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Variations in Criterion A and PTSD Rates in a Community Sample of Women

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Abstract

We assessed PTSD prevalence and symptoms as a function of whether participants' worst lifetime event met Criterion A1 for PTSD (DSM-IV-TR; APA, 2000) and whether the event was directly or indirectly experienced in a community sample of adult women ($N = 884$). Exposure to both non-Criterion A1 and Criterion A1 events was systematically assessed. PTSD was assessed with regard to participants' self-nominated worst event using the PTSD module of the SCID-I/NP (First, Spitzer, Gibbon, & Williams, 1997). There were no differences in PTSD prevalence rates between Criterion A1 and non-A1 events; however, directly-experienced worst events were significantly more likely to meet PTSD criteria than were indirectly-experienced worst events. Non-Criterion A1 and directly-experienced worst events were associated with significantly more PTSD symptoms than were Criterion A1 or indirectly-experienced events, respectively. Criterion A2 (experiencing fear, helplessness, or horror) had little effect on PTSD rates.

Keywords

trauma; Posttraumatic Stress Disorder; community sample; Criterion A

1. Variations in Criterion A and PTSD Rates in a Community Sample of Women

Although the diagnostic criteria have changed over time, the essential feature of Posttraumatic Stress Disorder (PTSD) is the development of characteristic symptoms following exposure to a traumatic event. The most important changes to the diagnostic criteria for PTSD concern what constitutes a "traumatic event." This definition, known as Criterion A, plays an important gate-keeping role because PTSD can only be diagnosed if individuals have experienced a qualifying trauma, regardless of how many other symptoms they report. Criterion A consists of two parts in the DSM-IV-TR: (A1) experiencing, witnessing, or being confronted with an event that involves actual or threatened death or serious injury, or a threat to the physical integrity of self or others; and (A2) experiencing intense fear, helplessness, or horror (APA, 2000). What events should be defined as traumatic in Criterion A in the DSM-V, or whether Criterion A should exist at all, currently

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is under debate (e.g., Rosen & Lilienfeld, 2008), and has been under debate since the creation of the DSM-III (e.g., Breslau & Davis, 1987).

The fundamental debate about Criterion A concerns whether it should be broad or restrictive (Kilpatrick et al., 1998). Advocates of a broad definition argue that Criterion A should include any event that can produce PTSD symptoms, including “low magnitude” events (e.g., divorce). To do otherwise runs the risk of denying treatment or compensation to individuals who are suffering to the same extent as those who have experienced qualifying events (Kilpatrick, Resnick & Acierno, 2009). Advocates of a restrictive definition argue that broadening the definition of Criterion A could lead to widespread and “frivolous” use of the diagnosis (Kilpatrick et al., 2009). Finally, others (Brewin, Lanius, Novac, Schnyder, & Galea, 2009) argue that we should eliminate Criterion A and focus on the presence or absence of a set of core symptoms. Ultimately, decisions regarding the definition of the stressor criterion should be based on data regarding the frequency with which PTSD symptoms follow from events that do and do not meet the Criterion A definition. Several authors have highlighted the need for such data (e.g., Kilpatrick et al., 1998; Weathers & Keane, 2007).

Below we review the results of existing research on Criterion A and the limitations of this research. We then describe the results of our study, the primary purpose of which was to assess how variations in Criterion A affect PTSD prevalence rates and symptoms. The goal of this research was to contribute knowledge that can inform future revisions of the PTSD diagnostic criteria in the DSM.

1.1. Do Events Need to Meet Criterion A1 to Lead to PTSD?

The issue of how Criterion A should be defined was addressed in the field trial leading up to the development of the DSM-IV (APA, 1994). In the PTSD field trial, 400 treatment-seeking and 128 community adults and adolescents completed measures of exposure to both non-Criterion A1 and Criterion A1 events using checklists of both types of events (Kilpatrick et al., 1998). Individuals who had experienced at least one Criterion A1 event were included in the Criterion A1 group. The majority (72%) of the A1 group had also experienced a non-A1 event. Only 13% ($n = 66$) of the sample had experienced only non-A1 events. PTSD symptoms were assessed in reference to multiple events within a person’s history (and thus the symptoms could have been related to either an A1 or non-A1 event). Using this methodology, the lifetime PTSD prevalence rate for those who reported at least one Criteria A1 event was 51%, and the current PTSD prevalence rate was 36%. In contrast, the lifetime PTSD prevalence rate among those who reported only non-A1 events was 12% and the current PTSD rate was 9%. Although this suggests that Criterion A1 events were much more likely to be associated with PTSD than were non-Criterion A1 events, PTSD rates were not assessed separately for A1 and non-A1 events for the majority of the sample.

Since the publication of the PTSD field trial, several studies have addressed the relation between Criterion A1 and PTSD prevalence rates and symptom levels. One recent study suggested that A1 events may be associated with greater PTSD symptoms than non-A1 events. Specifically, the conditional probability of PTSD was slightly higher (6%) among adolescents who had only experienced an A1 event than among adolescents who had only experienced a non-A1 event (1%; Kilpatrick et al., 2009). In another study, events that met both Criteria A1 and A2 were significantly more likely to cause probable PTSD and were associated with more PTSD symptoms than events that failed to meet both Criteria A1 and A2 (Boals & Schuettler, 2009). However, once other variables (i.e., time since the event, depression, perceived stress) were controlled, A1 had no association with PTSD symptoms. Two studies have found that individuals who had experienced a non-Criterion A1 event (e.g., non-life threatening illness) reported as many PTSD symptoms as those who had

experienced a Criterion A1 event (Green et al., 2000; Spitzer, Abraham, Reschke, Siebel, & Freyberger, 2000), whereas other studies have found that those whose worst event was a non-A1 event reported slightly *more* PTSD symptoms than those whose worst event was a Criterion A1 event (Gold, Marx, Soler-Baillo, & Sloan, 2005; Long et al., 2008). Similarly, individuals in a large, random community sample in the Netherlands whose worst event was a non-Criterion A1 event (e.g., relational problems) had similar levels or significantly more PTSD symptoms than those who nominated a Criterion A1 event as their worst event, depending on the amount of time that had elapsed since the event (Mol et al., 2005). Finally, one study found that Criterion A1 had poor positive predictive power and specificity in predicting PTSD (Bedard-Gilligan & Zoellner, 2008). In general, these studies have found little to no difference in PTSD rates and symptom severity between Criterion A1 and non-A1 events, and even significant differences were small.

