

Traumatic memories of war veterans: Not so special after all [☆]

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Abstract

Several authors have argued that traumatic experiences are processed and remembered in a qualitatively different way from neutral events. To investigate this issue, we interviewed 121 Croatian war veterans diagnosed with posttraumatic stress disorder (PTSD) about amnesia, intrusions (i.e., flashbacks and nightmares), and the sensory qualities of their most horrific war memories. Additionally, they completed a self-report scale measuring dissociative experiences. In contrast to what one would expect on the basis of theories emphasizing the special status of traumatic memories, amnesia, and high frequency intrusions were not particularly typical for our sample of traumatized individuals. Moreover, traumatic memories were not qualitatively different from neutral memories with respect to their stability and sensory qualities. The severity of PTSD symptoms was not significantly correlated with dissociative experiences. Our findings do not support the existence of *special* memory mechanisms that are unique to experiencing traumatic events.

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1. Introduction

In clinical literature, there is little consensus about how victims remember traumatic experiences (e.g., Kihlstrom, 2004; Loftus, 1997; McNally, 2003). According to one popular view, memories of traumatic events have special properties that distinguish them from ordinary memories. Thus, many authors have argued that traumatic memories are *qualitatively* different from other types of memories, involving unique mechanisms not related to general memory functioning (e.g., van der Kolk, 1996, 1997; for a review, see Zoellner & Bittenger, 2004). For example, these authors assume that traumatic events are processed in a predominantly perceptual fashion, leaving survivors with traumatic memories that are not readily accessible (i.e., dissociative or

[☆] Our title refers to a section entitled “Traumatic memory: Not so special after all?” in a chapter by Kihlstrom (in press).

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psychogenic amnesia), and/or flashbacks that possess strong sensory qualities. This dissociative style of processing would also create a substantial overlap between dissociative and posttraumatic stress disorder (PTSD) symptoms. There are several versions of this theoretical stance (Brewin, Dalgleish, & Joseph, 1996; Ehlers & Clark, 2000), but the core assumption they have in common is that trauma has a special impact on the way in which memories of the traumatic event are organized. For that reason, this position has been dubbed the trauma-memory argument (for a balanced discussion, see Kihlstrom, 1996, *in press*; Shobe & Kihlstrom, 1997; for a reply, see Nadel & Jacobs, 1998).

Although the trauma-memory argument has gained popularity among many clinicians, some findings argue against this view. As Pendergrast (1998) has pointed out, classic monographs like those of Spiegel and colleagues (Grinker & Spiegel, 1943/1945; Kardiner & Spiegel, 1941/1947) include only isolated case reports of soldiers suffering from amnesia (see also Lilienfeld & Loftus, 1998). Moreover, more systematic studies suggest that only a small minority of war victims report dissociative amnesia. For example, Kuch and Cox (1992) studied 124 holocaust survivors and found that dissociative amnesia, with an estimated lifetime prevalence rate of 3.2%, was quite rare in this group. Likewise, Merckelbach, Dekkers, Wessel, and Roefs (2003a, 2003b) found in a group of 29 Dutch concentration camp survivors only one survivor reporting mnemonic experiences that might be taken as evidence for dissociative amnesia. The authors noted that in this case there was a serious possibility that drug abuse contributed to the poor memory of the traumatic episode. Goodman and co-workers found that 15.5% of victims of documented childhood sexual abuse (CSA) failed to report the target incident during a telephone interview conducted approximately 13 years after the pertinent events (Goodman et al., 2003; Goodman & Paz-Alonso, *in press*). However, non-disclosure dropped to 8.3% after follow-up by a mailed questionnaire and a telephone interview.¹ Both rates of reporting failure are clearly lower than those found in earlier, less meticulous studies of CSA victims (e.g., Williams, 1994). Even when one accepts these lower rates of non-reporting, the question arises to what extent they do reflect genuine dissociative amnesia. People might not report the traumatic events for other reasons than amnesia (e.g., shame, ordinary forgetting; see McNally, 2003). Recent literature is also critical about the idea that traumatic memories invariably produce flashbacks. For example, using patient archives, Jones et al. (2003) showed that flashbacks were an uncommon symptom in generations of British war veterans before the 1980s.

