

## BRIEF REPORT

# Trauma Centrality and PTSD in Veterans Returning From Iraq and Afghanistan

Adam D. Brown  
Weill Medical College of Cornell University

Daniel Antonius  
New York University School of Medicine

Michael Kramer  
Manhattan Campus of the VA New York Harbor Healthcare System

James C. Root  
Weill Medical College of Cornell University

William Hirst  
New School for Social Research

*Research has demonstrated that the extent to which an individual integrates a traumatic event into their identity ("trauma centrality") positively correlates with posttraumatic stress disorder (PTSD) symptom severity. No research to date has examined trauma centrality in individuals exposed to combat stress. This study investigated trauma centrality using the abridged Centrality of Event Scale (Berntsen & Rubin, 2006) among Operation Enduring Freedom/Operation Iraqi Freedom combat veterans (n = 46). Multiple regression analyses demonstrated that trauma centrality predicted PTSD symptoms. Trauma centrality and PTSD symptoms remained significantly correlated when controlling for depression in subgroups of veterans with or without probable PTSD. This study replicates and extends findings that placing trauma at the center of one's identity is associated with PTSD symptomatology.*

In contrast to theorists who suggest that posttraumatic stress disorder (PTSD) represents an inability to integrate a traumatic memory into one's identity and self-narrative (e.g., Dalgleish, 2004), Berntsen and Rubin (2006, 2007) postulate that PTSD symptomatology increases when memories of traumatic events become a focal point of a person's identity and life story. Berntsen and Rubin (2006, 2007; see also Rubin, Berntsen, & Bohni, 2008) argue that placing a traumatic event(s) at the center of one's identity

increases the accessibility and vividness of these distressing memories, thereby enhancing the severity of PTSD symptoms. These findings, however, are based on undergraduate students' reports on the centrality of traumatic events in their life. The present study extends extant research by examining trauma centrality and PTSD in a combat veteran population.

We examine the issue of trauma centrality and PTSD in combat veterans because researchers suggest that combat-related PTSD may differ from civilian PTSD (e.g., Amir, Kaplan, & Kotler, 1996; Prigerson, Maciejewski, & Rosenheck, 2001). Furthermore, combat may have a lasting impact on the identity of individuals deployed to war zones. McNally, Lasko, Macklin, and Pitman (1995) poignantly observed the central role combat experience can play in identity formation when a subset of veterans, in a study on autobiographical memory, arrived to participate in an experiment wearing full military regalia. Interestingly, these individuals were more likely to demonstrate significant deficits in autobiographical memory retrieval than were veterans who appeared in civilian clothing. In an epidemiological study, Prigerson et al. (2001) found that combat veterans often rank deployment to a war zone as their

Adam D. Brown, Department of Psychiatry, Weill Medical College of Cornell University; Daniel Antonius, Department of Psychiatry, New York University School of Medicine; Michael Kramer, Manhattan Campus of the VA New York Harbor Healthcare System; James C. Root, Department of Psychiatry, Weill Medical College of Cornell University; and William Hirst, Department of Psychology, New School for Social Research.

Support from NSF grant BCS-0819067 is gratefully acknowledged. We wish to thank Janine Buckner and Nimali Jayasinghe for their valuable comments and suggestions.

Correspondence concerning this article should be addressed to: Adam D. Brown, Weill Medical College of Cornell University, Department of Psychiatry, Functional Neuroimaging Laboratory, 525 East 68th Street, Mailbox # 140, New York, New York 10065. E-mail: adb2004@med.cornell.edu.

© 2010 International Society for Traumatic Stress Studies. View this article online at [wileyonlinelibrary.com](http://wileyonlinelibrary.com) DOI: 10.1002/jts.20547

most traumatic lifetime event. Among veterans who ranked combat as their most traumatic event, 42% met lifetime criteria for PTSD. This study again suggests a connection between traumatic events that figure centrally to a combat veteran and subsequent reports of PTSD. Finally, Glover's (1987) description of Vietnam veterans with PTSD as suffering from perceptions of alienation from the civilian community and consequently as adopting a survivalist mentality underscores how trauma can dramatically reshape identity and, in doing so, highlights its importance, if not its centrality, to a person's identity.

This work led us to anticipate results similar to Berntsen and colleagues, but now for a combat veteran population. Specifically, we expected to find a positive relation between an increased level of trauma centrality and PTSD symptom severity. In the present study, we followed carefully the methodology established by Berntsen and Rubin (2006, 2007) and included self-report measures on PTSD, depression, and dissociation, as well as the Centrality of Event Scale–7-item version. Similar to Berntsen and Rubin's findings, we anticipated that higher levels of trauma centrality in combat veterans would be related to increased PTSD symptom severity.