One important limitation of these studies is that most have not systematically assessed non-A1 events using event checklists, but instead have asked open-ended questions about other stressful events, some of which were categorized as non-Criterion A1 (e.g., Mol et al., 2005). This may overestimate PTSD prevalence rates for non-Criterion A1 events because people may only nominate particularly traumatic non-A1 events in an open-ended question, particularly after being primed with a list of Criterion A1 events. Systematic assessment of non-A1 events also is important because, even if overall rates of PTSD do not differ for A1 and non-A1 events, there may be differences in risk for PTSD for different types of non-Criterion A events as there are for different kinds of Criterion A events (e.g., Breslau et al., 1998). Data on the prevalence of PTSD following specific non-Criterion A events may help inform potential changes in the DSM, as there has been resistance to including non-A1 events because of “bracket creep” (see McNally, 2003). However, if certain non-A1 events carry higher risk than others, the criteria could be expanded to include only those events.

Another important limitation is that few studies have compared individuals who had experienced Criterion A1 versus non-A1 events in terms of other mental health symptoms. Because of the high comorbidity rates between PTSD and other disorders (Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995), it is important to show that the symptoms associated with non-Criterion A events are not due primarily to their relations with other forms of distress that are related to PTSD. In one study, women who had experienced a non-Criterion A1 event had similar levels of dysphoria and self-regulation symptoms as those who reported single interpersonal (e.g., rape) or non-interpersonal (e.g., life-threatening illness) Criterion A events (Green et al., 2000). Similarly, Gold et al. (2005) found no significant differences in general distress between university undergraduate students whose worst event was a Criterion A1 event versus a non-A1 event. Although limited, this research suggests that Criterion A1 and non-Criterion A1 events are associated with similar levels of non-PTSD symptoms and general distress.

Another aspect of Criterion A1 in the DSM-IV-TR (APA, 2000) is that events can be directly or indirectly experienced. Surprisingly, little research has explicitly compared PTSD rates across events that differ along this dimension. In one study, directly-experienced events (e.g., rape) were associated with higher risk for PTSD than were indirectly-experienced events (e.g., close relative raped) (Bedard-Gilligan & Zoellner, 2008). Similarly, PTSD was much more prevalent among individuals directly exposed to the death of a close family member in the 2004 tsunami compared to those who were indirectly exposed to the same event (Kristensen, Weisæth, & Heir, 2009). Another study found that direct and indirect threats to emergency department medical staff were comparable in terms of their relations to overall symptom severity, although the directly-experienced events were associated with significantly higher levels of hyperarousal symptoms (Alden, Regambal, & Laposa, 2008). Finally, directly-experienced events were associated with higher levels of

PTSD symptoms than were indirectly-experienced events, but not when other event characteristics were controlled (Frazier et al., 2009).

Although the results of these few studies suggest that directly-experienced events carry greater risk of PTSD, these studies also are limited, particularly in terms of sample characteristics. For example, one used a sample in which only one kind of event was experienced (traumatic bereavement; Kristensen et al., 2009), another used a very specific sample (emergency department medical staff; Alden et al., 2008), and the remaining studies were conducted primarily in undergraduate samples (Bedard-Gilligan & Zoellner, 2008; Frazier et al., 2009). To inform potential changes to Criterion A1 in the DSM, this dimension needs to be assessed in more representative samples.

1.2. Do Events Need to Meet Criterion A2 to Lead to PTSD?

In addition to research on Criterion A1, research has examined the necessity that the traumatic event meet Criterion A2 (i.e., cause intense fear, helplessness, or horror) to lead to PTSD. Several conclusions can be drawn from research conducted thus far. First, most individuals who reported events that met Criterion A1 also reported fear, helplessness, or horror (Criterion A2) (e.g., Breslau & Kessler, 2001). Thus, A2 had little effect on PTSD prevalence rates (Bedard-Gilligan & Zoellner, 2008; Kilpatrick et al., 1998; Kilpatrick et al., 2009; Schnurr, Spiro, Vielhauer, Findler & Hamblen, 2002). Second, it was rare for individuals to develop PTSD if they experienced an A1 event that did not cause fear, helplessness, or horror (Breslau & Kessler, 2001). Finally, events that met Criterion A2 were associated with significantly higher levels of PTSD symptoms (e.g., Boals & Schuettler, 2009).

One limitation of this body of research is that only one study has examined the frequency with which non-A1 events cause fear, helplessness, or horror (Roemer, Orsillo, Borkovec, & Litz, 1998). In this study, A1 events were more likely to cause A2 than were non-A1 events, but non-A1 events were not systematically assessed. In addition, no studies of which we are aware have compared directly and indirectly-experienced events in terms of likelihood of meeting Criterion A2. Neglecting to assess whether these characteristics are associated with A2 limits our ability to examine the importance of the A2 criterion as a predictor of PTSD.

1.3. Current Study

The purpose of this study was to assess lifetime and current PTSD prevalence and symptom severity as a function of whether participants' worst lifetime event met Criterion A1 and whether the event was directly or indirectly experienced. We also assessed whether these two event characteristics were associated with meeting Criterion A2, as well as all of the other PTSD symptom clusters. To assess whether PTSD following non-A1 events actually reflected the effects of previous trauma exposure (Breslau et al., 1999), we included lifetime Criterion A1 exposure in all analyses. Finally, we examined changes in PTSD population prevalence rates as a function of using different definitions of Criterion A.

