



Students' psychophysiological reactivity to trigger warnings

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Abstract

Trigger warnings are defined as alerts presented before media to warn that the content may represent a trauma reminder. Their usefulness in higher education has been at the center of debate. While originally created to help individuals with posttraumatic stress symptoms decide whether or not to engage with material that could elicit, or “trigger” symptoms, trigger warnings have been implicated in perpetuating the avoidant behaviors that maintain the posttraumatic stress syndrome. Much of the literature thus far describes trigger warnings as creating a nocebo effect (fostering negative expectations), but these studies use only self-report measures. The present study aimed to build upon the nocebo hypothesis to assess psychophysiological responses (heart rate, respiration rate, skin conductance) to the phrase “trigger warning” as compared to alternative warning phrases and to examine whether PTSD symptoms or receptivity of trigger warnings influence this reactivity. Students ($N = 106$) were randomly assigned to see either the phrase “trigger warning” a PG-13 movie rating, or no warning before watching a movie clip. Viewing the trigger warning increased heart rate, respiration rate, and skin conductance measures more than viewing either the PG-13 or control stimuli. Moreover, posttraumatic stress symptoms and receptivity towards trigger warnings did not account for the relationship between warning exposure and reactivity. Ideas for future research and future trigger warning deployment are discussed.

Keywords Trigger warning · Psychophysiological arousal · Posttraumatic stress · Students · Nocebo effect

Trigger warnings are defined as alerts presented before media, warning viewers that upcoming themes may represent a trauma reminder (Boysen, 2017). The reasoning behind posting these warnings is that engaging with material that reminds someone with a trauma history of the traumatic event could “trigger,” or elicit, stress symptoms, even in those without clinically diagnosed posttraumatic stress disorder (PTSD; Boysen, 2017; McNally, 2014). Some assert that trigger warnings provide people with posttraumatic stress concerns the decision to engage with the material or not. If they decide to, they can then prepare to deal with their reactions to it. Thus, because of the warnings, individuals working through posttraumatic stress reactions can hopefully navigate the material with as little distress as possible (Carter, 2015).

Trigger Warnings in Undergraduate Institutions

Some undergraduates have requested that trigger warnings be used in the classroom (Wilson, 2015), leading to more research to guide best practices for deployment. In the context of higher education, trigger warnings may function as an academic accommodation for students with PTSD, much like extended time on tests for students with attention deficit hyperactivity disorder (Wyatt, 2016). Yet, requests for trigger warnings have expanded past topics related to PTSD proper, and predicting what topics may be construed as triggering has become more difficult (Wilson, 2015). Undergraduate psychology students overall appreciate trigger warnings, even if they feel their reactions to sensitive material are minimal (Boysen et al., 2018). Indeed, providing trigger warnings seems to be a way a professor or academic institution can signal that they care about students who feel marginalized (Bruce & Roberts, 2020a; Harper, 2018).

However, others have asserted that using trigger warnings could perpetuate an avoidant approach that cognitive behavioral theory suggests maintains anxiety generally and PTSD-related anxiety in particular (McNally, 2014). Avoiding trauma reminders can bring short-term relief, but ongoing

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avoidance is associated with long-term psychopathology and posttraumatic stress symptom severity (Pineles et al., 2011; Resick & Schnicke, 1993). Beyond increasing avoidance in those with PTSD, others raise a concern that deploying trigger warnings inadvertently suggests to those without such histories that trauma undercuts natural resilience, and those who experience trauma may not be able to cope with even common stressors (Bellet et al., 2020). Thus, increasing our understanding about how trigger warnings impact all students, not just those with PTSD concerns, is important.

The Nocebo Hypothesis of Trigger Warning Use

Concerns about trigger warnings seem to derive from previous research on the adverse effects of such warnings (Boysen, 2017) and particularly the nocebo (contrasted with the placebo) effect. The nocebo effect in general refers to how negative expectations about an upcoming situation cause a more negative outcome than the situation otherwise would have (Hahn, 1997). Data support the expectancy model of nocebos, such that conscious expectations of a negative outcome mediate the relationship between the nocebic stimulus and the upsetting aftermath (Stewart-Williams & Podd, 2004). Classic studies on “panic buttons,” or buttons sounding alarms during an emergency, demonstrated that just the presence of such a device led participants to believe a threat was more likely (Orne & Scheibe, 1964). Nocebo effects of medication have been particularly well-documented. This effect is seen in patients who are told about adverse side effects before being given a drug. They report experiencing these adverse effects even if they were given an inert pill (Barsky et al., 2002).

