Unprepared: Thinking of a trigger warning does not prompt preparation for traumarelated content

Victoria M.E. Bridgland, Jorja F. Barnard, Melanie K.T. Takarangi

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Unprepared: Thinking of a trigger warning does not prompt preparation for trauma-related content

Victoria M. E. Bridgland

Jorja F. Barnard

&

Melanie K. T. Takarangi

College of Education, Psychology and Social Work Flinders University, Bedford Park, SA

5042, Australia

Corresponding Author: Melanie Takarangi College of Education, Psychology and Social Work Flinders University GPO Box 2100 Adelaide South Australia, 5001 melanie.takarangi@flinders.edu.au

#### Abstract

**Background and Objectives** 

Trigger warnings have been described as helpful—enabling people to "emotionally prepare" for upcoming trauma-related material via "coping strategies." However, no research has asked people what they *think* they would do when they come across a warning—an essential first step in providing evidence that trigger warnings are helpful.

### Methods

Here, participants from Amazon's Mechanical Turk (n = 260) completed one of two future thinking scenarios; we asked half to think about coming across a *warning* related to their most stressful/traumatic experience; the others thought about the actual *content* (but no warning) related to their most stressful/traumatic experience.

# Results

The warning condition did not produce differences in coping strategies, state anxiety, or phenomenology (e.g., vividness, valence) relative to the content condition. Only one key difference emerged: participants who imagined encountering a warning used fewer positive words, when describing how they would react.

### Limitations

Although measuring actual behavior was not our aim, hypothetically simulating the future may not capture what actual future behavior would look like (e.g., an intention-behaviour gap).

### Conclusions

One potential explanation for the consistent finding in the literature that trigger warnings fail to ameliorate negative emotional reactions is that these warnings may not help people bring coping strategies to mind. Although, further empirical work is necessary to fully substantiate this potential interpretation. Keywords: trigger warnings, content warnings, coping strategies, trauma.

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Trigger warnings are alerts about upcoming content that may contain themes related to traumatic experiences (Bridgland, Green, Oulton, & Takarangi, 2019). Advocates claim that warnings help people to emotionally prepare, use coping strategies, or avoid distressing material (DeBonis, 2019; Lockhart, 2015). But recent evidence shows trigger warnings, in their current form, do little to ameliorate emotional reactions (e.g., Bridgland, Green, Oulton, & Takarangi, 2019). Therefore, advocates likely call for trigger warnings because they believe warnings will be helpful. Yet, when provided with a warning, they may not know how to receive its alleged benefits. One way that warnings might prepare people to face potentially distressing content is to prompt them to bring to mind and then enact helpful coping strategies. Of course, the first step is essential: people must be able to *bring existing* coping strategies to mind before they can use them. Thus, here we sought evidence that warnings prompt people to bring existing coping strategies to mind. We asked one group of participants to report *what they would do* if they came across a trigger warning and another group of participants to report what they would do if they came across content (i.e., with no warning) related to their most stressful/traumatic experience (e.g., in the news, in a lecture etc.). We then measured the coping strategies that participants brought to mind and thought they would use. To align with previous research, we also measured participants' emotional reactions to their imagined scenarios, and to capture our sample's underlying belief in the efficacy of trigger warnings, we asked participants if they believed trigger warnings would be helpful in reducing distress.

Prior research has asked people to describe *how* trigger warnings are helpful. Common responses reflect a belief that warnings help people to "prepare" for distressing material (Bentley, 2017; Cares, Franklin, Fisher, & Bostaph, 2017; DeBonis, 2019; George & Hovey, 2019). This belief does not fit with emerging empirical evidence, showing that viewing a trigger warning can increase anticipatory anxiety (e.g., Bridgland, et al., 2019) but

has little impact on subsequent emotional reactions to distressing material (e.g., Sanson et al., 2019). Yet, limited research has focused on explaining *why* warnings do not ameliorate emotional reactions. To do so, we must take a closer look at the vague concept of "preparing"—to "prepare" is defined as "mak[ing] (someone) ready or able to do or deal with something" (Oxford Languages, 2021). While there may be many ways to examine the concept of "preparation," one way to operationalize preparing in a trigger warning context is to examine bringing *coping strategies*—a conscious effort to manage the demands of a stressful situation using thoughts and behaviors (Folkman & Moskowitz, 2004)—to mind.