## METHOD

### Participants

Participants ( $n = 46$ , male = 44) were English-speaking,  $\geq 18$  years old, Operation Enduring Freedom/Operation Iraqi Freedom (OEF/OIF) combat veterans recruited from the New York VA Harbor Health Care System or Craigslist (www.craigslist.com). Although official documentation of combat exposure was not required for the study, each individual reported experience in combat. Participants were asked if they had sustained a head injury from a "blast or explosion," "bullet," "a fragment or shrapnel," "a fall," "a vehicle accident," or "other means" while in combat (Hoge et al., 2008). If any of these items were endorsed, participants were then assessed for loss of consciousness by reporting whether they "lost consciousness," "were dazed," "confused," "saw stars," or "do not remember the injury" for any of the aforementioned events. Individuals endorsing a history of head injury with or without loss of consciousness were excluded. Individuals were also excluded if they reported ever having been diagnosed with a psychotic or seizure disorder. Two veterans failed to meet enrollment criteria.

### Measures

The assessment was conducted in one session by an advanced-level doctoral student. Symptoms of PTSD were measured using the PTSD Checklist–Military Version (PCL–M; Weathers, Litz, Herman, Huska, & Keane, 1991). Although self-report measures have been found to overestimate combat-related PTSD compared

to structured clinical interviews (Engelhard et al., 2007), the PCL–M is considered effective for assessing PTSD symptomatology (Bliese et al., 2008). Each individual was asked the duration of deployment in Iraq and/or Afghanistan. To be categorized as probable case of PTSD, an individual had to meet A1 (exposure to a combat-related traumatic stressor) and A2 (peritraumatic response of fear, helplessness, or horror in response to the traumatic stressor) criteria according to the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition–Text Revision (DSM–IV–TR)* (American Psychiatric Association, 2000). To assess *DSM–IV–TR* A1 criteria, the experimenter asked participants if they had been "under enemy fire," "surrounded by the enemy," "observed someone being hit by the enemy," "ambushed," "in a near miss situation," or "any other experiences in which you were at risk for being severely injured or killed." To assess A2 criteria, the experimenter asked participants whether the aforementioned events involved "intense fear, helplessness, or horror." A cutoff score of  $> 44$  on the PCL–M and the presence of both A1 and A2 *DSM–IV–TR* PTSD symptoms were used to identify probable PTSD (Bliese et al., 2008).

Trauma centrality was assessed by the Centrality of Event Scale–7-Item Version (Berntsen & Rubin, 2006). The Centrality of Event Scale–7-item version is an abridged version of a 20-item standardized self-report Likert-type scale that measures the extent to which a traumatic event is integrated into one's identity. The seven items included in the abridged version represent the most highly correlated items across the three themes of reference point, turning point, and identity. To specifically address a veteran population, the instructions were slightly modified. Participants were asked to think back on the most stressful event during deployment and rate several aspects of this event along a 5-point scale (1 = *totally disagree*; 5 = *totally agree*): (1) "I feel that the event has become part of my identity"; (2) "This event has become a reference point for the way I understand myself and the world"; (3) "I feel that this event has become a central part of my life story"; (4) "This event has colored the way I think and feel about other experiences"; (5) "This event permanently changed my life"; (6) "I often think about the effects this event will have on my future"; and (7) "This event is a turning point in my life."

Both the Centrality of Event Scale and Centrality of Event Scale–7-item version have demonstrated good internal consistency (Berntsen & Rubin, 2006). The Centrality of Event Scale–7-item version was administered to 707 undergraduate students across four universities and had a Cronbach's  $\alpha = .88$  and a .96 correlation with the 20-item scale. The Centrality of Event Scale–7-item version had a Cronbach's  $\alpha = .92$  when retested in an independent undergraduate sample (Berntsen & Rubin, 2006). The Centrality of Event Scale also demonstrates good face and construct validity (Berntsen & Rubin, 2006). To assess the latter, Berntsen and Rubin (2006) conducted a factor analysis and reported that both the 20-item and 7-item Centrality of Event Scale suggested a single-factor solution associated with centrality. Although the Centrality of Event Scale positively correlates with measures of

**Table 1.** Demographic and Self-Report Data for OEF/OIF Veterans

Variable	Veterans with PTSD		Veterans without PTSD		<i>t</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Demographic variables					
Age	30.5	5.4	34.9	9.9	1.75
Deployed (months)	13.1	6.3	11.5	7.1	< 1
Self-report measures					
PCL-M	60.3	10.3	33.4	8.8	9.55***
BDI-II	19.5	9.0	10.0	7.0	4.02***
CES-7	21.2	10.4	16.1	7.3	1.99*
DES	3.7	1.8	3.0	1.9	1.41

*Note.* OEF/OIF = Operation Enduring Freedom/Operation Iraqi Freedom; PTSD = Posttraumatic stress disorder; PCL-M = Posttraumatic Stress Disorder Checklist–Military Version; BDI-II = Beck Depression Inventory–Second Edition; CES-7 = Centrality of Event Scale–7-Item Version; DES = Dissociative Experiences Scale.

