



Contents lists available at ScienceDirect

Journal of Behavior Therapy and Experimental Psychiatry

journal homepage: www.elsevier.com/locate/jbtep



Time, before, and after time: Temporal self and social appraisals in posttraumatic stress disorder

Adam D. Brown^{a,*}, Janine P. Buckner^b, William Hirst^c

^a Department of Psychiatry, Weill Medical College of Cornell University, 525 East 68th Street, Box 140, New York, NY 10065, USA

^b Department of Psychology, Seton Hall University, 400 South Orange Avenue, South Orange, NJ 07079, USA

^c Department of Psychology, New School for Social Research, 80 5th Avenue, 5th Floor, New York, NY 10003, USA

ARTICLE INFO

Article history:

Received 25 September 2010

Received in revised form

7 February 2011

Accepted 10 February 2011

Keywords:

Posttraumatic stress disorder

Memory

Self-appraisals

Identity

ABSTRACT

Background and objectives: In the aftermath of a traumatic event, individuals may engage in a series of comparisons in which they appraise their current functioning in relation to how they functioned prior to the traumatic event, as well as how they anticipate functioning in the future. In addition, trauma-exposed individuals may also appraise their functioning in relation to other individuals exposed to the same or similar types of traumatic events. We examine whether PTSD and non-PTSD classified individuals differ in temporal self and social appraisals.

Methods: Operation Enduring/Iraqi Freedom (OEF/OIF) combat-veterans with and without PTSD appraised their own past, current, and anticipated future functioning, as well as hypothetical other OEF/OIF veterans functioning across the same three temporal points.

Results: Individuals without PTSD appraised their own functioning as progressively improving across time. In contrast, individuals with PTSD viewed their current pre-trauma current self more favorably than their current or anticipated future self. Both groups appraised hypothetical other OEF/OIF veterans improving with time, yet individuals with PTSD evaluated other OEF/OIF veterans more favorably than those without PTSD.

Limitations: Limitations of the study include a cross-sectional design, precluding causality; the lack of a non-trauma exposed group, relatively small sample, and all-male gender of participants limit the generalizability to other populations.

Conclusions: PTSD and non-PTSD individuals differ in self and social appraisals when asked to evaluate past, present, and future functioning. Further research needs to better understand the extent to which these differences are associated with resilience to or maintenance of PTSD symptoms.

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1. Introduction

Traumatic events are often characterized by their distinctiveness from ordinary life events. As such, individuals may interpret these events as critical time points or “landmarks” in their life (Berntsen, Willert, & Rubin, 2003). They may become highly central to a posttraumatic identity and self-narrative (Berntsen & Rubin, 2006; Brown, Antonius, Kramer, Root, & Hirst, 2010). For some

individuals, exposure to traumatic events may cause a decline in functioning and well-being, whereas others associate the event with personal growth and self-enhancement (Tedeschi & Calhoun, 1996). In an effort to understand how a traumatic event impacts one's sense of self, individuals may engage in a series of comparisons in which they appraise their current functioning in relation to how they functioned prior to the traumatic event, as well as how they anticipate functioning in the future. In addition, trauma-exposed individuals may also appraise their functioning in relation to other individuals exposed to the same or similar types of events. Understanding such appraisals (or re-appraisals) of how individuals construe their selves not only in the traumatic moments, but also in current contexts, has important implications for characterizing and treating PTSD (Berntsen & Rubin, 2006; Ehlers & Clark, 2000; Foa, Ehlers, Clark, Tolin, & Orsillo, 1999).

Self and social comparisons are ubiquitous in everyday life (McFarland & Alvaro, 2000). Individuals frequently engage in

* Corresponding author. Present address: Department of Psychiatry, New York University School of Medicine, 50 First Avenue, OBV-Bldg A, # A645, New York, NY 10016, United States. Tel.: +11 646 831 8657; fax: +11 212 746 1331.

E-mail addresses: adb2004@med.cornell.edu (A.D. Brown), janine.buckner@shu.edu (J.P. Buckner), hirst@newschool.edu (W. Hirst).

