)	35.6	33.8	50.0	31.5	36.0	54.5	34.9	43.0	28.1
Threatened with physical assault	22.2	20.9	36.9	23.2	19.8	27.3	22.0	25.6	18.7
Separated from caregiver	13.3	10.7	22.7	18.3	11.3	4.5	10.9	13.8	12.7
Serious illness or injury of self	34.0	36.3	49.0	41.9	27.2	54.5	32.1	37.2	30.8
Been in a serious accident	19.0	19.8	25.3	22.4	15.8	31.8	18.7	24.3	13.7
Attacked by animal	17.4	18.6	21.2	19.5	13.3	27.3	20.9	22.3	12.4
Other traumatic event	27.4	28.8	34.8	31.9	23.5	27.3	26.5	22.4	32.4

reported significantly more trauma as *victims* (lower diagonal) than Latino ($p < .003$, $d = 0.62$), White ($p < .003$, $d = 0.76$), Asian ($p < .003$, $d = 0.94$), and students not reporting ethnicity ($p < .003$, $d = 0.99$). Latino students with elevated traumatic stress reported significantly more events as *victims* than Asian students ($p < .003$, $d = 0.33$).

Occurrences of Specific Trauma Events

In general within the elevated subsample, African American youth most frequently reported experiencing trauma across almost all items except witnessing a natural disaster, and distressed Asian youth reported the fewest occurrences. Males with elevated traumatic stress reported significantly more occurrences as *victims* than females. Table 9 shows the specific trauma events reported by students with elevated traumatic stress by type and by race/ethnicity and gender. Prevalence rates indicate that across all descriptive categories, half or more of these early adolescents have experienced the death or sickness of a loved one and have witnessed a physical assault and serious accident. Half or more of this distressed population have also been a victim of physical assault, threatened with assault, and seriously ill or injured.

RQ 3: Predicting Elevated Traumatic Stress from Trauma Events and Student Characteristics

We used logistic regression to predict reported elevated traumatic stress (i.e., T -score of 58 or higher on the TSCC-PTS) from items on the TESI-CRF-R within the full screening sample ($N = 4076$). Within this research sample, tetrachoric correlations between items on the TESI-CRF-R ranged from 0.15 (*witnessed natural disaster* and *separated from caregiver*) to 0.57 (*threatened with physical assault* and *physically assaulted*). The average tetrachoric correlations per item ranged from 0.16 (*death of loved one*) to 0.32 (*physically assaulted* and *witnessed physical assault*). Given these relatively low average correlations among reported types of trauma events, we included each TESI-CRF-R item as an independent predictor in the models.

We used SAS software to conduct the logistic regression, and a random sampling model and casewise deletion in all analyses to produce results via *PROC FREQ*, *PROC TTEST*, *PROC CORR*, and *PROC LOGISTIC*. Our logistic models used maximum likelihood estimation and Fisher scoring to create parameter estimates. Because the predictor variables were all categorical, we examined the cell sizes of all multi-way classifications. We opted to use the

Table 6 Characteristics, number of trauma events, and PTS *T*-scores of students with reported elevated traumatic stress

Characteristic	Number (% of total sample)	Number of trauma events			PTS <i>T</i> -score ^d Mean (SD)
		Witness ^a Mean (SD)	Victim ^b Mean (SD)	Total ^c Mean (SD)	
All	550 (100)	2.96 (1.34)	2.77 (1.47)	6.27 (2.46)	64.56 (6.15)
Gender					
Male	284 (51.6)	2.94 (1.34)	3.01 (1.48)*	6.40 (2.52)	64.28 (6.26)
Female	266 (48.4)	2.97 (1.34)	2.51 (1.41)	6.12 (2.40)	64.87 (6.04)
Race/ethnicity					
White	57 (10.4)	2.83 (1.36) ^{1,2}	2.74 (1.47) ^{2,3}	6.09 (2.48) ^{2,3}	65.39 (6.91) ¹
African American	32 (5.8)	3.66 (1.47) ¹	3.81 (1.20) ¹	8.06 (2.31) ¹	66.22 (6.16) ¹
Latino	160 (29.1)	3.39 (1.23) ^{1,3}	2.94 (1.45) ³	6.94 (2.35) ^{1,3}	64.93 (6.41) ¹
Asian	204 (37.1)	2.55 (1.25) ²	2.47 (1.42) ^{2,4}	5.53 (2.25) ²	63.84 (5.57) ¹
Native American	3 (0.5)	3.00 (1.73) ^{1,2}	4.00 (1.73) ^{1,3,4}	7.67 (4.04) ^{1,2}	64.00 (5.29) ¹
Decline/missing	94 (17.1)	2.92 (1.34) ^{1,2}	2.76 (1.49) ^{2,3}	6.18 (2.49) ^{2,3}	64.46 (6.39) ¹