So far, empirical support for the trauma-memory argument is not very compelling. On the other hand, the studies cited above suffer from various shortcomings and thus, one could argue that they provide only suboptimal tests of the trauma-memory argument. One shortcoming is that it is not always clear whether the events (e.g., war experiences) were really traumatic to the participants (Jones et al., 2003). Another limitation is that the traumatic events often happened decades ago (Kuch & Cox, 1992; Merckelbach et al., 2003a, 2003b). That recency of the traumatic event might be an important issue is suggested by a survey among earthquake survivors several months after the 1999 earthquake in Turkey (Basoglu, Salcoglu, & Livanou, 2002). In that study, the authors noted that 54% of the survivors said to experience flashbacks, while 23% said to experience dissociative amnesia. These results seem to support the trauma-memory argument, but one weakness of this study is that it remains unclear with what type of questions precisely the survivors were interviewed. Given the mixed results in this domain and the popularity of the trauma-memory argument, there is an urgent need for more empirical data.

With this in mind, the current study was conducted. It relied on Croatian war veterans who had been confronted with extremely aversive events. More specifically, our sample consisted of Croatian war veterans with combat experiences during the Balkan wars in the early 1990s. All veterans had been exposed to conditions meeting the criteria of *traumatic* events according to the fourth edition of the diagnostic and statistical manual of mental disorders (DSM-IV; American Psychiatric Association, 1994, p. 27). That is, all had experienced or observed “an event or events that involved actual or threatened death or serious injury, or a threat to the physical integrity of self or others.” Accordingly, self-reports of these war veterans about their traumatic memories offer an opportunity to assess the virtues of the trauma-memory argument. Compared to PTSD patients who survived the atrocities of World War II, our patients were relatively young people. Given that the quality of memory self-reports may be affected by cognitive aging (Schwarz, Park, Knäuper, & Sudman, 1998), studying

¹ Goodman and Paz-Alonso (*in press*) provide an in-depth analysis of these data, yielding a reduced estimate of 3.6% for the incidence of traumatic amnesia.

memory characteristics in young or middle-aged PTSD patients would probably yield more valid results than interviewing older patients.

The aim of our study was to test the assumptions underlying the trauma-memory argument in this sample of war veterans. We interviewed these veterans about the presence of flashbacks and about the accessibility and sensory qualities of their traumatic memories. We also examined whether there was in this sample—as the trauma-memory argument would predict—a substantial overlap between dissociative experiences and PTSD symptoms.

2. Method

2.1. Participants

The study included 121 Croatian war veterans (2 women) with a mean age of 40.3 years ($SD = 6.3$; range: 30–55 years). The mean duration of their combat activity was 2.7 years ($SD = 1.7$; range: 1–5 years). An average of 12.7 years ($SD = 3.4$; range: 10–14 years) had elapsed since they had experienced combat trauma. Their military and medical records suggested that many of them had been exposed to multiple traumas (e.g., combat, imprisonment in detention camps, deportation, confrontation with killed family members, or missing family members). Given these records and given the large scale on which war atrocities occurred during the Balkan wars, we assume that most veterans had, indeed, been exposed to traumatic events they claimed to have experienced. Still, we were not able to validate their traumatic war experiences. Similarly, we cannot rule out that some veterans exaggerated their post-traumatic symptoms. Veterans were invited to participate in the current study while seeking medical services in the Referral Centre for Stress-related Disorders in the Dubrava University Hospital in Zagreb, Croatia. The diagnosis of current and chronic PTSD was made on the basis of the structured clinical interview (SCID) for DSM-IV (First, Spitzer, Gibbon, & Williams, 1996) and the clinician-administered PTSD scale (CAPS; Blake et al., 1995). Eighty-three participants (68.6%) were diagnosed with PTSD of whom 41 (33.9%) had a comorbid diagnosis of major depressive disorder (MDD), while 38 participants (31.4%) were diagnosed with a trauma-related anxiety disorder other than PTSD.

2.2. Historical background of the war in Croatia

Until 1990 Croatia was one of the regions constituting the Socialistic Federal Republic, Yugoslavia. According to the Central Department of Statistics (*Državni zavod za statistiku*, 1991), Croatia had at that point in time a population of five million people. In 1990, Serb forces together with the federal Yugoslav Army began a war in Slovenia which spreaded to Croatia and lasted until June 30, 1996 (*Sabor Republike Hrvatske*, 1997). More than 250,000 Croatsians were forced to flee their homes and live with host families (around 80%) or in camps (around 20%). The war in Bosnia and Herzegovina made the problem even larger. By the end of 1993, many people of non-Serb nationality were forced to leave from Bosnia and Herzegovina and temporarily settled in Croatia, mostly in Zagreb. The majority of them were children and women, of whom some had been raped or had experienced other psychological traumas (Kozaric-Kovacic, Folnegovic-Smalc, & Skrinjaric, 1993; Kozaric-Kovacic, Folnegovic-Smalc, Skrinjaric, Szajnberg, & Marusic, 1995). Over one million people or more than 20% of the total population of Croatia had to leave their homes, either as refugees or displaced persons.

