

Worst Life Events and Media Exposure to Terrorism in a Nationally Representative U.S. Sample

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Indirectly experienced negative life events are not considered Criterion A traumatic events per DSM-5 posttraumatic stress disorder diagnostic criteria, yet individuals indirectly exposed to trauma via the media may report these events as peak traumatic experiences. We studied which events people considered to be the "worst" in their lifetimes to gain a better understanding of the types of events individuals consider to be distressing. This longitudinal study included a nationally representative sample of U.S. residents living outside New York (N = 1,606) who were exposed to the September 11th, 2001 (9/11) terror attacks exclusively via the media. Bereavement was the most frequently cited "worst" life event (42.0%); violent events were cited by 11.4% of the sample. However, 22.0% of respondents reported 9/11 as their worst life event event though they did not directly experience the attacks. More lifetime exposure to violent events and bereavement, odds ratios (ORs) = 0.79 and 0.72, respectively, and a college education, OR = 0.61, were associated with decreased odds of naming 9/11 as one's worst life event. Watching 4 or more hours of 9/11-related television coverage in the week after the attacks, OR = 1.67, and identifying as African American, OR = 2.01, were associated with increased odds of naming 9/11 as one's worst life event 1 year after the attacks. Events experienced indirectly through the media may be considered the worst of people's lives, with important implications for assessing stressful life event history and understanding indirect exposure to negative life events.

The likelihood of being exposed to a collective traumatic event, which is a traumatic experience shared by a large group of people, such as a terror attack or natural disaster, is everincreasing, thanks to the omnipresent media. Although disaster events are relatively uncommon, the nonstop coverage of these events by the 24-hr news media can increase the reach of these events to individuals who would otherwise have no connection to the event or knowledge of its occurrence. For example, within minutes of the moment American Airlines Flight 11 crashed into the North Tower of the World Trade Center in New York City on September 11, 2001 (9/11), all major news networks were reporting on this story, including a live shot of the burning tower. As a result, when the second plane hit the South Tower, millions of Americans saw it happen on live television. In the weeks following the attacks, the news coverage of this event was nonstop and included images of the burning World Trade Center and Pentagon, the buildings collapsing, and people running away from the scene, as well as speculation from news teams about the prospect of future civilian attacks.

Millions of Americans were exposed to this footage, and this came at a cost. In the subsequent years, independent research teams have noted that a small proportion of Americans across the country met the criteria for probable 9/11-related posttraumatic stress disorder (PTSD) as defined by the fourth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV; American Psychiatric Association [APA], 1994): Americans who were only indirectly exposed to the attacks through the media (Schlenger et al., 2002; Silver, Holman, McIntosh, Poulin, & Gil-Rivas, 2002; Torabi & Seo, 2004). The impact of this footage was not limited to the United States; exposure to 9/11-related coverage was also associated with posttraumatic stress responses and functional impairment in London schoolchildren (Holmes, Creswell, & O'Connor, 2007). In particular, exposure to threatening images of the 9/11 attacks, such as people falling or jumping to their death, was associated with posttraumatic stress symptomatology and probable PTSD in a sample of New York residents (Ahern, Galea, Resnick, & Vlahov, 2004). Although the media coverage of 9/11 was not intended to incite distress among its viewers, this

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appears to have been an unintended consequence of the imagery that was included along with news updates about the attacks. This is consistent with a large body of research on media exposure to other collective traumas, which has suggested that there is an important link between extensive media exposure to these events and subsequent physical and mental health outcomes. For example, multiple studies of children's exposure to media coverage of war and terrorism suggest that extensive viewing of this type of coverage is associated with increased posttraumatic stress symptomatology (Nader, Pynoos, Fairbanks, Al-Ajeel, & Al-Asfour, 1993; Pfefferbaum, 2001; Pfefferbaum et al., 2001). Moreover, research following the 2013 Boston Marathon bombings found that extensive media exposure to the bombings (i.e., an average of 6 or more hr per day) was a stronger predictor of acute stress responses than was direct exposure to the bombings themselves (Holman, Garfin, & Silver, 2014).