¹ The first author completed this manuscript during an Australian-American Fulbright Senior Scholar Fellowship at University of New South Wales and the Macquarie Centre for Cognitive Science, Sydney Australia.

temporal self-appraisals in which they evaluate themselves on similar characteristics over time (Albert, 1977; Ross & Wilson, 2002; Wilson & Ross, 2001). They also make social appraisals in which they compare themselves to others (Festinger, 1954). Self and social appraisals may serve as a measure of objective abilities (e.g., one's tennis skills *now* compared to *before* lessons were taken, or, in relation to Rafael Nadal); moreover, these appraisals appear to underlie the maintenance of self-esteem, affect regulation, and expectations (Levine & Moreland, 1987; Masters & Keil, 1987; Suls, Marco, & Tobin, 1991; Suls & Mullen, 1982). Thus, self and social appraisals contribute to an individual's sense of continuity and change of her or himself, and others, across time.

Interestingly, temporal self and social appraisals are often inaccurate and subject to bias (Cialdini, 1989; Cialdini et al., 1976; Ross & Wang, 2010; Ross & Wilson, 2002; Snyder, Lassegard, & Ford, 1986; Wilson & Ross, 2001). Temporal self and social appraisal theories propose that individuals often appraise themselves and others in the service of maintaining self-esteem and positive self-regard, often in the absence of objective evidence. These illusions are, in part, driven by Western cultural expectations which treat individuals as motivated to think highly of themselves and to see themselves as progressively improving over time (Baumeister, 1998; Higgins, 1996; Ross, Heine, Wilson, & Sugimori, 2005; Ross & Wang, 2010; Sedikides, 1993; Taylor & Brown, 1988; Wilson & Ross, 2001). Indeed, evidence suggests that individuals tend to derogate past selves or engage in downward social comparisons in order to view one's current self more favorably (Collins, 1996; Ross & Wilson, 2002; Tesser, 1988; Wills, 1981; Wilson & Ross, 2001; Wood, 1989).

Similarly, individuals may appraise their future self even more favorably than their current self (forecasting a "bright future," so to speak). When asked to recall important past and anticipated future events, individuals often recall an idiosyncratic mix of positive and negative events, whereas the future is considered unequivocally positive and bright (Gilbert, 2006; Ross & Newby-Clark, 1988). Although optimistic predictions may be unrealistic, hopeful beliefs that "expectations match their desires" (Ross & Newby-Clark, 1988, p. 140) may be adaptive for people; excessive optimism may lead to ambitious goals and motivation (Gollwitzer, 1993; Locke & Latham, 1990; Taylor & Brown, 1988).

Several findings attest to the pattern that this optimism applies more for the self than others. In one study, business entrepreneurs rated their own chance of success significantly higher than their estimations of others' potential successes (Cooper, Woo, & Dunkelberg, 1988). Generally, people are also more generous in estimating task completion times for themselves than they are for others (Buehler, Griffin, & Ross, 1994). As stated by Taylor and Brown (1988, p. 197), "the future is great especially for me."

Little is known about the temporal and social comparisons that take place in relation to a traumatic event. Some evidence suggests that in the wake of a traumatic or highly negative event, illusory appraisals of growth and improvement may function as an important mechanism for coping (McFarland & Alvaro, 2000). Individuals may be particularly motivated to enhance their current self as a way to psychologically distance themselves from the event, and consequently, to reduce emotional distress. Individuals also tend to engage in downward social comparisons after negative events, viewing other victims as less fortunate and suffering more (Affleck & Tennen, 1991; Tennen & Affleck, 1997).