Students with elevated traumatic stress include those with self-reported PTS *T*-scores of 58 or greater

* $p < .05$ (comparison by gender)

^a Trauma events categorized as “Witness” include a total of 6 possible items

^b Trauma events categorized as “Victim” include a total of 6 possible items

^c Trauma events categorized as “Total” include 13 possible items, including a general “other” item not categorized as witness or victim type

^d PTS *T*-score = Posttraumatic stress subscale *T*-score from the *Trauma Symptom Checklist-Child Version* (TSCC; Briere, 1996)

^{1,2,3,4} Superscripts indicate significant differences among ethnic/racial groups adjusted for multiple comparisons ($p < .003$), using Bonferroni post hoc contrasts. Groups within a column that share the same superscript are *not* significantly different

Wald test because it approximates the likelihood ratio test in large samples and requires less processing time.

Results indicated that 10 of the 12 trauma events were significant predictors, with effect sizes ranging from an odds ratio of 2.98 for *separated from caregiver* to 1.27 for *injury or sickness of a loved one*. *Death of loved one* and *witnessed assault with weapon* were the only items that were not significant predictors of elevated trauma (Table 10). Overall, the model explained 16 % of the variance in elevated traumatic stress in the screening sample.

In an effort to find the most parsimonious model for predicting elevated traumatic stress, we then included the three most effective predictors (i.e., *separated from a caregiver*, *threatened physical assault*, *physical assault*) in a logistic regression model to examine interaction effects. As shown in Table 11, we found that no interactions among the items were significant predictors of elevated traumatic stress. However, the model explained 13 % of the variance in elevated traumatic stress alone, which was nearly 80 % of the variance explained by all 12 predictor items. Finally, we included the top three predictor items in separate models to assess the impact of student gender, race/ethnicity, and all interactions. We found no main effects for gender or race/ethnicity, but there was one significant gender interaction: male students who reported being *separated from a caregiver* were 1.7 times more

likely to report elevated trauma than female students reporting caregiver separation ($p = .02$).

Discussion

The findings reported here document the prevalence of trauma experiences and traumatic stress of thousands of early adolescent students in an urban northern California school district and how these rates differ by student demographics and types of trauma. The students reported substantial exposure to trauma, and this exposure was associated with the presence of elevated distress symptoms in a subset (13.5 %) of students. Across the entire screening sample, students experienced on average more than 3 trauma events; in the subsample with elevated traumatic stress, students reported experiencing more than 6 occurrences of trauma.

Although existing research has documented higher trauma exposure in immigrant/refugee populations, Native American, and African American youth (Finkelhor, Ormrod, & Turner, 2007; Kilpatrick et al., 2003), prior studies have not yet systematically documented the complex racial/ethnic group differences observed with a screening sample of this size in middle schools. In general, males, African American, Native American, and Latino students reported higher occurrences of trauma than White, Asian,

Table 7 Average differences in reported total number of trauma events and PTS *T*-score by race/ethnicity of students in the screening sample who reported elevated traumatic stress

Race/ethnicity	Mean (SD)	Mean (SD)	Average difference (effect size) ^c						
			Total trauma events in upper diagonal and <i>PTS</i> in lower diagonal						
	Total trauma events ^a	PTS ^b	White	African American	Latino	Asian	Native American	Decline or missing	
White	6.09 (2.48)	65.39 (6.91)	–	1.97* (0.84)	0.86 (0.37)	–0.56 (0.24)	1.58 (0.68)	–0.50 (0.21)	
African American	8.06 (2.31)	66.22 (6.16)	0.83 (0.14)	–	–1.12 (0.48)	–2.53* (1.09)	–0.40 (0.17)	–2.47* (1.06)	
Latino	6.94 (2.35)	64.93 (6.41)	–0.46 (0.08)	–1.29 (0.22)	–	–1.42* (0.61)	0.72 (0.31)	–1.35 (0.58)	
Asian	5.53 (2.25)	63.84 (5.57)	–1.54 (0.26)	–2.38 (0.39)	–1.08 (0.18)	–	2.14 (0.92)	0.07 (0.03)	
Native American	7.67 (4.04)	64.00 (5.29)	–1.39 (0.23)	–2.22 (0.37)	–0.93 (0.15)	0.16 (0.03)	–	–2.07 (0.89)	
Decline or missing	5.59 (2.49)	64.46 (6.39)	–2.42 (0.40)	–3.26 (0.54)	–1.96 (0.33)	–0.88 (0.15)	–1.04 (0.17)	–	