Historically, there has been a great deal of resistance to the idea that indirectly experienced traumas might be considered distressing. In fact, the most recent version of the DSM (i.e., DSM-5) explicitly excludes indirect exposure to trauma via the media as a potential source of traumatic stress symptoms for civilians (APA, 2013). However, Lazarus and Folkman's (1984) model of stress would suggest otherwise; within this model, an individual's appraisals of stimuli are the main indicators of whether those stimuli are threatening. In other words, whether a given stimulus is considered a threat by an individual is subjective and depends on multiple factors, including their (primary) appraisal of the stimulus itself and their (secondary) appraisals of their ability to cope with it (i.e., coping self-efficacy; Bandura, 1982). Cognitive appraisals of threat have been demonstrated to shape both psychological and physiological responses to stressful situations (Tomaka, Blascovich, Kelsey, & Leitten, 1993). Furthermore, there is evidence that individuals' subjective appraisals are a better predictor of posttraumatic stress than objective characteristics of the event itself (Weinberg & Gil, 2016). In the case of 9/11, cognitive appraisals of threat (i.e., worries about future terrorist attacks) have been shown to predict 9/11-related PTSD symptoms independently of direct exposure to the attacks (Piotrkowski & Brannen, 2002).

Whereas it is difficult for an outsider to predict the impact an event will have upon another person (Tait & Silver, 1989), individuals have a deep understanding of their own life experiences and can rank order them in terms of negative impact. An individual's self-reported "worst life event" takes into account their appraisals of all their life experiences and, thus, provides more information about the impacts that these events have upon the person's life. Although there have been many studies that have asked participants to report their worst life events (e.g., Breslau et al., 1998), this is often in order to assess PTSD that results from these events, and the event itself is not considered as an outcome variable in analyses. Evaluating self-reported worst life events themselves can provide information about the types of events individuals consider to be the most distressing and inform the development of more inclusive measures of life events. Moreover, studying an individual's worst life event as

an outcome may help to elucidate the conditions under which a person might select an indirectly experienced event as their most distressing.

For example, there is reason to suspect that a mass violence event, such as 9/11, might be considered a peak trauma for many individuals even if they did not experience it directly. Violent events are likely to test individuals' beliefs about the benevolence of the world, calling into question whether their world is a safe place in which to live (Janoff-Bulman, 1992). The 9/11 attacks, in particular, were unique in that they challenged the widely held beliefs of people across the United States that one's self and country were invulnerable to attack (Silver, 2011). In a recent study of bereavement and psychiatric disorders, 22% of a large, nationally representative U.S. sample reported that exposure to the 9/11 attacks via the media was the worst event of their lives (Keyes et al., 2014). These individuals were considered to be aberrant and removed from all further analyses so as not to distort the results of the study. However, for many Americans, this event was the first time they were confronted with large-scale collective violence, regardless of whether they were personally in any real danger. It appears that this confrontation may have resulted in a high proportion of U.S. residents viewing this high-salience event as the worst of their lives.

It is also likely that the negative life events individuals reported having previously experienced- specifically, violence and bereavement-would take precedence over indirectly experienced collective traumas when selecting one's worst life event. These two types of events, when experienced directly, are likely to be rated as the most negative, and they can have severe consequences for individuals. Previous research has suggested that prior exposure to violent trauma is associated with more psychological distress relative to that experienced after natural and technological disasters (Norris et al., 2002). Exposure to violent life events, in particular, has been associated with increased perceptions of risk for exposure to future negative events (Blum, Silver, & Poulin, 2014), the development of a psychiatric disorder (Holman, Silver, & Waitzkin, 2000), and poorer mental health outcomes following subsequent traumas, violent or otherwise (Breslau, Chilcoat, Kessler, & Davis, 1999). Additionally, events that are characterized by loss, whether that loss is of a spouse, limb, job, or home, are fairly widely considered to be distressing (Parkes, 1972). In particular, the unexpected death of a loved one is often endorsed as individuals' worst life event and has been associated with an increased incidence of major depressive episodes, panic disorder, and PTSD across the lifespan (Keyes et al., 2014). Given the particularly strong associations between distress and direct exposure to violence and bereavement, it is likely that for people who do not have direct experience with these events, vicarious experiences of violence (e.g., via the media) may be particularly potent.

We were interested in examining the predictors of selecting an indirectly experienced, collective trauma—namely, 9/11 as one's worst life event. We examined several potential predictors: demographic information, such as age, ethnicity, and educational attainment; pre-9/11 mental and physical health; prior direct experiences with violence (e.g., personal assault, combat experience) and bereavement (e.g., death of a close other); and exposure to 9/11-related television coverage in the week following the attacks. We hypothesized that prior direct exposure to violence and bereavement would be associated with a decreased likelihood of selecting 9/11 as one's worst life event. We also expected that more television exposure in the week after the attacks would be associated with an increased likelihood of selecting 9/11 as one's worst life event.