According to the data by the Office for the Imprisoned and Missing Persons, the total number of prisoners of war (POW) in Serbian camps was 7666 (932 women). Besides the official camps, there were many informal camps, among which transit camps. It is estimated that about 10,000 people have been hold in detention in Serb POW camps. The need for psychological and psychiatric help and social support was and in still is substantial among war victims (Kozaric-Kovacic, Kocijan-Hercigonja, & Jambrosic, 2001).

2.3. Interview

Trained clinicians conducted the structured interview, consisting of a series of open-ended questions. Interview questions were based on a protocol used in a previous study on Dutch survivors of WO II concentration

camps (Merckelbach et al., 2003a, 2003b). Each participant was interviewed individually. The interview started with the interviewer asking the war veteran to pinpoint his/her most upsetting war experience. Veterans were also instructed to select one relatively neutral event that happened to them during the war. Veterans were encouraged to select neutral events that in terms of location, the people involved, and activities were comparable to the upsetting war experience. The events veterans chose pertained to experiences like, for example, “going to the market on a Friday morning,” “picking up my daughter from school on Easter,” and “going to the church in Zagreb.” After participants had selected a traumatic and a more neutral topic, they were asked questions addressing the construct of dissociative amnesia. These questions were: “Do you think that memories of your most aversive war experience have been stable across your life?” (with answers coded as *yes*, *no*, or *I don’t know*); “Has the accessibility of your war memories changed across your life?” (with answers coded as *no, it has always been the same*; *yes, it has decreased*; *yes, it has increased*; or *I don’t know*); and “Has there ever been a period in your life that the war memories were not fully accessible?” (with answers coded as *yes, the memories were there, but I tried really hard not to think of them*; *yes, because memories were completely lost*; *no, they have always been accessible*; or *I don’t know*). Following this, the veterans were asked if their memories about relatively neutral events during the war had been stable across time. In addition, they had to indicate whether their traumatic and neutral memories consisted of visual images, auditory images, olfactory sensations, and/or bodily sensations (with answers coded as *yes*, *no*, or *I don’t know*). The veterans were also asked to what extent they suffered from flashbacks related to the war. Answers were coded as *never*, *less than once every month*, *monthly*, *weekly*, *2–4 times a week*, or *daily*. If flashbacks were indeed reported, participants had to indicate whether they contained visual images, auditory images, olfactory sensations and/or bodily sensations (with answers coded as *yes*, *no*, or *I don’t know*). Finally, veterans were asked whether the content of the flashbacks corresponded to the traumatic war events. Responses to this item were coded as *yes*, *no*, *sometimes*, or *I don’t know*. Similar questions were asked about veterans’ nightmares of their most upsetting war experiences.

2.4. Materials

Participants completed the dissociative experiences scale (DES; Cronbach’s $\alpha = .96$; Bernstein & Putnam, 1986), a 28-item self-report measure that asks respondents how often they experience dissociative symptoms like derealization and depersonalization. Items are scored on 100-mm visual analogue scales (VASs). Scores are averaged to obtain a mean DES score (range 0–100), with higher scores indicating higher levels of dissociative symptoms.

3. Results

3.1. Dissociative amnesia

Table 1 shows the frequency of self-reported experiences that might be interpreted as evidence for dissociative amnesia. Fifty-six participants (46.3%) reported that their traumatic memories had always been accessible,

Table 1
Frequency (%) of self-reported changes in accessibility of war memories, the stability of traumatic and neutral memories, as well as the sensory qualities associated with war and neutral memories ($N = 121$)

		Traumatic memories	Neutral memories
Accessibility	Memories have always been accessible	56(46.3)	
	Memories were there, but one tried hard not to think of them	62(51.2)	
	Memories were completely lost	2(1.7)	
	I don’t know	1(.8)	
Stability		76(62.1)	66(54.6)
Sensory qualities	Visual	106(87.6)	103(85.1)
	Auditory	76(62.8)	79(65.2)
	Olfactory	55(45.5)	60(49.6)
	Bodily	53(43.8)	54(44.6)

while 62 of them (51.2%) pointed out that the traumatic memories had always been there, but that there were periods during which they had tried hard not to think of them. Two participants felt that there had been times during which their traumatic memories had been inaccessible. Seventy-six participants (62.1%) indicated that their most traumatic memories had been stable across time, while 66 veterans (54.6%) noted that their neutral memories had been stable across the years (Sign Test: $p = .27$). This suggests that traumatic memories were just as stable as memories of neutral events.

