J-NOSS
JOURNAL OF THE NATIONAL ORGANIZATION FOR STUDENT SUCCESS

Volume 2, Issue 1 Spring 2025

Neuroscientific Perspectives on Teaching College Students with Post-Traumatic Stress or Post-Traumatic Stress Disorder at Small Institutions: Effective Strategies and Recommendations for Academic Success

Inez Smith Jones, Emma G. Mixon, and Qua'Tiya C. Mays
Gordon State College

Abstract

Undergraduate students face a range of cognitive, emotional, and academic challenges during college. For U.S. military veterans and individuals with trauma histories, these challenges are often intensified by symptoms of post-traumatic stress (PTS) or post-traumatic stress disorder (PTSD). This study explores the academic experiences of such students at small colleges (typically enrolling under 5,000 students), where mental health resources may be more limited. It examines how trauma-related impairments in attention, memory, and emotional regulation affect learning and performance. The research highlights opportunities for small colleges to adopt trauma-informed teaching strategies grounded in neuroscience. We offer evidence-based recommendations for flexible, supportive practices to promote resilience and success, contributing to efforts to build context-sensitive academic support systems for students with trauma-related challenges.

Keywords: post-traumatic stress disorder (PTSD), post-traumatic stress (PTS), trauma-informed pedagogy, small colleges, higher education, academic resilience, cognitive impairment, emotional regulation, neurobiological mechanisms, student mental health, teaching strategies, academic success, individualized instruction, faculty development, psychological trauma, learning outcomes, instructional flexibility, neuroscience and education

Recommended Citation

Jones, I. S., Mixon, E. G., & Mays, Q. C. (2025). Neuroscientific perspectives on teaching college students with Post-Traumatic Stress or Post-Traumatic Stress Disorder at small institutions: Effective strategies and recommendations for academic success. *Journal of the National Organization for Student Success*, *2*(1), 68-91. https://doi.org/10.61617/jnoss.47

This study examines the cognitive, emotional, and academic consequences of post-traumatic stress disorder (PTSD) in undergraduate students, with a specific focus on those attending small colleges, typically defined as institutions with fewer than 5,000 students. PTSD can result from a wide range of distressing experiences, including sexual assault, interpersonal violence, severe accidents, natural disasters, prolonged exposure to psychological stressors, or even the widespread disruptions caused by the COVID-19 pandemic. Students affected by PTSD often experience difficulties with attention regulation, memory retrieval, and emotional processing, all factors that can significantly impair academic performance. As the prevalence of PTSD rises, particularly among college students, there is a pressing need to better understand its impact on learning and to develop effective strategies for supporting those affected. This study seeks to explore the neurobiological mechanisms underlying PTSD and its influence on learning, focusing on how small colleges can better address the needs of students with PTSD through targeted pedagogical approaches.

While much of the existing research on PTSD in higher education focuses on large universities with more extensive mental health infrastructure, students at small colleges remain an understudied group. These institutions often have limited access to specialized psychological services or academic accommodations, which may hinder their ability to support students with PTSD through traditional means. However, the smaller student-to-faculty ratios typical of small colleges present a unique opportunity: closer interpersonal relationships and more individualized instruction can become powerful tools for fostering academic resilience among students managing PTSD symptoms.

This study offers a unique contribution to the existing literature by exploring the intersection of post-traumatic stress disorder (PTSD), neuroscience, and academic practices within the context of small colleges. The relative intimacy of these environments can promote nuanced, flexible, and trauma-informed pedagogical strategies tailored to the needs of students with PTSD or trauma-related symptoms.

Despite this potential, there remains a significant gap in the literature addressing how PTSD is experienced and addressed in small academic institutions. By narrowing the research lens to these environments, this study emphasizes how institutional scale and character can influence both student experiences and the feasibility of implementing neuroscience-informed instructional practices. Future research may expand this inquiry to include larger institutions, allowing for a comparative analysis that will help determine which strategies are uniquely beneficial to small colleges and which may be generalized across institutional types. Such comparisons will further contextualize the findings and emphasize the importance of tailoring academic responses to institutional culture and capacity. The primary objective is to identify neuroscience-informed strategies for enhancing support systems for supporting these students in higher education. With the increasing prevalence of PTSD among college students and its documented impact on cognitive and academic functioning, it is essential to gather data that reflects the lived experiences of affected individuals. To investigate how PTSD influences academic performance, particularly within the context of small colleges, this study employed an online survey targeting undergraduate students.

Literature Review

The neurobiological mechanisms of PTSD have been well-documented, with particular emphasis on the role of the hypothalamic-pituitary-adrenal (HPA) axis, hippocampus, and amygdala in mediating stress responses (Brewin, 2007; Shalev et al., 2001). Chronic exposure to stress can result in damage to critical brain structures, weakening memory and learning processes (Mazaheri et al., 2024). Studies have shown that PTSD negatively impacts academic performance, including reduced grade point average (GPA), through deficits in cognitive processing and emotional regulation (Boyraz et al., 2016; Hinkson et al., 2022). However, while much research has focused on military veterans in non-academic environments, the impact of PTSD in the veteran and non-veteran student populations remains underexplored (Kang et al., 2020). Moreover, small colleges, with their lower enrollment sizes and distinctive pedagogical approaches, may offer specific insights into how to better support these students. Numerous studies have demonstrated that small student-to-faculty ratios allow for a more personalized learning environment where faculty can engage in tailored pedagogical approaches (Dumont & Ready, 2023; Nau & Shields, 2025; Reder, 2010). This personalized attention can be particularly beneficial for students experiencing PTSD, as individualized accommodations (e.g., flexible deadlines, personalized feedback) may help mitigate the cognitive and emotional challenges faced by these students. Research has shown that students with PTSD may experience heightened stress responses in academic settings, and a supportive, smaller academic environment can help buffer these responses (Boyraz et al., 2016).

Educational Context and Relevance

PTSD can significantly disrupt a student's academic functioning, particularly in areas requiring sustained concentration, working memory, and executive control (Bachrach & Read, 2012; Boyraz et al., 2016). The prevalence of PTSD among college students is on the rise. Multiple factors likely contribute to this increase, including the pandemic, exposure to military trauma, financial instability, and heightened concerns about career prospects. The prevalence of PTSD in the 2021-2022 academic year was approximately 7.5%, up from 3.4% in 2017-2018 (Zhai & Du, 2024). This aligns with findings indicating that PTSD affects approximately 8% of U.S. college students (Kang et al., 2020). Given the pervasive cognitive and emotional impacts of PTSD on academic performance, it is crucial for the higher education community to develop a comprehensive understanding of how PTSD affects students. This study investigates the effects of PTSD on the academic experiences of students at small institutions and examines how exposure to traumatic events may influence their academic outcomes.

Overview of Post-Traumatic Stress Disorder

When individuals experience a traumatic event, the associated memory often persists well beyond the initial occurrence. In most cases, traumatic memories gradually become less intrusive, enabling the individual to integrate the experience and progress emotionally. However, in individuals with post-traumatic stress disorder (PTSD), these memories may fail to diminish over time. Instead, they are re-experienced with vivid immediacy, as though the traumatic event is occurring in real time (Jongedijk et al., 2023). This re-experiencing can be profoundly disruptive, particularly in high-stress or cognitively demanding environments.

Post-traumatic stress (PTS) is a psychological response to a distressing or traumatic event that once posed a significant threat to the individual or others. The event is typically accompanied by intense fear and extreme helplessness. By contrast, post-traumatic stress disorder (PTSD) arises when this stress response becomes chronic and maladaptive, significantly impairing coping mechanisms and daily functioning (Bisson, 2007). PTS can be a transient response, while PTSD is a formal psychiatric diagnosis with lasting functional impairments (American Psychiatric Association, 2013). PTSD can substantially impair functioning across multiple domains, including occupational, academic, and social settings. Cognitive processes such as attention, working memory, and executive functioning are particularly affected (Ouhmad et al., 2024). The diagnosis of PTSD is generally based on clinical assessments and psychological markers (Husbands, 2018; Jeffrey & Yamagishi, 2024).