Our study included the following methodological improvements over previous research. First, a broad range of both A1 and non-A1 events were systematically assessed. Second, unlike many studies that rely on self-report measures of PTSD, we used a structured diagnostic interview and assessed all of the specific PTSD diagnostic criteria. Third, we examined the effect of event characteristics (A1 versus non-A1; direct versus indirect) on general mental health symptoms. Finally, we used a large, representative community sample of women.

Our hypotheses were as follows. First, we hypothesized that PTSD prevalence rates (including all specific PTSD criteria) and symptom levels and general mental health

symptoms would be similar following Criterion A1 and non-A1 events. Second, we hypothesized that PTSD prevalence rates (including all specific PTSD criteria) and symptom levels would be higher – and general mental health would be lower – following directly-experienced events than following indirectly-experienced events. Finally, analyses of changes in PTSD prevalence rates in the population as a function of changes in Criterion A were exploratory because they are contingent on the frequency with which certain kinds of events were nominated as worst events.

2. Method

2.1. Sample and Procedures

Data were collected from 884 adult women residing in Hennepin County, MN (which includes Minneapolis and suburbs) who participated in a phone interview regarding trauma experiences and PTSD. We surveyed women because this study was part of a larger program of research on the effects of specific traumatic events (e.g., sexual assault) among women. Households were selected using random digit dialing telephone procedures. The interviews were conducted by trained female interviewers employed by a survey research company who were blind to all hypotheses. The survey research company was a member of the Council of American Survey Research Organizations, had 11 years of experience conducting phone surveys, and employed on-line monitoring of at least 15% of the interviews. The interviewers began by asking if any resident of the household was a female over age 18. If there was more than one, the interviewer asked to speak with the woman with the most recent birthday. After a complete description of the study, oral informed consent was obtained. The response rate was 72% which was calculated as the number of completed interviews divided by the number of completed interviews, eligible refusals, and terminated interviews. This study was approved by the Institutional Review Board at the University of Minnesota.

Because one purpose of the survey was to identify a racially-diverse sample of potential participants for subsequent studies, zip codes that were known to have higher-than-average minority populations were oversampled. Therefore, all analyses reported here are based on data weighted to reflect the racial composition of Hennepin County according to the 1990 census (i.e., 92% White).

After weighting, the mean age of the sample was 42 years old (range=18 to 89). Ninety-two percent of the sample was White, 5% was African American, 2% was Native American, and less than 1% was Asian American or Hispanic. Over half of the participants were married (52%) or in a long-term relationship (10%); the rest were single (21%), divorced (13%), or widowed (5%). The majority was employed full-time (54%) or part-time (19%); the rest were retired (10%), unemployed (9%), homemakers (6%), or students (2%). The majority (76%) had some post high school education. The median annual family income was \$30,000 to \$40,000.

2.2. Measures

2.2.1. Non-Criterion A1 events—Respondents were asked whether they had experienced each of seven non-Criterion A1 events in the past year (see Table 1) and were given the opportunity to mention other events that had happened in the past year. The questions assessing these events were adapted from the Potential Stressful Events Interview (PSEI; Kilpatrick, Resnick & Freedy, 1991) used in the DSM-IV PTSD field trial (Kilpatrick et al., 1998). Of the 11 questions regarding low-magnitude events in the PSEI, two were combined with other questions (i.e., two questions regarding relationship loss were combined and two questions regarding deaths due to natural causes were combined), one

was excluded because of overlap with other questions (i.e., making ends meet financially) and one was excluded because it did not apply to the time period in which the data were collected (i.e., significant other sent to the Persian Gulf).

2.2.2. Criterion A1 events—Respondents next were asked if they had experienced each of 13 Criterion A1 events during their lifetime, including eight directly-experienced events and five indirectly-experienced events (see Table 1). All of these events were listed in the DSM-IV as traumas that may produce PTSD. Respondents also were asked if they had experienced “any other extremely stressful situation or event.” The specific questions used to assess traumatic experiences were taken from the Sexual Experiences Survey (Koss & Oros, 1982), the Traumatic Stress Schedule (Norris, 1990), and the PSEI (Kilpatrick et al., 1991). The list of events was similar to lists used in other large-scale epidemiological studies (e.g., Breslau et al., 1998; Kessler et al., 1995). Behaviorally-specific questions were used to maximize reporting rates (e.g., “Have you ever had sexual intercourse with someone when you did not want to because they used threats or physical force”? [rape]).

2.2.3. Self-nominated worst events—Respondents were asked which of all of the lifetime and past year events they had mentioned was the worst for them, when it occurred, how upsetting it was at the time (1 = not at all to 5 = extremely), and whether they were afraid they might be killed or seriously injured during the event. Although most participants chose one of the 20 listed events as their worst event, 269 (32%) participants nominated an “other” event as most distressing which could have been either a Criterion A1 or non-A1 event. These events were coded into an existing category, if possible, by the first and third authors, and a trained undergraduate coder. Two of the three coders agreed 99% of the time and this code was used to re-categorize these worst events. The total number of events in the “other event” category after recoding was 48. In addition, 45 participants described multiple events that could not be placed into an existing category.

Two characteristics of self-nominated worst events also were coded. First, all of the Criterion A1 and non-Criterion A1 events were classified as directly ($n = 13$) or indirectly ($n = 7$) experienced. Directly experienced events were events that happened directly to the participant (e.g., own illness) and indirect events were events that happened to someone else (e.g., witnessing something happen to someone else, other’s illness). Worst event descriptions classified as “other” ($n = 48$) or multiple ($n = 45$) events were coded by the three coders as directly or indirectly experienced. If all of the events described in the multiple event description were directly experienced, then the coders rated that event as directly experienced. However, if the participant described both directly and indirectly experienced events, the event was deemed uncodable ($n = 33$). Two of the three coders agreed 100% of the time; the code agreed on by at least two of the coders was used.

