

and long term [14–16]. It appears, then, that considering the full spectrum of traumatic experiences in both offline and online contexts is necessary to mitigate negative health outcomes for this population.

Additional formal inquiry on this topic also is warranted given the heightened state of affairs in the United States where health professionals have suggested youth are entrenched in a mental health crisis [17–19]. Experts have projected that the COVID-19 pandemic [20–22] and

expected link between *online* bullying and post-traumatic stress symptomatology [95–97] as well as increased psychiatric symptom severity [98]. An examination of 5,058 Italian students between the ages of 11 and 18 identified that those who had been cyberbullied reported significantly high levels of post-traumatic stress compared to their peers [97]. Relatedly, a study involving 2,218 students between the ages of 11 and 19 across four secondary schools in London found that 28.6% of cyberbullying victims presented clinically significant PTSD symptoms [96]. Longitudinal research in China involving 661 adolescents ages 12–17 found that cyberbullying victimization was positively associated with PTSD over time [99]. Finally, a study of 353 adolescents aged 13–17 who presented to the emergency department in a primary children's hospital in the northeastern US identified that 61% of those who self-reported PTSD symptomatology also reported being cyberbullied in the past year [95].

Current study

In the present study, we propose three primary hypotheses regarding the relationship between cyberbullying experiences and traumatic outcomes among youth. First, we hypothesize a positive relationship between the frequency of cyberbullying experiences and the manifestation of PTSD outcomes. That is, the more cyberbullying that a youth experiences, the greater the number of PTSD indicators that will be observed. Second, we anticipate significant demographic differences in this relationship, and hypothesize that gender and age will play differentiating roles. Specifically, we predict that girls and younger adolescents will exhibit a higher likelihood of experiencing traumatic outcomes compared to boys

and older adolescents, respectively. Third, we believe that the extent of traumatic outcomes will vary depending on the type of cyberbullying experienced. We predict that threats, privacy violations, and identity-based cyberbullying will be associated with more severe traumatic outcomes compared to other forms of cyberbullying (i.e., indirect cyberbullying and exclusion).

them in a variety of ways, including: “Feeling very upset when something reminded you of it?”; “Loss of interest in activities that you used to enjoy?”; “Having strong physical reactions when something reminded you of it (for example, heart pounding, trouble breathing, sweating)?”; “Having strong negative belief about yourself (there is something wrong with me)?”; “Having difficulty concentrating?”; “Trouble falling or staying asleep?”; “Hurt your schoolwork?”; and “Negatively impacted friendships?” Response choices ranged on a 5-point Likert scale including 0 = not at all, 1 = a little bit, 2 = moderately, 3 = quite a bit, and to 4 = extremely. The nine items were combined into a mean scale ranging from 0 to 4, with higher values representing more PTSD (Mean = 1.24; SD = 1.02). Cronbach’s Alpha for the PTSD scale was 0.936.

Procedure

Statistical analyses were conducted using IBM SPSS (version 29.0). We begin by displaying the percentage of youth who experienced each of the 18 types of cyberbullying in the scale. Next, we use Ordinary Least-Squares (OLS) Regression to analyze the relationship between frequency of cyberbully

developed during several studies over the previous twenty years [53, 106]. We define cyberbullying to research participants in the following manner: “...when someone repeatedly and intentionally harasses, mistreats, or makes fun of another person online or while using cell phones or other electronic devices.” Respondents are then asked how many times in the last 30 days they experienced each of the [listed] behaviors, with response options including: (0) never, (1) once, (2) a few times, and (3) many times.

Therefore, higher values on the cyberbullying scale represent more experience with cyberbullying (Mean = 9.4; SD = 10.4). Cronbach’s Alpha for the cyberbullying scale was 0.914.