PTSD is primarily categorized as an anxiety disorder and is commonly associated with four primary symptom clusters: re-experiencing (or intrusive memories), avoidance, and hyperarousal (or arousal), and reactivity (Boska et al., 2025). In the re-experiencing cluster, individuals repeatedly relive the trauma, often referred to as flashbacks. This involves more than simple remembrance of the traumatic event; individuals re-experience it as though it occurs in the present moment, accompanied by both physiological and psychological reactions (Keltner & Dowben, 2007; Shalev et al., 2001). It is as if the person is mentally transported back to the time and location of the traumatic event. Because of the profound distress caused by this re-experiencing, individuals with PTSD often attempt to circumvent reminders of the trauma (the avoidance cluster). Any stimuli associated with the event are actively avoided whenever possible (Shalev et al., 2001). This may involve avoiding social or academic events, or any situations that could trigger memories of the trauma. This behavioral pattern is intended to avoid re-exposure to emotionally distressing cues associated with the trauma. It is important to note that, while these situations are objectively harmless, they are perceived as threatening due to the fear of re-experiencing the trauma (Coll et al., 2022).

Whereas avoidance serves as a mechanism to reduce exposure to trauma-related cues, hyperarousal involves a persistent state of heightened alertness and stress sensitivity, which may interfere with concentration, memory, and classroom engagement (Boska et al., 2025; Ouhmad et al., 2024). The arousal (or hyperarousal) cluster involves heightened vigilance or hyperawareness, which can cause individuals to remain in a persistent state of alertness, even in safe environments (Boska et al., 2025; Shalev et al., 2001). As a result, they may excessively monitor their surroundings and struggle to focus on other tasks, including academic activities (Shalev et al., 2001). This heightened state of alertness, also known as attention bias, leads to the individual's attention being directed toward scanning the environment or monitoring potential threats, rather than engaging in their assigned task. This bias can occur even in the presence of neutral or safe stimuli, contributing to a feedback loop that exacerbates anxiety (Kimble et al., 2014). In PTSD, the overwhelming stress response is not necessarily linked to immediate physical danger, but instead is driven not by present danger but by the internal reactivation of past threats, often independent of the external environment (Brewin, 2007). This arousal is closely related to the fourth cluster, reactivity, when the person suffering from PTSD may have an exaggerated stress response and display disproportionate heightened emotional reactions, irritability, and emotional outbursts from a triggering stimulus (Aoki & Nozawa, 2024; Boska et al., 2025). These symptom clusters, especially when overlapping, can significantly impair executive functioning, attention regulation, and memory retrieval – factors that are critical for sustained academic engagement and success.

Neurobiological Mechanisms Underlying Learning Impairments in Post-Traumatic Stress Responses

Trauma is a widespread phenomenon affecting individuals across diverse backgrounds and age groups globally (Liang et al., 2023). The neurobiological mechanisms underlying the stress response, particularly in the context of post-traumatic stress disorder (PTSD), are complex and involve several key brain structures. The hypothalamus, though small in size, plays an important role in the regulation of various physiological processes, including the stress response. It is a central component of the HPA, a crucial system for regulating stress. Dysregulation of the HPA axis has been implicated in PTSD, leading to exaggerated and maladaptive stress responses (Lawrence & Scofield, 2024). Typically, the HPA axis is activated during stress exposure and produces a regulatory response. However, in individuals with PTSD, the HPA axis may become dysregulated, resulting in an inefficient or heightened stress response. Upon activation of the HPA axis, corticotropin-releasing hormone (CRH) and arginine vasopressin (AVP) are released from the paraventricular nucleus (PVN) of the hypothalamus. These hormones bind to their respective receptors in the anterior pituitary gland, triggering the release of adrenocorticotropic hormone (ACTH) into the bloodstream. In turn, ACTH stimulates the adrenal glands to secrete glucocorticoid hormones, including cortisol (Timmermans et al., 2019).

The hippocampus, a brain region critical for learning and memory, is also significantly affected by stress. Prolonged exposure to stress and elevated levels of glucocorticoids can damage the hippocampus, impairing its ability to perform essential functions (Gilbertson et al., 2002). The hippocampus can also experience volume reductions in individuals with PTSD, potentially due to altered protein synthesis or decreased protein levels (Herrmann et al., 2012; Logue et al., 2018). This decrease in hippocampal volume is associated with deficits in declarative memory, particularly in tasks that require the retention and recall of information (Flor & Nees, 2014). Moreover, alterations in hippocampal structure and function can interfere with the ability to remember academic content, such as classroom lessons and exam material (Joshi et al., 2020). Additionally, chronic overstimulation of the hippocampus in PTSD can result in the overproduction of glucocorticoids, which disrupt the brain's stress regulation systems and contribute to prolonged hyperarousal and a heightened sense of threat (Hadad et al., 2020). While glucocorticoids are implicated in cognitive deficits, changes in receptor sensitivity to these hormones may also play a role in the altered stress response observed in PTSD (Szeszko et al., 2018). However, the precise mechanisms by which these processes occur remain under investigation.

The amygdala, another key brain structure, is involved in processing emotional responses, including fear, and plays a significant role in memory by linking emotional experiences with learning. In individuals with PTSD, the amygdala often exhibits abnormal functioning. Given its role in threat detection, the amygdala of individuals with PTSD may become hyperresponsive to stimuli that are otherwise neutral or harmless. This hyperactivity is exacerbated by the dysregulated HPA axis and contributes to heightened anxiety and distress (Hadad et al., 2020; Rabinak et al., 2011; Stevens et al., 2017). In PTSD, the amygdala's overactivation can lead to exaggerated fear responses and heightened vigilance to potential threats, even in the absence of actual danger (Simmons & Matthews, 2012). Other brain structures, such as the prefrontal cortex, also play integral roles in the stress response and the pathophysiology of PTSD (Shalev et al., 2001).

Neuroscience of Learning Problems in PTSD

It is essential to recognize that post-traumatic stress disorder (PTSD) is not exclusive to military trauma; symptoms may emerge from various traumatic experiences unrelated to military service. Students may develop PTSD following sexual assault, violence, or other sources of psychological distress (Schroeder et al., 2024). Additionally, the Covid-19 pandemic, which significantly disrupted high school and college experiences, exacerbated these symptoms in many students. PTSD is not the only psychiatric condition resulting from trauma, further complicating research in this area (Frommberger et al., 2014; Zhai & Du, 2024). Although PTSD is prevalent among student veterans, the present study considers all students who exhibit trauma-related symptoms.

PTSD carries substantial emotional and academic consequences. It has been shown to negatively impact academic performance, including GPA, which serves as a commonly accepted measure of cognitive proficiency (Bachrach & Read, 2012; Boyraz et al., 2016; Shirley et al., 2022). This research specifically investigates undergraduate students at small colleges. While larger institutions may have more extensive resources to support students with PTSD, smaller colleges often operate with fewer resources. However, these institutions may be more innovative in developing instructional methods tailored to meet the needs of students with PTSD. The smaller student-to-faculty ratio in these colleges can facilitate closer relationships between instructors and students, offering opportunities for individualized academic and emotional support. Additionally, the high proportion of undergraduates at smaller colleges enables instructors to adapt their teaching approaches more effectively to address the specific needs of these students. Smaller institutions also tend to prioritize teaching over research (Nau & Shields, 2025; Reder, 2010), which may allow instructors to dedicate more time to pedagogical strategies and experiment with innovative, trauma-informed instructional methods.

Methods

All research was carried out with the express permission of the Human Subjects Review Board (internal review board) and informed consent was obtained from each participant. The research has been deemed Exempt by the Board. The research was conducted in the form of an online survey questionnaire containing multiple-choice and open-ended questions. The survey was housed in the MachForm web form application and was distributed as a flyer and link via email. Survey responses were collected through the MachForm platform, and the data was stored securely in an electronic format. Due to the MachForm survey software, IP addresses may have been visible to the Principal Investigator but were kept confidential. At the conclusion of the survey, participants were given the option to enter a drawing for small thank-you prizes (e.g., $10 gift cards). If participants chose to provide contact information, such as phone numbers or email addresses, their responses could potentially be linked to their identity through time stamps, although no student researchers had access to this information. Importantly, no names or identifying information will be included in any publications or presentations derived from these data. All survey responses were treated as confidential.