Cognitive models of Posttraumatic Stress Disorder (PTSD), however, propose that negative appraisals about the self, others, and world underlie the onset and maintenance of PTSD symptoms (Ehlers & Clark, 2000; Foa, et al., 1999). Negative self-appraisals about one's role in and reaction to the trauma, how one is currently coping, and how one anticipates functioning in the future are consistently associated with PTSD (Dunmore, Clark, & Ehlers, 1999; Ehlers, Mayou, &

Bryant, 1998; Engelhard, Macklin, McNally, van den Hout, & Arntz, 2001; Smith & Bryant, 2000). In fact, negative self-appraisals of individuals prior to trauma predict the onset of PTSD subsequent to trauma exposure (Bryant & Guthrie, 2005). Similarly, studies examining the impact of trauma on identity find positive correlations between PTSD symptom severity and the extent to which an individual integrates the trauma into their past, present, and future self-appraisals (Berntsen & Rubin, 2006; Brown, Antonius, Root, Kramer, & Hirst, 2010). Unlike trauma-exposed non-PTSD individuals (who may appraise themselves more favorably following trauma), these findings suggest that PTSD-diagnosed individuals are less likely to view their current and future self more favorably than their pre-trauma self. Furthermore, the presence of distressing symptoms is likely to reduce an individual's ability to engage in illusory self-enhancement.

The present study aims to better understand the role of self and other temporal appraisals in the presence of PTSD. That is, while there is strong support for the role of negative or trauma-focused appraisals in the maintenance of PTSD symptoms, studies have yet to examine whether PTSD-classified individuals appraise their pre-trauma self, current self, and anticipated future self differently than do trauma-exposed non-PTSD individuals.

In line with previous cognitive models and empirical findings, we predicted that trauma-exposed non-PTSD individuals would (1) appraise their current self more favorably than their pre-trauma self and their anticipated future self more favorably than their current self and (2) view other hypothetical trauma-exposed individuals as following the same trajectory, albeit with less favorability. As for trauma-exposed PTSD-classified individuals, we predicted that they would (3) appraise their pre-trauma self more favorably than their current and anticipated future self, and (4), unlike what they anticipate for themselves, view other hypothetical trauma-exposed individuals as progressively improving over time.

2. Method

2.1. Participants

Participants were 30 (100% male) Operation Iraqi Freedom (OIF) and Operation Enduring Freedom (OEF) combat-veterans between the ages of (24–48). Participants were recruited from the New York metropolitan area through the on-line classifieds website Craigslist (www.craigslist.com). Participants were pre-screened and excluded if they met criteria for Traumatic Brain Injury, or endorsed a history of psychotic or seizure disorder (TBI; Hoge et al., 2008; for more detailed explanation of procedures see Brown et al., 2010). Proof of US military affiliation (e.g. DD-214) was required in order to participate in the study.

2.2. Measures

Participants were assessed for the presence of PTSD with the Clinician-Administered PTSD Scale (CAPS, Blake et al., 1995) by a doctoral-level psychologist. The CAPS possesses good sensitivity (.84), specificity (.95), and test–retest reliability (.90) relative to the SCID PTSD diagnosis (Blake et al., 1995). Depressive symptomatology was indexed with the Beck Depression Inventory-II (BDI-II, Beck, Steer, & Brown, 1996). The Combat Exposure Scale was utilized to measure the severity of combat exposure (Keane et al., 1989). Demographic information regarding age, gender, and duration of deployment were also determined via survey. The order in which these assessments were administered was counterbalanced across participants.

In addition to these measures, participants completed a modified version of the temporal self-appraisal measures used in previous studies (e.g. Ross & Wilson, 2002; Wilson & Ross, 2001). Individuals

were asked to evaluate how *socially-skilled, self-confident, open-minded, adaptive, independent, mature, experienced, serious about work and/or school, self-motivated, and satisfied with life* they are on a 10-point scale (1 = *not like me*, 10 = *very much like me*). Each individual completed the measure three times with the instructions varying in temporal distance: 1) “as you are now and very recently (within the past two weeks),” 2) “as you were way back before your military service, at least 5 years prior to the military,” and 3) “as you see yourself far into the future, at least 5 years from today.” Each individual also completed these scales by making judgments in relation to “other OEF/OIF veterans with similar experiences” on the same 10-point scale, along the same attributes, and across the same three time periods (current, pre-military, and 5 years from now). The measures were summed separately to create six scores (Self: past, present, future; Other: past, present, future). The maximum score was 100 for “Self” and 100 for “Other”, with a higher score indicating a greater positive Self or Other appraisal.