We also sought to rule out some potential confounding variables for the association between 9/11-related television watching and selecting 9/11 as one's worst life event. Specifically, we were interested in neuroticism, which can be an indicator of poor mental health status (Lahey, 2009). We were also interested in individuals who experienced a 9/11-related near-miss event, as individuals who experience such events are likely to feel "survivor's guilt" and have demonstrated an increased incidence of PTSD symptoms over time (Poulin & Silver, 2020). We hypothesized that these factors would directly predict the selection of 9/11 as one's worst life event but that they would not fully account for the association with 9/11-related television watching. We also tested whether prior television-watching habits might account for increased 9/11-related television watching; we hypothesized that television-watching habits would be associated with 9/11-related television exposure but would not account for the association between 9/11-related television exposure and selection of 9/11 as one's worst life event.

Methods

Participants and Procedure

The present report presents data from a large, longitudinal study of a nationally representative sample of U.S. residents. Participants in the present sample were drawn from the Knowledge Networks (KN) Panel, which used random digit dialing (RDD) to randomly sample and recruit panelists from U.S. households. Individuals who joined the panel were compensated for survey completion with free Internet service and a web-based television; they could withdraw from the panel at any time and survey completion was voluntary. This panel was designed by KN to be representative of the demographic composition of the United States. The data used for the present analyses were collected as part of a larger project on responses to 9/11, which included data collection over the 3 years after the attacks (see Silver et al., 2006). The current paper presents data from two waves of data collection from this study; the first data were collected in the weeks following the 9/11 attacks, and the second wave of collection occurred approximately one year later.

During the 9 to 23 days after the attacks (i.e., September 20, 2001, to October 4, 2001), KN panelists were randomly selected for participation in an Internet-based study of their responses to 9/11; over 75% of these panelists completed the survey 9–14

days postattack (n = 2,729; participation rate of 78.1%). Information on participants' acute stress responses and hours of 9/11-related television watching was collected. Subsequently, participants reported their degree of exposure to the 9/11 attacks. Another wave of data collection was conducted around the first anniversary of 9/11 (September 20, 2002, to October 24, 2002), at which time participants were asked to complete an extensive questionnaire related to their history of stressful life events and indicate which of these events they considered to be the worst experience of their life, as well as report on their exposure to 9/11 anniversary–related media (N = 2,366; 74.6% participation). The current analyses included data from the 1,606 individuals from the sample who successfully completed both waves of data collection and who indicated that they were not directly exposed to the 9/11 terrorist attacks; all respondents who indicated that they were present at the attacks, had a loved one who was directly exposed, or knew someone who died that day were excluded from the sample. All procedures for this study were approved by the institutional review board of the University of California, Irvine.

Measures

Demographic characteristics. Demographic information, including age, race and ethnicity, education, and mental and physical health history, was collected upon enrollment in the KN panel and updated annually. Education was operationalized with a dichotomous measure of whether the individual had a college degree or not. Other levels of education, gender, marital status, and income were also collected but did not achieve significance and did not substantively change the findings.

Pre-9/11 health. The pre-9/11 mental and physical health assessment was modeled after the Centers for Disease Control's National Center for Health Statistics annual National Health Interview Survey (U.S. Department of Health and Human Services, 2001), and asked participants to report whether a physician had ever diagnosed them with 35 physical (e.g., asthma, hypertension) or mental (e.g., anxiety disorder, depression) health ailments. This provided a measure of the number of pre-9/11 physician-diagnosed physical (range: 0–33) and mental health (range: 0–2) ailments for each participant.

Early post-9/11 television exposure. Television watching in the week after 9/11 was assessed in the Wave 1 questionnaire, which was conducted within days of the attacks. Participants were asked "Since the terrorist attack, about how much time each day have you spent watching news footage about this on television? Please give your best estimate for the first 7 days after the attack." Respondents could report watching less than 1 hr, 1–3 hr, 4–6 hr, or 6 or more hr of television per day.

9/11 anniversary-related media exposure. One year after the attacks, participants were asked to report on the number of hours they spent consuming 9/11 anniversary-related media

coverage, including television, radio, books, magazines, newspapers, or online articles, using a scale ranging from 0 hr to 10 or more hr. Questions were anchored to the period "surrounding the anniversary" of 9/11. Responses were summed across sources to create a composite anniversary-related media exposure score, which ranged from 0 to 23 hr.