The survey was distributed to veteran certifying agents, instructors, and other personnel at various institutions in the University System of Georgia. The survey was also posted on the learning management system, BrightSpace by d2l, to provide ease of access for students at the

home college. The flyers included a QR code so that students could complete the survey as straightforwardly as possible. The QR code or link led to the online questionnaire. One hundred twenty-one respondents answered the survey. We understand the sample size is very small and this is one of the limitations of this paper. Only items relevant to the current study have been included. Other questions on the questionnaire will be used for future research projects. The full list of relevant survey questions can be found in Appendix A.

The experimental design employed an observational survey study, in which no variables were manipulated and existing behaviors, opinions, and states-of-mind were observed in the absence of intervention on the part of the researchers. Exploratory and descriptive research was used in the current study. The inclusion criteria for this study consisted of current undergraduate students (self-identified) willing to participate with exceptions (described below). Participation in the survey was voluntary, and students were free to refuse participation or exit the survey at any time without penalty. Students were free to decline to answer any question for any reason. All respondents who did not agree to the electronic consent were eliminated from the study data. All participants under the age of 18 were not included in the study data. All participants who were not current students were eliminated from the study data. All participants who were students at medium to large size institutions based on student population were excluded from the study data.

Redundant responses were removed to the extent possible. For example, affirmative answers to the survey questions 'Have you ever been diagnosed with Post-Traumatic Stress (PTS) or Post-Traumatic Stress Disorder (PTSD)?' and 'If you have not been formally diagnosed with PTS or PTSD, do you suspect that you may have one of these conditions?' were only counted once.

Questions were exported from MachForm into a Microsoft Excel workbook. Excel was used to calculate the option-based assessment items on the survey using computation formulas. To analyze data collected from open-ended questions on the survey, a narrative analysis was performed. The answers were divided into categories, or codes. The codes used included loud sounds, discussions about traumatic events, yelling or screaming, short turn-around times for assignments, feeling trapped in the classroom, strangers, crowds, etc.

Abbreviations

In this paper, we have used the abbreviation PTS(D) to refer to either post-traumatic stress or post-traumatic stress disorder. There is disagreement in clinical and academic literature regarding the duration of symptoms required to diagnose PTS as PTSD (Bisson, 2007). We could not determine the timing of the traumatic events participants experienced prior to completing the survey. Therefore, it remains unclear whether the students were experiencing post-traumatic stress (PTS) or post-traumatic stress disorder (PTSD). There is also conflicting information in the literature about whether an individual can experience delayed-onset PTSD, in which symptoms may not emerge immediately following the traumatic event. Consequently, PTSD and PTS were combined on the student survey as one idea so the students were asked if they were affected by either one. Additionally, because some students have the symptoms without a formal diagnosis due to trepidation about seeking a medical diagnosis, or other reasons, we have coined the abbreviation d/sPTS(D) for diagnosed or suspected post-traumatic stress or post-traumatic stress disorder. Please see Table 1 for a full reference list of abbreviations.

Table 1

Explanation of Abbreviations for Interpreting Results

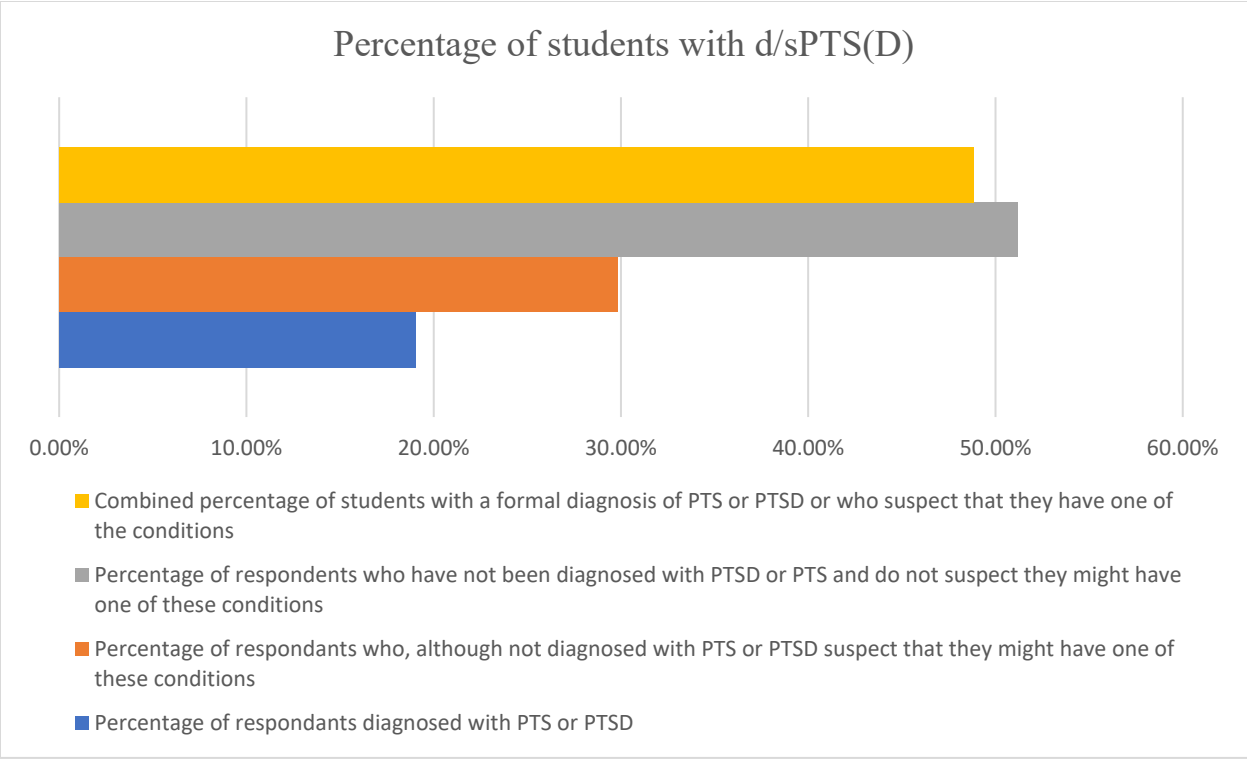
Abbreviation	Meaning
PTSD	Post-traumatic stress disorder
PTS	Post-traumatic stress
PTS(D)	Either post-traumatic stress or post-traumatic stress disorder
d/sPTS(D)	Diagnosed or suspected post-traumatic stress or post-traumatic stress disorder

Results

In our survey, 19% (n=23) of respondents identified as having a formal diagnosis of PTS(D) but 30% (n=31) of students who had not been diagnosed reported a suspicion that they have PTS(D). If combined, approximately 49% of the students who participated in the survey had d/sPTS(D), representing nearly half of the respondents. We decided to use this aggregated total here because the belief that one is affected by PTS(D) denotes that the student has suffered some form of trauma and exhibits symptoms of PTS(D) serious enough to mention in a survey. Thus, nearly half of the participants had d/sPTS(D).

Figure 1

Percentage of Survey Respondents with Diagnosed or Suspected Post-Traumatic Stress or Post-Traumatic Stress Disorder

