

# Helping or Harming? The Effect of Trigger Warnings on Individuals With Trauma Histories



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## Abstract

Trigger warnings alert trauma survivors about potentially disturbing forthcoming content. However, empirical studies on trigger warnings suggest that they are functionally inert or cause small adverse side effects. We conducted a preregistered replication and extension of a previous experiment. Trauma survivors ( $N = 451$ ) were randomly assigned to either receive or not to receive trigger warnings before reading passages from world literature. We found no evidence that trigger warnings were helpful for trauma survivors, for participants who self-reported a posttraumatic stress disorder (PTSD) diagnosis, or for participants who qualified for probable PTSD, even when survivors' trauma matched the passages' content. We found substantial evidence that trigger warnings countertherapeutically reinforce survivors' view of their trauma as central to their identity. Regarding replication hypotheses, the evidence was either ambiguous or substantially favored the hypothesis that trigger warnings have no effect. In summary, we found that trigger warnings are not helpful for trauma survivors.

## Keywords

trigger warning, trauma, PTSD, resilience, replication, open data, open materials, preregistered

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Giving a trigger warning means providing prior notification about forthcoming content that may be emotionally disturbing (Boysen, 2017). In this sense, trigger warnings are similar to PG-13 or “viewer discretion advised” warnings that are common across many different forms of media. Trigger warnings are distinct in that they originated as a measure of protection specifically for survivors of trauma. For people with posttraumatic stress disorder (PTSD), viewing reminders of trauma can spark painful reexperiencing symptoms (e.g., flashbacks; American Psychiatric Association [APA], 2013). Trigger warnings originated in online discussion groups for survivors of sexual trauma in which individuals would warn readers before discussing their experiences. Since their inception, trigger warnings have expanded far beyond the boundaries of specialized online communities. Trigger warnings are now used in educational settings, social media, entertainment, and other venues. In addition to their expansion in setting, they have also expanded in scope beyond sexual violence (Wilson, 2015).

Trigger warnings have sparked considerable debate in higher education. Proponents of trigger warnings have emphasized their importance in creating an inclusive atmosphere for disadvantaged groups on campus (e.g., Karasek, 2016). They have argued that trigger warnings provide agency to engage or not to engage and that they allow trauma survivors to adequately prepare to engage with difficult material. Critics have suggested that trigger warnings imperil free speech, academic freedom, and effective teaching, which prevents students from engaging with challenging material (e.g., Ellison, 2016). Other critics have suggested that trigger warnings foster unreasonable expectations about the world, hampering natural resilience among young people (e.g., Lukianoff & Haidt, 2015). Furthermore, trigger warnings could also be problematic for

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trauma survivors in particular (McNally, 2016). People who view trauma as a core part of their identity have worse symptoms (Berntsen & Rubin, 2006; Brown, Antonius, Kramer, Root, & Hirst, 2010; Robinaugh & McNally, 2011). Therefore, trigger warnings might iatrogenically reinforce the importance of past traumatic events for the very people they were originally designed to help.

The arguments surrounding trigger warnings are often complex. Before diving into this complexity, a much more basic question should be answered: Do trigger warnings actually work? That is, do they help trauma survivors emotionally prepare to engage with difficult material? From the vantage point of clinical science, trigger warnings are a type of community-based clinical intervention intended to foster emotional well-being among trauma survivors. Yet because of their grassroots origin in a non-clinical setting, trigger warnings have expanded for years without the rigorous scientific evaluation that normally accompanies such interventions.

Bellet, Jones, and McNally (2018) were among the first to experimentally test the effect of trigger warnings. In a crowd-sourced sample of individuals who had not experienced past trauma, they found that trigger warnings given before literature passages had no significant effect on anxiety. Furthermore, they found that trigger warnings undermined participants' sense of their resilience to potential future traumatic events and their sense of the resilience of others. They also reported a moderation effect—among individuals who believed that words were emotionally harmful, trigger warnings acutely increased anxiety reactions.

Since this original study, the scientific literature has quickly expanded. Bellet et al. (2020) conducted a pre-registered replication of the same protocol of Bellet et al. (2018) with undergraduate college students. Their results suggest that trigger warnings created a trivially small yet genuine increase in anxiety. However, they found strong evidence that the previously observed effects on projected vulnerability and the moderation effect from Bellet et al. (2018) did not replicate among college students. In the most comprehensive set of studies to date, Sanson, Strange, and Garry (2019) concluded that trigger warnings had trivially small effects overall. Across six studies of varying sample characteristics, they found that negative affect and intrusive memories were similar regardless of whether individuals received trigger warnings.

Bridgland, Green, Oulton, and Takarangi (2019) similarly found that trigger warnings had trivially small effects on arousal levels when participants viewed photos. However, their results differentiated *anticipatory anxiety* from *response anxiety*. Anticipatory anxiety refers to levels of anxiety after viewing the trigger warning but before viewing the stimulus, whereas response anxiety refers to anxiety after viewing the stimulus.

Although trigger warnings appeared to have a trivial effect on response anxiety, they reliably increased anticipatory anxiety. Relatedly, Bruce (2017) found that trigger warnings produced greater physiological markers of anticipatory anxiety compared with PG-13 warnings or no warnings. Gainsburg and Earl (2018) found that trigger warnings increased negative anticipatory affect but slightly decreased negative response affect. Articles evaluating the effect of trigger warnings on anxiety or negative affect are summarized in Table 1.

Some trigger warning advocates have suggested that although trigger warnings may not help individuals cope with triggering content, they may help individuals avoid the content altogether. Although avoidance reduces anxiety in the short run (Hofmann & Hay, 2018), it maintains or worsens PTSD in the long run (e.g., Brewin & Holmes, 2003; Dunmore, Clark, & Ehlers, 1999; Foa & Kozak, 1986). There are some instances in which a small degree of avoidance may be helpful (Hofmann & Hay, 2018), but the scope of such situations is limited (e.g., acts of partial avoidance to increase the acceptability of exposure treatments; Deacon, Sy, Lickel, & Nelson, 2010; Levy & Radomsky, 2014). These situational exceptions should not be interpreted to mean that avoidance should be used as a primary coping mechanism or a long-term strategy. Graduated, prolonged exposure to trauma cues is beneficial to long-term well-being, especially in a controlled treatment setting (e.g., Powers, Halpern, Ferenschak, Gillihan, & Foa, 2010), although the principle of fear extinction via exposure applies much more broadly than in controlled psychotherapy (e.g., Milad, Rauch, Pitman, & Quirk, 2006; Myers & Davis, 2007). Indeed, considering current theories of anxiety and learning, a lack of exposure to trauma cues (e.g., successful and pervasive avoidance) is likely to be much more harmful for trauma survivors in the long term. In one study of more than 300 female assault survivors, 8.1% of patients on a wait list experienced reliable worsening of PTSD symptoms compared with 0% reliable worsening among patients receiving prolonged exposure treatment (Jayawickreme et al., 2014).