3. Results

3.1. Demographic and clinical characteristics

Fifteen males did and 15 males did not meet criteria for PTSD, based on the CAPS (see Table 1). Participants revealed no significant differences for age, duration of deployment to Iraq/Afghanistan, or depression. Not surprisingly, PTSD-classified individuals scored higher on the CAPS and were exposed to greater combat severity.

3.2. Temporal self-appraisal

Table 2 illustrates the mean self-appraisal ratings for the past, present, and future self. We conducted a 3 (Time: Past, Present, Future) X 2 (Group: PTSD or no-PTSD) repeated measures ANCOVA, covarying for depression using BDI total scores. We found a main effect for Group $F(1, 27) = 13.12, \eta_p^2 = .33, p < .01$ and an interaction between Time and Group $F(2, 54) = 101.94.47, \eta_p^2 = .79, p < .001$. PTSD-classified individuals rated their past self more favorably than their present self $t(14) = 7.08, p < .001, d = 2.14$ and future self $t(14) = 7.88, p < .001, d = 2.69$. However, appraisals of the present and future self did not differ. In contrast, individuals without PTSD appraised their current self more favorably than their past self, $t(14) = 9.17, p < .001, d = 2.48$ but appraised their future self more favorably than their current, $t(14) = 2.19, p < .05, d = .63$ or past self, $t(14) = 9.67, p < .001, d = .338$. Thus, individuals without PTSD perceived a “bright future.”

3.3. Temporal other-appraisals

We next compared how individuals with or without PTSD appraised *other* hypothetical OEF/OIF veterans along the same three temporal dimensions. A 3 (Time: Past, Present, Future) X 2 (Group:

Table 2

Temporal self and other-appraisals scores in OEF/OIF veterans with and without PTSD.

Variable	Veterans with PTSD		Veterans without PTSD	
	M	SD	M	SD
Past Self	72.47	8.62	64.13	9.35
Current Self	54.20	8.42	74.37	9.26
Future Self	52.80	5.72	78.87	7.79
Past Other	62.80	15.47	46.33	8.07
Current Other	64.13	9.35	50.67	7.74
Future Other	78.87	11.66	56.27	6.76

PTSD, no-PTSD) repeated measures ANCOVA, covarying for depression, revealed only main effects for Time, $F(2, 54) = 13.15, \eta_p^2 = .33, p < .001$, and Group, $F(1, 27) = 44.24, \eta_p^2 = .62, p < .001$. PTSD-classified individuals anticipated that other OEF/OIF veterans will function more favorably in the future, in comparison to their current levels of functioning, $t(14) = 3.70, p < .001, d = 1.39$ or their past functioning, prior to combat, $t(14) = 10.20, p < .001, d = 1.17$. Non-PTSD individuals appraised others as functioning better now than they did prior to combat, $t(14) = 2.16, p < .05, d = .55$, and further anticipated that they will function better in the future than they are now, $t(14) = 2.82, p < .05, d = .77$.

3.4. Social comparisons

We subsequently compared appraisals for the self versus others, across the same three time points, by calculating a difference score. PTSD-classified individuals appraised others as functioning more favorably in the present, $t(14) = 2.73, p < .05, d = 1.11$ and future $t(14) = 8.30, p < .001, d = 2.84$ in comparison to themselves at these time points. However, PTSD-classified individuals viewed themselves functioning more favorably than others prior to combat, $t(14) = 3.07, p < .01, d = .77$. In contrast, the appraisals of individuals without PTSD were somewhat reversed; they viewed themselves currently functioning better than their hypothetical peers $t(14) = 6.58, p < .001, d = 2.67$, and anticipated functioning better than their peers in the future, $t(14) = 6.63, p < .001, d = 3.64$. But, unlike participants with PTSD, those without PTSD symptoms did not view their past self functioning at levels different from their peers, $t(14) = 1.46, p = .17$.