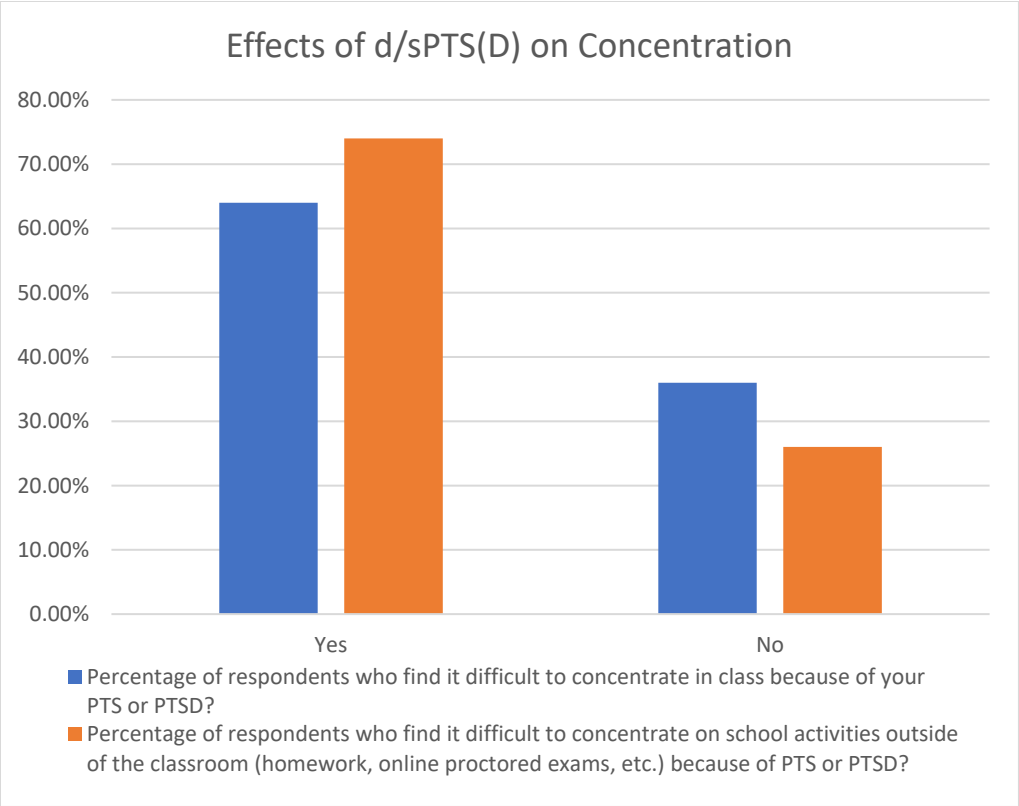


Note: This figure displays the proportion of student participants who reported either a formal diagnosis of PTS or PTSD or suspected they may be experiencing symptoms consistent with these conditions. The data show the prevalence of trauma-related distress among respondents and establish the basis for examining its impact on academic functioning. Understanding the distribution of diagnosed and suspected cases helps contextualize subsequent findings regarding classroom concentration and student support needs.

Seventy-six percent (n=38) of respondents with d/sPTS(D) reported being affected by their symptoms on a daily basis, with 24 students (31%) indicating that it affects them to some degree (“It affects me some”) and 14 students (18%) reporting significant impact (“It affects me greatly”). When asked about the effect of d/sPTS(D) on their concentration in class, 64% (n=32) stated that they found it more difficult to concentrate due to their symptoms (Figure 2). Additionally, 74% (n=37) of respondents reported experiencing increased difficulty concentrating on activities outside of class, such as completing homework and participating in online proctored exams.

Figure 2

The Effects of Diagnosed or Suspected Post-Traumatic Stress or Post-Traumatic Stress Disorder on Concentration as Ascertained from our Student Survey



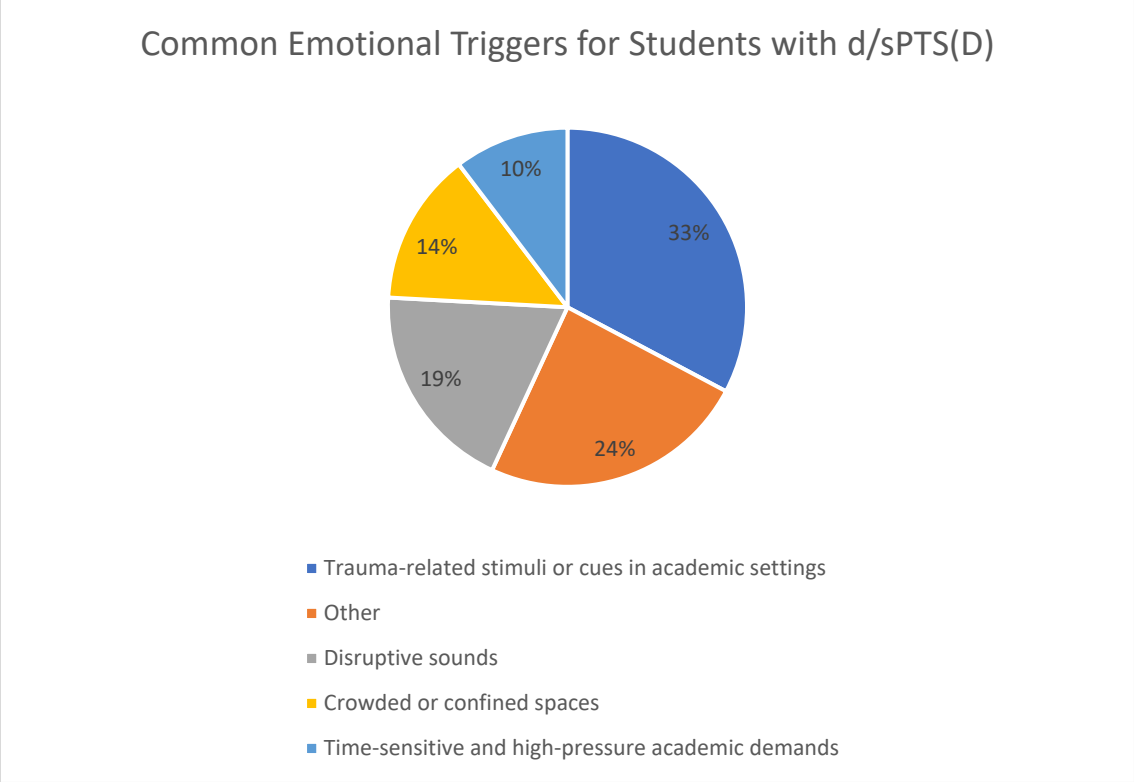
Note: This figure illustrates the proportion of student respondents reporting difficulty concentrating due to diagnosed or suspected PTS(D), as captured in the survey. The data reflect both in-class and out-of-class academic challenges (e.g., during lectures, exams, or independent study). Concentration difficulties, as shown here, may be associated with lower academic performance outcomes, such as decreased engagement, reduced retention of material, and lower GPA. This figure brings to the forefront the cognitive impact of trauma-related symptoms and highlights the need for trauma-informed instructional approaches within higher education settings.

An assessment of instructor understanding was also included in the questionnaire. Sixty percent (n=30) of respondents with d/sPTS(D) reported that they felt instructors somewhat understood the challenges. Thirty-two percent (n=16) of those surveyed with d/sPTS(D) reported that their instructors did not understand the challenges associated with teaching a student with d/sPTS(D). On the subject of triggers, 84% (n=42) of participants with d/sPTS(D) reported that they have noticeable triggers for symptoms. Although many participants chose not to provide open-ended responses regarding specific trauma triggers, the qualitative data that were collected offer valuable, firsthand insights into the lived experiences of students with trauma-related symptoms. While the number of responses was limited, the examples shared contribute meaningfully to our understanding of trauma in academic settings and can inform the development of more responsive, trauma-sensitive instructional practices.

Several participants identified specific triggers directly related to classroom activities and the broader academic environment (see Figure 3). Prominent among these were trauma-related stimuli or contextual cues encountered in educational settings, which may elicit intrusive recollections or flashbacks. Approximately 19% (n = 11) of respondents who disclosed suspected or diagnosed post-traumatic stress symptoms identified disruptive sounds—such as sudden noises or loud classroom environments—as significant triggers. Additional reported triggers included crowded or enclosed spaces, as well as time-sensitive or high-stakes academic tasks, all of which may exacerbate hyperarousal or avoidance behaviors commonly associated with post-traumatic stress responses.

Figure 3

Common Emotional Triggers for College Students with Diagnosed or Suspected Post-Traumatic Stress or Post-Traumatic Stress Disorder



Note: This figure illustrates self-reported environmental and classroom-related stimuli that students with d/sPTS(D) identified as triggering or distressing. Although only a small number of respondents provided open-ended responses, patterns emerged that emphasize the role of the learning environment in either exacerbating or mitigating trauma-related symptoms. Commonly reported triggers included disruptive sounds, crowded or confined spaces, time-sensitive academic demands, and inability to monitor exits or maintain situational awareness in classrooms. These findings contribute to the growing literature emphasizing the need for trauma-sensitive pedagogical strategies and classroom designs.