Regardless of the considerable body of literature contraindicating the counsel of avoidance for trauma survivors, it remains unclear whether individuals provided with trigger warnings use them to avoid triggering content. Gainsburg and Earl (2018) found that participants were marginally more likely to avoid film clips with trigger warnings ( $p = .06$ ). In contrast, Kimble (2019) found that individuals very rarely avoided material because of trigger warnings. In this study, we primarily focused on the issue of whether trigger warnings help trauma survivors emotionally cope with (rather than avoid) triggering content. However, we measured whether participants dropped out of the study after

**Table 1.** Effect of Trigger Warnings on Anticipatory and Response Anxiety

Study	<i>N</i>	Source	Trauma exposure	Stimuli	Outcome	Anticipatory anxiety ( <i>d</i> )	Response anxiety ( <i>d</i> )
Bellet et al. (2018)	270	Crowd-sourced	No	Literature passages	Self-reported anxiety		0.06 [−0.18, 0.30]
Gainsburg & Earl (2018) <sup>a</sup>	276; 979	Crowd-sourced	Mixed	Essay	Negative affect (SAM)	0.75** [0.58, 0.92]; 0.26** [0.10, 0.42]	−0.17* [−0.33, −0.01]
Bellet et al. (2020)	462	Students	No	Literature passages	Self-reported anxiety		0.20* [0.02, 0.38]
Sanson et al. (2019) <sup>b</sup>	1,880	Students/crowd-sourced	Mixed	Story/film clip	Negative affect (PANAS)		0.02 [−0.08, 0.13]
Bridgland et al. (2019) <sup>b,c</sup>	1,600	Crowd-sourced	Mixed	Photos	State anxiety (STAI)	1.36** [0.99, 1.74]	0.07 [−0.03, 0.16]
Current study	451	Crowd-sourced	Yes	Literature passages	Self-reported anxiety		0.08 [−0.11, 0.26]

Note: Positive Cohen's *d* type effect sizes indicate an increase in anxiety. Values in brackets are 95% confidence intervals. SAM = Self-Assessment Manikin; PANAS = Positive and Negative Affect Scale; STAI = State Trait Anxiety Inventory. Cells are left blank for studies that did not measure anticipatory anxiety.

<sup>a</sup>The two anticipatory-anxiety effects are from Studies 2 and 3, respectively ( $N = 276$ ,  $N = 979$ ), and are based on reported *t* values; response anxiety is from Study 3. Confidence intervals are estimated on the basis of incomplete information. <sup>b</sup>Results are internal meta-analyses across all experiments. <sup>c</sup>Response anxiety is from our meta-analysis of the effects reported in Table 5.

\* $p < .05$ . \*\* $p < .01$ .

seeing a trigger warning (i.e., avoided) as a secondary outcome.

The encouraging growth of studies has begun to converge on the consensus that trigger warnings are not typically helpful in reducing anxiety. This finding has been consistent across various types of trigger warnings and types of potentially triggering content. For instance, Sanson et al. (2019) found similar effects regardless of whether trigger warnings mentioned potential emotional reactions (e.g., “You might find this content disturbing”) or just content (e.g., “The following story contains violence and death”). Similar effects have been found with literature passages, stories, photos, and film clips. The literature also suggests several different types of harm potentially caused by trigger warnings (e.g., anticipatory anxiety, perception of vulnerability) but with occasionally mixed or contradictory results.

There remain several important limitations to this area of research. First, none of the studies has exclusively focused on the primary intended target of trigger warnings—survivors of trauma. Although some of the studies have included trauma-survivor subgroups (e.g., Sanson et al., 2019), this has not been the main focus of any study. If trigger warnings are designed to promote the well-being of trauma survivors, this is an important limitation. Second, there remain several unanswered questions relevant to trauma survivors, especially survivors who are experiencing symptoms of PTSD. For example, the severity of PTSD symptoms might moderate the effects of trigger warnings (e.g.,

trigger warnings may be helpful to people with severe PTSD symptoms but not to people with milder symptoms). Trigger warnings may also harm trauma survivors by reinforcing the belief that their trauma is central to their identity. Third, many studies used different operationalizations and stimuli. On one hand, the consistency of results across diverse studies suggests that the findings may be robust to varying formats of the warning operationalizations. On the other hand, more direct replications are also essential and provide protections against potential biases (e.g., publication bias, selective reporting).

In the current study, we tested the effect of trigger warnings in a large sample of trauma survivors recruited from Amazon Mechanical Turk, a crowd-sourcing platform. This preregistered study included a direct replication of the experiment in Bellet et al. (2018) and extended the paradigm to address questions specific to trauma survivors. Further exploratory analyses examined vulnerable subpopulations (e.g., people who had received a diagnosis of PTSD) as well as tests of validity for measures used in the original study.

## Method

### Participants

The preregistration for the study design and analysis plan is available on the Open Science Framework (<https://osf.io/gdxtr/>). Any deviations or exploratory

analyses that were not specified in the preregistration are marked as such within this article. Participants were recruited online from Amazon Mechanical Turk. We pre-specified a sequential data collection procedure with a stopping rule based on Bayes factors (for details, see <https://osf.io/gdxttr>). However, the evidential criteria for our stopping rule were not met at any intermediate step, so we recruited participants until the specified ceiling of 600 participants had completed the study. Participants were excluded from the study if they incorrectly answered an attention check or if they failed an English fluency verifier (for details, see <https://osf.io/86hku/>). This left a final sample of 451 participants.

## Procedure

This study was a randomized controlled experiment with one control group (no trigger warnings) and one experimental group (trigger warnings for distressing passages). After providing informed consent, participants were asked to complete a CAPTCHA and answer three questions to verify U.S. residency (e.g., “What is the most common emergency number in the United States? [0-0-0 / 9-1-1 / 0-0-0-9-5 / 9-9-9]”). Participants failing these items were immediately barred from completing the study. Remaining participants then completed a single-item question<sup>1</sup> that screened for the presence of trauma according to PTSD diagnostic Criterion A in the fifth edition of the *Diagnostic and Statistical Manual of Mental Disorders (DSM-5; APA, 2013)*. The *DSM-5* defines trauma as “exposure to actual or threatened death, serious injury, or sexual violence.” Participants who had not experienced such a trauma were excluded from the study.