Applying the nocebo effect to trigger warnings, students who receive material with the phrase “trigger warning” with it may thus interpret the upcoming material as more consequential than they would appraise it sans warning. While the trigger warning literature is budding and includes conflicting findings, data do show support for negative expectations and reactions after seeing trigger warnings. In their pivotal study on the topic, Bellet et al. (2018) did not find significant increases in self-reported anxiety after seeing trigger warnings in a crowdsourced sample. Yet, in their 2020 replication study in a student sample, their Bayesian replication results indicated a small effect of trigger warning on reported anxiety across both studies (Bellet et al., 2020). Gainsburg and Earl (2018) found substantial evidence of self-reported anticipatory anxiety for those who were provided trigger warnings before an essay, and residual anxiety afterwards compared to those not given such warnings. Finally, Bridgeland and colleagues (Bridgeland et al., 2019) found further replication of self-reported anticipatory anxiety corresponding with trigger

warnings presented before photographs. Taken together, trigger warnings appear to create anticipatory anxiety.

Does the anxiety related to trigger warnings differ from other types of warning? One concern about trigger warnings relates to the implicit message their deployment communicates. Trigger warnings were first developed to warn those with PTSD about upcoming themes that could trigger symptoms (Veraldi & Veraldi, 2015). Bellet et al. (2018) voiced their concern that presenting a warning telling those exposed to trauma to, given their history, reconsider engaging in the upcoming activity can be understood as an indirect, stigmatizing assumption. More generally, “trigger warning” seems to have taken on a different meaning compared to other common ways to alert people to potentially upsetting material. Instead of warning of themes that can be controversial or explicit like a movie rating, the phrase “trigger warning” inherently signals a mental health risk.

The trigger warning debate is also a contentious one, at times fraught with emotion. Bruce and Roberts (2020a) offered a possible example and explanation for the controversy. They found that institutional betrayal accounts for more variance in trigger warning receptivity, even more than trait-like avoidance and PTSD symptoms. The authors asserted that trigger warning requests may represent an indirect complaint that the student does not feel safe or respected on campus and that the emotional charge of the debate may be a result of this betrayal being overgeneralized. This is to say that a participant who holds stronger opinions on trigger warnings may feel activated by the emotional charge of the debate and hence, in a study overtly about trigger warnings, may respond from a place of advocacy rather than provide an honest opinion, imploring new ways to test these research questions.

Moreover, our understanding of a construct is enhanced when it is studied at various different levels, from self-report, to observational, to psychophysiological. Lang’s tripartite model of fear offers a strong framework to study nocebo reactions to trigger warnings (Lang, 1967). He asserts that fear reactions include three components: cognitive distress, behavioral avoidance, and psychophysiological arousal. The extant trigger warning literature has covered the self-reported distress (Bellet et al., 2020) as well as behavioral measures (Sanson et al., 2019). Thus, the literature would benefit from other ways to measure arousal after warning presentation, such as psychophysiological reactivity.

Trigger Warnings and Psychophysiological Arousal

People with PTSD, those who trigger warnings are intended to help, present with marked changes in automatic nervous system arousal, such as hypervigilance and exaggerated startle responses (American Psychiatric Association, 2013).

Specifically, there are several psychophysiological markers of stress that correlate to seeing a trauma reminder. People with PTSD have an elevated basal (Tan et al., 2011) and reactive (Sack et al., 2004) heart rate to stimuli related to the trauma relative to people without PTSD. Similar patterns of increased arousal and reactivity are apparent in respiration (Seppal et al., 2014) and skin conductance (Liberzon et al., 1999).

In individuals with PTSD, seeing the phrase “trigger warning” may increase psychophysiological arousal in response to the warning itself, as it may work as a predictive cue of upcoming stress. Yet if trigger warnings have become anxiogenic for the general student population, we might expect all students to experience an increase in psychophysiological stress in response to trigger warnings, regardless of whether or not they have a trauma history. Avoidance may follow to reduce this arousal and decrease stress. Indeed, the initial studies highlighted above demonstrate increases in distress when recipients engage with a provided trigger warning. However, the psychophysiological reaction and avoidant responses to a trigger warning have not been examined, and the literature on those with PTSD reacting to trigger warnings remains scant and mixed, warranting extension and replication (Bellet et al., 2020; Jones et al., 2020). Understanding these reactions can help professors, administrators, and others who have been asked to deploy trigger warnings make trauma-sensitive and evidence-based decisions.