Coping strategies are generally classified along four dimensions: whether they focus on thoughts/emotions, versus behavior, and whether they are approach- (e.g., focus on the stressor) versus avoidance-based (e.g., avoiding the stressor; Littleton, Horsley, John, & Nelson, 2007). Of course, people need to be able to bring existing coping strategies to mind first to actually use them—but no research has investigated if trigger warnings are a useful tool in prompting coping strategies to come to mind. The available research on trigger warnings has only considered *behavioral avoidance*, finding no preference for film (Gainsburg & Earl, 2018) and newspaper (Bruce & Roberts, 2020) titles with versus without warnings.

Complete behavioral avoidance is only one potential method of coping when encountering a trigger warning. Viewing trauma-related content could sometimes constitute *avoidance*, if a person tries to avoid their emotions, reactions, or parts of the material they consider distressing. It is also possible that someone might use complete behavioral avoidance (e.g., leaving a lecture/turning off TV), to enable a different approach strategy later (e.g., learn more about the class material at home). Alternatively, approach-based coping requires an *active* effort to directly address a problem causing distress behaviorally (e.g.,

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learning more about the stressor) or cognitively (e.g., reappraising the way a situation is construed to decrease emotional impact; Littleton et al., 2007).

Taken together, past research shows that people who ask for trigger warnings believe trigger warnings help people to "prepare," yet trigger warnings do not seem to be effective in reducing negative reactions or promoting avoidance. But no research has investigated why. One possibility is that trigger warnings change—or do not change—how someone brings existing coping strategies to mind. Here we randomly assigned participants to a future thinking scenario: where they either encountered a *trigger warning* (warning-only condition), or content (content-only condition; between subjects), related to their most stressful/traumatic experience. We did not instruct participants in the warning condition to think about the content following the warning. Our first key aim was to examine the coping strategies that people bring to mind when they think about a trigger warning versus those they bring to mind when they imagine viewing distressing content/material. More specifically, as a first step to address this aim, we examined the number and type (e.g., approach vs. avoid, reappraisal vs. suppression) of coping strategies participants reported. Assessing the efficacy of these coping strategies was beyond the scope of the present investigation and experimental design. To align with previous research, our second key aim was to examine if imagining encountering a warning (versus content) would help ameliorate negative emotional reactionsoperationalized as state anxiety and phenomenological characteristics such as vividness, intensity etc. Our third key aim was to examine to what extent people believed trigger warnings would be helpful in reducing distress. Finally, as an exploratory aim, because trigger warnings were originally intended for use by people suffering from PTSD (Haslam, 2017), we examined differences in our pattern of results for people who are likely PTSDpositive (vs. negative).

# Method:

xx Committee approved this experiment. We preregistered this experiment (osf.io/cqtzw/) and the data and supplementary material can be found here: osf.io/7n85z/. We made changes to prevent bots/farmers completing the study (i.e., a captcha and English proficiency test), screened existing data (see below), and updated the registration (osf.io/szaw8/) after issues were identified on Amazon's Mechanical Turk during data collection (Bai, 2018). We have reported all measures, conditions, and data exclusions.

### **Participants**

Previous research has not investigated the effects of trigger warnings on coping strategies. Therefore, we estimated sample size based on the weighted effect size (d = 0.35) from a meta-analysis of the impact of warnings on state anxiety (Bridgland, et al., 2019). An a priori power analysis for a two-tailed, independent samples t-test (using G\*Power; Faul, Erdfelder, Lang, & Buchner, 2007) with an alpha of .05, power of .80, resulted in a target sample size of 260 participants. We recruited 336 participants through MTurk. Participants were limited to people over the age of 18 who were proficient in English and resided in the United States. Thirty-five were identified as likely 'bot' respondents and excluded. The remaining 301 participants received a payment of \$3.00 USD. We excluded a further 10 participants who failed all three embedded attention checks (Berinsky, Margolis & Sances, 2014; Hauser & Schwarz, 2015), four who completed the survey twice, and 27 who did not meet the criteria for a 'useable' response to the future thinking scenario. Participants should have mentioned at least one of the following: 1) the place they were imagining being in/seeing the warning or content; 2) that they saw something related to their event (either warning or content); 3) how they felt/what they would have done. The sample were predominately female (58.1%), and Caucasian/White (81.92%; 8.46% African American; 5% Asian; 4.6% other), with a mean age of 36.57 (range: 19-66, *SD* = 10.77).