Students with elevated traumatic stress include those with self-reported PTS *T*-scores of 58 or greater

* Significant differences between ethnic/racial groups adjusted for multiple comparisons ($p < .003$), using Bonferroni post hoc contrasts

^a Trauma events categorized as “Total” include 13 possible items, including a general “other” item not categorized as witness or victim type

^b PTS = Posttraumatic stress subscale *T*-score from the *Trauma Symptom Checklist-Child Version* (TSCC; Briere, 1996)

^c Effect size is mean difference divided by root-mean-square error for the model

Table 8 Average differences in reported number of trauma events as witness and victim by race/ethnicity of students in the screening sample who reported elevated traumatic stress

Race/ethnicity	Mean (SD)	Mean (SD)	Average difference (effect size) ^c					
			Witness in upper diagonal and <i>Victim</i> in lower diagonal					
	Witness ^a	Victim ^b	White	African American	Latino	Asian	Native American	Decline or missing
White	2.83 (1.36)	2.74 (1.47)	–	0.83 (0.65)	0.57 (0.44)	–0.27 (0.21)	0.18 (0.14)	–0.12 (0.10)
African American	3.66 (1.47)	3.81 (1.20)	–1.07* (0.76)	–	–0.26 (0.21)	–1.10* (0.86)	–0.66 (0.51)	–0.95 (0.74)
Latino	3.39 (1.23)	2.94 (1.45)	–0.20 (0.14)	0.88* (0.62)	–	–0.84* (0.66)	–0.39 (0.31)	–0.69 (0.54)
Asian	2.55 (1.25)	2.47 (1.42)	0.27 (0.19)	1.34* (0.94)	0.47* (0.33)	–	0.45 (0.35)	0.15 (0.12)
Native American	3.00 (1.73)	4.00 (1.73)	–1.26 (0.89)	–0.19 (0.13)	–1.06 (0.75)	–1.53 (1.07)	–	–0.30 (0.23)
Decline or missing	2.92 (1.34)	2.76 (1.49)	0.33 (0.23)	1.41* (0.99)	0.53 (0.37)	0.06 (0.04)	1.59 (1.12)	–

Students with elevated traumatic stress include those with self-reported PTS *T*-scores of 58 or greater

* Significant differences between ethnic/racial groups adjusted for multiple comparisons ($p < .003$), using Bonferroni post hoc contrasts

^a Trauma experiences categorized as “Witness” include a total of 6 possible items

^b Trauma experiences categorized as “Victim” include a total of 6 possible items

^c Effect size is mean difference divided by root-mean-square error for the models

Table 9 Percentage of students with reported elevated traumatic stress by type of trauma event, student race/ethnicity, and student gender

Type of trauma event	Race/ethnicity							Gender	
	All N = 550 (%)	White n = 57 (%)	African American n = 32 (%)	Latino n = 160 (%)	Asian n = 204 (%)	Native American n = 3 (%)	Decline/ missing n = 94 (%)	Male n = 284 (%)	Female n = 266 (%)
Witness									
Death of loved one	58.2	57.9	81.3	60.6	52.5	100.0	57.4	53.2	63.5
Witnessed physical assault	70.7	64.9	75.0	75.0	68.6	66.7	70.2	74.3	66.9
Witnessed assault with weapon	15.1	8.8	34.4	23.1	5.4	0.0	20.2	15.1	15.0
Injury or sickness of loved one	72.7	68.4	87.5	83.8	66.7	66.7	64.9	72.2	73.3
Witnessed serious accident	48.4	45.6	59.4	58.8	37.7	66.7	51.1	50.0	46.6
Witnessed natural disaster	30.4	36.8	28.1	38.1	24.5	0.0	27.7	29.6	31.2
Victim									
Physically assaulted (e.g., slapped, hit)	66.9	64.9	84.4	61.3	69.1	66.7	67.0	71.5	62.0
Threatened with physical assault	53.6	50.9	65.6	52.5	49.5	66.7	61.7	56.3	50.8
Separated from caregiver	33.6	31.6	59.4	38.8	31.9	33.3	21.3	37.7	29.3
Serious illness or injury of self	55.3	56.1	78.1	68.1	42.6	100.0	51.1	54.6	56.0
Been in a serious accident	36.7	29.8	53.1	41.3	33.8	66.7	33.0	43.3	29.7
Attacked by animal	30.7	40.4	40.6	31.9	20.1	66.7	41.5	37.7	23.3
Other traumatic event	54.4	52.6	59.4	61.3	50.0	66.7	51.1	44.7	64.7