The Present Study

Do students experience significant increases in psychophysiological arousal when they encounter trigger warnings? Does this reactivity differ for another type of warning that could communicate the same upcoming themes? The present study aimed to test if the phrase “trigger warning” creates a placebo effect that can prompt students to unnecessarily avoid upcoming material. As the extant literature demonstrates that trauma reminders are associated with significant reactivity in heart rate (Sack et al., 2004), respiration rate (Seppal et al., 2014), and skin conductance (Liberzon et al., 1999), we predicted that the phrase, “trigger warning” would create the same reaction in these psychophysiological measures.

In this study, anxiety in response to a trigger warning was measured via three psychophysiological measures, and behavioral avoidance was measured by monitoring whether students opted to skip exposure to the stimulus once warned. It was hypothesized that viewing “trigger warning” would cause an increase in heart rate (in beats per minute), an increase in respiration rate (in breaths per minute), and an increase in skin conductance (in microseimens) as compared to these psychophysiological reactions to viewing, “PG-13,” or no warning. A PG-13 warning was included to test whether trigger warnings act like more common ways of warning about upcoming

content given the concern that “trigger warning” signals more consequential content (Bellet et al., 2018). It was also selected as such a rating warns about material that can be triggering, such as sexual activity and drug use.

Knowing that the warnings are designed to help those with PTSD, a disorder that creates significant changes in psychophysiological arousal, we measured self-reported posttraumatic stress as a potential third variable that could explain reactivity. As trigger warnings are at the center of a heated debate, one that may arouse a variety of reactions confounding an interpretation of anxiety specifically, we also measured trigger warning receptivity as a variable to potentially control statistically. Finally, we took count of participants who skipped the video, hypothesizing that the trigger warning condition would yield more avoidance of the video compared to the other conditions.

Method

Participants

A total of 107 undergraduate students from a small Midwestern college were recruited. Since one participant learned about the protocol before participation, the actual sample size subject to analysis was $N = 106$. Based on analyses using GPower, 3.1, this sample size was sufficient for the analyses run in this study. We recruited this sample size based on an a priori power analysis for the 3×2 mixed factor ANOVA to assess the main research question, where we estimated ample power, $1 - \beta = 0.96$, to find a large effect, $f^2 = 0.40$. After data collection, we ran a sensitivity power analysis and found we had adequate power, $1 - \beta = 0.80$, to find an average effect, $f^2 = 0.31$. Of the recruited students, 85.8% reported a potential trauma history ($n = 91$). This rate is congruent with extant literature on trauma exposure in college students (Anders et al., 2014). All participants were at least 18 years old ($M = 19.91$, $SD = 1.39$) and current undergraduate students (98.1%) or post-baccalaureate fellows who graduated in the last calendar year (1.9%). Most participants were cisgender females (78.3% female, 21.7% male, 93.4% cisgender, 6.6% transgender). Data were collected between January and March of 2017.

Procedure

Participants were recruited via campus-wide emails and visits to classrooms to advertise the research. All participants signed a consent form approved by the college’s Institutional Review Board. The consent form included a definition of trigger warnings that read, “You are being asked to participate in a study on trigger warnings, the warnings found online and in college classes that warn people about potentially upsetting material.”

After providing consent, participants were guided into a private room in the lab with computer screen, mouse, keyboard, and the psychophysiological measuring equipment. Heart rate was measured by electrodes attached to the participant's right wrist and both inner ankles. Respiration rate was recorded by a respiration monitor belt wrapped around the torso one inch below the armpits. Skin conductance was measured via electrodes placed on the participant's left index and middle finger. All physiological data were collected by the BIOPAC Student Human Physiology System and analyzed using AcqKnowledge Software (BIOPAC Systems, Inc., Goleta, California). After the sensors were placed, the researcher left the room to provide participant privacy and control for any demand characteristics. The participant was given two minutes to adapt to the testing situation and to establish baseline arousal data. The participants first answered demographic questions on the computer, then moved to the next page which started the experimental portion.