PTSD To measure trauma outcomes developed after exposure to cyberbullying, respondents were asked 9 items comprising the Posttraumatic Stress clinical scale component of the original 54-item *Trauma Symptom Checklist for Children* [107]. Youth were asked whether *their experience with cyberbullying specifically affected*

relationships, such as rumors, the posting of hurtful comments, and the sharing of embarrassing pictures or videos [106, 120, 121]. Finally, behaviors in the *Exclusion* category are done with the intent of undermining the target's sense of value and belonging. Exclusionary behaviors have powerful negative effects on young people [122–124], especially during a season of life where peer relationships often are inextricably tied to one's self-worth, self-esteem, and happiness [125–127].

Results

Table 2 displays the 18 cyberbullying items, grouped into the five different forms, along with prevalence rates for each. Indirect forms of harassment were among the most commonly-experienced types of cyberbullying, with 56.3% of students saying someone posted mean or hurtful comments about them online and 52.5% reporting that someone had spread rumors about them online. Exclusion was also common, with 53.4% of students reporting that someone intentionally excluded them from a group text or group chat. Less commonly-reported were cyberbullying through a web page (13.3%) or based on religion (16.2%). Overall, 87.2% of the sample had experienced one or more of these types of cyberbullying in the last 30 days. To be clear, this does not mean that 87.2% of youth in the US have been cyberbullied in the last 30 days, but that 87.2% of those who were cyberbullied had experienced the types noted in the table.

Table 3

independent and dependent variables. We minimized this concern by specifically asking respondents to report trauma associated with their cyberbullying experience(s). As such, we can assume the cyberbullying occurred before the trauma.

cannot readily articulate their experience, school personnel must be inquisitive and care enough to ask and find out.

Relatedly, educators should believe the link between private logic and behavior. Students think a certain way because of the collective impact and influence of their past (and current) experiences (which may be traumatic in nature). How they act may not be in line with what one thinks is logical, but it is logical given their unique past. Moreover, school personnel must firmly establish the experience of physical, emotional, and psychological safety. When students feel safe at school, they do so much better academically, socially, and relationally [148, 149]. Safety is not only about preventing violence, but also about creating an environment marked by clarity, structure, consistency, hope, empowerment, and autonomy. Students must believe that their perspectives are welcomed (e.g., when they convey to administration that they do not feel safe) and will not be disregarded, their experiences matter and will not be trivialized or thought of as the result of a joke [53, 55, 150].

Additionally, to reduce the impact of trauma intense hyper-arousal (an atypical heightened state of anxiety) must be lowered while improving the ability to regulate emotions [151–154]. When stress affects the body, numerous responses are triggered on a neurological, cognitive, emotional, and physical (somatic) level. As such, adolescents and youth-serving adults need to learn how to sense and understand what exactly is happening in these situations in order to temper or even forestall their negative impact. One way this can happen is through *experiential grounding*. Also known as centering, this is where those who have experienced trauma practice cer-

Ethical considerations

The study was approved by the Institutional Review Board at the University of Wisconsin-Eau Claire. Informed consent/assent has been appropriately obtained.

Published online: 08 May 2025

References

1. Finkelhor D. Trends in adverse childhood experiences (ACEs) in the united States. *Child Abuse Negl.* 2020;108:104641.
2. Centers for Disease Control. About Bullying [Internet]. Youth Violence Prevention. 2024. Available from: <https://www.cdc.gov/vio>