Acute stress. Acute stress responses to the 9/11 attacks were assessed at Wave 1 using a modified, 25-item version of the Stanford Acute Stress Response Questionnaire (SASRQ; Cardeña, Koopman, Classen, Waelde, & Spiegel, 2000). Participants responded to items related to 9/11-related acute stress symptoms, such as "I felt distant from my own feelings and emotions" and "I had nightmares about the recent disaster," with a response of either *experienced* or *did not experience*. For each participant, a continuous count of all endorsed acute stress symptoms was calculated to capture the variability in responses (possible range: 0–25), Kuder-Richardson coefficient = .87.

Life events assessment. During the 1-year follow-up assessment, participants provided extensive information regarding their personal histories with stressful life events. This measure was modified from the trauma section of the Diagnostic Interview Schedule (Robins, Helzer, Croughan, Williams, & Spitzer, 1981) and expanded to include a wider range of life events (Holman et al., 2000). Respondents reviewed a list of 37 potentially stressful life events and reported which events they had experienced in their lifetimes and the age they were when each occurred. Participants could report up to four occurrences for each event. Example items included "suffered a serious accident or injury," "physically attacked or assaulted," and "death of a child." As a part of the stressful life event assessment at the anniversary of 9/11, participants were also asked, "Please consider all the events that have occurred in your life (e.g., the kinds of events that appear [in the stressful life events history list]). Please think of the one event that has been most upsetting to you over the course of your life-that is, the worst trauma you have experienced." Participants then wrote down the event that they chose as their worst life event. If 9/11 was their worst life event, they could check a box beneath the open-ended question. The worst life events question was designed this way due to an artifact of the survey design. Respondents completed a 9/11-related PTSD Checklist-Civilian Version (Weathers, Litz, Herman, Huska, & Keane, 1993) early in the survey; they subsequently reported previous life event exposure and posttraumatic stress symptoms from the worst of these events, again using the PCL-C. The check-box for indicating 9/11 as their worst life event was implemented to ensure that participants were not being asked to complete the PCL-C multiple times for the same target event; checking the box allowed participants to continue the survey without repeating a 9/11-related PCL-C.

Responses from the stressful life events checklist and openended worst life event question were coded to reflect the kinds of life events that were endorsed. Two independent coders classified the responses to the open-ended worst life-event question into one of four categories: 9/11, violence, bereavement, or other, $\kappa = 0.945$. Prior exposure to violence and bereavement were coded based on previously validated categories for this sample (Blum et al., 2014).

Alternative explanations. We also examined several alternate predictors of selecting 9/11 as a person's worst life event, which were only collected from a portion of our sample. We were primarily interested in examining whether any individual characteristics, specifically neuroticism, experience of a nearmiss event, or television-watching habits, could account for an association between 9/11-related television watching and selecting 9/11 as one's worst life event.

Neuroticism. In a portion of our sample, neuroticism was assessed 18 months after the attacks (n = 1,324), using the two-item neuroticism subscale of the Ten-Item Personality Inventory (TIPI; Gosling, Rentfrow, & Swann, 2003). Items were measured on a Likert-type scale of 1 (*strongly disagree*) to 7 (*strongly agree*). The TIPI has demonstrated adequate testretest reliability and convergent validity when compared to other longer personality inventories (Gosling et al., 2003). In the present sample, Cronbach's alpha was .66.

Near-miss events. Two months after 9/11, a subsample of participants (n = 593) completed questionnaires that included a question regarding 9/11-related near-miss events. Participants were asked to indicate whether they or someone close to them had experienced a 9/11-related near miss, such as almost taking one of the hijacked flights that day or canceling a visit to the World Trade Center or Pentagon. These were treated categorically, whereby a score of 1 indicated having at least one near miss, and a score of 0 indicated having no near misses.

Prior television watching habits. Information regarding pre-9/11 television-watching habits was collected on a portion of the sample (n = 1,220) prior to the start of the study as part of profile data collected by KN on their panelists. These individuals reported the average number of hours per day they typically spent watching television across a comprehensive list of potential channels. These scores were summed to create a composite daily average television-watching score.

Data Analysis

The present analyses were conducted in Stata (Version 12.0; StataCorp, 2015) using logistic regression to predict the likelihood that a person indicated that 9/11 was their worst life event. Poststratification sampling weights were used in the logistic regression models to correct for deviations between the sample's demographic composition and U.S. Census benchmarks (see Silver et al., 2002, for a more detailed description of the weights). The models were developed using a hierarchical variable entry strategy, starting with demographic covariates, then pre-9/11 and 9/11-related covariates, followed by key variables

		Total Sam	ple ($N = 1,606$)		Participants 9/11 as their v $(n =$	who selected vorst life event 354)
	Experie	enced ^a	Selected as w	vorst life event	Experi	enced ^a
Type of event	n	%	n	%	n	%
Violence	690	43.0	183	11.4	102	28.8
Bereavement	1,447	90.1	674	42.0	271	76.6
Other	1,388	86.4	395	24.6	253	71.5
9/11			354	22.0		

Table 1					
Lifetime	Traumatic E	xperiences	and Wor	st Life E	Events

Note. N = 1,606. 9/11 = September 11, 2001, terror attacks.