Physical placement within the classroom was another factor identified by students affected by d/sPTS(D). The percentage of survey participants with d/sPTS(D) who indicated that physical placement affects their ability to concentrate (i.e. seat in relation to the door or having a seat in front or in the rear of the classroom) was 42.86 (n=21).

Among respondents with d/sPTS(D) who provided open-ended responses, 40% (n = 12) reported a preference for seating arrangements that allow visibility of all classroom entrances and exits. While the majority of participants did not complete the optional open-ended items, the responses that were collected offer useful insight into the needs of students with post-traumatic symptoms. In response to an item regarding preferred instructional support strategies, 22.5% (n = 9) indicated a preference for instructors who are understanding, open, and sensitive to trauma-related challenges. Additionally, 15% (n=6) preferred the option to leave in-person classes without explanation and to have flexible attendance policies, including occasional online participation. Similarly, 15% (n=6) of respondents expressed a preference for instructors to use content warnings for potentially triggering material.

Discussion

In our study, almost 50% of students who participated in the survey reported symptoms consistent with d/sPTS(D), representing nearly half of the respondents. This aligns with findings by Zhai and Du (2024), who observed a trend of increasing PTSD incidence by 4.1% between 2017 and 2022. Whether this rise reflects a genuine increase in trauma exposure, improved diagnostic tools, greater awareness, or a combination thereof remains uncertain. Understanding the neurological effects of PTSD is crucial to addressing its impact on learning. Chronic trauma exposure leads to alterations in the hippocampus, amygdala, and prefrontal cortex – regions essential for memory, emotional regulation, and cognitive control. These changes can manifest in the classroom, making memory retention, emotional regulation, and sustained attention more challenging for students with d/sPTS(D). The hippocampus, for example, is central to memory consolidation and spatial navigation (Raven et al., 2021), and its shrinkage has been linked to impairments in both learning and memory retention (Flor & Nees, 2014; Logue et al., 2018).

This neurological impact can manifest as difficulty encoding and recalling academic material, making tasks such as taking exams or writing essays significantly more challenging for students with d/sPTS(D). The amygdala, which processes emotional reactions, may become hyperactive in individuals with PTSD, amplifying stress responses even to neutral stimuli (Flor & Nees, 2014). This heightened emotional arousal can interfere with students' ability to focus on academic tasks and may contribute to the reported difficulties in processing emotionally neutral information (Downing et al., 2022; Hayes et al., 2012).

Generally, PTS(D) represents a range of disorders that can often go underdiagnosed or misdiagnosed (Henigsberg et al., 2019). Additionally, comorbidities such as substance use disorders, major depressive disorder, and generalized anxiety disorder can present with overlapping symptoms, complicating both diagnosis and treatment (Brady et al., 2000; Flory & Yehuda, 2015; Shalev et al., 2001). Nonetheless, our findings clearly highlight that d/sPTS(D) among college students is a matter that requires serious attention.

The challenge for instructors lies in the unpredictability of trauma triggers. These triggers are often unique to each individual and can be both visible and invisible. For example, disruptive sounds, crowded spaces, or certain visual cues might unexpectedly evoke traumatic memories,

engaging the amygdala and triggering an overwhelming stress response that impairs cognitive functions such as memory retrieval and attention regulation. The impact of such disruptions aligns with broader findings on the pervasive effects of chronic stress on cognition and behavior (Shapira et al., 2024). Emotional processing—particularly through the amygdala—is deeply intertwined with learning and memory functions, and it is essential for instructors to consider the neurological basis of trauma when implementing teaching strategies.

Recent research shows that intrusive emotional content, often linked to trauma triggers, can impair memory encoding by competing with cognitive resources needed for the current task (de Montpellier & Talmi, 2025). Students with PTSD may, therefore, find it particularly challenging to retain new academic material without significant review, as the emotional content that dominates their cognitive processes can crowd out the neutral academic information they need to learn. These neurological findings support the need for instructors to adopt strategies that minimize cognitive overload for students with trauma histories, forming a more conducive learning environment.

Suggested Strategies for Teaching Students with d/sPTS(D) in a Small College Environment

Supporting students with d/sPTS(D) requires intentional, trauma-informed teaching practices, an approach that acknowledges how trauma shapes learning and behavior. In small college environments, where class sizes are smaller and faculty-student relationships are often more personal, instructors are uniquely positioned to implement practical strategies that foster safety, independence, and academic engagement. Based on survey findings and existing research, the following subsections offer concrete approaches and practical strategies to better support students with trauma histories.

Implementing Trigger Warnings and Content Notices to Support Trauma-Affected Students

Survey respondents with d/sPTS(D) clearly identified academic triggers, with trauma-related stimuli in classroom settings among the most distressing. Such stimuli can evoke flashbacks, dissociation, or physiological reactivity that interferes with concentration and memory. As Walker et al. (2024) emphasize, the goal of trauma-informed teaching is to minimize re-traumatization while maintaining academic rigor. Approximately 15% of survey respondents supported trigger warnings for emotionally difficult material and requested the option to opt out. Trigger warnings are intended to give students the opportunity to avoid the potential sensitive information, to employ coping mechanisms to mitigate any emotional responses, and to provide a sense of autonomy and respect for the student (Willems et al., 2025). Research has shown that content warnings do not reduce learning or increase avoidance but can improve students' sense of control and emotional preparedness (Bellet et al., 2020; Boysen et al., 2021). Building on existing literature, Nolan and Roberts (2024) offer twelve practical strategies for implementing trigger warnings. These strategies include providing advance notice of potentially distressing content, establishing a supportive classroom environment, and offering guidance to instructors on understanding why trigger warnings are important. While their focus is on healthcare professions education, these recommendations are adaptable to various disciplines within small colleges, aligning with the needs of students with d/sPTS(D). Please

note: Instructors should avoid using the term 'trigger warning,' as it can be distressing to some students. Instead, they may provide a general description of the planned material to help students prepare (Willems et al., 2025).

Instructors can provide brief verbal warnings before difficult discussions and clearly label sensitive content in syllabi. Additionally, they should offer students the option to discuss alternative assignments or opt-out of certain readings if the material is too triggering. This approach enables students to mentally prepare or communicate their concerns in advance. If necessary, a student can communicate with the instructor during office hours or via email to explain that the material triggers re-experiencing of trauma. Where feasible, instructors can offer alternative assignments that fulfill the same learning objectives without exposing students to triggering material. Some class topics such as sexual violence, war (especially recent conflicts), racial trauma, interpersonal violence, and others should be considered potentially upsetting to students who may have experienced a traumatic event, though triggers will vary depending on individual student experiences. We suggest that a trigger warning before presenting these types of topics (or others) would be beneficial to students with d/sPTS(D). Once triggered, a student's stress response can become physiologically overwhelming, resulting in impaired cognitive processing for the remainder of the session. A similar strategy is to include trigger warnings in the class syllabus. Alerting students to sensitive content throughout the semester can promote transparency and help students implement strategies to manage potential adverse emotions in advance. This approach may be especially feasible at small colleges where faculty have greater discretion over syllabus design. For some classes, potentially distressing topics will be a major part of the learning objectives for the class and cannot be avoided. Including a small statement in the syllabus or class description can alert students to this fact and allow them to make smarter decisions in choosing a schedule. If attendance in the class is mandatory (for the student's major, etc.), this warning can help the student implement coping mechanisms, enabling them to engage in the discussions with minimal discomfort.

Creating Flexible Learning Environments and Classroom Accommodations

Survey results indicate that 32% of students felt their instructors did not understand the challenges associated with d/sPTS(D). Even small gestures, such as personalized invitations to office hours or flexibility with assignments, can signal care and empathy. Furthermore, from our data, it is important for instructors to be flexible with students with d/sPTS(D). For example, simple adjustments like forgoing a seating chart can make students feel more comfortable and promote psychological safety. Notably, 40% of students with d/sPTS(D) preferred seating arrangements that allowed them to view all exits, likely due to heightened hypervigilance – a common response in trauma survivors. When possible, instructors should avoid rigid seating assignments, particularly in lab courses where groupings are often predetermined. Allowing students to select seats that minimize distress can reduce distraction and improve engagement (Honsinger & Brown, 2019).