4. Discussion

The present study demonstrates that following exposure to severe trauma, PTSD and non-PTSD individuals differ in their appraisals of themselves and others across time. Individuals with PTSD appraised their pre-trauma selves more favorably than their current and imagined future selves, which were not perceived or projected to differ in functioning. Thus, individuals meeting criteria for PTSD appraised themselves as having declined in functioning since combat, and further, they expect this level to persist into the future. That is, they do not anticipate changes in this current level of functioning over the next five years. In contrast, non-PTSD individuals appraised their current selffunctioning more favorably than their past self, and anticipate their future self will function better than they are now.

Both PTSD and non-PTSD individuals appraised hypothetical other OEF/OIF veterans as progressively improving after combat. That is, they expect others to follow a linear trajectory in which they continue to improve into the future. Interestingly, PTSD-classified individuals appraised other OEF/OIF veterans as functioning more favorably than the non-PTSD individuals.

Compared to assessments of these OEF/OIF peers, PTSD-diagnosed individuals appraised themselves as functioning more

Table 1

Demographic and clinical summary for OEF/OIF veterans.

Variable	Veterans with PTSD		Veterans without PTSD		t
	M	SD	M	SD	
Age	29.00	2.62	32.07	5.64	1.91
Months deployed	18.87	7.62	16.53	6.57	.90
CAPS	83.40	13.11	18.80	2.30	15.78***
Combat Exposure	14.33	5.76	9.93	5.12	2.21*
BDI-II	10.07	7.76	7.20	7.750	1.01

Note. CAPS = Clinician-Administered PTSD Scale; Combat Exposure = Combat Exposure Scale; BDI – II = Beck Depression Inventory – Second Edition; CES = Centrality of Event Scale. * $p < .05$, *** $p < .001$.

favorably in the past, but less favorably in the present and future. However, when comparing themselves to others, the non-PTSD group did not differ on pre-trauma appraisals of self and their peers, but did view themselves as functioning more favorably in the present and future.

Taken together, the well-established patterns of temporal self and social appraisals documented in non-clinical populations does not appear to generalize to those who meet criteria for PTSD. These findings are, however, consistent with cognitive models and prior research that emphasize the role of maladaptive appraisals in the maintenance of symptomatology (Ehlers & Clark, 2000). For example, Ehlers and Clark (2000) propose that PTSD-diagnosed individuals do not experience traumatic events as “time limited” (p. 320); these events become part of a misconstrual or negative appraisal that in turn creates and maintains a sense of threat that is perceived as continuing into the future. As we pointed out earlier, negative appraisals of PTSD-diagnosed individuals prior to trauma experiences may in fact pre-dispose them to behaviors and thought patterns that become predictive of PTSD after combat trauma (Bryant & Guthrie, 2005). Although similar studies which include the Posttraumatic Cognitions Inventory (PTCI; Foa et al., 1999) and the Centrality of Event Scale (CES; Berntsen & Rubin, 2006) measures incorporate questions about appraising the self in time other than in the present, this other work did not specifically compare appraisals across time and among their peers, which was the explicit goal of the present study.

Our finding that non-PTSD-diagnosed individuals viewed their current and future selves more favorably than their PTSD-presenting peers' current and future self is consistent with previous studies (e.g. Festinger, 1954; Cialdini et al., 1976). Specifically, individuals appear to maintain self-esteem and positive self-regard, in part, by downplaying the current and potential future success of others. Moreover, our results align with other studies demonstrating that individuals may be particularly motivated to engage in downward social comparisons during difficult life events. For example, cancer patients have been shown to evaluate their own condition, coping skills, and situation more favorably when compared to their views of other cancer patients' situations (Lichtman, Taylor, & Wood, 1985; Taylor, Falke, Shoptaw, & Lichtman, 1986; Wood, 1989). It is possible that we found this positive self-regard only in the non-PTSD patients because this unrealistically positive attitude may be a factor in resilience (e.g. Bonanno, Field, Kovacevic, & Kaltman, 2002).