3.2. Sensory qualities

The lower part of Table 1 shows the number of participants attributing visual, auditory, olfactory, and/or bodily features to their trauma and neutral memories. Sign Tests indicated that these two types of memories were comparable with regard to the sensory characteristics attributed to them (all p 's $> .19$).

3.3. Flashbacks and nightmares

Table 2 shows self-reported frequency of flashbacks and nightmares. A majority of the veterans (74 and 69%, respectively) reported that these types of intrusions were experienced with a frequency of once every week or less. We scored the frequency categories (anchors: 0 = *never* and 5 = *daily*) and then conducted a paired samples t test to compare flashbacks and nightmares with each other. This showed that nightmares were more frequently experienced than flashbacks: $t(119) = 4.42$, $p < .001$. Flashbacks, however, were more often reported to mirror the adverse war events compared to nightmares (Sign Test: $p = .001$). Furthermore, Sign Tests indicated that nightmares were reported to contain more visual details than flashbacks ($p < .001$), while flashbacks were said to contain more auditory and olfactory information ($p = .04$ and $p < .001$, respectively).

3.4. Dissociative experiences and PTSD symptomatology

The mean DES score ($M = 34.5$; $SD = 21.8$) in our sample was comparable to DES scores that have previously been reported for PTSD samples (Van IJzendoorn & Schuengel, 1996). The mean CAPS score in our sample was 56.55 ($SD = 10.78$). A Pearson correlation between these two measures failed to attain significance ($r = -.11$, $p = .23$). On the basis of their CAPS scores, we divided our sample into a subgroup meeting the diagnostic criteria for PTSD ($n = 88$) and a group not meeting the diagnostic criteria for PTSD ($n = 33$). These subgroups did not differ in terms of dissociative symptoms as indexed by the DES: $t(119) = 1.49$, $p = .14$.

Table 2
Self-reported frequency (%) and sensory qualities of flashbacks and nightmares about adverse war events ($N = 121$)

	Flashbacks	Nightmares
<i>Frequency</i>		
Never	10(8.3)	2(1.7)
Less than once every month	18(14.9)	6(5.0)
Monthly	29(24.0)	18(14.9)
Weekly	33(27.3)	57(47.1)
2–4 times a week	22(18.2)	26(21.5)
Daily	9(7.4)	12(9.9)
<i>Sensory characteristics</i>		
Visual	84(69.4)	104(86.0)
Auditory	65(53.7)	52(43.0)
Olfactory	35(28.9)	14(11.6)
Bodily	61(50.4)	74(61.2)

4. Discussion

Our findings do not support the idea that trauma invariably leads to dissociative amnesia and intrusions with a strong sensory component. For example, the veterans in our study indicated that their traumatic war memories had been just as stable across time as their more neutral memories. In our sample of 121 veterans, only two veterans reported having experienced episodes during which their war memories had been inaccessible. Interestingly, these two veterans conveyed that their neutral memories had been stable across time. It should also be noted that these two veterans showed elevated scores on instruments tapping symptom overreporting (Geraerts et al., 2006). Thus, it cannot be ruled out that they simulated their alleged amnesia symptoms because of external incentives such as service-connected disability payments.

To our knowledge, this is the first study to show that relatively young veterans who have been exposed to traumatic war experiences only 10–15 years ago, do only rarely—if at all—suffer from dissociative amnesia. This is important because reports from the young or middle-aged participants in our sample are unlikely to be confounded by the effects of cognitive aging (Schwarz et al., 1998). Our findings also concur with a growing body of laboratory evidence indicating that high levels of emotional stress facilitate rather than undermine memory (e.g., Cahill, Prins, Weber, & McGaugh, 1994; Jelicic, Geraerts, Merckelbach, & Guerrieri, 2004).