Table 10 Logistic regression to predict reported elevated traumatic stress from occurrence of trauma events

Type of trauma event	Prediction of elevated traumatic stress			
	Estimate	Wald	P	Odds
Witness				
Death of loved one	0.10	0.98	0.3201	1.11
Witnessed physical assault	0.45	15.63	<0.0001	1.58
Witnessed assault with weapon	0.27	2.72	0.0990	1.32
Injury or sickness of loved one	0.24	4.29	0.0382	1.27
Witnessed serious accident	0.44	16.02	<0.0001	1.55
Witnessed natural disaster	0.59	24.57	<0.0001	1.81
Victim				
Physically assaulted (e.g., slapped, hit)	0.68	35.60	<0.0001	1.98
Threatened with physical assault	0.95	72.97	<0.0001	2.60
Separated from caregiver	1.09	81.96	<0.0001	2.98
Serious illness or injury of self	0.39	12.78	0.0003	1.47
Been in a serious accident	0.28	5.71	0.0169	1.32
Attacked by animal	0.25	4.65	0.0309	1.29

Table 11 Logistic regression to predict reported elevated traumatic stress from most predictive occurrences of trauma events

Type of trauma event	Prediction of elevated traumatic stress			
	Estimate	Wald	P	Odds
Victim				
Physically assaulted (assaulted)	1.16	53.16	<.0001	3.19
Threatened with physical assault (threatened)	1.49	53.60	<.0001	4.47
Separated from caregiver (separated)	1.62	59.76	<.0001	5.07
Assaulted and threatened	−0.20	0.62	.4303	0.81
Assaulted and separated	−0.28	0.90	.3410	0.74
Threatened and separated	−0.46	1.26	.2609	0.62
Assaulted, separated, and threatened	0.10	0.04	.8351	1.11

or female students. For the subset of youth self-reporting elevated traumatic symptoms, findings generally showed that African American students reported more occurrences than Asian or White students, and Latino students reported more trauma than Asian students.

One of the most intriguing findings related to the predictive value of the trauma event items was that *separation from a caregiver* and the *threat of physical assault* were the most powerful predictors in the reported traumatic stress of early adolescents across racial/ethnic and gender groups—even more predictive than actual physical assault. Recent research has increased our understanding of the toxicity of trauma on the growth and development of children, particularly when they lack the nurturing and protection of caregivers who can help them overcome their distress (Goslin, Stover, Berkowitz, & Marans, 2013). The combination of multiple childhood trauma coupled with the absence of parental support can result in the development of traumatic stress and other various psychiatric and neuropsychiatric symptoms that may persist into adulthood (Perry, Pollard, Blakely, Baker, & Vigilant 1995). Still, only 16 % of the variance was explained by the presence of the most traumatizing events in youths' lives; therefore, many other factors and conditions may explain early adolescents' reactions to potentially traumatic situations. Seemingly, it is not what happens to a student, but how the student and the supports in his/her environment manage the ramifications of the events. These consequences of trauma exposure demand a comprehensive and multifaceted approach including symptom-focused, skill-building, early intervention support to increase adolescents' active coping, problem-solving, and social competencies as well as trauma-informed approaches in school policies, procedures, and practices to facilitate healing. Given the additional finding that early adolescent males were almost twice as likely to report elevated traumatic stress as female students who had been separated from their caregivers, it may be particularly important to identify and support boys in their recovery from traumatic separation.

Limitations

Limitations to this study should be noted. Examination of school demographic data indicated that the sample of children screened was fairly similar in terms of race/ethnicity to the overall sample of students in participating schools, but there is some indication of differential participation rates: White students were more likely to participate than Latino, Asian, or African American students. Although screening information and consent forms were made available in multiple languages and reviewed by bicultural key informants, the differential reaction of parents from various racial, ethnic, cultural, and socioeconomic groups to trauma screening opportunities, and the stigma associated with receiving school-based mental health assessment and services, particularly in the Asian communities, cannot be overlooked as possible influences. In addition, our access to demographic data was limited to student gender and race/ethnicity, but risk factors such as socioeconomic status could covary with exposure to trauma and may help explain the differences observed by students' racial/ethnic groups. Because the participating school district protected students' eligibility for free and reduced-price meals, this association could not be investigated further.