Second, the events were classified a priori as being Criterion A1 events or not. Specifically, 7 events were classified as non-Criterion A1 and 13 were classified as Criterion A1 according to the DSM-IV (APA, 2000) as described previously. The 93 worst event descriptions classified as “other” or multiple events (e.g., husband with a gambling addiction, grandson trying to kill someone) were coded by the three coders as meeting Criterion A1 if the event was life threatening, contained a threat to physical integrity (e.g., rape, assault) or if it was a sudden death. If all of the events described in the multiple event description met Criterion A1 then the coders rated that event as meeting A1; however, if the participant described both A1 and non-A1 events, the event was deemed uncodable ($n = 21$). Two of the three coders agreed 100% of the time and this code was used. Forty-four of these events were coded as Criterion A and 28 as non-Criterion A events.

2.2.4. PTSD symptoms—PTSD symptoms were assessed with regard to respondents' self-nominated worst event. The PTSD module of the Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I/NP; First, Spitzer, Gibbon, & Williams, 1997) was used to assess all criteria for a diagnosis of PTSD. This was the only module administered from the SCID. The SCID has demonstrated reliability and validity and has been described as the most widely used and thoroughly-researched clinical interview (Weiss, 1997). Evidence exists for high concordance for PTSD when diagnosed by phone versus in person interviews (Breslau, Kessler, & Peterson, 1998). Respondents were asked if they had ever experienced each of 17 symptoms in symptom clusters B (re-experiencing), C (avoidance) and D (hyperarousal) with regard to their self-nominated worst event and, if so, whether the symptom had lasted for more than one month and if they were currently experiencing the symptom. In all analyses, symptoms were counted as present only if they had lasted for at least one month. With reference to their self-nominated worst event, participants were also asked if they felt very afraid, terrified or helpless (Criterion A2) and if the symptoms caused them significant distress in work, relationships with others, or in any other important area of their life (Criterion F). PTSD lifetime diagnoses were given if the participant endorsed the following as lasting for at least one month: at least one re-experiencing symptom (Criterion B), at least three avoidance symptoms (Criterion C), and at least two hyperarousal symptoms (Criterion D). They also needed to report significant impairment (Criterion F). Current PTSD diagnoses were determined by the same criteria as lifetime PTSD, with the addition that the participant endorsed experiencing those particular symptoms at the time of the interview. PTSD symptom severity scores were calculated by summing the 17 symptoms (Criteria B-D) that participants had said were present for at least one month. Internal consistency (KR-20) for these symptom severity scores was .84 for lifetime PTSD symptoms and .83 for current PTSD symptoms.

2.2.5. General mental health symptoms—General mental health was measured using the general mental health scale of the SF-36 (MH-5; Ware & Sherbourne, 1992). The MH-5 uses a 6-point scale (1=*all of the time* to 6=*none of the time*) to assess how often each emotion was experienced in the prior four weeks. Two of the items ("calm" and "happy") are reverse scored, and lower scores indicate more psychological distress. The internal-consistency reliability of the MH-5 was .84 when administered by telephone (McHorney, Kosinski, & Ware, 1994) and was .86 in this sample.

3. Results

3.1. Preliminary Analyses

The continuous variables of lifetime and current PTSD symptom severity, general mental health, and number of lifetime Criterion A1 events were checked for outliers. Two individuals had general mental health scores more than three standard deviations away from the mean, and these individuals' scale scores were winsorized (i.e., changed to the next closest score). No outliers were found on any other measures. As recommended for large sample sizes, a visual inspection of the shape of the distribution of the continuous variables was used instead of inferential statistics to identify skewed variables (Tabachnick & Fidell, 2001). Upon visual inspection, current PTSD symptoms and general mental health appear significantly skewed. These scores were transformed using log 10, log e, and square root transformations. Although these transformations all decreased the skew, the results of the analyses did not change significantly, and thus we used the original scale scores for all analyses (Osborne, 2002).

3.2. Prevalence of Trauma Exposure

3.2.1. Non-Criterion A1 events—The past year prevalence rates for the directly-experienced non-A1 events ranged from 42% (relationship conflict) to 13% (sued for debt) ($M = 1.09$, $SD = 1.12$, range = 0 to 5) (see Table 1). The past year prevalence rates for the two indirectly-experienced non-A1 events were 42% for family/friend non-life threatening illness and 33% for death due to natural causes. The mean number of indirect non-A1 traumas experienced during the past year was 0.74 ($SD = 0.71$, range = 0 to 2). The mean number of total non-Criterion A1 events reported in the past year was 1.83 ($SD = 1.36$; range = 0 to 6) and 83% reported at least one non-Criterion A1 event in the last year. In addition, 40% reported other stressors in the past year (e.g., having a baby, switching jobs, child divorcing).

3.2.2. Criterion A1 events—The prevalence rates for the directly-experienced Criterion A1 events ranged from 29% (physical assault) to 14% (natural disaster) ($M = 1.75$, $SD = 1.72$, range = 0 to 8) (see Table 1). The indirect events (experienced by others) were generally much more common, with prevalence rates ranging from 75% (a life-threatening illness) to 17% (witnessing a traumatic event). The mean number of indirect Criterion A1 traumas experienced was 2.54 ($SD = 1.26$, range = 0 to 5). Almost half (49%) of the sample also reported some other extremely stressful event (e.g., being stalked, child killing other people while drunk driving). The mean number of total Criterion A1 events reported (not including “other” events) was 4.27 ($SD = 2.48$, range = 0 to 13) and 97% reported at least one Criterion A1 event.