Participants then read literature passages typical of a high school or college English class. Passages were standardized by length, and participants were shown the passages for a minimum of 20 s before they were allowed to proceed to the next screen. The passages were previously rated on the degree to which they provoked anxiety in a pilot study (Bellet et al., 2018). Depending on their content, passages are hereafter classified as either *neutral* (no disturbing content; e.g., a character description from Melville’s *Moby-Dick*), *mildly distressing* (general themes of violence or harm with no graphic details; e.g., a description of a battle from Bradley’s *Flags of Our Fathers*), or *markedly distressing* (graphic scenes of violence, injury, or death; e.g., the murder scene from Dostoevsky’s *Crime and Punishment*; the full text of all passages is provided at <https://osf.io/hb3xu/>). After each passage, participants rated their emotional state by using slider bars ranging from 0 (*not at all*) to 100 (*very much*) on seven emotions: sad, happy, afraid, anxious, angry, content, and

disgusted. The responses to the anxious rating were used as the primary outcome measure.

Participants in both conditions first read three mildly distressing passages in random order to establish a baseline. Next, participants read a series of five neutral passages and five markedly distressing passages inter-mixed in random order. In the experimental condition, markedly distressing passages were preceded by a trigger warning (“TRIGGER WARNING: The passage you are about to read contains disturbing content and may trigger an anxiety response, especially in those who have a history of trauma”). In the control condition, passages were preceded by a screen that indicated they were about to view the next passage, which was acknowledged by clicking a radio button. After these 10 passages, participants read three more mildly distressing passages appearing in random order that served to test for any sensitization effects.

After reading all passages, participants completed the questionnaires detailed below. Participants also answered questions about demographic information and psychiatric history, completed an English fluency verifier, and answered validity-related questions that did not affect payment (e.g., “What do you think was the purpose of this study?” “Is there any reason you think that your data should not be used (this will not impact payment)?”). At the end of the study, they received a debriefing form explaining the purpose of the study in detail.

## Measures

**Self-reported emotion.** After each passage, participants rated their emotions on a sliding scale from 0 to 100—“Please use the slider bars to show how much you are experiencing each emotion on a scale from 0 (not at all) to 100 (very much).” We were primarily interested in ratings of anxiety, but to reduce demand characteristics, we included a broad range of emotions: sad, happy, afraid, anxious, angry, content, and disgusted.

**Centrality of Event Scale.** The Centrality of Event Scale (CES) is a seven-item questionnaire that measures the extent to which participants view the memory of their worst event as a reference point for personal identity and the attribution of meaning to other experiences in their life (Berntsen & Rubin, 2006). Items (e.g., “I feel that this event has become a central part of my life story”) are rated on a 5-point Likert scale (1 = *totally disagree*, 5 = *totally agree*). The CES has been linked to higher levels of PTSD symptoms (e.g., Berntsen & Rubin, 2006; Brown et al., 2010; Robinaugh & McNally, 2011). The CES has also been linked to perceived posttraumatic growth, or the sense that life has been enhanced (e.g., rendered

more meaningful) as a result of a traumatic event (Boals & Schuettler, 2011; Groleau, Calhoun, Cann, & Tedeschi, 2013). That said, posttraumatic growth is a somewhat controversial measure that should not be thought of as a straightforward measure of psychological health (Jayawickreme & Blackie, 2014); indeed, some studies have indicated that it is positively correlated with more severe PTSD (Dekel, Ein-Dor, & Solomon, 2012; Kleim & Ehlers, 2009). The CES displayed excellent internal consistency in the current study ( $\alpha = .94$ ).

**Perceived Posttraumatic Vulnerability Scale–Self.**

The Perceived Posttraumatic Vulnerability Scale–Self (PPVS-S) is a 19-item questionnaire that measures participants' projections of their own emotional impairment and posttraumatic symptoms if they were to hypothetically experience a trauma in the future (Bellet et al., 2018). Participants are asked to imagine being exposed to an attempt on their life and then indicate their agreement with the effects of that experience (e.g., "I would not be able to work a job, or take care of myself") on a 100-point scale (1 = *disagree*, 100 = *agree*). The PPVS-S displayed excellent internal consistency in the current study ( $\alpha = .95$ ).

**Perceived Posttraumatic Vulnerability Scale–Other (PPVS-O).**

The Perceived Posttraumatic Vulnerability Scale–Other (PPVS-O) is a 19-item questionnaire that measures participants' belief that if an "average" person were to experience a trauma, that person would experience persistent and debilitating emotional harm (Bellet et al., 2018). Participants are asked to imagine an average person being exposed to an attempt on their life and then indicate their agreement with the effects of that experience (e.g., "he/she would have nightmares of the event") on a 100-point scale (1 = *disagree*, 100 = *agree*). The PPVS-O displayed excellent internal consistency in the current study ( $\alpha = .95$ ).

**Life Events Checklist for DSM-5.** The Life Events Checklist for DSM-5 (LEC-5) is a self-report instrument that identifies specific traumatic events that have occurred in one's lifetime (Weathers, Blake, et al., 2013). The LEC-5 contains 16 events known to potentially result in PTSD or distress (e.g., "life threatening illness or injury") and an additional option for "any other very stressful event or experience." In our study, participants were initially screened by a question assessing the presence of a Criterion A trauma. Later in the study, they were provided with the LEC-5 and asked to choose the event description that best matched their most stressful or traumatic event.

**PTSD Checklist for DSM-5.** The PTSD Checklist for DSM-5 (PCL-5) is a 20-item questionnaire that assesses

the presence and severity of PTSD symptoms in the past month (Weathers, Litz, et al., 2013). Participants in our study were instructed to answer the questions keeping in mind their worst event as selected on the LEC-5. Items on the PCL-5 correspond closely to *DSM-5* (APA, 2013) criteria for PTSD (e.g., "In the past month, how much were you bothered by repeated, disturbing, and unwanted memories of the stressful experience"). The PCL-5 is often used to monitor symptoms over time, screen for PTSD, or assist in making a provisional diagnosis of PTSD. For exploratory analyses involving the PCL-5, we used the cutoff score of 33 recommended by the U.S. Department of Veterans Affairs (Weathers, Litz, et al., 2013) and on the basis of research (Bovin et al., 2016; Wortmann et al., 2016). The PCL-5 displayed excellent internal consistency in the current study ( $\alpha = .96$ ).

**Words Can Harm Scale.** The Words Can Harm Scale (WCHS) is a 10-item scale that measures the degree to which participants believe that words can cause serious and lasting emotional harm (Bellet et al., 2018). Participants rated their agreement with each statement (e.g., "Even a simple phrase can be emotionally traumatizing for someone vulnerable") on a 100-point scale (1 = *disagree*, 100 = *agree*). The WCHS displayed excellent internal consistency in the current study ( $\alpha = .92$ ).