^aBecause most people reported experiencing more than one event, the *n* values within individual categories sum to more than the total number of participants in the sample. Reported *n* values and proportions are unweighted.

of interest in temporally sequential order. Variables that did not reach significance were removed from the model, as previously described. The final model included the following variables, which were analyzed in conceptually meaningful blocks: age, ethnicity, and education were entered in Model 1 (demographics block); pre-9/11 mental and physical health ailments and post-9/11 acute stress were added in Model 2 (mental and physical health block); prior violent and bereavement events were entered in Model 3 (life events block); and the number of hours of 9/11- and 9/11 anniversary–related television viewing were included in Model 4 (television exposure block).

Results

Sample Characteristics

The sample ranged in age from 18 to 91 years old at the start of the study (M = 49.52 years, SD = 16.12); 52.1% of participants were female. Regarding race and ethnicity, 76.8% of the sample self-identified as white (non-Hispanic), 9.5% as Hispanic, 7.7% as African American (non-Hispanic), and 6.0% as "other," which included Asian. The median household income ranged from \$35,000 to \$39,999 (USD). Approximately 65% of participants in the sample were married, 13.3% were divorced or separated, 16.7% were single, and 4.6% were widowed. Just over 8% of the sample attained less than a high school degree, 36.6% held a high school degree, 23.9% attended some college, and 31.1% held an associate degree, bachelor's degree, or another advanced degree.

Life Events

Participants in the sample had experienced a wide variety of potentially stressful events over the course of their lives prior to 9/11: Participants reported a weighted mean total of 8.85 negative life events (SD = 6.72). Table 1 and Figure 1 report the frequency with which participants experienced the various

types of life events as well as the frequency with which these events were endorsed as a person's worst life event. Bereavement events were, by far, the most-cited worst life events. The second most cited events were "other" life events, such as divorce or a natural disaster in one's community. Violent events were cited least often. Although no one in the sample directly experienced the 9/11 attacks, over one-fifth of participants in the sample indicated that 9/11 was the worst event they had ever experienced. Additional analyses were performed to assess the predictors having endorsed 9/11 as one's worst life event.

Selection of 9/11 as the Worst Life Event

When compared to participants who selected a different worst event, individuals who selected 9/11 as their most distressing life event were likely to report having watched more than 4 hr of 9/11-related television coverage in the week after the attacks, $\chi^2(1, N = 1,606) = 9.60, p = .002)$; were, on average, younger (*M* age = 46.28 years vs. *M* = 50.43 years, *t*(1,604) = 4.31, *p* < .001; reported more acute stress in the week following 9/11 (5.55 vs. 4.97 mean symptoms), *t*(1,604) = -2.02, *p* = .044; and had experienced fewer stressful life events overall (*M* = 6.22 vs. *M* = 9.81 events), *t*(1,603) = 9.19, *p* < .001.



Figure 1. Proportion of participants who reported each event type as their "worst" life event (N= 1,606).

Although individuals who selected 9/11 as their worst life event had experienced fewer life events than others, these participants still reported having experienced significantly more than zero distressing life events, t(353) = 21.20, p < .001. The other types of life events experienced by the participants who selected 9/11 as their worst life event are reported in Table 1.