Flexibility is also crucial when it comes to high-stakes testing, major assignments, and deadlines. Students with d/sPTS(D) may experience heightened physiological arousal during exams, which can interfere with memory recall and focus. Offering varied assessment formats can help ease this challenge (Boyd et al., 2021). With the increasing prevalence of online testing, this flexibility is more feasible than ever. Instructors in Boyd et al.'s (2021) research tried out different modalities including more formative feedback on test or quiz items, or allowing

multiple attempts on quizzes. This allowed more of a conversational way to make sure students were on track and relieved some pressure for students. Reasonable extensions and alternative testing formats can be highly beneficial and may prevent exacerbation of trauma symptoms (Werkmeister, 2024). According to Walker et al. (2024), giving students agency over assignment timelines can increase their sense of safety and belonging.

Flexible course design is a key advantage of teaching at small colleges, and this flexibility can significantly benefit students with trauma exposure, such as those with d/sPTS(D). Small colleges, with their more intimate settings, allow instructors to approach student support holistically, considering both academic and emotional needs. Although Boyd et al. (2021) do not focus specifically on trauma-informed instruction, their recommendations for redesigning online courses can be adapted to support trauma-affected learners. For instance, students with d/sPTS(D) may feel uncomfortable with the invasiveness of video classes or having others in their personal space, making it difficult for them to engage fully in an online class. Allowing students to turn off their cameras (at least some of the time) can provide a sense of control and comfort, reducing anxiety and promoting a safer learning environment.

Furthermore, alternative communication methods, such as discussion boards or announcements, can maintain student engagement without requiring constant video presence. Boyd et al. (2021) point out how smaller group formats foster more personal interactions and can reduce the overwhelming pressure of large online classes. This approach is especially beneficial for students with trauma histories, who may feel more at ease in smaller, more supportive settings. Instructors can use break-out rooms to create smaller discussion groups, allowing for individualized attention and greater emotional safety, with the instructor checking in on the groups periodically.

Finally, remote exam proctoring, often required in online environments, can be particularly stressful for students with d/sPTS(D) due to its perceived invasiveness, an issue that emerged in the open-ended responses of our current study. Strategies for reducing student stress during assessments could include offering alternative testing formats. For trauma-affected students, offering in-person testing options or alternative proctoring methods may alleviate distress and support their academic success.

Fostering Empathic Communication and Psychological Safety

Given that many respondents reported being triggered by disruptive noises or crowded, confined spaces, instructors should be mindful of these factors. While it may not always be possible to eliminate these potential triggers, their impact can be minimized. For example, instructors can establish ground rules for group discussions (e.g., minimizing loud or aggressive speech), which can foster a safer, more supportive classroom environment (Nolan & Roberts, 2024). In some cases, students with d/sPTS(D) may feel uncomfortable in crowded or cramped classrooms. Instructors should show understanding if students need to step out briefly due to escalating symptoms. Instructors might say, “I understand that this topic may be difficult for some of you. If you need to step out or take a break, please do so without hesitation.” Allowing students to step away without punitive consequences promotes emotional regulation and encourages re-engagement (Werkmeister, 2024). Lower stress levels lead to improved learning outcomes. This reduction in stress response overactivation can support a calmer, more focused learning experience (Bodette et al., 2015).

Institutional Collaboration and Trauma-Informed Teaching

The neurological effects of d/sPTS(D) – such as changes in the hypothalamus, amygdala, and hippocampus – can significantly interfere with memory, focus, and emotional regulation, all of which can hinder academic success for affected students. While small colleges may face challenges due to limited mental health resources, many of the most impactful instructional strategies require minimal institutional investment. In fact, small institutions often provide faculty with more autonomy to implement creative, resource-efficient solutions that do not require additional funding. A notable example of this is a program at Anne Arundel Community College in Maryland, where faculty collaborated to develop low-cost, innovative solutions for enhancing student engagement and support. By reaching out to colleagues locally and globally, instructors discovered effective ways to build more inclusive and supportive environments for students. This demonstrates that even in resource-constrained settings, collaborative, creative approaches can yield positive outcomes. Small colleges could similarly adopt these collaborative, low-cost strategies to foster trauma-informed classrooms. For example, faculty could create regular peer-support networks and share best practices through workshops or faculty meetings. For example, organizing "trauma-informed teaching" workshops can help faculty collaborate on effective strategies and raise awareness about PTSD-related challenges. These approaches would allow small institutions to offer meaningful assistance to students without relying heavily on external resources, thereby creating a more supportive academic experience for all.

Conclusion

While previous studies have explored the impact of PTSD on college students, this study makes a novel contribution by specifically focusing on the attitudes and experiences of students with d/sPTS(D) at small colleges, framed through a neuroscience lens. Nearly half of the participants in this study reported symptoms consistent with trauma-related distress, highlighting a critical need for more trauma-sensitive approaches in academic settings. The neurological effects of trauma, particularly in the hippocampus and amygdala, can disrupt core cognitive functions like memory, focus, and emotional regulation, significantly impairing students' ability to process and retain academic material. Trauma-related disruptions in cognitive functioning, particularly when compounded by emotional stress, emphasize the necessity of trauma-informed teaching strategies. This study emphasizes the importance of trauma-informed teaching strategies to address these challenges. By understanding the neurobiological foundations of trauma, educators can take steps to reduce cognitive overload, mitigate stress responses, and foster more supportive classroom environments. The limited sample size and scope of the institutions studied suggest that these findings should be viewed as preliminary insights rather than generalized conclusions. More comprehensive studies, including data from a broader range of colleges and universities, are needed to further understand and validate these findings. Future research could focus on how trauma-induced changes in brain function affect specific learning outcomes, such as long-term memory consolidation, academic stress management, and emotional regulation during high-stakes assessments.

In our study, nearly half of the student participants reported symptoms consistent with d/sPTS(D), signaling an urgent need to address these challenges. In particular, students with

d/sPTS(D) benefit from increased empathy, patience, and flexibility from instructors, as well as a deeper understanding of how trauma-related brain changes can affect learning. The dominance of emotionally charged memories, processed by the amygdala, can hinder the ability to process neutral academic content, complicating tasks such as taking a chemistry exam or writing an essay. By acknowledging the neuroscience of trauma, instructors can take steps to reduce stress responses, create more supportive environments, and improve academic engagement for these students.

We acknowledge that the small sample size in this study represents a limitation. However, despite the limited number of responses, the data provided offer a valuable foundation for future research and draw attention to the importance of trauma-informed pedagogy. The insights gained from this subset of students underscore potential avenues for further investigation into the needs and experiences of trauma-affected students in academic settings. While larger studies are needed to generalize findings, even preliminary results emphasize the necessity of institutional support and instructor awareness in promoting academic success for students with d/sPTS(D).

The reasons behind the rising incidence of d/sPTS(D) diagnoses among college students remain unclear and fall outside the scope of this study, yet the growing prevalence calls for further investigation. Importantly, our findings suggest that there are practical, evidence-based teaching strategies that can help students with d/sPTS(D) in small college environments. By adopting trauma-informed practices, instructors can play a vital role in fostering academic engagement, emotional safety, and long-term success for students with trauma histories. Ultimately, this study suggests that small colleges, with their intimate academic environments, are uniquely positioned to adopt trauma-informed practices that can significantly improve the learning experience for students with d/sPTS(D).