Although there exist a number of instruments to assess children's experiences of trauma and resulting symptomatology, there are few standardized instruments available for early adolescents' self-reporting. We carefully selected the TESI-CRF-R and TSCC-PTS to meet study requirements and our screening administration constraints; still, there is a general lack of psychometric information available for the TESI-CRF-R administered in groups and the TSCC-PTS. Future studies could make use of instruments developed since the inauguration of this study or provide additional information and validation of these particular measures.

The levels of trauma exposure and degree of distress reported here may also be unique to adolescents who reside in this urban district or these particular neighborhoods. The distribution of TSCC-PTS scores in this sample is similar

to a norm sample, but the lower *T*-scores are particularly interesting, especially given the high self-reported rates of student exposure to trauma events. Whether this is an artifact and limitation of self-reported measures or an indication of resiliency in this sample must be empirically investigated further, perhaps by triangulating data sources with parent and teacher reports. Although the study is based on a large sample of students, they are located within a particular geographical region, and generalizability outside of the area is unknown.

Conclusion and Future Directions

The findings presented here provide an important snapshot of the prevalence of trauma exposure and related distress in a diverse, urban school sample of early adolescents. Currently, there are few systematic assessment strategies available to help educators identify children at greatest risk of posttraumatic difficulties following their exposure to a traumatic event (Goslin, Stover, Berkowitz, & Marans, 2013). Early screening and identification is critical, because elevated symptoms have been shown to be predictive of negative long-term outcomes (Alisic, Jongmans, van Wesel, & Kleber, 2011). Although we were successful in this study in developing and implementing a systematic screening approach with middle school students, this study did not specifically examine feasibility of the process, and we acknowledged differential participation rates among the district's major racial/ethnic groups. Further research and practice should attend to issues such as potential language barriers (Broussard, 2003), exploration of parental beliefs about mental health screening and treatment, and methods to enhance relationships between parents and school staff while reducing logistical barriers of screening processes (Stevens, Kelleher, Ward-Estes, & Hayes, 2006; Warren, Hong, Rubin et al., 2009). In addition, future studies could explicitly examine feasibility, accuracy, and practicality of alternative screening methods, such as individual and group administration approaches, and whether procedures may be generalized for use by educators rather than research personnel to ease administration burden, intrusion, and cost.

What is clear from the present screening study is that how early adolescents experience and cope with potentially traumatic events may be linked to a number of known and unknown factors. Experiential influences may include adolescents' and their families' cultural or spiritual beliefs, availability of social and peer supports, and individuals' developmental stages, and the effects may be short term or long term or delayed in their onset (Substance Abuse and Mental Health Services Administration, 2014). This study underscores the need for systematic, accurate, and universal screening to identify early adolescents who experience

distress and impairment, and integration of trauma-informed care into middle schools. There is convincing evidence that cognitive-behavioral approaches are helpful for children with elevated traumatic stress symptoms, including those related to single-incident trauma (March et al., 1998; Stein et al., 2003) and traumas involving significant grief and disasters (Goenjian et al., 2005; Saltzman et al., 2001). Our findings demonstrate that the need for school-based intervention is deep and broad in scope, due to a high prevalence of trauma experiences and related distress among a large sample of early adolescent students—and among all racial/ethnic and gender groups.

For young adolescents, early and repeated exposure to trauma events, particularly in the absence of parental protection and nurturance that can mitigate the effects, can have a devastating impact on their development and functioning (Dudley, 2015). To support safe, healthy, and caring environments and to address barriers to learning, educators must integrate community and school resources to develop comprehensive approaches that are applicable and adaptable to all educational settings (Adelman & Taylor, 2012).

Acknowledgments The authors would like to gratefully acknowledge Jennifer Yu, Elizabeth Davies-Mercier, and Asha Goldweber for their guidance and feedback on the manuscript; the SRI CEHS staff for their assistance with data collection; and the entire community of students, teachers, and school clinicians who partnered and participated in this research.

Funding The contents of this research report were developed under a \$3.4 million grant from the U.S. Department of Education (R324A110027). However, those contents do not necessarily represent the policy of the Department of Education, and you should not assume endorsement by the Federal Government.

Compliance with Ethical Standards

Conflict of interest The authors declare that they have no conflict of interest.

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