Logistic Regression Analyses

The selection of 9/11 as one's worst life event was regressed on demographic predictors, previous stressful life event history, and 9/11 media exposure, using a binary logistic regression. Table 2 reports the odds ratios, 95% confidence intervals, and significance levels for all models. In the final model, both educational attainment and ethnicity were important predictors of the selection of 9/11 as one's worst life event. Having earned a college degree was associated with a decreased likelihood of reporting 9/11 was one's worst life event, odds ratio (OR) = 0.61, 95% CI [0.43, 0.87]. African American individuals were more likely than non-Hispanic white individuals to endorse 9/11 as their worst life event, OR = 2.01, 95% CI [1.23, 3.27], and other non-Hispanic (e.g., Asian, Pacific Islander) individuals were less likely than non-Hispanic white individuals to endorse 9/11 as their worst life event, OR = 0.45; 95% CI [0.22, 0.96]. The experience of violent events, OR = 0.79, 95%CI [0.68, 0.92]; or bereavement, OR = 0.72, 95% CI [0.66, 0.78], were associated with a decreased likelihood of selecting 9/11 as one's worst life event. Importantly, the frequency of watching 9/11-related television coverage in the week after the attacks prospectively predicted the selection of 9/11 as one's worst life event, OR = 1.67, 95% CI [1.01, 2.75]. Specifically, individuals who watched 4 or more hours of television in the week after 9/11 had a 66.7% increase in the odds they would endorse 9/11 as their worst life event 1 year later. This finding was robust even when controlling for demographic characteristics, pre-9/11 mental and physical health, post-9/11 acute stress, 9/11 anniversary-related media, and previous experience with violence and bereavement.

Alternative Explanations

Neuroticism. We found no significant association between neuroticism and the number of hours of television watched in the week after 9/11, r = .02, p = .324. However, individuals who selected 9/11 as their worst life event reported significantly higher mean scores on measures of neuroticism compared to those who selected another event (6.33 vs. 5.71), t(1,321) = -3.56, p < .001. When entered into the final model, neuroticism was an important predictor of the selection of 9/11 as one's worst life event, OR = 1.09, p = .010. However, the relation between post-9/11 television watching and selecting 9/11 as one's worst life event remained significant, OR = 1.91, p = .035. Due to the importance of this predictor, it was included as a covariate for the next set of analyses. For more information, see Supplementary Table S1.

Near-miss events. Next, we assessed whether experiencing a near miss of direct exposure to the attacks, for oneself or a close other, was a stronger predictor of selecting 9/11 as one's worst life event compared to 9/11-related television exposure in the week after the attacks. Individuals who reported having a near-miss event were not more likely to select 9/11 as their worst life event than those who did not report a near miss event, $\chi^2(1, N = 589) = 0.78, p = .377$. The inclusion of near-miss events in the final model predicting the selection of 9/11 as one's worst life event was not significant, OR = 1.21, p = .569, nor did its inclusion attenuate the relation between the selection of 9/11 as one's worst life event and 9/11-related television viewing, OR = 6.25, p = .001. For more information, see Supplementary Table S1.

Television-viewing habits. We also examined whether respondents' television-watching habits prior to 9/11 would change our findings. The frequency of pre-9/11 television viewing was moderately correlated with both 9/11-related television viewing in the week after the attacks, r = .30, p < .001; and with hours of 9/11 anniversary-related coverage, r = .14, p < .14.001 (Silver et al., 2013). However, panelists who said 9/11 was their worst life event did not watch significantly more hours of television prior to the attacks than those who reported a different worst life event (M pre-9/11 viewing time: 2.65 hr vs. 2.78 hr), t(1,249) = 1.09, p = .276. Nonetheless, pre-9/11 television-viewing habits were associated with a decreased likelihood of selecting 9/11 as one's worst life event when included in the final model, OR = 0.84, p = .004. This variable did not, however, attenuate the association between the reporting 9/11 as one's worst life event and 9/11-related television viewing, OR = 3.08, p = .003. For more information, see Supplementary Table S1.

Discussion

The present findings indicate that indirectly experienced collective events, such as 9/11, are considered by individuals to be peak traumatic life events more often than expected. Over one-fifth of the present sample selected 9/11 as their worst life event even though no participants were present at the attack sites or knew anyone who died that day. Having a college degree and "other" non-Hispanic ethnicity were associated with a decreased likelihood of selecting 9/11 as one's worst life event. In contrast, African American ethnicity was associated with an increased likelihood of selecting 9/11 as one's worst life event, which is consistent with other work suggesting that members of this group responded to 9/11 with more emotion and suffered higher levels of distress and posttraumatic stress symptoms following the 9/11 attacks compared to other groups (Chu, Seery, Ence, Holman, & Silver, 2006; Silver et al., 2006). A lifetime history of more bereavement or violent events predicted that an individual would be less likely to select 9/11 as their worst life event.