References

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). https://doi.org/10.1176/appi.books.9780890425596

Aoki, S., & Nozawa, E. (2024). Pilot study on classification of sensory symptoms in PTSD. *Journal of Child & Adolescent Trauma*, *17*(2), 283–293. https://doi.org/10.1007/s40653-023-00602-5

Bachrach, R. L., & Read, J. P. (2012). The role of posttraumatic stress and problem alcohol involvement in university academic performance. *Journal of Clinical Psychology*, *68*(7), 777–787. https://doi.org/10.1002/jclp.21874

Bellet, B. W., Jones, P. J., & Meyersburg, C. A. (2020). Trigger warnings and resilience in college students: A preregistered replication and extension. *Journal of Experimental Psychology: Applied*, *26*(4), 717–723. https://doi.org/10.1037/xap0000270

Bisson, J. I. (2007). Post-traumatic stress disorder. *BMJ*, *334*(7597), 789–793. https://doi.org/10.1136/bmj.39162.538553.80

Bodette, H., Clark, M., Koya, A., Lara Santiago, A. G., Leda, R., & Wise, B. (2015). Analysis of autonomic response to stressful and calming visual and auditory stimuli. *Journal of Advanced Student Sciences*, http://digital.library.wisc.edu/1793/80208

Boyd, D. E., Andersen, K., Ludwig, L., & Jasperson, A. E. (2021). "Designing into the unknown": Harnessing the promise of flexible course design. *Change: The Magazine of Higher Learning*, *53*(5), 33–40. https://doi.org/10.1080/00091383.2021.1963153

Boyraz, G., Granda, R., Baker, C. N., Tidwell, L. L., & Waits, J. B. (2016). Posttraumatic stress, effort regulation, and academic outcomes among college students: A longitudinal study. *Journal of Counseling Psychology*, *63*(4), 475–486. https://doi.org/10.1037/cou0000164

Brady, K. T., Killeen, T. K., Brewerton, T., & Lucerini, S. (2000). Comorbidity of psychiatric disorders and posttraumatic stress disorder. *Journal of clinical psychiatry*, 61, 22-32.

Brewin, C. R. (2007). What is it that a neurobiological model of PTSD must explain?. *Progress in Brain Research*, *167*, 217–228. https://doi.org/10.1016/S0079-6123(07)67015-0

Boska, R. L., Bishop, T. M., Capron, D. W., Paxton Willing, M. M., & Ashrafioun, L. (2025). Difficulties with emotion regulation within PTSD clusters and moral injury subtypes. *Military psychology: the official journal of the Division of Military Psychology, American Psychological Association*, *37*(2), 159–167. https://doi.org/10.1080/08995605.2024.2322904

Boysen, G. A., Isaacs, R. A., Tretter, L., & Markowski, S. (2021). Trigger warning efficacy: The impact of warnings on affect, attitudes, and learning. *Scholarship of Teaching and Learning in Psychology*, *7*(1), 39–52. https://doi.org/10.1037/stl0000150

Coll, S. Y., Eustache, F., Doidy, F., Fraisse, F., Peschanski, D., Dayan, J., Gagnepain, P., & Laisney, M. (2022). Avoidance behaviour generalizes to eye processing in posttraumatic stress disorder. *European Journal of Psychotraumatology*, *13*(1), 1–12. https://doi.org/10.1080/20008198.2022.2044661

de Montpellier, E., & Talmi, D. (2025). Are multiple types of associative memory differently impacted by emotion? *Cognition & Emotion*, *39*(1), 156–179. https://doi.org/10.1080/02699931.2023.2279182

Downing, C. F., Weigle, R. J., & Harrison, M. A. (2022, June 22-25). *The behavioral neuroscience of Posttraumatic Stress Disorder (PTSD) and barriers to learning*. [Conference Session]. Annual Meeting of the International EJERCongress, Izmir, Turkey, https://files.eric.ed.gov/fulltext/ED624180.pdf.

Dumont, H., & Ready, D.D. (2023). On the promise of personalized learning for educational equity. *npj Science of Learning*. *8,* Article 26. https://doi.org/10.1038/s41539-023-00174-x

Flor, H., & Nees, F. (2014). Learning, memory and brain plasticity in posttraumatic stress disorder: Context matters. *Restorative Neurology & Neuroscience*, *32*(1), 95–102. https://doi.org/10.3233/RNN-139013

Flory, J. D., & Yehuda, R. (2015). Comorbidity between post-traumatic stress disorder and major depressive disorder: alternative explanations and treatment considerations. *Dialogues in Clinical Neuroscience*, *17*(2), 141–150. https://doi.org/10.31887/DCNS.2015.17.2/jflory

Frommberger, U., Angenendt, J., & Berger, M. (2014). Post-traumatic stress disorder--a diagnostic and therapeutic challenge. *Deutsches Arzteblatt International*, *111*(5), 59–65. https://doi.org/10.3238/arztebl.2014.0059

Gilbertson, M. W., Shenton, M. E., Ciszewski, A., Kasai, K., Lasko, N. B., Orr, S. P., & Pitman, R. K. (2002). Smaller hippocampal volume predicts pathologic vulnerability to psychological trauma. *Nature neuroscience*, *5*(11), 1242–1247. https://doi.org/10.1038/nn958

Hadad, N. A., Schwendt, M., & Knackstedt, L. A. (2020). Hypothalamic-pituitary-adrenal axis activity in post-traumatic stress disorder and cocaine use disorder. *Stress: The International Journal on the Biology of Stress*, *23*(6), 638–650. https://doi.org/10.1080/10253890.2020.1803824

Hayes, J. P., VanElzakker, M. B., & Shin, L. M. (2012). Emotion and cognition interactions in PTSD: A review of neurocognitive and neuroimaging studies. *Frontiers in Integrative Neuroscience*, *6*, 89. https://doi.org/10.3389/fnint.2012.00089

Henigsberg, N., Kalember, P., Kovačić Petrović, Z., & Šečić, A. (2019). Neuroimaging research in posttraumatic stress disorder – Focus on amygdala, hippocampus and prefrontal cortex. *Progress in Neuro-Psychopharmacology and Biological Psychiatry*, *90*, 37–42. https://doi.org/10.1016/j.pnpbp.2018.11.003

Herrmann, L., Ionescu, I. A., Henes, K., Golub, Y., Wang, N. X. R., Buell, D. R., Holsboer, F., Wotjak, C. T., Schmidt, U., & Gamble, K. L. (2012). Long-lasting hippocampal synaptic protein loss in a mouse model of posttraumatic stress disorder. *PLoS ONE*, *7*(8), 1–13. https://doi.org/10.1371/journal.pone.0042603

Honsinger, C., & Brown, M. H. (2019). Preparing trauma-sensitive teachers: Strategies for teacher educators. *Teacher Educators' Journal*, *12*, 129–152.

Husbands, C. (2018). Understanding PTSD. *Occupational Health & Wellbeing*, *70*(9), 13-15.

Jeffrey, H., & Yamagishi, H. (2024). Identifying post-traumatic stress symptom typologies in clinical and non-clinical healthcare staff: A latent profile analysis. *European Journal of Psychotraumatology*, *15*(1), Article 2351323. https://doi.org/10.1080/20008066.2024.2351323

Jongedijk, R. A., van Vreeswijk, M. F., Knipscheer, J. W., Kleber, R. J., & Boelen, P. A. (2023). The relevance of trauma and re-experiencing in PTSD, mood, and anxiety disorders. *Journal of Loss & Trauma*, *28*(4), 404–420. https://doi.org/10.1080/15325024.2022.2116782

Joshi, S. A., Duval, E. R., Kubat, B., & Liberzon, I. (2020). A review of hippocampal activation in post-traumatic stress disorder. *Psychophysiology*, *57*(1), Article 13357. https://doi.org/10.1111/psyp.13357

Kang, H. K., Rhodes, C., Rivers, E., Thornton, C. P., & Rodney, T. (2020). Prevalence of mental health disorders among undergraduate university students in the United States: A review. *Journal of Psychosocial Nursing and Mental Health Services*, *59*(2), 17–24. https://doi.org/10.3928/02793695-20201104-03

Keltner, N. L., & Dowben, J. S. (2007). Psychobiological substrates of Posttraumatic Stress Disorder—Part I. *Perspectives in Psychiatric Care*, *43*(2), 97–101. https://doi.org/10.1111/j.1744-6163.2007.00117.x

Kimble, M., Boxwala, M., Bean, W., Maletsky, K., Halper, J., Spollen, K., & Fleming, K. (2014). The impact of hypervigilance: Evidence for a forward feedback loop. *Journal of Anxiety Disorders*, *28*(2), 241-245. https://doi.org/10.1016/j.janxdis.2013.12.006

Lawrence S., & Scofield, R. H. (2024). Post traumatic stress disorder associated hypothalamic-pituitary-adrenal axis dysregulation and physical illness. *Brain, Behavior, & Immunity - Health*, *41,* Article 100849. https://doi.org/10.1016/j.bbih.2024.100849

Liang, L., Bonanno, G. A., Hougen, C., Hobfoll, S. E., & Hou, W. K. (2023). Everyday life experiences for evaluating post-traumatic stress disorder symptoms. *European Journal of Psychotraumatology*, *14*(2), 2238584. https://doi.org/10.1080/20008066.2023.2238584

Logue, M. W., Van Rooij, S. J., Dennis, E. L., Davis, S. L., Hayes, J. P., Stevens, J. S., ... & Morey, R. A. (2018). Smaller hippocampal volume in posttraumatic stress disorder: A multisite ENIGMA-PGC study: Subcortical volumetry results from posttraumatic stress disorder consortia. *Biological Psychiatry*, *83*(3), 244-253. https://doi.org/10.1016/j.biopsych.2017.09.006

Mazaheri, M., Radahmadi, M., & Sharifi, M. R. (2024). Effects of chronic social equality and inequality conditions on passive avoidance memory and PTSD-like behaviors in rats under chronic empathic stress. *International Journal of Neuroscience*, 1–12. https://doi.org/10.1080/00207454.2024.2341913

Nau, D. P., & Shields, K. M. (2025). Student-to-faculty ratios and NAPLEX pass rates. *Currents in Pharmacy Teaching and Learning*, *17*(2), 102237.