### Materials

**Trauma history screen (THS; Carlson et al., 2011).** Participants responded Yes/No (and how many times) to a list of 14 High Magnitude Stressor events (sudden events that have been found to cause most people extreme distress; e.g., a really bad transport accident). Participants then indicated if any of the events bothered them emotionally, and, if so, were prompted to describe the event that bothered them the most. If the event did not bother them emotionally, or they had not experienced any of the events, they were asked to describe the most stressful experience of their life. Participants then provided: their age at the time of their most traumatic/stressful event; whether anyone was hurt or killed (Yes/No); whether they felt afraid, helpless or horrified (Yes/No); how long they were bothered by the event (1 = not at all, 4 = a month or more); and how much the event bothered them emotionally (1 = not at all, 5 = very much). We told participants they would refer back to their identified event in subsequent survey questions.

#### Short-form Spielberger State-Trait Anxiety Inventory (STAI-6; Marteau &

**Bekker, 1992).** Participants rated how they felt at that current moment for three anxietypresent items (e.g., "*I am worried*") and three anxiety-absent items (e.g., "*I feel calm*"; 1 = not*at all*, 4 = very much; (present study  $\alpha = .88-.90$ ).

Posttraumatic Stress Disorder Checklist (PCL-5; Bovin et al., 2016). Participants indicated how bothered they were by a list of symptoms over the past month (e.g., repeated, disturbing dreams of the stressful experience; 0 = not at all, to 4 = extremely) in relation to their most stressful/traumatic experience. Questions correspond to the DSM-5 symptom criteria for PTSD (present study  $\alpha = .95$ ).

**Future thinking scenario and question.** Participants were asked to write about the following: *"Imagine you are performing everyday tasks, in a familiar place, with familiar people—for instance, watching a lecture for your degree, reading the news or viewing a news* 

report on television, watching a television show or reading social media posts etc. "In the warning-only condition they were then told: "—and come across a warning that informs you the content you are about to view might be distressing or triggering to people who have suffered traumatic experiences. Imagine that this warning also explicitly mentions the subject of your own traumatic or most stressful experience (that you reported earlier)." In the content-only condition they were instead told: "—and come across content that explicitly mentions the subject of your own traumatic of your own traumatic or most stressful experience (that you reported earlier)." In the content-only condition they were instead told: "—and come across content that explicitly mentions the subject of your own traumatic or most stressful experience (that you reported earlier)." All participants were then told: "Using the box below, giving as much detail as possible, please describe what this scenario might be like, step by step, starting from the beginning where you see the warning/content (e.g., television, social media, lecture presentation etc.) and what it might say/be, to what would happen immediately after (e.g., how you would react and what you would do). Give a step by step account of what you would do in this situation, noting how you would feel at each point."

**Open response coping question.** To capture coping strategies without prompting from questionnaires, we asked: "*In the scenario you read and wrote about, what coping strategies or techniques would you use?* (e.g., any ways you might try and manage your reactions or respond to the situation). Please describe them."

Modified Autobiographical Memory Questionnaire (D'Argembeau & Linden, 2006). Participants rated the subjective experience of their imagined event on 12 indices: autonoetic consciousness (e.g., feeling as if one is experiencing the event), visual details, other sensory details, spatial context, temporal information, feeling emotions, intensity, valence, personal importance, in words, coherent story, and visual perspective, and vividness (1 = not at all, 7 = completely). We also included questions relating to anxiousness/worry about the expected outcome of the event, if participants expected a good/bad outcome, and how difficult it would be to cope (1 = *not at all*, 9 = *extremely*; Jing, Madore, & Schacter, 2016).

**Coping Response Inventory (CRI; Moos, 1993).** The CRI asks people to indicate how often they used approach and avoidance coping for a past stressful situation. We modified the instructions to ask participants how likely they would be to use the strategies in the scenario and used rating scales from the Ways of Coping Questionnaire (0 = would not *use*, 3 = would *use a great deal*; N/A = *Not Applicable*; Folkman & Lazarus, 1985). Despite these changes, scale reliability was similar to the original (approach scales: present study  $\alpha =$  .67- .77, Moos, 1993  $\alpha =$  .64-74, avoidance scales: present study  $\alpha =$  .64- .78, Moos, 1993  $\alpha =$  .58-.72).