3.2.3. Worst events—The frequency with which respondents nominated various types of events as their “worst” event is reported in Table 2. Criterion A1 events were more likely to be nominated as worst events than were non-Criterion A1 events and indirectly-experienced events were more likely to be nominated as worst events than were directly-experienced events. Thus, of the four categories of events, indirectly-experienced Criterion A1 events were the most common worst events. The single most common worst event was the sudden death of a loved one (24% of the sample). The worst events had happened an average of 10.52 years ($SD = 10.76$) prior to the interview, 90% were rated as “extremely” (68%) or “very” (22%) upsetting, and 16% ($n = 137$) of participants said that the event was life threatening.

The overall frequency with which certain events were nominated as worst events of course depends on the prevalence of the event. *If they were experienced*, the A1 events most likely to be nominated as worst events were the unexpected death of a loved one (35% of those who experienced it nominated it as their worst; 208/596), childhood sexual abuse (19%; 35/181), and rape (16%; 30/185). *If they were experienced*, the non-A1 events most likely to be nominated as worst events were death due to natural causes (13%; 36/279), relationship dissolution (12%; 16/131), own serious non-life threatening illness (9%; 16/176), and relationship conflict (8%; 29/360).

3.3. Risk of PTSD Prevalence as a Function of Event Characteristics

The lifetime prevalence of PTSD in the entire sample for self-nominated worst events (whether or not the events met Criterion A) was 22%, and the current PTSD prevalence rate was 7% (see Table 2). Because 97% of the sample reported at least one Criterion A1 event, the prevalence of lifetime and current PTSD was the same in the “exposed” sample as in the total sample. Table 2 contains the conditional probability of meeting criteria for lifetime and current PTSD for each type of event (Criterion A1 or not and directly or indirectly experienced) if it was nominated as the worst event. Those who nominated directly-experienced Criterion A events as their worst event reported the highest rates of lifetime

(43%) and current (13%) PTSD. Among events nominated as worst events by more than 10 people, the specific events with the highest conditional probability of being associated with lifetime PTSD were childhood sexual abuse (71%; 24/34), rape (60%; 18/30), physical assault (35%; 11/31), and relationship dissolution (30%; 10/33), and the specific events with the highest conditional probability of being associated with current PTSD were childhood sexual abuse (26%; 9/34), relationship dissolution (22%; 4/18), and own serious, but not life-threatening illness (11%; 2/18).

To compare the odds of meeting full criteria for PTSD, as well as Criteria A2, B, C, D and F following different types of self-nominated worst events, we performed logistic regression analyses with number of lifetime Criterion A1 events and the two event characteristics (Criterion A1 vs. Non-Criterion; direct vs. indirect event) as predictors (see Table 3). Number of lifetime Criterion A1 events was included as a predictor because there is substantial empirical evidence that individuals with more prior traumas report more PTSD symptoms (e.g., Ozer, Best, Lipset & Weiss, 2003). The dependent variables were whether participants met criteria for lifetime and current PTSD, endorsed Criteria A2 or F, or the minimum number of requisite symptoms for each symptom cluster B, C, and D. Because the results were essentially the same for lifetime and current PTSD, only the results for lifetime PTSD are reported. The one exception to this trend is noted below.

The odds ratios associated with lifetime number of Criterion A1 events were significant for full lifetime PTSD diagnoses, as well as Criteria A2, B-D and F, in that greater numbers of prior A1 events were associated with higher likelihood of meeting these criteria. These odds ratios ranged from 1.18 for Criterion A2 to 1.49 for full lifetime PTSD criteria. Thus, each additional prior trauma was associated with a 49% increase in the likelihood of meeting full criteria for lifetime PTSD.

The odds ratios associated with the comparisons between Criterion A1 and non-Criterion A1 events were not significant for lifetime PTSD, Criterion A2, Criterion C, and Criterion F. Thus, the relative odds of meeting these criteria did not differ as a function of whether the self-nominated worst event met Criterion A1. However, the relative odds of meeting Criterion B (re-experiencing) and Criterion D (hyperarousal) significantly differed as a function of whether the self-nominated worst event met Criterion A1. Specifically, participants were *less* likely to meet Criterion B (re-experiencing) and Criterion D (hyperarousal) if the event met Criterion A1. However, the difference between Criterion A and non-A events was not significant in terms of meeting *current* Criterion D symptoms.

The odds ratios associated with whether the worst event was directly or indirectly-experienced were significant for lifetime PTSD and for Criteria A2, symptom clusters B through D, and F. Specifically, participants were 4.00 times more likely to meet full criteria for lifetime PTSD, 2.20 times more likely to meet Criterion A2, 1.71 times more likely to meet Criterion B (re-experiencing), 3.98 times more likely to meet Criterion C (avoidance), 4.01 times more likely to meet Criterion D (hyperarousal), and 4.65 times more likely to say that their symptoms caused significant impairment if the event was directly experienced than if it was indirectly experienced.

3.4. Event Characteristics, PTSD Symptom Severity, and General Mental Health

To assess whether the two event characteristics (Criterion A1 vs. non-Criterion A1; direct vs. indirect event) were associated with PTSD symptom severity and general mental health, we conducted three simultaneous regressions with current and lifetime PTSD symptom scores and general mental health as the dependent variables, and number of lifetime A1 events and the two event characteristics as the independent variables (Table 4).

In all three equations, more lifetime traumas were associated with greater PTSD symptom severity and poorer mental health. Whether or not the worst event met Criterion A was not associated with lifetime PTSD symptoms or general mental health; however, Criterion A events were associated with *lower* current PTSD symptom severity. Finally, directly-experienced events were associated with more lifetime and current PTSD symptom severity and poorer general mental health.