Nolan, H. A., & Roberts, L. (2024). Twelve tips for implementing trigger or content warnings in healthcare professions education. *Medical Teacher*, *46*(7), 903–910. https://doi.org/10.1080/0142159X.2023.2290995

Ouhmad, N., Combalbert, N., & El Hage, W. (2024). The association between post-traumatic stress disorder (PTSD) and executive functioning. *Cognitive Neuropsychiatry*, *29*(1), 29–40. https://doi.org/10.1080/13546805.2024.2313461

Rabinak, C. A., Angstadt, M., Welsh, R. C., Kennedy, A., Lyubkin, M., Martis, B., & Phan, K. L. (2011). Altered amygdala resting-state functional connectivity in post-traumatic stress disorder. *Frontiers in Psychiatry*, *2*, Article 62. https://doi.org/10.3389/fpsyt.2011.00062

Raven, F., Bolsius, Y. G., van Renssen, L. V., Meijer, E. L., van der Zee, E. A., Meerlo, P., & Havekes, R. (2021). Elucidating the role of protein synthesis in hippocampus-dependent memory consolidation across the day and night. *European Journal of Neuroscience*, *54*(8), 6972–6981. https://doi.org/10.1111/ejn.14684

Reder, M. (2010). Effective practices in the context of small colleges. *A Guide to Faculty Development*, 293-308.

Shalev, A. Y., Liberzon, I., & Marmar, C. (2001). What is posttraumatic stress disorder?. *Journal of Clinical Psychiatry*, *62*, 4-10.

Shapira, R., Baris, G. Y. J., & Lipskaya-Velikovsky, L. (2024). Daily life participation in PTSD: Pilot study on patterns and correlators. *Frontiers in Psychiatry*, *15*, Article 1429647. https://doi.org/10.3389/fpsyt.2024.1429647

Shirley, D. M., Metz, A. J., Hinkson Jr, K. D., Drake-Brooks, M. M., Taylor, J. M., Artman, S. E., Burningham, C. & Bryan, C. J. (2022). Academic performance of college student servicemembers and veterans: The influence of emotion regulation, self-efficacy, and PTSD symptom severity. *Journal of Veterans Studies*, *8*(1), 186–203. https://doi.org/10.21061/jvs.v8i1.314.

Simmons, A. N., & Matthews, S. C. (2012). Neural circuitry of PTSD with or without mild traumatic brain injury: A meta-analysis. *Neuropharmacology*, *62*(2), 598-606. https://doi.org/10.1016/j.neuropharm.2011.03.016

Schroeder, K., Sinko, L., Ibrahim, J., & Sarwer, D. B. (2024). Supporting student learning and development through trauma-informed campuses. *Journal of American College Health*, *72*(9), 3681–3689. https://doi.org/10.1080/07448481.2023.2187647

Stevens, J. S., Reddy, R., Kim, Y. J., van Rooij, S. J., Ely, T. D., Hamann, S., Ressler, K., & Jovanovic, T. (2017). Episodic memory after trauma exposure: Medial temporal lobe function is positively related to re-experiencing and inversely related to negative affect symptoms. *NeuroImage: Clinical*, *17*, 650-658. https://doi.org/10.1016/j.nicl.2017.11.016

Szeszko, P. R., Lehrner, A., & Yehuda, R. (2018). Glucocorticoids and Hippocampal Structure and Function in PTSD. *Harvard review of psychiatry*, *26*(3), 142–157. https://doi.org/10.1097/HRP.0000000000000188

Timmermans, S., Souffriau, J., & Libert, C. (2019). A general introduction to glucocorticoid biology. *Frontiers in Immunology*, *10*, 1545. https://doi.org/10.3389/fimmu.2019.01545

Walker, G.H., Grace, N., & Flaherty, B. (2024). Cuing safety in the law school classroom: Using a polyvagal theory framework in support of trauma-informed teaching practices. *Journal of Law & Education*, *53*(1), 1–48.

Werkmeister, S. A. (2024). Investigating learning environment preferences in students with trauma history. *Journal of Educational Sciences & Psychology*, *14*(2), 251–266. https://doi.org/10.51865/JESP.2024.2.21

Willems, H., Glombiewski, J. A., McNally, R. J., & Herzog, P. (2025). Trigger warning≠ trigger warning: A comparison of differentially worded trigger warnings on negative versus positive outcomes. *Psychological Trauma: Theory, Research, Practice, and Policy*. Advance online publication. https://doi.org/10.1037/tra0001839

Zhai, Y., & Du, X. (2024). Trends in diagnosed posttraumatic stress disorder and acute stress disorder in us college students, 2017-2022. *JAMA Network Open*, *7*(5), e2413874-e2413874. https://doi.org/10.1001/jamanetworkopen.2024.13874

Appendix A
Post-Traumatic Stress and Academic Experience Questionnaire

This appendix includes the full set of items presented in the online questionnaire used in the study. The survey was administered anonymously and began with an electronic consent item. Items 2 through 16 were optional and primarily intended to gather descriptive and self-reported data on students' experiences related to post-traumatic stress (PTS) or post-traumatic stress disorder (PTSD).

Item No.	Question Text	Type	Response Format
1	Electronic Consent: Please select your choice below. You may print a copy of this consent form for your records. Clicking "Agree" indicates you are 18+ and consent.	Required	Yes/No (Agree/Disagree)
2	Are you 18 years of age or older?	Required	Yes/No
3	Are you a student?	Optional	Yes/No
4	If you are a student, which best describes you?	Optional	Multiple choice (e.g., Full-time student, Part-time student, etc.)
5	What is your current college or university?	Optional	Multiple choice (e.g., Gordon State College, Abraham Baldwin Agricultural College, etc.)
6	Are you an active-duty military member?	Optional	Yes/No
7	Are you a veteran?	Optional	Yes/No
8	Have you ever been diagnosed with Post-Traumatic Stress (PTS) or Post-Traumatic Stress Disorder (PTSD)?	Optional	Yes/No
9	If you have not been formally diagnosed, do you suspect you may have one of these conditions?	Optional	Yes/No
10	How much would you say your PTS or PTSD affects you on a daily basis?	Optional	4-point Likert-type ordinal scale ("It doesn't" to "It affects me greatly")
11	Do you feel that it is harder to concentrate in class because of your PTS or PTSD?	Optional	Yes/No

12	Do you find it difficult to concentrate on school activities outside of the classroom (e.g., homework, online exams)?	Optional	Yes/No
13	Do you think that your instructors understand the challenges of teaching a student with PTS or PTSD?	Optional	3-point ordinal scale (“They understand” to “They do not understand”)
14	Do you notice certain things specifically trigger your PTSD?	Optional	Yes/No
15	If yes to the previous question, what would a few of these triggers be?	Optional	Open-ended
16	Does your physical placement in class affect your ability to concentrate (e.g., needing to see exits, back to door, front/rear seat)?	Optional	Yes/No
17	If you answered yes to the previous question, please explain.	Optional	Open-ended
18	What could your instructors do that might offer aid to students with PTS or PTSD?	Optional	Open-ended