Predictors of Reporting Set	otember 11, 2001, 7	Terror Attacks as	s Worst Lifetime Tra	aumatic Eve	nt			
	Model 1		Model 2		Model 3		Model 4	
Predictor	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Age	0.98	$[0.97, 0.99]^{b}$	0.99	$[0.98, 0.99]^{b}$	1.00	[0.99, 1.01]	1.00	[0.99, 1.01]
Educational attainment ^a	0.65	$[0.46, 0.90]^{\rm b}$	0.61	$[0.44, 0.86]^{b}$	0.59	$[0.42, 0.83]^{b}$	0.61	$[0.43, 0.87]^{b}$
Ethnicity ^b								
African American	2.41	$[1.54, 3.77]^{b}$	2.42	$[1.54, 3.80]^{b}$	2.21	$[1.38, 3.55]^{b}$	2.01	$[1.23, 3.27]^{b}$
Hispanic	1.73	$[1.13, 2.65]^{b}$	1.68	$[1.11, 2.55]^{b}$	1.48	[0.95, 2.32]	1.45	[0.93, 2.27]
Other non-Hispanic	0.55	[0.27, 1.10]	0.57	[0.29, 1.13]	0.54	[0.27, 1.07]	0.45	$[0.22, 0.96]^{b}$
Pre-9/11 mental health			0.69	$[0.48, 0.99]^{b}$	0.79	[0.56, 1.10]	0.79	[0.56, 1.11]
ailments								
Pre-9/11 physical health			0.94	[0.89, 1.00]	0.97	[0.91, 1.03]	0.96	[0.90, 1.02]
ailments								
9/11-related acute stress			1.03	[1.00, 1.06]	1.04	$[1.01, 1.07]^*$	1.02	[0.99, 1.06]
Number of prior violent					0.81	$[0.70, 0.94]^{b}$	0.79	$[0.68, 0.92]^{b}$
events								
Number of prior bereavement				0.73	$[0.67, 0.80]^{b}$	0.72	$[0.67, 0.79]^{b}$	
events								
Number of hours of 9/11						1.06	$[1.05, 1.14]^{b}$	
anniversary-related media								
9/11-related television watching ^c	(hr/day)							
1–3						0.99	[0.60, 1.64]	
≥ 4						1.67	$[1.01, 2.75]^{b}$	
Constant	0.69	[0.43, 1.11]	0.65	[0.38, 1.09]	0.86	[0.49, 1.50]	0.67	[0.35, 1.29]
Deviance (-2 log likelihood)	1,698.21		1,676.89		1,563.66		1,520.29	
Wald χ^2 χ^2	$(5, N = 1,606) = 50.39^{\rm b}$, χ ² (8	$8, N = 1,606) = 62.09^{b}$		$\chi^2(10, N = 1,606) = 111.8$	(3 ^b χ ²	(13, N = 1,606) = 145.0	12 ^b
Note. $N = 1,606$. Odds ratios (Oh) represent the odds of a	selecting the Septen	nber 11, 2001, terror att	acks (9/11) as	one's worst life event. Anal	lyses were weighted	to account for the likelih	nood of selection
into the panel from which our san	iple was drawn and to fa	culitate population i	nterences.					
^a Reference group: no college degi ${}^{*}p < .05. {}^{**}p < .01. {}^{***}p < .001.$	ee. ^v Reference group: N	Jon-Hispanic white.	^c Reference group: < 1	hr per day.				
^a Reference group: no college degr * $p < .05$. ** $p < .01$. *** $p < .001$.	ee. ^o Reference group: N	Jon-Hispanic white.	^c Reference group: < 1	hr per day.				

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However, the frequency of early 9/11-related television watching was associated with endorsing 9/11 as one's worst life event 1 year later. These findings were robust even when controlling for pre-9/11 mental and physical health, 9/11-related acute stress, 9/11 anniversary-related media consumption, neuroticism, near-miss experiences, and pre-9/11 television-watching habits. This suggests that it is not simply a propensity for anxiety that can explain this association nor simply that people who experienced 9/11 as a peak trauma experienced more stress in the immediate aftermath and followed the events more closely. Additionally, the finding that the frequency of early 9/11-related television watching and anniversary-related media consumption were both independently associated with selection of 9/11 as one's worst life event suggests that the impact of early exposure is uniquely important, even in the face of concurrent exposures.

Our hypothesis that a history of violence or bereavement would predict selecting events other than 9/11 as the worst of one's life was supported. However, perhaps the more striking finding was that 9/11-related television in the week after the attacks prospectively predicted selection of 9/11 as one's worst life event 1 year later, even when respondents reported having experienced other major life stressors. These findings have two major consequences. First, they highlight the importance of the inclusion of people's subjective appraisals of experiences with stressful life events when assessing life-event history. Second, they highlight that the current models for understanding the importance and implications of indirect exposure to negative life events may need revision.