**Emotion Regulation Questionnaire (ERQ; Gross & John, 2003).** We modified the instructions to ask how participants would use emotion regulation strategies in the scenario, rather than generally. Participants rated six items (1 = strongly agree, 7 = strongly disagree) relating to reappraisal (e.g., "*If I wanted to feel less negative emotion, I would change what I was thinking about*";  $\alpha = .89$ ) and four relating to suppression (e.g., "*I would control my emotions by not expressing them*";  $\alpha = .83$ ).

**Questions regarding trigger warnings.** We asked participants in the warning condition (Yes/No checkbox and an open textbox): (1) "*Do you think that this kind of warning would prevent you from being emotionally affected or triggered later on when viewing the material (versus if a warning had not been issued first)?"*, and (2) "*Would this reminder of your trauma (in the form of a warning) make you react differently to if you just saw content related to your trauma itself? (i.e., might you be triggered by the warning itself?*)".<sup>1</sup> We asked participants in the content group "*Do you think that a warning before* 

<sup>&</sup>lt;sup>1</sup> A colleague noted the phrasing of question (2) may have been confusing to participants. We therefore checked Y/N answers against text responses. We amended responses so that 'yes' responses included people who generally believed warnings were helpful (e.g., would be less distressing/triggering than seeing content), and 'no' responses were people who generally believed warnings were not helpful (e.g., they would be just as

seeing content (like that in the previous scenario) would prevent you from being emotionally affected or triggered later on when viewing the material (versus if a warning had not been issued first)?". Finally, all participants were asked, "What do you think would be the best way to help you cope with trauma 'triggers' in everyday life?".

### **Procedure.**

We told participants we were interested in studying feelings and beliefs about different types of traumatic experiences. After consent, participants completed demographic information, rated current anxiety (STAI), and traumatic event exposure (THS). Participants then rated how central their identified event felt to their identity using the Centrality of Events Scale (CES-7-item; Berntsen, & Rubin, 2006) and PTSD related symptomology (PCL-5), in random order, followed by their current anxiety. Next, participants were randomly assigned to complete one of the two future thinking scenarios (warning-only, content-only). Participants then rated their current anxiety, answered the event outcome questions, and rated characteristics of the imagined scenarios (AMQ). Next, participants completed the open response coping question, identified coping strategies (CRI) and emotional reappraisal (ERQ; in random order), completed the CES and the PCL-5<sup>2</sup> for a second time (in random order), and questions regarding trigger warnings. Finally, participants were asked if they left the survey (if yes, for how long), and if they had any technical problems.

### Results

### **Statistical Overview**

distressed/triggered by seeing a warning as seeing content). 10% of participants changed from a 'no' to a 'yes', and 13.1% of participants changed from a 'yes' to a 'no'. Where text responses were ambiguous or missing, we retained original responses.

<sup>&</sup>lt;sup>2</sup> These data relate to a secondary interest: appraisals of past emotional experiences are influenced and often based on appraisals of current emotions (e.g., Levine, Prohaska, Burgess, Rice, & Laulhere, 2001). We were therefore interested in exploring if perceptions of event centrality and PTSD symptoms might change from pre to post scenario depending on the future thinking condition, given that research has shown that trigger warnings can change perceptions of event centrality (Jones, Bellet, & McNally, 2019). See: https://osf.io/e2xcq/

Where variables did not meet the assumption of normal distribution, we ran analyses using transformed and untransformed scores. In all analyses, the pattern of results did not differ and therefore, we report untransformed scores. Patterns remain unchanged by Holm-Bonferroni corrections, so we present uncorrected data unless specified. We initially ran analyses using Null-Hypothesis Significance Tests but also report Bayes Factors (BF<sub>01</sub>), evidence for the null hypothesis [strong:  $BF_{01} = 10 - 30$ , substantial:  $BF_{01} = 3 - 10$ , anecdotal:  $BF_{01} = 1 - 3$ ], no evidence [ $BF_{01} = 1$ ], and evidence for the hypothesis [anecdotal:  $BF_{01} = .3 - 1$ , substantial:  $BF_{01} = .1 - .3$ , strong:  $BF_{01} = .03 - .1$ ]; Jeffreys, 1961). The prior is described by a Cauchy distribution centered around zero and with a width parameter of 0.707. This distribution corresponds to a probability of 80% that the effect size lies between - 2 and 2.