3.5. Prevalence Rates in Population as a Function of Different Criterion A Definitions

Finally, we assessed changes in lifetime and current PTSD population prevalence rates as a function of using different definitions of Criterion A (see Table 5). In contrast to the rates reported in Table 2 (which reflect the conditional probability of PTSD for different types of self-nominated worst events), these are the estimated rates of PTSD in the *population* for different definitions of Criterion A.

When Criterion A2 was included in the diagnostic criteria, the lifetime and current rates of PTSD were 22% and 7% when any kind of event could be nominated as a worst event. Using the current DSM-IV stressor criteria (i.e., Criterion A1 and A2 events only) reduced the PTSD population prevalence rates to 14% (lifetime) and 4% (current) and thus would eliminate 66 lifetime and 18 current PTSD cases (relative to using Criteria A2-F). If the stressor criterion was changed to only include directly-experienced events that met A2 (whether or not they met Criterion A1) the lifetime and current rates of PTSD would be very similar (13% and 4%, respectively) to those for the current definition and would eliminate 75 lifetime and 25 current PTSD cases relative to when any event could qualify as meeting Criterion A1. Restricting the criteria to only directly-experienced Criterion A1 events decreased the PTSD population rates to 8% (lifetime) and 2% (current) and resulted in the loss of 65% ($n = 118$) of lifetime and 66% ($n = 36$) of current PTSD cases relative to when any event could qualify as meeting Criterion A1. The bottom half of the table shows that including Criterion A2 in the diagnostic criteria had very little effect on PTSD prevalence rates because very few people met all criteria for PTSD except for Criterion A2.

4. Discussion

The purpose of this study was to assess the prevalence of lifetime and current PTSD, PTSD symptom severity, and general mental health following self-nominated worst events as a function of whether the events met Criterion A1 and whether they were directly or indirectly experienced. We also examined the impact of these dimensions on whether the events met PTSD Criteria A2, B-D and F. Finally, we examined changes in PTSD population prevalence rates as a function of differences in how Criterion A was defined. Our study improved upon prior research by systematically assessing non-Criterion A1 events, assessing all criteria for a PTSD diagnosis using a structured diagnostic interview, assessing general mental health as well as PTSD, assessing a large community sample, and assessing differences between directly versus indirectly experienced events. Key findings are outlined below, followed by a discussion of the limitations and implications of our results.

4.1. Trauma Prevalence

The vast majority (97%) of our sample reported at least one lifetime Criterion A1 event. This high rate of exposure is consistent with rates reported in other studies that assess a range of both directly and indirectly experienced events (e.g., Breslau et al., 1998). The most common events experienced over the lifetime, which were reported by a majority of our sample, were a close friend or family member experiencing a life-threatening illness or an unexpected death. If experienced, the A1 events most likely to be nominated as worst events were the unexpected death of a loved one, childhood sexual abuse, and rape. A majority

(83%) of our sample also reported experiencing at least one non-Criterion A1 event over the past year, with relationship conflict, the non-life threatening illness of a close friend or family member, and the death of a close friend or family member due to natural causes being most common. If experienced, the most common non-A1 events to be nominated as worst events were death due to natural causes, relationship dissolution, own serious non-life threatening illness, and relationship conflict. The specific non-A1 events with the highest conditional probabilities of PTSD are discussed below.

4.2. Do Events Need to Meet Criterion A1 to Lead to PTSD?

Because we systematically assessed both Criterion A1 and non-A1 events, we were able to compare PTSD prevalence rates for both types of events. Both lifetime and current PTSD rates were identical for non-Criterion A1 and Criterion A worst events, and were similar to PTSD rates observed in other community samples of women (Kessler et al., 1995; Resnick et al., 1993). Thus, the relative odds of meeting full criteria for either lifetime or current PTSD did not differ as a function of whether the self-nominated worst event met Criterion A1. If anything, Criterion A events were associated with *lower* symptom levels, including fewer lifetime and current re-experiencing symptoms, fewer lifetime hyperarousal symptoms, and lower current PTSD symptom severity. Finally, restricting eligible traumas to events that met Criterion A1 reduced the population rates of PTSD (from 22% to 14% for lifetime and 7% to 4% for current PTSD). Taken together, our results replicate other findings indicating that non-Criterion A1 events are associated with similar or higher rates of PTSD and PTSD symptoms as are Criterion A1 events (e.g., Green et al., 2000; Gold et al., 2005). In addition, there are no differences in general mental health between those who nominated Criterion A versus non-Criterion A events as worst events.

Because the notion that non-Criterion A events are as likely to lead to PTSD as Criterion A events is inconsistent with the current criteria for PTSD, it is important to examine the kinds of non-Criterion A1 events that seem to carry the most risk. Relationship dissolution and relationship conflict were among the non-Criterion A1 events most often nominated as worst events. In fact, these events were more often mentioned as worst events than many of the directly-experienced Criterion A1 events, even though participants had almost always also experienced a Criterion A1 event in their lifetime. The conditional risk of lifetime PTSD following these events was similar to that reported following directly-experienced Criterion A1 events (e.g., physical assault). However, we want to emphasize that because we estimated PTSD following self-nominated worst events, these prevalence rates do not reflect the PTSD rates for *typical* instances of relationship loss or conflict, which undoubtedly are lower. Nonetheless, our data do show that PTSD can occur following low magnitude events like these that are not life-threatening (a defining feature of Criterion A in DSM-IV) when they are nominated as the worst event of a lifetime.

The literature on the “need to belong” may be helpful in understanding why these non-A1 interpersonal events were associated with similar PTSD rates and symptom levels as some A1 events. Evidence suggests that events such as relationship dissolution or social rejection that threaten feelings of acceptance and belonging are associated with significant distress (Baumeister & Leary, 1995; Smart Richman & Leary, 2009). Further, people appear to be motivated by a fundamental desire to obtain acceptance and avoid rejection by others, a motive that may have arisen from evolutionary pressures based on humans’ dependence on cooperation with others for survival and reproduction. If this is a fundamental human motivation, the high rates and symptoms of PTSD observed in our sample following relationship conflict and dissolution make sense.