\*  $p < .05$ . \*\*\*  $p < .001$ .

anxiety and depression, it remains significantly correlated with PTSD symptoms independent of its association with these scales (Berntsen & Rubin, 2007).

Symptoms of depression were assessed with the Beck Depression Inventory-II (BDI-II; Beck, Steer, & Brown, 1996) and dissociation by the Dissociative Experiences Scale (DES; Carlson & Putnam, 1991). Finally, demographic information was obtained regarding participants' age and gender. The assessment order was counterbalanced across participants.

## RESULTS

Among the veterans participating in this study, 44% ( $n = 20$ , male = 100%) met criteria for probable PTSD. Table 1 presents the group means and standard deviations for demographic characteristics and scores for the PCL-M, BDI-II, Centrality of Event Scale–7-item version, and DES.

**Table 2.** Correlations of Depression, Aggression, Trauma Centrality, and Dissociation With PTSD Symptoms

Variable	PCL-M	BDI-II	CES-7	DES
PCL-M	–	.65***	.58*	.31***
BDI-II		–	.58***	.56***
CES-7			–	.51***

*Note.* PTSD = Posttraumatic stress disorder; PCL-M = Posttraumatic Stress Disorder Checklist–Military Version; BDI-II = Beck Depression Inventory–Second Edition; CES-7 = Centrality of Event Scale–7-Item Version; DES = Dissociative Experiences Scale.

\*  $p < .05$ . \*\*\*  $p < .001$ .

Pearson correlations (Table 2) were performed between the continuous variables (PCL-M, BDI-II, Centrality of Event Scale–7-item version, DES). Total scores on the PCL-M ( $n = 46$ ) significantly correlated with the total scores on the Centrality of Event Scale–7-item version, BDI, and DES. A multiple linear regression analysis (Table 3) was conducted with PTSD total symptom score as the dependent variable and Centrality of Event Scale–7-item version, BDI, and DES scores as the independent variables. This analysis revealed that both depression and trauma centrality independently predicted PTSD severity, with depression showing a higher beta coefficient, compared to trauma centrality. Multicollinearity diagnostic analyses were conducted to ensure that the PCL-M and Centrality of Event Scale–7-item version were not conveying the same information. Variance inflation factors (1.5) indicated the absence of multicollinearity.

We conducted a series of partial correlation analyses, separately for veterans with or without PTSD, between Centrality of Event Scale–7-item version and PCL-M total scores, controlling for BDI

**Table 3.** Summary of Regression Analyses for Variables Predicting PTSD Symptomatology ( $n = 46$ )

Variable	<i>B</i>	<i>SE B</i>	$\beta$
BDI-II	0.97	0.26	.54**
CES-7	0.64	0.25	.35*
DES	–1.51	1.21	–.17

*Note.* PTSD = Posttraumatic stress disorder; PCL-M = Posttraumatic Stress Disorder Checklist–Military Version; BDI-II = Beck Depression Inventory–Second Edition; CES-7 = Centrality of Event Scale–7-Item Version; DES = Dissociative Experiences Scale.

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

scores. Among the veterans with PTSD, the correlation between PCL-M and Centrality of Event Scale–7-item version remained significant after controlling for BDI,  $r(17) = .54$ ,  $p < .05$ . The correlation also remained significant for veterans without PTSD,  $r(23) = .47$ ,  $p < .05$ . Thus, trauma centrality was positively correlated with PTSD symptom severity across the OEF/OIF sample.

## DISCUSSION

This is the first study to find a positive correlation between PTSD symptoms and trauma centrality in individuals exposed to combat-related stress. Although trauma centrality in our overall sample was also correlated with dissociation and depression, the relation between trauma centrality and PTSD remained significant when conducting a regression analysis containing three predictor variables (trauma centrality, depression, dissociation). Additionally, the correlation between PTSD symptom severity and trauma centrality remained significant when controlling for depression among veterans with or without probable PTSD.

Our findings extend those of Berntsen and Rubin (2006, 2007) to combat veterans and indicate that, for this population, trauma centrality and PTSD severity are positively correlated. Caution needs to be exercised in interpreting the results, inasmuch as the analyses are correlational. Individuals with PTSD symptoms may be more likely to view their trauma as central to their identity because they are the individuals most profoundly affected by the trauma. Moreover, future research would want to relate the present finding to research demonstrating a relation between cognitive distortions about the self and the development and maintenance of PTSD symptoms (e.g., Foa, Tolin, Ehlers, Clark, & Orsillo, 1999). The instrument used to assess “cognitive distortions” in many studies, the Posttraumatic Cognitions Inventory (Foa et al., 1999), includes a number of concepts that overlap with items on the Centrality of Event Scale–7-item version (e.g., perceived permanent change and alienation from self and others).