**Trigger-warnings-attitudes assessment.** During the trigger-warnings-attitudes assessment (TWAA), we administered three items to assess participants' prior exposure to and attitudes about trigger warnings. First, we provided participants with a definition of trigger warnings (i.e., "A trigger warning is a statement given before presented material that allows the viewer to prepare for or avoid distress that it may cause, particularly if the viewer has clinical mental health issues"). Participants were then asked to give a binary rating of whether they believe that trigger warnings should be given before potentially distressing material (TWAA-1). If the participants selected "yes," they were shown a checklist asking why they think trigger warnings should be used (e.g., "Trigger warnings help to protect vulnerable populations . . ."), including an "other" option with the ability to write in a response (TWAA-2). Participants were then asked to rate their agreement with the statement "I have personally seen many trigger warnings used before" on a 7-point Likert scale (1 = *strongly disagree*, 7 = *strongly agree*; TWAA-3). Only TWAA-3 was used for the primary analysis in the present study, as specified in the preregistration. The other items are to be used in future studies addressing attitudes about trigger warnings.

**Trauma-matching passages.** We asked participants if any of the literary passages they read during the study

reminded them of their worst event. If participants answered “yes,” we provided them with a checklist of passages and asked them to identify which ones reminded them of their worst event. These passages were marked as *trauma-matching* passages.

**Demographics questionnaire.** We asked participants to report their gender, race, ethnicity, religiosity, political orientation, and age. Religiosity and political orientation were assessed with a 5-point Likert scale (1 = *not religious*, 5 = *extremely religious*; 1 = *very liberal*, 5 = *very conservative*). We also asked participants to report whether they were a full-time undergraduate student.

**Psychiatric history.** At the beginning of the study, all participants were given a screener assessing for the presence of a Criterion A traumatic event. Participants were included in the study only if they indicated the presence of a Criterion A event. Near the end of the study, we asked participants whether they had “ever been diagnosed with a psychiatric or psychological problem.” If participants answered “yes,” we asked them to choose all diagnoses that apply from a list including PTSD and “Other” (to allow for a free response of any disorders not listed).

**Behavioral avoidance (dropout).** We measured behavioral avoidance by assessing whether participants dropped out of the study after seeing a trigger warning or at any other point (e.g., dropout after randomization). Dropout was measured before applying inclusion/exclusion criteria because participants who dropped out did not complete all necessary measures (e.g., attention checks) before dropout.

**Attention checks.** To ensure that participants were reading the passages closely, we included four attention checks on their content (e.g., “What was the last passage about? A description of a girl / a pirate ship / how cars are manufactured”). We also included three attention checks within the Likert-type response scales (e.g., “If you’re actually reading this question, please select the number 3 as your response. Thank you for reading all the questions carefully”). These attention checks were used as exclusion criteria in addition to the English fluency verifier (see <https://osf.io/86hku/>) and a validity item (“Is there any reason you think that your data should not be used (this will not impact payment)?”).

## Analyses

All analyses were conducted in the R software environment (Version 3.6.0; R Core Team, 2019). Code for the analyses is available at <https://osf.io/jeuwx>. We used Bayes factors (BFs) as our inference criteria. BFs give relative evidence between two competing hypotheses. For all tests, we used a preregistered minimum BF value

of 1/3 or 3 as a criterion for “substantial evidence” relative to the null or alternative hypothesis, respectively.

**Preregistered replication tests.** We preregistered five replication tests, each related to a previous effect observed in Bellet et al. (2018). These analyses initially used linear regressions with trigger-warning condition (trigger warnings vs. no trigger warning) as the primary independent variable. As indicated in the preregistration, we first examined whether demographic or psychiatric history differed by condition. If this were the case, we added those variables as covariates in regression analyses. Our two competing hypotheses relevant for BFs were that (a) the observed effect was equal to zero ( $t_{\text{obs}} = 0$ ) or that (b) the observed effect was equal to the effect in the previous study by Bellet et al. ( $t_{\text{obs}} = t_{\text{orig}}$ ). Replication BFs were computed following the  $t$ -value comparison procedure described by Verhagen and Wagenmakers (2014). Following this procedure, we tested the replication of the effect of trigger warnings on (a) participants’ perceptions of their own posttraumatic vulnerability via the PPVS-S, (b) participants’ perceptions on others’ posttraumatic vulnerability via the PPVS-O, (c) immediate anxiety response following markedly distressing passages, (d) subsequent anxiety response to mildly distressing passages presented without a trigger warning, and (e) an interaction effect between trigger-warning condition and the WCHS on immediate anxiety response (including a simple slopes analysis if the interaction was significant).

**Trauma-survivor-specific preregistered tests.** We preregistered several additional tests to answer specific questions about trauma survivors. For these tests, our two competing hypotheses were that (a) the observed effect was equal to 0 ( $t_{\text{obs}} = 0$ ) or that (b) the observed effect was not equal to 0 ( $t_{\text{obs}} \neq 0$ ). Specifically, this is done by comparing a linear model that includes the parameter of interest (e.g., condition) against a linear model without that parameter (e.g., intercept-only model) using the *lmBF* function in the *BayesFactor* package (Morey & Rouder, 2018). First, we tested whether trigger warnings affected participants’ ratings of trauma centrality on the CES. Second, we tested whether PTSD severity scores on the PCL moderated any of the previous tests (e.g., effect on PPVS-S, PPVS-O, etc.). Third, we tested whether participants’ self-reported prior exposure to trigger warnings (see TWAA) moderated any of the previous tests.

**Exploratory tests.** Given critiques we received of our past work, we were interested in whether the effect of trigger warnings differed in specific subgroups of our sample. It may be that trigger warnings are not helpful for trauma survivors broadly but are indeed helpful for those who have severe PTSD symptoms or have been diagnosed with PTSD. Accordingly, we tested the effect

of trigger warnings among the subgroup of individuals who (a) met a clinical cutoff for a probable PTSD diagnosis on the basis of their PCL scores or (b) reported a past diagnosis of PTSD.

Another possibility is that trigger warnings are helpful only when the content of the passage matches the traumatic experience of the survivor (i.e., the passage actually triggers remembrance of the trauma). Therefore, we asked participants to identify trauma-matching passages, which allowed for a direct test of this hypothesis. We selected only the individuals who specified trauma-matching passages and selected only the responses in reference to those specific passages. We then tested whether trigger warnings before these trauma-matching passages affected anxiety. In addition to testing trauma matching, we also tested whether the effect of trigger warnings on anxiety was moderated by the type of trauma reported by participants.