4.3. Are Directly Experienced Events More Likely to Lead to PTSD?

As anticipated, directly-experienced events had much higher conditional rates of both lifetime and current PTSD than did indirectly-experienced events. Specifically, those who nominated a directly-experienced event as their worst event were almost four times more likely to meet criteria for lifetime PTSD as those who nominated an indirectly-experienced event, and were more likely to meet all specific PTSD criteria, including having significant impairment (Criterion F). Directly-experienced events were also predictive of lower scores in general mental health (reflecting greater difficulty) and greater lifetime and current symptom severity. Directly-experienced Criterion A1 events had much higher lifetime and current PTSD rates than did indirectly-experienced Criterion A1 events. Thus, those most at risk for PTSD were people who directly experienced a Criterion A1 event, although the rate for direct non-A1 events was also high. Finally, restricting qualifying events to directly-experienced events yielded lifetime and current population PTSD rates that were similar to the rates for Criterion A1 events. In other words, the population rates for lifetime and current PTSD were similar for the current definition of Criterion A and if Criterion A were changed to only include directly-experienced events. Thus, our results indicate that PTSD rates and self-reported impairment were generally unrelated to whether the event met Criterion A1, but were highly related to whether the event was directly-experienced, replicating previous findings (Bedard-Gilligan & Zoellner, 2008).

4.4. Event Characteristics and Criterion A2

As hypothesized, directly experienced events were more likely to lead to fear, helplessness or horror (Criterion A2) than were indirectly-experienced events. This distinction was much more important than the distinction between Criterion A1 and non-A1 events, which was not related to whether the event met Criterion A2. Further, very few people met all criteria for PTSD besides Criterion A2, replicating other research (Kilpatrick et al., 1998). Finally, restricting the eligible events to just those events that met A2 produced nearly identical rates of lifetime and current PTSD as the broadest definition (i.e., including any event regardless of whether it met A1 or A2). Thus, A2 appeared to capture almost all of the individuals who met the criteria for PTSD. Consistent with these and other findings, the DSM-V PTSD work group is proposing to eliminate Criterion A2 from the PTSD criteria (Friedman, 2009).

4.5. Limitations

Despite several improvements on previous research, the current study also had a number of limitations. First, our sample was exclusively female and primarily White which limits the generalizability of the results. Second, although Criterion A1 events were assessed over the lifetime, non-Criterion A1 events were assessed only over the previous year. Third, we assessed impairment using only the one item that assesses impairment on the SCID. Further assessment of this important criterion is warranted. We also did not include a structured diagnostic interview to assess the presence of co-morbid anxiety or depression. Fourth, we did not have information on the inter-rater reliability of the trained female interviewers. Finally, we used self-nominated “worst” events as the precipitating event, and some (e.g., Breslau et al., 1998) have argued that, by focusing on worst traumas, researchers overestimate the conditional risk of PTSD for specific events. These researchers advocate using a randomly selected event from the events experienced to correct for this issue. Nonetheless, many studies assess PTSD with regard to self-nominated worst events, including the web survey planned by the DSM-V PTSD subgroup (Friedman, 2009).

4.6. Implications

Our results indicate that whether an event meets Criterion A1 is generally unrelated to PTSD rates and symptoms in a large representative community sample of women. As Kilpatrick et

al. (2009) have cogently argued, what we do with this information depends on the purpose of Criterion A. If the purpose of Criterion A is to capture all events that produce characteristic PTSD symptoms (Criteria B–F), then, based on our study, and many others, events should not be restricted to the current A1 definition. As others have argued (Brewin et al., 2009), because Criterion A does not appear to assist in making a diagnosis of PTSD, it may not be worth retaining. However, if we want Criterion A to indicate which events have the highest probability of producing PTSD, then, based on our results, we should restrict Criterion A to current Criterion A1 directly-experienced events or to any event that meets Criterion A2. The DSM-V PTSD subgroup has expressed reluctance to exclude indirectly-experienced events from Criterion A because such events *can* produce PTSD (Friedman, 2009). However, our data suggest that specific types of non-Criterion A1 events (e.g., interpersonal traumas such as divorce), can also produce PTSD at fairly high rates when they are nominated as worst events. Thus, another option is to expand Criterion A1 to include such events. Finally, as other researchers have suggested (e.g., Kilpatrick et al., 2009; North, Suris, Davis, & Smith, 2009), it may be more beneficial to focus on characteristics of events that are associated with PTSD (e.g., direct/indirect, controllability) than to focus on differences between specific events.

Our results also have clinical implications. When using a well-validated instrument to assess PTSD in practice, clinicians typically only assess Criterion A1 events. Because our data indicate that PTSD symptoms are slightly higher and PTSD rates do not differ between Criterion A1 and non-A1 worst events, clinicians could consider also assessing non-Criterion A1 events. Additionally, given that PTSD symptoms are higher following directly-experienced events in our sample, clinicians may want to focus on direct events when assessing for PTSD. Given that the largest portion of variance in PTSD symptoms in our sample was explained by the number of lifetime Criterion A1 events, it would be wise for clinicians to consider the impact of the number of lifetime traumas on their clients. Finally, as Breslau and Kessler (2001) suggest, because few individuals who met the remaining PTSD symptom criteria (regardless of whether they met A1) failed to meet Criterion A2, clinicians could use the subjective emotional response as an early screen for recently trauma-exposed individuals to participate in preventive interventions.