45. Camodeca M, Nava E. The long-term effects of bullying, victimization, and bystander behavior on emotion regulation and its physiological correlates. *J Interpers Violence*. 2022;37:NP2056–75.
46. Hosozawa M, Bann D, Fink E, Elsdon E, Baba S, Iso H et al. Bullying victimisation in adolescence: prevalence and inequalities by gender, socioeconomic status and academic performance across 71 countries. *EClinicalMedicine* 2021;41.
47. Rie LN, Kelly KM, Demaray ML, Malecki CE, Santuzzi AM, Rodriguez-Harris DJ, et al. Associations among bullying role behaviors and academic performance over the course of an academic year for boys and girls. *J Sch Psychol*. 2021;86:49–63.
48. Huang L. Exploring the relationship between school bullying and academic performance: the mediating role of students' sense of belonging at school. *Educational Stud*. 2022;48:216–32.
49. Peprah P, Asare BY-A, Nyadanu SD, Asare-Doku W, Adu C, Peprah J, et al. Bullying victimization and suicidal behavior among adolescents in 28 countries and territories: a moderated mediation model. *J Adolesc Health*. 2023;73:110–17.
50. Georroy M-C, Arseneault L, Girard A, Ouellet-Morin I, Power C. Association of childhood bullying victimisation with suicide deaths: findings from a 50-year nationwide cohort study. *Psychol Med* 2022;1–8.
51. Hinduja S, Patchin JW. Connecting adolescent suicide to the severity of bullying and cyberbullying. *J School Violence* 2018;1–14.
52. Holt MK, Vivolo-Kantor AM, Polanin JR, Holland KM, DeGue S, Matjasko JL, et al. Bullying and suicidal ideation and behaviors: A meta-analysis. *Pediatrics*. 2015;135:e496–509.
53. Hinduja S, Patchin JW. *Bullying beyond the schoolyard: preventing and responding to cyberbullying*. 3rd ed. Thousand Oaks, CA: Sage; 2024.
54. UNICEF.org. UNICEF poll: More than a Third of Young People in 30 Countries Report Being a Victim of Online Bullying [Internet]. 2019. Available from: <https://>

93.

147. Honsinger C, Brown MH. Preparing Trauma-Sensitive teachers: strategies for teacher educators. *Teacher Educators' J*. 2019;12:129–52.
148. Kutsyuruba B, Klingler DA, Hussain A. Relationships among school climate, school safety, and student achievement and well-being: a review of the literature. *Rev Educ*. 2015;3:103–35.
149. Konold T, Cornell D, Shukla K, Huang F. Racial/ethnic differences in perceptions of school climate and its association with student engagement and peer aggression. *J Youth Adolesc*. 2017;46:1289–303.
150. Maftei A, Mirean C. Not so funny after all! Humor, parents, peers, and their link with cyberbullying experiences. *Comput Hum Behav*. 2023;138:107448.
151. Heller L, LaPierre A. Healing developmental trauma: how early trauma affects self-regulation, self-image, and the capacity for relationship. North Atlantic Books; 2012.
152. Blaustein ME, Kinniburgh KM. Treating traumatic stress in children and adolescents: how to foster resilience through attachment, self-regulation, and competency. Guilford; 2018.
153. Van der Kolk BA. The neurobiology of childhood trauma and abuse. *Child Adolesc Psychiatric Clin*. 2003;12:293–317.
154. Ford JD, Russo E. Trauma-focused, present-centered, emotional self-regulation approach to integrated treatment for posttraumatic stress and addiction: trauma adaptive recovery group education and therapy (TARGET). *Am J Psychother*. 2006;60:335–55.
155. de Tord P, Bräuninger I. Grounding. Theoretical application and practice in dance movement therapy. *Arts Psychother*. 2015;43:16–22.
156. Covington S. Beyond trauma. Center City, MN: Hazelden; 2003.
157. Miller NA, Najavits LM. Creating trauma-informed correctional care: A balance of goals and environment. *Eur J Psychotraumatology*. 2012;3:17246.
158. Fisher J. The work of stabilization in trauma treatment. Trauma Center Lecture Series, Boston, Massachusetts. 1999. Available from: https://www.complexttrauma.uk/uploads/2/3/9/4/23949705/the_work_on_stabilization_in_trauma_work.pdf
159. Allen M, Burt K, Bryan E, Carter D, Orsi R, Durkan L. School counselors' Preparation for and participation in crisis intervention. *Prof School Couns*. 2002;6:96–102.
160. Sokol RL, Heinze J, Doan J, Normand M, Grodzinski A, Pomerantz N, et al. Crisis interventions in schools: A systematic review. *J School Violence*. 2021;20:241–60.
161. Jimerson SR, Brock SE, Pletcher SW. An integrated model of school crisis preparedness and intervention: A shared foundation to facilitate international crisis intervention. *School Psychol Int*. 2005;26:275–96.
162. Knox KS, Roberts AR. Crisis intervention and crisis team models in schools. *Child Schools*. 2005;27:93–100.