In more general terms, our results are in accordance with studies showing that dissociative amnesia is relatively rare in, for example, concentration camp survivors (e.g., Merckelbach et al., 2003a; Schelach & Nachson, 2001; Wagenaar & Groeneweg, 1990). Indeed, in their thorough review of the literature, Pope, Barry, Bodkin, and Hudson (2006) were able to locate only 13 explicit cases of dissociative amnesia, a statistic that the authors left with reservations about the merits of the concept of dissociative amnesia. One could counter that some theories—for example Freyd's (1996) betrayal trauma theory—do predict that traumatic events for which anonymous enemies are responsible are well remembered, whereas traumas that contain an element of betrayal by personal authority figures often fall prey to dissociative amnesia. In the context of the Balkan war traumas, this is not a very convincing argument because many war veterans had faced deep loyalty conflicts (e.g., choosing to flee with your children or leaving them behind to live in a host family). Although dissociative amnesia was found to be rare in our group of war veterans, 51% of them indicated that they *voluntarily* tried to suppress their traumatic memories. This corresponds to a study by Melchert and Parker (1997), who concluded that participants with memories of childhood abuse often referred to *intentional avoidance* of their abuse memories when they were reporting that these memories had been inaccessible for some time. Thus, voluntary thought suppression of traumatic memories should be taken into account when studying poor autobiographical memory for traumatic events. Further research along these lines is not only relevant to clinical practice, but may also inform the triers of fact when they have to decide about, for example, the plausibility of dissociative amnesia claims raised in court (Sparr & Bremner, 2005).

We found no evidence that traumatic memories are qualitatively different from relatively neutral memories when it comes to the sensory characteristics attributed to them. That is, participants attributed a similar amount of visual, auditory, olfactory, and bodily sensations to these two types of memories. We cannot completely rule out the possibility that the relatively neutral memories of our veterans were, in fact, memories with very sad connotations. Meanwhile, other studies (e.g., Porter & Birt, 2001) on the phenomenology of traumatic memories have also reported that such memories have many similarities with non-aversive memories in terms of overall quality, clarity, or coherence, a finding that also argues against the special status that the trauma-memory argument attributes to traumatic memories. A prominent view in clinical literature is that traumatic memories are stored at a lower, perceptual level, which would make them less coherent and more fragmented than ordinary memories (e.g., Brewin, 2001; Ehlers & Clark, 2000). Of course, our findings are at odds with this view, as are studies reporting that among undergraduates who have been exposed to traumatic events, those with PTSD do not rate their traumatic memory as less coherent and more fragmented compared to those without PTSD (e.g., Berntsen, Willert, & Rubin, 2003).

We also examined to what extent our participants experienced high frequency intrusions. Only a minority of veterans said to have flashbacks or nightmares on a daily basis or several times a week. Because reports about the frequency of flashbacks and nightmares were based on retrospective estimates, the true frequency of these intrusions might be inflated. Although especially flashbacks were reported as reflecting the distressing war events quite adequately, many participants indicated that both their flashbacks and nightmares did not

contain auditory, olfactory, or bodily impressions. This suggests that these two types of intrusive imagery do not reflect the sensory elements of the traumatic events in an accurate way (VanOyen Witvliet, 1997). Again, these findings are difficult to reconcile with models of PTSD in which flashbacks and nightmares are taken as evidence for the perceptual organization of traumatic memories (e.g., Brewin et al., 1996; Ehlers & Clark, 2000).

Based on the assumption that dissociative symptoms are a direct consequence of trauma, several authors have reasoned that PTSD symptoms are primarily dissociative in nature (e.g., Gershuny & Thayer, 1999). Although DES scores found in our sample are comparable to those previously reported for clinical samples (Van IJzendoorn & Schuengel, 1996), our results indicate that PTSD-related symptoms and dissociative experiences are not necessarily intimately associated with each other. This is not an isolated finding. Both Yehuda and colleagues (Yehuda et al., 1996) and Merckelbach et al. (2003a, 2003b) found in their samples of concentration camp survivors that dissociative experiences and PTSD symptoms are largely distinct phenomena. As our sample consisted of young and middle-aged veterans, our failure to find a straightforward connection between dissociative experiences and PTSD symptomatology cannot be explained by a reduction of dissociative experiences due to aging.

Summing up, the present findings do not support the existence of *special* memory mechanisms that are unique to traumatic events. We believe that the prospects of further research addressing the special status of traumatic memories are not very good. A more promising avenue for further research would be to examine how in some victims, the traumatic memory becomes the central component of their life narrative and in this way contributes to PTSD-related symptoms (e.g., Berntsen et al., 2003).

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