### **Coping strategies**

We turn to our first key aim: to examine the coping strategies that people bring to mind when they imagine coming across a trigger warning or content related to their most stressful/traumatic experience.

*Qualitative Responses.* Two researchers coded responses to the future thinking scenario and the open response coping question according to the two broad approach and avoidance categories of coping Littleton et al. (2007) describe, and categories from the CRI (1 = yes, 0 = no; see Table 1 and Figure 1; see https://osf.io/cjz2a/ for instructions). Responses were coded according to the *active* use of approach or avoidance-based coping wherever mentioned. For instance, a participant who mentioned they would avoid content with a warning message, but would then seek social support, was coded as using both an avoidance and approach strategy. Agreement between coders was good (77.31%-86.15%). Coders met to resolve discrepancies. Where agreement could not be reached, a third coder resolved differences. Responses differed depending on condition, making it impossible to

completely blind coders to condition. Thus, we asked a fourth coder—unaware of the study aims and of participant condition—to code the data. This coder had 90% congruence with the original coding and the pattern of findings remained unchanged.

# Table 1

Examples of qualitative response coding for the future thinking scenario and open response

# coping question by future thinking scenario

	Future thinkin	g scenario	Open response coping question			
Trigger warning- only condition		Content-only condition	Trigger warning-only condition	Content-only condition		
Evidence of approach coping	"I would read the warning but I would still watch the program and see if I could learn something to help with what I am going through."	"I would feel curious when they first started talking about it. I would listen to gain a better understanding of the subject."	"Talking to friends and family. Remembering the good things."	"Training my mind to focus on the present, and to think positively about my current life."		
Evidence of avoidance coping	Evidence of avoidance coping "Turn it off/leave lectureI do not want to be reminded of it."		"I would immediately avoid the situation entirely."	"I would use avoidance to deal with the event. I would think about something else so that I didn't feel bad and didn't feel all my memories."		



*Figure 1*. Percentages of approach and avoidance coping strategies by future thinking scenario.

We conducted Chi-square tests to compare the proportion of participants in each condition whose responses showed evidence of generating each coping strategy category. Overall, participants indicated they would be more likely to use an avoidance-based strategy (50.4%) than an approach-based strategy (29.60%). Contrary to claims that trigger warnings help people "prepare," participants who imagined coming across a trigger warning-only brought to mind a similar percentage of approach (future thinking scenario:  $\chi^2(1) = 2.23$ , p =.135,  $\Phi = .09$ , open response coping question:  $\chi^2(1) = .56$ , p = .456,  $\Phi = .05$ ) and avoidance (Future thinking scenario:  $\chi^2(1) = 1.82$ , p = .172,  $\Phi = .08$ , open response coping question:  $\chi^2(1) = 1.86$ , p = .172,  $\Phi = .08$ ) coping strategies versus those imagining contentonly.

*Questionnaire-assessed strategies.* We next examined the coping strategies participants said they would enact in the scenarios (CRI scored using the Moos (1993) protocol [https://osf.io/8df4s/] and cognitive regulation strategies using the ERQ).

We ran a series of independent samples *t*-tests comparing scores on the CRI's avoidance and approach coping scales and the ERQ's suppression and reappraisal scales, for participants in the warning-only and content-only conditions. Aligning with the qualitative data, we found no significant differences between the conditions (Fs = 0.03-1.03) and substantial evidence for the null hypothesis ( $BFs_{01} = 4.46-7.25$ ; Figures 2a-2b). Therefore, imagining encountering a trigger warning-only does not seem to prompt someone to select more coping strategies from a given list compared to content-only.



Figure 2a. Mean coping strategy scores on approach coping scales (with 95% Confidence Intervals) by future thinking scenario. Figure 2b. Mean coping strategy scores on avoidance coping scales (with 95% Confidence Intervals) by future thinking condition. Figure 2c. Mean emotional reappraisal and suppression subscale scores (with 95% Confidence Intervals) by future thinking condition.

a)

### **Emotional appraisals**

Recall our second aim: to examine participants' emotional reactions to imagining encountering a trigger warning versus trauma-related content.