Perhaps most importantly, given that such a large portion of our sample considered 9/11 to be their worst life event, there is some evidence that the exclusion of indirect exposure from the current clinical definition of trauma may be too narrow. Although mental health outcomes were not the focus of the current analyses, other researchers have found links between indirect exposure to collective traumas through the media and both probable PTSD (Ahern et al., 2004) and acute stress symptomatology (Holman et al., 2014). Taken together with our findings, this literature suggests that indirect exposure to collectively experienced traumatic events should be acknowledged as having a larger impact than is currently typically considered.

These findings also have important implications for social support, which has been demonstrated to buffer the negative health effects of stress (Cohen & Wills, 1985). Individuals with a more robust social support system may be inured to the stress-ful aspects of trauma-related media coverage. However, individuals who are experiencing a negative life event may have trouble garnering desired support from their social networks (Herbert & Dunkel-Schetter, 1992; Silver, Wortman, & Crofton, 1990). Individuals who perceive indirectly experienced life events as being particularly upsetting may experience an exacerbation of this issue, as their social networks are unlikely to appreciate the distress they may be feeling. Given the well-documented associations among stress, social support, and health outcomes

(Uchino, 2006), this issue is worthy of more attention in future research.

Furthermore, though the present findings are specific to television exposure related to collective trauma, they also are relevant to indirect exposure to traumatic events in our current media landscape. Increased access to updates via smartphones, tablets, and computers also means that we are now exposed to more media than ever before. Individuals are increasingly turning to online news sources and social media for their news updates (Gottfried & Shearer, 2017). Moreover, the use of these online sources for updates, especially social media, is associated with increased distress during a collective trauma and often results in exposure to unverified rumors and conflicting information (Jones, Thompson, Dunkel Schetter, & Silver, 2017). Given these trends in media use, it is more important than ever before to acknowledge the potency of collective trauma exposure via the media. With this in mind, future research is warranted to identify individuals who are most vulnerable to indirect media exposure related to mass violence and to create strategies for early intervention to prevent symptoms in these individuals.

Although our findings are provocative, we acknowledge some limitations that need consideration. First, the potential for priming effects may have come into play. Participants were completing questionnaires related to their experiences with 9/11, which may have primed them toward selecting 9/11 as their worst life event. Additionally, participants were provided a checkbox with which to indicate whether 9/11 was their worst life event rather than being required to write it in. This was an unfortunate methodological artifact that was included to prevent individuals from being required to complete a measure of posttraumatic stress symptoms twice concerning the same anchoring event. However, we do not believe that the possibility of priming or methodological effects can fully account for our findings. Indeed, a large proportion (22%) of a separate nationally representative sample also reported 9/11 as their worst life event (Keyes et al., 2014) even though the second study was completely unrelated to 9/11, which lends credibility to our findings. Perhaps more importantly, reporting 9/11 as one's worst life event at the 1-year anniversary of the attacks was prospectively predicted by both television exposure in the week after the attacks and acute stress symptoms reported approximately 9-23 days after the attacks. This indicates that although participants may have been primed to name 9/11 as their worst life event, the participants who did so also appear to have experienced this event differently a year earlier than those who did not.

Moreover, we recognize that asking individuals to report their worst life event does not necessarily capture the range of subjective evaluations associated with the term "worst." For example, two participants might both indicate that the death of their mother was their worst life event, but they may experience differing levels of distress due to such factors as the age at which the event occurred or the quality of the maternal relationship. Although this question cannot be answered within

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the current data, future studies may shed light on this topic. Moreover, there is likely a great deal of variability across different types of potentially traumatic events, the amount of time since the event occurred, and respondents' distress about those events. These issues warrant further study in future research. Finally, we acknowledge the imperfections in our measure of prior mental health status. Many people who suffer from mental health ailments do not seek treatment from a physician and, thus, do not receive a diagnosis, leading to a loss of information in our measure. However, the association between pre-9/11 mental health diagnoses and selection of 9/11 as one's worst life event was rendered nonsignificant following the addition of acute stress to our model, suggesting that any potential loss of information was perhaps being captured by the inclusion of a measure of acute stress.

During the conception and implementation of the current project, the assessment of worst life events was not one of the primary purposes. Future research should consider the assessment of worst life events as the primary focus of its own investigation. Such a study could flesh out the differences among individuals who endorse various types of events (e.g., directly vs. indirectly experienced, individual vs. collective) in a way that the present analyses could not. The study of people's selfreported worst life events seems to have great potential to explain much of the subjective variability in exposure to life events. These questions should be asked in the future so that we may have a better understanding of which individuals will consider various traumatic life events to be their most distressing.

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