Interestingly, despite an absence of a positive self-regard for present and future selves, PTSD-classified individuals nevertheless viewed their pre-trauma functioning more favorably than that of their hypothetical peers. In contrast to patterns found for those without PTSD, these individuals appraised their past selves more favorably than their present and future selves. Moreover, they viewed their past selves more favorably than they viewed other OEF/OIF veterans' past selves. Given that there is no reason to expect this group to function more favorably than other hypothetical OEF/OIF veterans, this pattern more likely reflects either an anchoring effect based on their low present self-appraisal, or possibly a maladaptive cognition about one's pre-trauma self (“good old days”). Such appraisals might lead to increased perceptions of functional decline.

The pattern we observed for the PTSD-classified veterans is unlikely to have arisen because PTSD-classified individuals have, for whatever reason, developed a theory about changes in the self over time different from the standard temporal self-appraisal theory already documented in the literature. The PTSD, as well as the non-PTSD-diagnosed individuals, predicted the same trajectory of functioning for the hypothetical other OEF/OIF veterans, a trajectory similar to the one observed in other studies using non-veteran populations. This similarity may emerge as an artifact of the

Western expectation that people progressively improve with time, which all individuals (PTSD and non-PTSD veterans alike) may have adopted and applied to others, regardless of their attitudes towards their own self-functioning.

There are several limitations to this study that must be acknowledged. This study did not include a non-trauma-exposed group, so based on our findings we are unable to determine whether patterns demonstrated by the non-PTSD sample in this study apply to non-clinical groups. The relatively small sample and all-male gender of participants also limits our ability to generalize our findings. Furthermore, cross-sectional findings limit cause-and-effect relations, making it unclear if the observed group differences reflect pre-trauma trait characteristics which moderate the findings or state characteristics determined by development of PTSD.

However, these data go far to support the concept of a self, and self-appraisals, that is temporally dynamic, and is construed through the selective retrieval of past events, as well as imagined past and futures ones (Conway & Pleydell-Pearce, 2000; Conway & Tacci, 1996; Ross & Wilson, 2002; Schacter, 2001). As such, the present self can be viewed as including a collection of interpretations and motivated reconstructions of the personal past which can serve as justifications or “evidence” of one's identity beliefs, as well as projections into the likely future experiences of this self (Addis, Wong, & Schacter, 2007). In addition, in the context of Cognitive Behavioral Therapy (CBT), these findings emphasize the importance of considering the role of past, present, and future maladaptive appraisals about the self in the maintenance of PTSD symptoms. Moreover, the identification of maladaptive present and future self-appraisals may be an important prognostic indicator for recovery. Individuals who do not recover from exposure therapy, the gold standard treatment for PTSD, are characterized by high levels of mental defeat, a lack of mental planning, and a sense of alienation and permanent change (Ehlers, Clark, et al., 1998). Although exposure therapy may help to reduce fear-based memories, they may not address maladaptive appraisals of one's past, present, and future self ([e.g. “I was to blame,” “I am a bad person,” “I cannot prevent this from happening again,”] Ehlers, Clark, et al., 1998; Ehlers, Mayou, et al., 1998). Assessing present and future self-appraisals prior to and throughout treatment may help to further refine and individualize treatments (see Ehlers et al., 2005). Taken together, the findings of the present study complement this framework in the context of CBT. Helping PTSD patients find evidence to support favorable self-appraisals in the present may in turn help them to imagine an even more favorable future—one not only devoid of traumatic episodes, but one promising healthier functioning and brighter days. Thus, in therapeutic interventions, individuals can gain insight into how they utilize trauma to construe and subsequently construct their self-narrative over time—from how they got to the present from the past, and how they expect their self to emerge in the future. If CBT and other models can disrupt negative appraisals and replace them with more normative, positive ones, then those suffering the effects of traumatic exposure can overcome their less-than-optimal outlooks on life.

Acknowledgements

We gratefully acknowledge the support of NSF grant #BCS-0819067.

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