Participants were randomly assigned by the survey program into one of three conditions: a trigger warning ($n = 34$), PG-13 warning ($n = 36$), or no warning condition ($n = 36$). The *trigger warning condition* consisted of a page that said, "The next page has the link to the movie clip. Researchers have been asked to give a trigger warning for the clip," with a button to advance to the movie or to skip the movie. The *movie rating condition* had a similar display; however, the warning said, "Researchers have been asked to report that the clip is from a PG-13 movie." The *control condition* had no warning and simply said, "You may now progress to the movie clip." In all three conditions, there was a "skip movie" button available on the same screen. Researchers noted the time the participant saw the warning in relation to psychophysiological arousal as well as if the participant selected to skip the clip.

The next webpage displayed the movie clip. The clip was a five-minute segment from *Harry Potter and the Goblet of Fire*. It depicted a tense but not graphic scene of a character, "Mad-Eye Moody," using the "Three Unforgivable Curses" (psychological manipulation, physical torture, and murder) on a spider. Participants' reactions to the clip were not considered in analyzing the data in this study; we focused on the psychophysiological response to being presented with either of the two warnings or no warning prior to viewing the media to test the theory that trigger warnings increase anticipatory anxiety (i.e., function as a nocebo). Data related to participant identification number and condition membership were handled separately from the psychophysiological data to prevent expectancy bias. These data sets were combined after the psychophysiological data were cleaned.

All participants answered the Trigger Warning Attitudes Scale (Bruce & Roberts, 2020a). They then confirmed whether they had experienced a potentially traumatic event via the Life Stressor Checklist (LSC; Wolfe et al., 1997). Given that

much of the extant literature references students who may or may not be suffering from officially diagnosed PTSD (Bellet et al., 2020; Boysen, 2017), we screened broadly for both clinically significant traumas as well as stressors that may not meet criterion A for a PTSD diagnosis (i.e., exposure to death, serious injury, or sexual violation) according to the *Diagnostic and Statistical Manual of Mental Disorders-5* (DSM-5; American Psychiatric Association, 2013). If participants selected "yes" or "maybe" to at least one event, they continued to the Posttraumatic Checklist - 5 (PCL-5; Weathers et al., 2013). If they did not endorse experiencing a traumatic or stressful event, they were not asked to complete the PCL-5 and were finished with their participation.

Measures

Life Stressor Checklist – Revised (Wolfe et al., 1997)

Participants were asked (yes, no, or maybe) if they had been through a stressor in their lifetime as determined by the LSC (e.g., "Have you ever seen a robbery, mugging, or attack taking place?"). "Maybe" was provided for the purposes of the present study to capture those who may have endured a trauma but were apprehensive to admit it in this particular research setting. This scale provides examples of 30 different events that fit criterion A for a PTSD diagnosis according to the DSM-5 (natural disaster, sexual assault, etc.) as well as stressors that could lead to other trauma- and stressor-related disorders (parents' divorce, etc.). The LSC has demonstrated validity in capturing clinically significant traumas and stressors in past studies (Norris & Hamblen, 2004).

Trigger Warning Attitudes Scale (Bruce & Roberts, 2020a)

Participants answered nine questions about their attitudes towards trigger warnings. These items were written to assess undergraduate-specific situations (e.g., "Trigger warnings are a good way to help me in class"). Items were rated on a 5-point scale (1 = "strongly disagree" to 5 = "strongly agree"). High total scores reflected appreciation, advocacy, and frequent use of trigger warnings. Low total scores reflected disagreeing with proposed benefits of trigger warnings. The items had acceptable internal consistency in this sample ($\alpha = .85$).

Posttraumatic Checklist – 5 (Weathers et al., 2013)

The PCL-5 is a well-established self-report inventory for assessing posttraumatic stress according to DSM-5 criteria (Blevins et al., 2015) and has been used in related research (Bellet et al., 2018). This 20-item Likert-type scale evaluated how "bothersome" symptoms had been over the last month (0 = "not at all" and 4 = "extremely"). Items included, "In the

past month, how much have you been bothered by: repeated, disturbing, and unwanted memories of the stressful experience?” Internal consistency for the PCL-5 in this sample was excellent ($\alpha = .96$).

Data Reduction and Analysis

There were three participants who had machine malfunctions during data collection, which compromised the data. Specifically, machine error led to missing respiration data for one participant, missing heart rate data for one participant, and missing galvanic skin response data for one participant. We decided against assuming their reactivity could be replaced with the group average, so we removed these three cases from the analyses.

Heart rate (in beats per minute), respiration rate (in breaths per minute), and skin conductance (in microseimens) to the respective warnings were represented by the mean peak arousal over 5 s prior to warning exposure (while participants answered demographic information; the pre-stimulus measure) and mean peak arousal for 5 s during warning exposure (the post-stimulus measure). These 5 s intervals are standard in comparable studies of visual stimuli (Bradley et al., 2001; Elsesser et al., 2004; LaBar et al., 1995).