State anxiety increased significantly for all participants from baseline, to directly before, to directly after the future thinking scenario; a large main effect of time, (*F*(1.65, 426.05) = 189.54, p < .001,  $\eta_p^2 = .424$ , BF<sub>10</sub> = 7.442e+58). Importantly however, we found that thinking about encountering a trigger warning-only resulted in similar levels of emotional reactions as imagining trauma-related content-only. That is, there were no significant interactions between time and future thinking condition (*F* < 1, strong evidence for no interaction: BF<sub>01</sub> = 15.84), or main effects of future thinking condition, for ratings of state anxiety (*F* < 1, BF<sub>01</sub> = 5.68; Figure 3). Additionally, participants who imagined seeing a trigger warning-only versus content-only related to their most stressful/traumatic event reported similar phenomenological ratings; our analyses revealed no significant differences between conditions (*ps* = .154-.942; BF<sub>01</sub> = 2.79-7.33).



□Trigger warning-only □Content-only

*Figure 3.* Mean state anxiety scores (with 95% Confidence Intervals) by future thinking condition and time.

**Text analysis.** We analyzed the text from the scenario and the open response coping question using the Linguistic Inquiry and Word Count (Pennebaker, Booth, Boyd, & Francis; 2015 internal dictionary) software to examine emotion-related words (Table 2). Because the negative emotion category includes the word stem "warn" and participants in the warning condition were instructed to describe a warning, we removed words containing "warn" prior to analyzing. There were no differences in word count between the warning-only and content-only conditions for the scenario description (t < 1, d = -0.02; overall M = 96.51, SD = 54.71), or for the open response coping question (t < 1, d = 0.01; overall M = 43.64, SD = 33.91). Only one significant difference remained after corrections for multiple comparisons; participants in the trigger warning-only condition on average used a lower percentage of positive emotion words (out of total words used), when answering the open response coping question ( $BF_{01}$  = substantial evidence).

# Table 2

Summary of independent samples t-tests and Bayes Factors for text analysis for the future thinking scenario and open response coping question text<sup>3</sup>

			Future thin	king so	cenario						
			Trigger Content-only warning-only		ontent-only						
			M (SD)	п	M(SD)	п	d [95% CI]	t	df	р	$BF_{01}$
LIWC categories		Examples									
Future thinking scenario text						6					
Affective processes		Happy, cried	5.54%	130	5.63%	130	-0.03 [-0.27, 0.21]	-0.24	258	>.999	7.15
			(3.25%)		(2.65%)						
	Positive emotion	Love, nice,	1.49%	130	1.49%	130	0.007 [-0.24, 0.25]	-0.06	258	>.999	7.34
		sweet	(1.72%)		(1.48%)						
	Negative emotion	Hurt, ugly,	3.86%	130	3.91%	130	-0.02 [-0.26, 0.22]	-0.16	258	>.999	7.26
		nasty	(2.67%)		(2.26%)						
	Anxiety	Worried,	1.83%	130	1.30%	130	0.31 [0.07, 0.56]	2.52	247.67	.072	0.37
		fearful	(1.85%)		(1.51%)						
	Anger	Hate, kill,	0.46%	130	0.59%	130	-0.14 [-0.39, 0.10]	-1.15	238.50	>.999	3.91
		annoyed	(0.76%)		(1.02%)						
	Sadness	Crying, grief,	0.73%	130	1.01%	130	-0.21 [-0.45, 0.04]	-1.67	258	.576	1.97
		sad	(1.32%)		(1.43%)						
Open coping question text											
Affective processes		Happy, cried	6.30%	130	6.52%	130	-0.05 [-0.29, 0.20]	-0.37	258	>.999	6.89
			(4.88%)		(4.74%)						
	Positive emotion	Love, nice,	2.73%	130	4.14%	130	-0.37 [-0.62, -0.13]	-3.00	224.15	.018	0.11
		sweet	(2.97%)		(4.48%)						
	Negative emotion	Hurt, ugly,	2.92%	130	1.87%	130	0.30 [0.05, 0.54]	2.41	258	.102	0.48
		nasty	(3.97%)		(3.02%)						
	Anxiety	Worried,	1.26%	130	0.95%	130	0.13 [-0.11, 0.38]	1.09	258	>.999	4.19
		fearful	(2.34%)		(2.14%)						
	Anger	Hate, kill,	0.21%	130	0.19%	130	0.02 [-0.22, 0.26]	0.17	258	>.999	7.25
	~ .	annoyed	(0.73%)		(0.68%)					0.0.5	
	Sadness	Crying, grief,	0.32%	130	0.33%	130	-0.02 [-0.26, 0.23]	-0.13	258	>.999	7.29
		sad	(0.94%)		(0.94%)						

<sup>3</sup> Holm-Bonferroni corrections applied for six comparisons.