**Behavioral avoidance (dropout).** We assessed dropout by counting the number of participants who were randomized to an experimental condition but did not finish the study. We calculated the percentage of total dropouts using for the denominator the number of postrandomized participants before applying inclusion/exclusion criteria.

**Scale convergent and discriminant validity.** Some of the scales used in this study (PPVS-S, PPVS-O, WCHS, TWAA) were created by the authors of this article. In addition to computing reliabilities, which are listed above, we sought to provide tests of convergent validity. Specifically, on the basis of the hypothetical constructs measured, we predicted that the PPVS-S and PPVS-O would be strongly positively related to one another, positively related to PCL scores, and positively related to the CES. We also wanted to ensure that these measures would show discriminant validity, meaning that they did not relate to theoretically unrelated measures. Thus, we predicted that they would have a weak to null relationship to religiosity. We predicted that the WCHS would be positively related to the CES, PPVS-S, and TWAA-1 but have a weak to null relationship to religiosity. We predicted that TWAA-3 (prior exposure to trigger warnings, the only TWAA item used for this study's outcomes) would be related to younger age and more liberal political orientation. These validity analyses were included in response to a reviewer's suggestion after the preprint was made available, and thus were not preregistered, but were prespecified before examining interscale relationships.

## Results

### Sample characteristics

Our sample contained a majority of self-identified women ( $n = 239$ , 53%) with a substantial minority of

men ( $n = 208$ , 46%) and a small number of participants who specified another gender ( $n = 4$ , 1%). Participants had a mean age of 37 years ( $SD = 11.2$ ) and identified their race as White ( $n = 336$ , 75%), Black/African American ( $n = 39$ , 9%), Asian/Pacific Islander ( $n = 23$ , 5%), Hispanic ( $n = 23$ , 5%), Native American/Alaska Native ( $n = 5$ , 1%), or multiracial/selected multiple categories ( $n = 25$ , 6%). A substantial minority of participants identified their ethnicity as Hispanic ( $n = 41$ , 9%). Participants identified as not religious ( $n = 201$ , 45%), somewhat religious ( $n = 72$ , 16%), moderately religious ( $n = 79$ , 18%), very religious ( $n = 67$ , 15%), or extremely religious ( $n = 32$ , 7%). A minority of participants identified themselves as full-time undergraduate students ( $n = 44$ , 10%). Participants were skewed slightly toward liberal political orientation ( $M = 2.64$ ; 1 = *very liberal*, 5 = *very conservative*). Participants reported a wide diversity of traumatic experiences on the LEC-5. All 16 categories were represented; the largest categories were natural disaster ( $n = 95$ , 21%), transportation accident ( $n = 79$ , 18%), sexual assault ( $n = 78$ , 17%), and physical assault ( $n = 47$ , 10%).

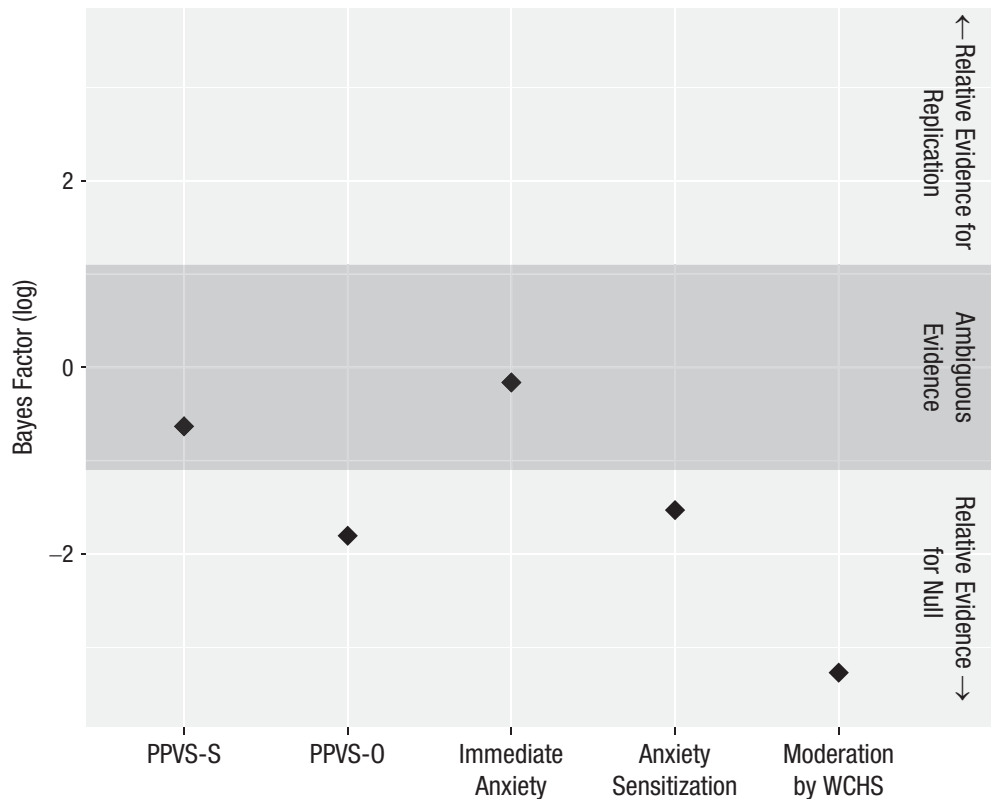
### Preregistered replication tests

The results of the replication tests appear in Figure 1. Overall, replication tests either favored the null hypothesis or gave ambiguous evidence. In the original study by Bellet et al. (2018), a significant effect was found by trigger-warning condition on perceived vulnerability to self (PPVS-S) and perceived vulnerability of others (PPVS-O). Neither of these significant effects replicated in our sample; substantial evidence favored the null hypothesis for an effect on perceived vulnerability of others (PPVS-O). A significant interaction effect was also found in the original experiment such that participants' belief that words can harm (WCHS) moderated the effect of trigger warnings on immediate increases in anxiety. This interaction effect did not replicate in our sample; substantial evidence favored the null hypothesis. For immediate increases in anxiety or sensitization to anxiety (which were nonsignificant in the original study), we found ambiguous evidence and substantial evidence favoring the null hypothesis, respectively.

### Trauma-survivor-specific preregistered tests

First, we tested whether trigger warnings affected participants' ratings of trauma centrality on the CES. We found substantial evidence that trigger warnings increased the degree to which participants viewed their worst event as central to their life narrative ( $BF = 3.26$ ,  $d = 0.25$ , 95 confidence interval [CI] = [0.07, 0.44]).