The following analyses were conducted per psychophysiological measure. We ran 3 (warning group: control, PG-13, or trigger warning) \times 2 (time: pre vs. post warning) mixed factor ANOVAs, with warning condition as the between-group factor and time as the within-person factor, without covariates to assess all participants, as running the PCL-5 covariate removes those without trauma histories from analysis and reduces statistical power. Independent and paired *t*-tests helped understand any significant interactions revealed in the ANOVA. We then ran similar 3 \times 2 mixed factor ANCOVAs with PCL-5 score and TWAS scores as covariates on the participants who experienced trauma ($n = 91$). We chose not to use PCL-5 and TWAS as factors due to loss of power. The number of participants who selected to skip the video in each condition was collected in order to assess for differences in avoidance across experimental conditions.

Results

Heart Rate

The 3 \times 2 mixed factor ANOVA conducted on the entire dataset revealed a significant main effect of time, $F(1, 102) = 10.83, p = .001, \eta_p^2 = .10$, and a significant warning group \times time interaction, $F(2, 102) = 9.08, p < .001, \eta_p^2 = .15$, but no main effect of warning group. The trigger warning condition evidenced a significantly different reactivity profile compared to the PG-13 and control conditions (see

Fig. 1). Those seeing a trigger warning saw a statistically significant, albeit small, increase in heart rate, $t(33) = -5.75, p < .001, M_{change} = -4.74, SD = 4.80, d = 0.33$. No significant changes were found for the other two conditions. The comparable 3 \times 2 mixed factor ANCOVA revealed a similar warning group \times time interaction, $F(2, 83) = 7.19, p = .001, \eta_p^2 = .15$, and no significant covarying effects ($p > .05$ for all *F* values involving a covariate).

Respiration Rate

A similar mixed-factor ANOVA on the respiration rate for all participants was run, and it also revealed a significant main effect of time, $F(1, 102) = 10.66, p = .001, \eta_p^2 = .10$, and a significant warning group \times time interaction, $F(2, 102) = 16.15, p < .001, \eta_p^2 = .24$, but no main effect of warning group. The trigger warning condition evidenced a significantly different reactivity profile compared to the PG-13 and control conditions (see Fig. 2). Those seeing a trigger warning saw a statistically significant, large increase in respiration rate, $t(33) = -5.94, p < .001, M_{change} = -1.94, SD = 1.91, d = 1.06$. No significant changes were found for the other two conditions. The comparable 3 \times 2 mixed factor ANCOVA revealed a similar warning group \times time interaction, $F(2, 82) = 16.59, p < .001, \eta_p^2 = .29$, and no significant covarying effects ($p > .05$ for all *F* values involving a covariate).