**Questions about the effectiveness of trigger warnings.** Recall our third aim: to assess how effective participants *believed* trigger warnings were in reducing distressing reactions. Only 35.8% of participants indicated that they believed a warning would prevent them from having an emotional reaction to upcoming material. This percentage did not differ between the warning-only (35.4%) and content-only conditions (36.2%;  $\chi^2(1) = 0.017$ , p = .897). Thus, imagining a trigger warning did not seem to enhance participants' perceptions that warnings were helpful. Finally, we asked participants in the warning-only condition if they believed that a warning would make them react differently than if they just saw content related to their trauma itself. While most participants said "no" (54.61%)—the warning would not make them react differently (e.g., "*It wouldn't make any difference.*"), 45.38% said "yes" ("*I would react less negatively.*"). This finding is striking considering that we did not find any evidence that thinking of a trigger warning would help participants to react differently towards trauma related content.

**PTSD probability.** Finally, to examine if trigger warnings were any more helpful (e.g., in bringing coping strategies to mind or reducing imagined negative reactions) for people with a probable PTSD diagnosis, we reran all of our analyses using PTSD probability as an additional factor.<sup>4</sup> The prevalence of mental health disorders in MTurk populations has been found to match or exceed that of the general population, and clinical measures demonstrate high reliability and validity (Shapiro, Chandler, & Mueller, 2013). Indeed, 96.5% of participants in our sample reported having experienced one (or more) High Magnitude Stressor event and 69.6% reported a Criterion A event (actual or threatened death or injury; Carlson et al., 2011). The most common events were the sudden death of a close family member or friend (60.4%), followed by exposure to a hurricane, flood, earthquake, tornado, or fire (39.2%). Further, 29.2% of the sample (warning condition = 27.7%, content condition

= 30.8%;  $\chi^2$  (1) = 0.30, p = .585,  $\varphi$  = .03) were likely PTSD-positive according to the conservative PCL-5 cut-off (> 33; Bovin et al., 2016). Consistent with previous results, no interaction patterns emerged between the future thinking conditions and PTSD probability for our main outcome measures.

Interestingly, people who were PTSD-negative overwhelmingly indicated that a warning would not prevent the emotional impact of viewing trauma-related content ('No': 68.5% versus 'Yes': 31.5%), while people who were PTSD-positive were more evenly spread between 'Yes' (46.0%) and 'No' (53.9%) responses ( $\chi^2$  (1) = 4.94, p = .026,  $\varphi$  = .14). Similarly, the majority of people who were PTSD-negative indicated they believed that trigger warnings would not help them react differently compared to if they saw content related to their trauma ('No': 58.5%, versus 'Yes': 41.5%) versus people who were PTSD-positive, who were more evenly spread between responses ('Yes': 55.6%, versus 'No': 44.4%; though we note this difference was not statistically significant ( $\chi^2$  (1) = 2.08, p = .149,  $\varphi$  = .13). These findings indicate that people who are PTSD-positive generally perceive trigger warnings as more helpful than people who are PTSD-negative.

### Discussion

Overall we found that imagining encountering a trigger warning-only does not prompt people to bring to mind more, or different kinds of, coping strategies compared to the same hypothetical situation without a warning (i.e., content-only)—including for participants with a probable PTSD diagnosis. Moreover, thinking about encountering a trigger warning or trauma-related content resulted in similar emotional reactions, with one exception: participants who imagined encountering a trigger warning-only (vs. content-only) used fewer positive emotion words when describing what they would do in that scenario. Finally, participants did not generally believe that trigger warnings would help reduce distressing reactions.

Our results may explain the consistent finding that trigger warnings do not ameliorate negative emotional reactions. If trigger warnings do not cause coping strategies to come to mind when people view subsequent material (e.g., reappraisal strategies) it stands to reason those emotional reactions are not improved. One interpretation of these findings—in line with previous findings (e.g., Bridgland et al., 2019; Sanson et al., 2019)—is that trigger warnings are inert. However, we found that imagining encountering a warning to be just as anxiety-provoking as imagining encountering trauma-related content. This result aligns with prior research showing that trigger warnings provoke uncertainty and anxiety (e.g., Bridgland et al., 2019). This uncertainty likely drove participants in the warning condition to use fewer positive emotion words when describing how they felt about the warning scenario.