Second, we tested whether PTSD severity scores on the PCL moderated any of the previous tests (e.g., effect



**Fig. 1.** Bayes factors (log) are presented representing relative evidence for either the null hypothesis ( $t_{\text{obs}} = 0$ ) or relative evidence for a hypothesis of equivalence with the effect from the original study ( $t_{\text{obs}} = t_{\text{orig}}$ ). Overall, evidence was either ambiguous or favored the null hypothesis.

on PPVS-S, PPVS-O, etc.). We found substantial evidence favoring the null hypothesis for a moderation effect on trauma centrality ( $\text{BF} = 0.11$ ,  $\Delta r^2 < .01$ ) and on perceived vulnerability (self:  $\text{BF} = 0.10$ ,  $\Delta r^2 < .01$ ; other:  $\text{BF} = 0.13$ ,  $\Delta r^2 < .01$ ). We found ambiguous evidence for a moderation effect of PTSD severity on anxiety sensitization ( $\text{BF} = 0.86$ ,  $\Delta r^2 = .01$ ). We found substantial evidence that PTSD severity moderates immediate anxiety reactions ( $\text{BF} = 3.14$ ,  $\Delta r^2 = .01$ ). That is, individuals who scored higher on the PCL had *increased* anxiety when they were given trigger warnings.

Third, we tested whether participants' self-reported prior exposure to trigger warnings (see TWAA) moderated any of the previous tests. We found substantial evidence favoring the null hypothesis for a moderation effect on trauma centrality ( $\text{BF} = 0.27$ ,  $\Delta r^2 < .00$ ), perceived vulnerability (self:  $\text{BF} = 0.19$ ,  $\Delta r^2 < .00$ ; other:  $\text{BF} = 0.22$ ,  $\Delta r^2 < .00$ ), and anxiety sensitization ( $\text{BF} = 0.21$ ,  $\Delta r^2 < .00$ ). We found ambiguous evidence for a moderation effect on immediate anxiety reaction ( $\text{BF} = 2.17$ ,  $\Delta r^2 = .01$ ).

### Exploratory tests

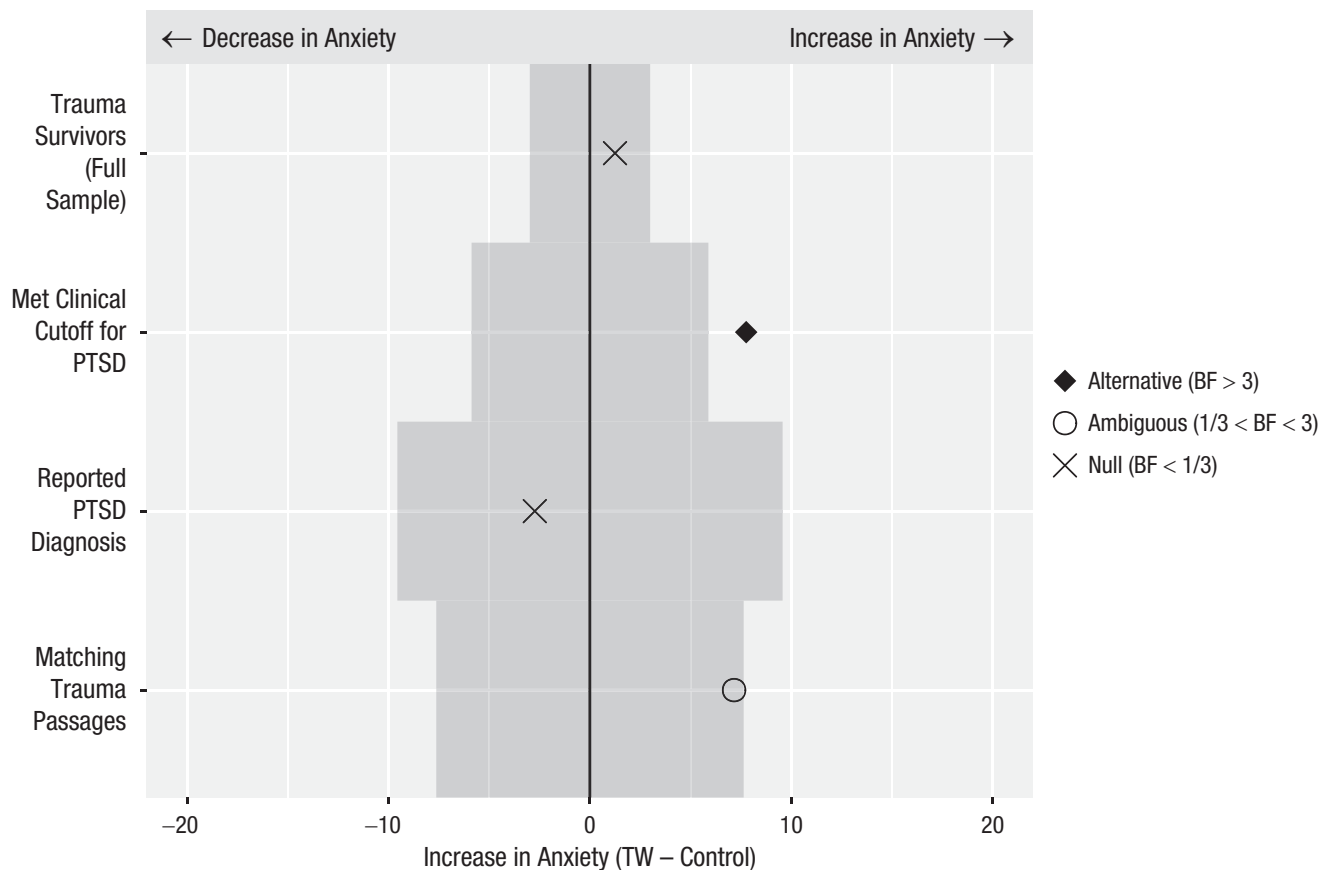
Critics of recent trigger warning research have suggested the plausible hypothesis that although trigger

warnings may not be helpful for college students generally (e.g., Bellet et al., 2020) or even for trauma survivors generally, they may be helpful for more specific subpopulations. For instance, it is possible that trigger warnings are helpful only for (a) individuals with clinical-level PTSD symptoms or (b) individuals who have received a diagnosis of PTSD. Furthermore, it may be that trigger warnings are helpful only when (c) the content of the literature passage directly matches the content of an individual's trauma (i.e., it triggers a remembrance of the trauma). We tested each of these hypotheses in exploratory tests. The results of these tests are presented in Figure 2.