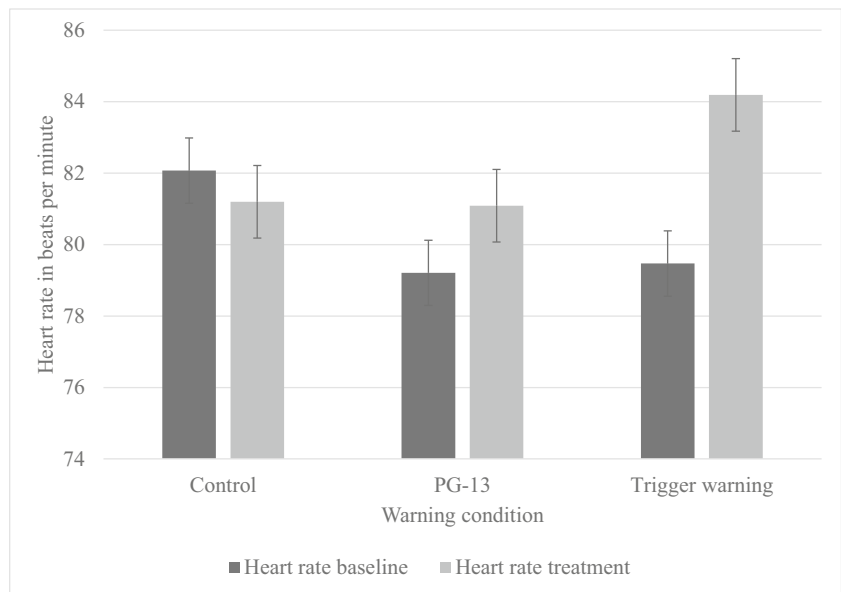
Skin Conductance

A similar mixed-factor ANOVA on the skin conductance data of all participants revealed a significant main effect of time, $F(1, 102) = 19.37, p < .001, \eta_p^2 = .16$, and a significant warning group \times time interaction, $F(2, 102) = 13.71, p < .001, \eta_p^2 = .21$, but no main effect of warning group. The trigger warning condition was the only group with a significant, albeit small, increase in skin conductance after the warning exposure, $t(33) = -5.10, p < .001, M_{change} = -0.31, SD = 0.36, d = 0.21$. (see Fig. 3). The other two conditions did not evidence significant changes in heart rate ($p > .05$). The comparable 3 \times 2 mixed factor ANCOVA revealed a similar warning group \times time interaction, $F(2, 82) = 9.49, p < .001, \eta_p^2 = .19$, and no significant covarying effects ($p > .05$ for all *F* values involving a covariate).

Avoidance

On the same screen as the warning, participants were given the option to continue to the movie or skip the movie. The number of participants who skipped the movie was counted, and the warning condition was considered to assess if one group evidenced more behavioral avoidance. No participant skipped the movie.

Fig. 1 Changes in Heart Rate Across Warning Conditions. *Note.* Error bars represent standard error



Discussion

Many in higher education are seeking guidance on using trigger warnings. Given the concerns that trigger warning use could maintain posttraumatic stress concerns via avoidance, this study examined psychophysiological reactivity to various warnings, including to the phrase, “trigger warning,” to see if this particular alert would create more arousal and prompt more avoidance behaviors compared to comparable ways of informing the intensity of upcoming media. Data here provide convergent evidence of a nocebo effect specific to trigger

warnings (Bellet et al., 2020; Bridgland et al., 2019; Gainsburg & Earl, 2018) with novel methodology.

Psychophysiological Arousal

The trigger warning phrase condition created more arousal than the PG-13 and control conditions, even when controlling for posttraumatic stress levels and attitudes towards trigger warnings. Interpreting this arousal as reflecting anticipatory anxiety, as reported in several previous studies (Bellet et al., 2020; Gainsburg & Earl, 2018), it seems trigger warnings

Fig. 2 Changes in Respiration Rate in Across Warning Conditions. *Note.* Error bars represent standard error

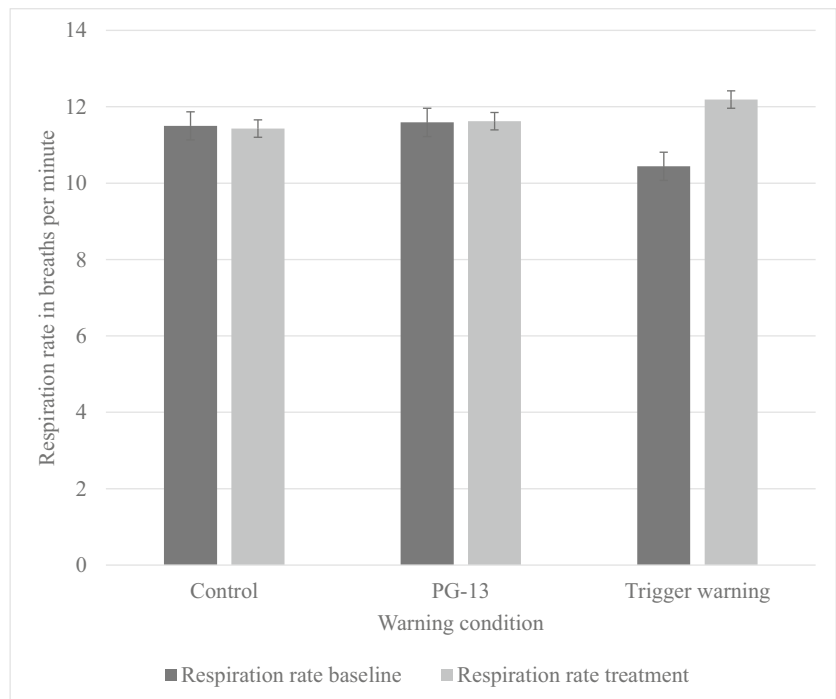
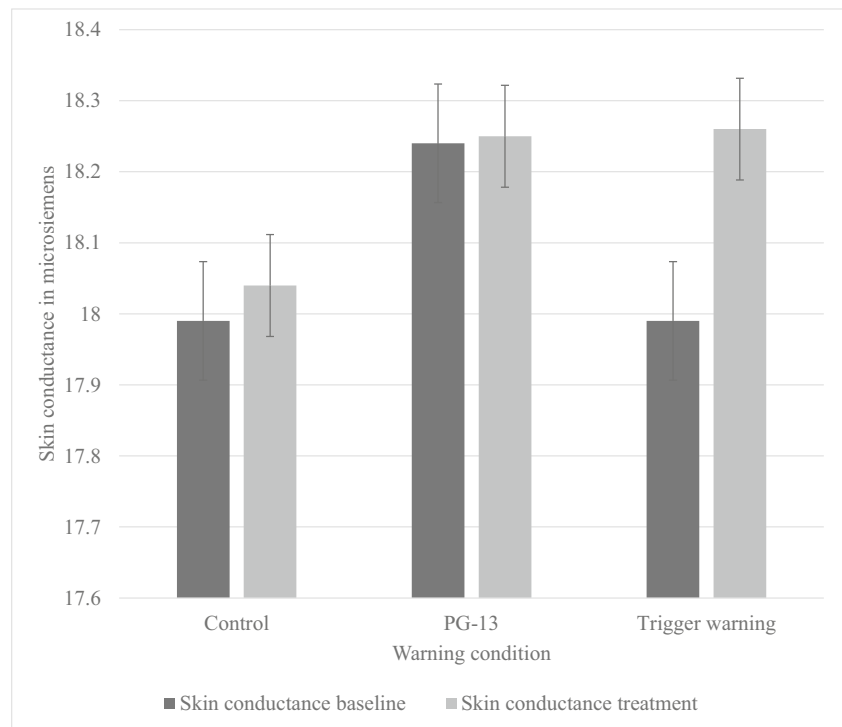