These cautionary notes should not, however, mitigate the present findings, which suggest that placing a traumatic event at the center of one’s identity may contribute to the development and maintenance of PTSD symptoms. These centrally placed traumatic memories may increase the accessibility of the memories, as well as serve as a lens in which present and future events are anticipated. Rather than memories of combat-related trauma being fragmentary (e.g., Horowitz, 1986), the present results suggest that the combat-related traumatic memories remain critical to identity formation and PTSD symptomatology.

## REFERENCES

- American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (4th ed., text rev.). Washington, DC: Author.
- Amir, M., Kaplan, Z., & Kotler, M. (1996). Type of trauma, severity of posttraumatic stress disorder core symptoms, and associated features. *Journal of General Psychology*, 123, 341–351.
- Beck, A. T., Steer, R. A., & Brown, G. K. (1996). *Manual for the Beck Depression Inventory* (2nd ed.). San Antonio, TX: The Psychological Corporation.
- Berntsen, D., & Rubin, D. C. (2006). The Centrality of Event Scale: A measure of integrating a trauma into one’s identity and its relation to post-traumatic stress disorder symptoms. *Behaviour Research and Therapy*, 44, 219–231.
- Berntsen, D., & Rubin, D. C. (2007). When a trauma becomes a key to identity: Enhanced integration of trauma memories predicts posttraumatic stress disorder symptoms. *Applied Cognitive Psychology*, 21, 417–431.
- Bliese, P. D., Wright, K. M., Adler, A. B., Cabrera, O., Castro, C. A., & Hoge, C. W. (2008). Validating the Primary Care Posttraumatic Stress Disorder Screen and the Posttraumatic Stress Disorder Checklist with soldiers returning from combat. *Journal of Consulting and Clinical Psychology*, 76, 272–281.
- Carlson, E. B., & Putnam, F. W. (1993). An update on the Dissociative Experiences Scale. *Dissociation*, 6, 1–27.
- Dalgleish, T. (2004). Cognitive approaches to posttraumatic stress disorder: The evolution of multirepresentational theorizing. *Psychological Bulletin*, 130, 228–260.
- Engelhard, I. M., van den Hout, A., Weerts, J., Arntz, A., Hox, J. J., & McNally, R. J. (2007). Deployment-related stress and trauma in Dutch soldiers returning from Iraq. *British Journal of Psychiatry*, 191, 140–145.
- Foa, E. B., Tolin, D. F., Ehlers, A., Clark, D. M., & Orsillo, S. M. (1999). The Posttraumatic Cognitions Inventory (PTCI) development and validation. *Psychological Assessment*, 11, 303–314.
- Glover, H. (1988). Four syndromes of post-traumatic stress disorder: Stressors and conflicts of the traumatized with special focus on the Vietnam combat veteran. *Journal of Traumatic Stress*, 1, 57–78.
- Hoge, C. W., McGurk, D., Thomas, J. L., Cox, A., Engel, C. C., & Castro, C. A. (2008). Mild traumatic brain injury in U.S. soldiers returning from Iraq. *New England Journal of Medicine*, 358, 453–463.
- Horowitz, M. J. (1986). *Stress response syndromes* (2nd ed.). Northvale, NJ: Jason Aronson.
- McNally, R., Lasko, N. B., Macklin, M. L., & Pitman, R. K. (1995). Autobiographical memory disturbance in combat-related posttraumatic stress disorder. *Behaviour Research and Therapy*, 33, 619–630.
- Prigerson, H. G., Maciejewski, P. K., & Rosenheck, R. A. (2001). Combat trauma: Trauma with highest risk of delayed onset and unresolved posttraumatic stress disorder symptoms, unemployment, and abuse among men. *Journal of Nervous & Mental Disease*, 189, 99–108.
- Rubin, D. C., Berntsen, D., & Bohni, M. K. (2008). A memory-based model of posttraumatic stress disorder: Evaluating basic assumptions underlying the PTSD diagnosis. *Psychological Review*, 115, 985–1011.
- Weathers, F. W., Litz, B. T., Herman, D. S., Huska, J. A., & Keane, T. M. (1993, October). The PTSD checklist: Reliability, validity, and diagnostic utility. Paper presented at the Annual Meeting of the International Society for Traumatic Stress Studies, San Antonio, TX.

Copyright of Journal of Traumatic Stress is the property of John Wiley & Sons, Inc. and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.