The effectiveness of trigger warnings largely relies on warnings prompting people to draw on an existing coping strategy. However, if someone has not accessed mental health services then they may not know what coping strategies they could or should use—a conclusion supported by qualitative responses (e.g., *''I don't have a lot of coping techniques. I never was able to afford to see a therapist... ''*). An exploratory analysis revealed that when asked to report specifically about coping strategies (vs. in the future thinking scenario) the number of approach strategies increased significantly ( $\chi^2(1) = 29.51$ , p < .001,  $\Phi = .24$ ), while the percentage of avoidance strategies remained consistent. Therefore, future research could explore if trigger warnings could be more successful if they directly instructed people to bring existing coping strategies to mind. This is not to say that warnings should be more detailed (e.g., listing distressing aspects of content) but rather that they could specifically mention *coping strategies* themselves.

Our research has several limitations. First, although intentions (e.g., I plan to exercise) *generally* map onto future behavior (e.g., actually exercising; r = 0.53; Sheeran, 2002), they may sometimes be inconsistent with actual behavior—the intention-behavior gap (Sheeran &

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Webb, 2016). Therefore, although measuring actual behavior was not our aim, hypothetically simulating the future may not capture what actual future behavior would look like. However, if people cannot bring to mind ideas about how warnings may be helpful during a low stress task (i.e., a future thinking task), it seems unlikely that they could bring to mind such strategies in a real-world setting. Indeed, there may not be much time between a warning and the warned-of content (e.g., on a TV show), and the circumstances may be more stressful than our scenario (e.g., in a public place like a lecture theatre).

Second, although participants could and did report they would use avoidance-based strategies in the scenarios, it is possible that we did not capture participants who tend to use avoidance as a primary coping strategy. These participants may have opted out of the survey at an earlier point (e.g., when reading consent information). Therefore, the true frequency with which people use avoidance strategies when they come across a trigger warning may be higher than reported here.

Third, participants may have had difficulty bringing coping strategies to mind during the future thinking task because they had already been reminded of their most stressful/traumatic event when completing the THS. Moreover, given that participants were paid a flat rate for completing the study—as is often the case with online research more broadly—regardless of the nature and length of their responses, it is possible that they were simply not motivated to write about what they would do in the scenario. However, given the THS was presented prior to the future thinking task in both conditions and payment was the same regardless of condition, any influence these factors had should be similar.

Fourth, although beyond our aims here, we did not consider the efficacy of participants' reported coping strategies. It is generally accepted that avoidance strategies are maladaptive and that approach strategies are adaptive (Ehlers & Clark, 2000; Littleton et al., 2007). However, recently a more nuanced picture has emerged. Decreasing avoidance is key

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to exposure therapy (Rauch, Eftekhari, & Ruzek, 2012)—although experimental evidence shows that the use of avoidance does not necessarily reduce treatment efficacy (Blakey et al., 2019) and can assist with fear reduction within the early stages of treatment (Rachman, Radomsky, & Shafran, 2008). Additionally, recent theoretical (Bonanno & Burton, 2013) and experimental (Bonanno, Papa, Lalande, Westphal, & Coifman, 2004) work suggests that a flexible approach to coping—i.e., using a combination of strategies—may actually be the most efficacious.

Fifth, because trigger warnings were originally designed for trauma survivors and people suffering from PTSD, it is possible that our results would differ if we specifically recruited participants with a clinical diagnosis. Furthermore, our design did not test whether there might be a small subset of people with PTSD for whom trigger warnings provide a helpful opportunity to manage their reactions via coping strategies.

In sum, our findings may help explain why trigger warnings fail to ameliorate emotional reactions to distressing material. While around half our sample *believed* trigger warnings would be *helpful*, we found no evidence to that thinking about a trigger warning, rather than thinking about actual exposure, was not more helpful in bringing more coping strategies to mind.

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# Highlights

- Participants recalled their most stressful/traumatic experience. •
- Participants imagined a trigger warning or content related to this experience. •
- Similar levels/types of coping strategies were reported in both conditions. •
- Participants in the warning condition used fewer positive emotion words. •

### **Author Contributions**

VMEB and MKTT jointly developed the study design; VMEB and JFB collected and analyzed the data, and drafted the manuscript. MKTT provided critical revisions and approved the final version for submission.

Journal Proposi

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None to declare.

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