Fig. 3 Changes in Skin Conductance Across Warning Conditions. *Note.* Error bars represent standard error



could prime consumers to expect that upcoming material is anxiogenic (Bridgland et al., 2019), or at least more emotionally charged than what a PG-13 movie rating warns. The degree of physiological activity seen in the trigger warning group was comparable in size to similar reactivity studies of anxiety where trauma-exposed groups were presented with trauma-related material such as images (Ehlers et al., 2010) and scripts of their own experience (Pineles et al., 2013). Moreover, trigger warnings may have lost meaning as a specific accommodation for PTSD, as neither these symptoms nor opinions about trigger warnings were a significant covariate, indirectly suggesting that regardless of previously held beliefs or advocacy, students are reactive to this particular phrase. This translates to all students being at risk for increased, unnecessary stress when they see trigger warnings on syllabi or reading assignments.

Avoidance

The present study also provides convergent evidence about the relationship between trigger warnings and behavioral avoidance. No participant skipped the movie clip when given the option. This perhaps relieves some concern that trigger warning-related avoidance would mean incomplete homework or missing class. Any motivation to behaviorally avoid material because of trigger warnings did not reach the level of not completing the requested task. Sanson et al. (2019) found similar trivial levels of behavioral avoidance across their experiments. However, there are a few qualifications to our

findings. A few minutes prior to seeing the warning, the participants read a consent form assuring that the study was approved by an ethics board. This research situation lacks ecological validity for the classroom: students are not provided the same signal that an ethics board oversees their class material. In addition, while skipping the movie is a measure of behavioral avoidance, this study did not measure other relevant methods of avoidance. Bruce and Roberts (2020b) found that students whose trauma history matched the trigger warning provided performed significantly worse on reading comprehension quizzes compared to those whose histories did not match the warning, which the authors suggested was reflective of cognitive avoidance of personally relevant stressors. These issues warrant further study to delineate the impact of anticipatory anxiety the trigger warnings may catalyze. Perhaps this anxiety will not spur a student to leave the classroom, but rather, students seem to “grin and bear it,” to mixed results (Sanson et al., 2019). Further research will assist professors formulating trigger warning policies for their classrooms.

Context of Providing Trigger Warnings

The present study provided the phrase, “trigger warning,” for a media clip that was immediately upcoming, paralleling deploying a trigger warning in class right before a learning activity or the like. This deployment also mimics how previous studies have provided trigger warnings to participants, and it is becoming clear this way of giving trigger warnings can be needlessly anxiogenic. However, trigger warnings are

provided in additional ways, such as on a syllabus presented at the start of the semester for topics taught much later. The literature would benefit from more direct examination of this situation, testing if the time to prepare between seeing the warning and seeing the content changes the anxiety seen in this and previous studies.