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Table 1**Past Year (Non-Criterion A1) and Lifetime (Criterion A1) Event Exposure**

Event	<i>n</i> (%)
<u>Non-Criterion A1 events</u>	
<u>Directly-experienced events</u>	
1. Serious problems/conflicts in relationships	367 (42%)
2. Serious non-life-threatening illness	184 (21%)
3. Lost job, laid off, lost a large part of income	172 (19%)
4. Broken up, separated from, or divorced partner	130 (15%)
5. Sued for debt, had something repossessed, trouble with bill collectors	112 (13%)
<u>Indirectly-experienced events</u>	
6. Family member/close friend serious non-life threatening illness	366 (42%)
7. Family member/close friend died due to natural causes	287 (33%)
<u>Other events</u>	352 (40%)
<u>Criterion A1 events</u>	
<u>Directly-experienced events</u>	
1. Physical assault by anyone, including romantic partners, family members, or friends, that caused some degree of injury	259 (29%)
2. Attempted rape using threats or physical force	231 (26%)
3. Serious accident that caused severe injury to self or others	221 (25%)
4. Robbery, mugging, or hold-up using force or threat of force	210 (24%)
5. Rape using threats or physical force	188 (21%)
6. Before the age of thirteen, any unwanted sexual contact	185 (21%)
7. Diagnosed with a life-threatening illness	135 (15%)
8. Injury or property damage, or forced evacuation, because of severe weather, fire, or other natural or man-made disasters	122 (14%)
<u>Indirectly-experienced events</u>	
9. Family member/close friend life-threatening illness	662 (75%)
10. Family member/close friend died unexpectedly	609 (69%)
11. Family member/close friend serious accident/injury	470 (53%)
12. Family member/close friend violent assault	356 (40%)
13. Witness any serious injury, unnatural death due to violent assault, accident, war, or disaster	150 (17%)
<u>Other events</u>	428 (49%)

Note. N=880–884 due to missing data for some participants.

Table 2

Lifetime and Current PTSD Prevalence Following Self-Nominated Worst Events

	Lifetime PTSD	Current PTSD
Total Sample (n=850) ^a	22%	7%
Non-Criterion A1 events (n=270) ^b	21%	7%
Criterion A1 events (n=559) ^b	21%	7%
Direct events (n=300) ^c	36%	10%
Indirect events (n=517) ^c	13%	4%
Direct non-Criterion A1 events (n=136)	28%	8%
Indirect non-Criterion A1 events (n = 113)	12%	6%
Direct Criterion A1 events (n=154)	43%	13%
Indirect Criterion A1 events (n=401)	12%	4%

^a 34 respondents did not indicate a worst event.

^b 21 events could not be coded as Criterion A1 or not.

^c 33 events could not be coded as direct or indirect.

Table 3

Logistic Regression Analyses Assessing Odds of Meeting Full Lifetime PTSD Criteria and Specific Symptom Clusters

	$\chi^2(3, 849)$	Lifetime # of criterion A1 events	Non-criterion A1 vs. criterion A1 events	Direct vs. indirect
Full criteria	171.18 ***	1.49 *** (1.38, 1.62)	0.90 (0.58, 1.39)	4.00 *** (2.70, 5.98)
Criterion A2	43.45 ***	1.18 *** (1.10, 1.28)	1.36 (0.94, 1.96)	2.20 *** (1.50, 3.24)
Criterion B	82.21 ***	1.38 *** (1.27, 1.51)	0.66 * (0.44, 0.98)	1.71 ** (1.15, 2.54)
Criterion C	178.50 ***	1.38 *** (1.29, 1.49)	0.82 (0.57, 1.17)	3.98 *** (2.83, 5.59)
Criterion D	205.25 ***	1.44 *** (1.34, 1.55)	0.69 * (0.48, 0.98)	4.01 *** (2.85, 5.64)
Criterion F	206.75 ***	1.42 *** (1.32, 1.53)	0.88 (0.62, 1.27)	4.65 *** (3.29, 6.58)

Note.

*
p<.05

**
p<.01

p<.001.

Figures are odds ratios. Figures in parentheses are 95% confidence intervals.

Table 4

Simultaneous Regression Analyses Predicting Lifetime and Current PTSD Symptoms and General Mental Health

Variable	B	SE B	β
<u>Lifetime PTSD</u>			
# Lifetime A1 Events	.81	.05	.45***
Criterion A1 status ^a	-.42	.29	-.04
Direct vs. Indirect ^b	2.7	.28	.29***
<u>Current PTSD</u>			
# Lifetime A1 Events	.49	.04	.39***
Criterion A1 status	-.72	.22	-.11**
Direct vs. Indirect	.95	.21	.15***
<u>General Mental Health</u>			
# Lifetime A1 Events	-1.66	.25	-.23***
Criterion A1 status	1.31	1.31	-.03
Direct vs. Indirect	-5.38	1.36	-.15***

Note.

^a 1=Non-Criterion A1 event, 2=Criterion A1 event.

^b 1=Indirect event, 2=Direct event. $R^2 = .32$ for Lifetime PTSD Symptoms; $R^2 = .20$ for Current PTSD Symptoms; $R^2 = .08$ for General Mental Health.

**
 $p < .01$.

 $p < .001$.

Table 5

Lifetime and current PTSD population rates using different stressor criterion requirements

	Lifetime PTSD <i>% of n^a(N)</i>	Current PTSD <i>% of n^a(N)</i>
PTSD = A2 and B–F		
Any event	22% (183)	7% (55)
Criterion A1 events	14% (117)	4% (37)
Any direct event	13% (108)	4% (30)
Direct and criterion A1 events	8% (65)	2% (19)
PTSD = B–F		
Any event	23% (197)	7% (58)
Criterion A1 events	15% (125)	5% (39)
Any direct events	14% (117)	4% (32)
Direct and criterion A1 events	8% (70)	3% (22)

Note.

^aThe denominator is 850, the number of participants who nominated a worst event.