**Full sample.** When comparing the null hypothesis ( $t_{\text{obs}} = 0$ ) to an open-alternative hypothesis ( $t_{\text{obs}} \neq 0$ ), the full sample showed substantial evidence favoring the null hypothesis ( $\text{BF} = 0.14$ ,  $d = 0.08$ , 95% CI =  $[-0.11, 0.26]$ ,  $n = 451$ ). In other words, trigger warnings did not appear to affect immediate anxiety reactions in our full sample.

**Clinical cutoff.** When examining only individuals who met the cutoff of 33 on the PCL for a probable diagnosis of PTSD recommended by the United States Department of Veterans Affairs (Weathers et al., 2013), we found substantial evidence favoring the alternative hypothesis





**Fig. 2.** Mean difference in anxiety change between the trigger warnings condition and the control condition across subgroups. Shapes of points on the figure correspond to a Bayesian comparison of the null hypothesis ( $t_{\text{obs}} = 0$ ) and an alternative hypothesis ( $t_{\text{obs}} \neq 0$ ). The shaded region corresponds to the boundaries of frequentist critical regions ( $p < .05$ , two-sided).

( $BF = 3.86$ ,  $d = 0.43$ , 95% CI = [0.10, 0.76],  $n = 150$ ). Among these individuals, trigger warnings increased immediate anxiety reactions. This is consistent with our preregistered test suggesting that PTSD severity scores moderated the effect of trigger warnings on anxiety reactions.

**Self-reported diagnosis of PTSD.** For individuals who self-reported receiving a past diagnosis of PTSD, we found substantial evidence favoring the null hypothesis ( $BF = 0.32$ ,  $d = -0.17$ , 95% CI = [-0.76, 0.42],  $n = 53$ ). That is, trigger warnings did not affect anxiety reactions for individuals who reported a diagnosis of PTSD.

**Matching-trauma passages.** We asked individuals whether the passages reminded them of their worst event. If they answered “yes,” we asked them to use a checklist to identify specifically which passages reminded them of their worst event. Examining only the individuals who reported passages that reminded of them of their worst event and examining only the relevant passages, we found ambiguous evidence ( $BF = 0.88$ ,  $d = 0.33$ , 95% CI = [-0.02, 0.68],  $n = 133$ ) for an effect of trigger warnings on anxiety. The

effect was in the direction of increasing anxiety. That is, individuals who saw trigger warnings for relevant passages had trivially increased anxiety, which suggests that trigger warnings did not reduce anxiety reactions when passages matched past traumatic experiences.

**Trauma type.** We used the LEC-5 to assess the type of trauma that best characterized each individual’s worst event. Using the 16 categories from the LEC-5, we tested whether the type of trauma moderated the effect of trigger warnings. We found substantial evidence favoring the null hypothesis ( $BF < 0.001$ ,  $\Delta r^2 = .02$ ,  $n = 451$ ). However, some of the 16 categories had very few observations, which limits the statistical validity of the test. Therefore, we tested for the influence of trauma type by condensing the LEC-5 categories into five broad groups: sexual violence ( $n = 107$ ), other interpersonal violence ( $n = 74$ ), accidental injury or illness ( $n = 146$ ), natural or other disaster ( $n = 107$ ), and other ( $n = 17$ ). Using these categories, we again found substantial evidence favoring the null hypothesis ( $BF = 0.004$ ,  $\Delta r^2 < .01$ ,  $n = 451$ ). That is, the type of trauma did not moderate the effect of trigger warnings.

### **Behavioral avoidance (dropout)**

In the trigger-warnings condition, 1 individual (0.3% of the unscreened sample,  $n = 304$ ) dropped out of the study. One individual also dropped out in the control condition (0.3%,  $n = 303$ ). This suggests that individuals did not use trigger warnings to avoid potential trauma cues. The number of overall dropouts regardless of condition was very small. This is notable given that 33% of our sample met the clinical cutoff for PTSD symptoms and 29% reported that at least one literature passage reminded them of their worst event.

### **Other emotions**

Although self-reported anxiety was our primary outcome measure, we collected self-reports of various emotions to reduce demand characteristics (anxious, afraid, angry, disgusted, sad, content, and happy). We analyzed these secondary emotions to determine whether trigger warnings had an immediate effect on any of them. We found Bayes factors favoring the null hypothesis for anxious, afraid, sad, content, and happy (BFs = 0.14, 0.25, 0.25, 0.29, 0.23). For angry and disgusted, we found ambiguous evidence (BFs = 0.92, 0.99). For both angry and disgusted, the direction of this effect was such that trigger warnings trivially increased anger and disgust. The results of this analysis appear in Figure S1 at <https://osf.io/zkb4s/>.

### **Scale convergent and discriminant validity**

As predicted, the PPVS-S and PPVS-O were strongly positively related to one another ( $r = .70$ ) and were each positively related to the PCL ( $r_s = .59, .40$ ) and the CES ( $r_s = .40, .28$ ) but not to religiosity ( $r_s = -.11, -.04$ ). The WCHS was positively related to the CES ( $r = .29$ ), PPVS-S ( $r = .48$ ), and TWAA-1 ( $r = .46$ ) but not to religiosity ( $r = -.02$ ). Prior exposure to trigger warnings as measured by the TWAA-3 was weakly related only to younger age ( $r = -.17$ ) and very weakly related to more liberal political orientation ( $r = -.07$ ). A full correlation matrix of these variables appears at <https://osf.io/kmbu9/>.

### **Discussion**

Past research has indicated that trigger warnings are unhelpful in reducing anxiety. The results of this study are consistent with that conclusion. This study was the first to focus on how trigger warnings function in a sample of people who had survived Criterion A trauma as defined by the *DSM-5* (APA, 2013). Trigger warnings

did not reduce anxiety for this sample broadly. Trigger warnings also did not reduce anxiety among people who met a clinical cutoff for PTSD symptoms, reported a diagnosis of PTSD, or reported that the stimuli matched the content of their past trauma. Trigger warnings showed trivially small effects on response anxiety overall. When effects did emerge, they tended toward small *increases* in anxiety rather than decreases.

Bellet et al. (2018) previously found that trigger warnings increased individuals' projections of their own vulnerability to future trauma as well as the vulnerability of others. Our results suggested substantial evidence that these effects did not replicate. Bellet et al. also reported that individuals who endorsed the belief that words are emotionally harmful showed greater anxiety in response to trigger warnings compared with individuals who did not endorse that belief. Again, we found substantial evidence that this effect did not replicate. One possibility is that these effects were unique to the trigger-warning-naïve (trauma-naïve), crowd-sourced, older sample used by Bellet et al. However, given that these effects originally had a small effect size and did not replicate in larger samples of college students (Bellet et al., 2020) or trauma survivors (present study), the original results may have been a false positive.