Further, our test captured how students react to the exact phrase, or the concept of, “trigger warnings” as compared to other warnings. To increase internal validity, we decided against naming a specific traumatic experience along with the warnings, e.g., “trigger warning: sexual abuse” or “PG-13: sexual abuse” since students, regardless of their own history, could be reacting to the traumatic event being listed across conditions, confounding our assessment of a nocebo effect in the trigger warning condition. Results suggest that the phrase, “trigger warning” primes consumers to anticipate more consequential material compared to other warnings that could alert people to similar themes and concerns without the emotional charge tied to this phrase (Bellet et al., 2018).

Limitations

Since PTSD symptoms were analyzed as a covariate rather than a moderator in this study, we cannot draw strong conclusions about this disorder’s influence on reactivity to trigger warnings. Further, the trauma screener was inclusive of many events, some of which may not capture a criterion A trauma. The screener was inclusive because much of the debate has not focused specifically on severe psychopathology, but rather on students who report stress symptoms and feel they would benefit from some accommodation. In one of the few studies that does look at PTSD proper, Jones et al. (2020) found substantial evidence that trigger warnings were related to significant increases in self-reported anxiety in individuals diagnosed with PTSD. Results of the current study suggest that all students can experience anxiety, regardless of PTSD diagnostic status. That said, this particular analysis is underpowered in assessing for PTSD proper and its impact on reactivity. Further research will help clarify differences for those who are experiencing PTSD.

In general, the literature will benefit upon replication specifically given concerns of low statistical power in this study. Recent data suggest that the self-reported anxiety associated with trigger warnings is likely statistically significant, yet small (Bellet et al., 2020; Sanson et al., 2019). Replication of this study will create better understanding of this anxiety from the psychophysiological approach. Further, the measures of PTSD symptoms and trigger warning attitudes functioned as control variables and should be examined as moderators in future research.

The significant elevations in arousal were seen when the phrase, “trigger warning,” was on the screen, and we assert

this arousal can be interpreted as anxiety or expecting the upcoming stimuli would create stress. Yet, subjective measures of this stress were not included, as the extant literature features these data (e.g., Bellet et al., 2018; Bridgland et al., 2019). A study measuring both subjective and objective reactions to trigger warnings can confirm whether these feelings and self-report reactions are in sync. Our data demonstrate increased reactivity when seeing the trigger warning phrase, suggesting anticipatory anxiety. Data on how quickly the students relaxed was not derived given the focus on reactions to the exact phrase, “trigger warning,” yet examining if this tension continues throughout engagement with the media would benefit stakeholders in this debate.

The PG-13 rating was selected as a comparison warning since the content associated with such a rating is comparable to topics related to trigger warnings. Trigger warning requests have grown more varied, and requests may include topics that could be an idiosyncratic trauma trigger for one student but are otherwise seen as non-offensive to others (Wilson, 2015). Thus, an R rating seemed too strong a stimulus for comparison. While all participants were older than 18, a PG-13 movie can include material that is still upsetting to an adult. These include potential trauma triggers, such as sexual situations and drug use. Further studies can help define trigger warnings more specifically and find stronger parallel stimuli.

Conclusions

Understanding how students react to trigger warnings can help inform professors questioning how to balance teaching difficult topics while respecting students navigating PTSD sequelae or similar concerns and may help educational institutions at large in advancing trauma-sensitive and evidence-based policy. Based on behavioral data, self-report, and now psychophysiological data, trigger warnings appear to create a nocebo-like effect, and these anxious reactions have various consequences. The consequences may not rise to leaving the course, but previous literature has demonstrated other deleterious effects such as poorer quiz scores (Bruce & Roberts, 2020b) and increasing trauma centrality (Jones et al., 2020), and given the lack of response to control warnings, it seems possible to inform people of upcoming content without unnecessary increases in stress. We echo the words of Jones et al. (2020) that if science continues to examine various contexts where trigger warnings are found to have negligible benefits in addition to anxiogenic effects, there is a reluctance to recommend their use.

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Data Availability The datasets generated and analysed during the current study are available from the corresponding author on request. The authors used SPSS Version 27 to run analyses.

Declarations

Ethical Approval This research was approved by the Institutional Review Board of Knox College.

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

Conflict of Interest There are no conflicts of interest present.

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