We found substantial evidence that giving trigger warnings to trauma survivors caused them to view trauma as more central to their life narrative. This effect is a reason for worry. Some trigger warnings explicitly suggest that trauma survivors are uniquely vulnerable (e.g., “. . . especially in those with a history of trauma”). Even when trigger warnings mention content only, the implicit message that trauma survivors are vulnerable remains (Why else provide a warning?). These messages may reinforce the notion that trauma is invariably a watershed event that causes permanent psychological change. In reality, a majority of trauma survivors are resilient, experiencing little if any lasting psychological changes as a result of their experience (Bonanno, 2004; Bonanno & Mancini, 2008). Aggregated across various types of trauma, just 4% of potentially traumatic events result in PTSD (Liu et al., 2017).<sup>2</sup> However, trauma survivors who view their traumatic experience as central to their life have elevated PTSD symptoms (Berntsen & Rubin, 2006; Brown et al., 2010; Robinaugh & McNally, 2011). Trauma centrality prospectively predicts elevated PTSD symptoms, whereas the reverse is not true (Boals & Ruggero, 2016). Decreases in trauma centrality mediated therapy outcomes (Boals & Murrell, 2016). This suggests that increasing trauma centrality is directly countertherapeutic. In other words, trigger warnings may harm survivors by increasing trauma centrality.

We tested whether the severity of PTSD symptoms in our sample moderated any of our tested hypotheses. In most cases, we found either evidence for no moderation or ambiguous evidence. However, we did find substantial evidence that PTSD symptoms moderated the effect of trigger warnings on response anxiety. For individuals who had more severe PTSD, trigger warnings increased anxiety. This effect is ironic in the sense that trigger warnings may be most harmful for the individuals they were designed to protect. We found no evidence that individuals' prior exposure to trigger warnings moderated any of the previous effects.

A limitation of past research was that trigger warnings were primarily tested among individuals who were trauma-naïve or in mixed samples. That is, the possibility remained that despite being unhelpful for most who view them, trigger warnings may have been helpful for trauma survivors or individuals with PTSD. In this study, we find no evidence supporting this possibility. Trigger warnings were not helpful for trauma survivors. For individuals who met a clinical cutoff for severity of PTSD symptoms, trigger warnings slightly *increased* anxiety. Trigger warnings were not helpful for individuals who self-reported a diagnosis of PTSD. Perhaps most convincingly, trigger warnings were not helpful even when they warned about content that closely matched survivors' traumas. That is, when considering only the passages that participants reported as reminding them of past trauma, trigger warnings were still unhelpful.

Although the research base on trigger warnings has grown quickly, several constraints on generality regarding trigger warnings still remain. For example, experiments thus far have tested trigger warnings before short-term stimuli, such as literature passages, film clips, and photos. Studies have tested only a limited range of negative psychological outcomes (e.g., self-report anxiety, negative affect, intrusive memory). Our study provides important information about individuals who have suffered from trauma, many of whom met the clinical threshold for PTSD symptoms. However, it does not provide information about individuals diagnosed with PTSD via clinical interview. It is unclear whether our findings (especially concerning evidence of potential harms) would apply to extended classroom discussions or other situations of greater temporal duration. In addition, whether the potentially negative effects of trigger warnings found thus far have more than short-term adverse effects remains uncertain. Nevertheless, these potential constraints on generality do not imply that trigger warnings are *helpful*. Rather, they imply that potential moderators remain untested.

Public arguments regarding trigger warnings have been politically charged, complex, and data-poor. Recent research on trigger warnings can importantly

inform or perhaps even settle some of these debates. The research suggests that trigger warnings are unhelpful for trauma survivors, college students, trauma-naïve individuals, and mixed groups of participants (Bellet et al., 2018, 2020; Bridgland et al., 2019; Sanson et al., 2019). Given this consistent conclusion, we find no evidence-based reason for educators, administrators, or clinicians to use trigger warnings.

Whether trigger warnings are explicitly harmful is less clear. We found evidence that trigger warnings increase the narrative centrality of trauma among survivors, which is countertherapeutic (Boals & Murrell, 2016). We also found that trigger warnings increase anxiety for those with more severe symptoms of PTSD. Although these effects were preregistered and found in a large sample, the sizes of the effects were small and have not yet been rigorously tested across multiple studies. However, such knowledge is unnecessary to adjudicate whether to use trigger warnings—if there is no good reason to deploy them in the first place, we need not require strong evidence of harm before abandoning them. Trigger warnings should serve as an important caution to both clinical and nonclinical professionals who use interventions aimed to improve well-being among trauma survivors. Such practices should be thoroughly vetted via appropriate scientific techniques before they are adopted. Using unvetted interventions is irresponsible to victims of trauma.

## Transparency

*Action Editor:* Scott O. Lilienfeld

*Editor:* Scott O. Lilienfeld

### *Author Contributions*

P. J. Jones, B. W. Bellet, and R. J. McNally jointly designed the experiment. P. J. Jones completed the preregistration, collected the data, performed analyses, and wrote the initial draft of the manuscript. All of the authors critically reviewed and approved the manuscript for submission.

### *Declaration of Conflicting Interests*

All of the authors presented symposia related to this topic at the 2019 Foundation for Individual Rights in Education (FIRE) conference. P. J. Jones and B. W. Bellet each received an honorarium of \$1,000, and R. J. McNally received an honorarium of \$3,000.

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### *Open Practices*

All data and materials have been made publicly available via Open Science Framework and can be accessed at <https://osf.io/7cmrq>. The design and analysis plans for the experiments were preregistered at <https://osf.io/gdxtr>. The complete Open Practices Disclosure for this article can be found at <http://journals.sagepub.com/doi/suppl/10.1177/2167702620921341>. This article has received badges for Open Data, Open Materials, and Preregistration. More information about the Open

Practices badges can be found at <https://www.psychologicalscience.org/publications/badges>.



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## Notes

1. "Some people experience extremely distressing events that are outside the range of common experience. Examples of such an event include being in a life-threatening situation such as military combat, a natural disaster (floods, earthquakes), a man-made disaster (being in a car accident where someone was seriously injured or killed), being raped, being violently assaulted, or being tortured. At any time in your life, have you directly experienced any of these kinds of events?"
2. Note that this rate is per event, not per person. Many individuals experience multiple traumatic events. The rate of PTSD varies depending on the type of traumatic event (e.g., interpersonal violence vs. natural disaster; Liu et al., 2017).

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