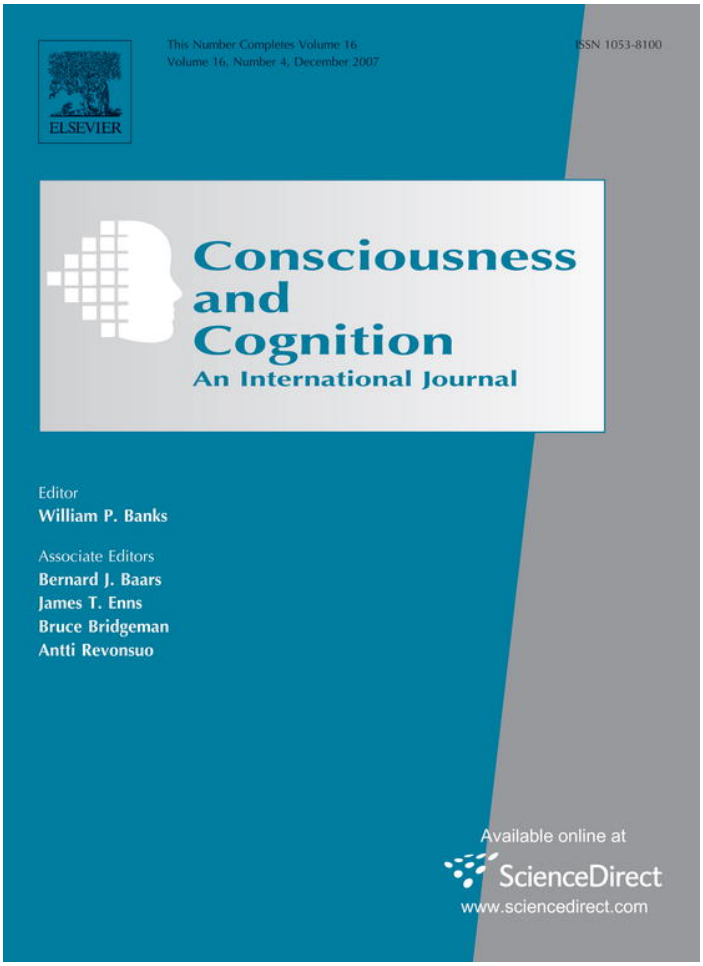

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Trauma-related and neutral false memories in war-induced Posttraumatic Stress Disorder ☆

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Abstract

Recent models of cognition in Posttraumatic Stress Disorder (PTSD) predict that trauma-related, but not neutral, processing should be differentially affected in these patients, compared to trauma-exposed controls. This study compared a group of 50 patients with PTSD related to the war in Bosnia and a group of 50 controls without PTSD but exposed to trauma from the war, using the DRM method to induce false memories for war-related and neutral critical lures. While the groups were equally susceptible to neutral critical lures, the PTSD group mistakenly recalled more war-related lures. Both false and correct recall were related more to depression than to self-rated trauma. Implications for accounts of false memories in terms of source-monitoring are discussed.

Keywords: False memories; PTSD; Source-monitoring; Trauma

As a result of exposure to severe trauma, some people develop a relatively stable, potentially chronic disorder called Posttraumatic Stress Disorder (PTSD). Over recent years, several models of cognitive functioning in PTSD have been articulated (Brewin, 2001; Brewin, Dalgleish, & Joseph, 1996; Ehlers & Clark, 2000). In the latter model, for example, Ehlers and Clark (2000) propose a set of cognitive dynamics that lead to the maintenance of persistent PTSD, involving the use of strategies with which the person attempts to keep unpleasant mental intrusions to a minimum, and that paradoxically make their elimination more difficult.

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In these models, trauma exposure per se is not enough to produce and maintain PTSD: particular cognitive patterns that only arise in some trauma-exposed people are necessary to produce that. Furthermore, cognitive differences between people with PTSD and trauma-exposed people without PTSD will be amplified when the content of the cognitions is trauma-related. That is, PTSD is assumed to have effects on cognitions thematically related to the traumatising event. Therefore, a general prediction of Ehlers and Clark's framework is that trauma-related cognition should be particularly impaired for PTSD patients. From studies of PTSD and memory function, there is ample evidence of a deficit in short- and long-term memory for emotionally neutral material in PTSD patients versus trauma-exposed controls (for a review, see Buckley, Blanchard, & Neill, 2000). There are, however, fewer studies that have used trauma-related materials with PTSD patients in tasks tapping semantic memory. Golier, Yehuda, Lupien, and Harvey (2003) showed that although survivors of the Holocaust with PTSD recalled fewer paired associates than Holocaust survivors without PTSD, regardless of whether they were trauma-related or emotionally neutral, the disadvantage was smaller for the trauma-related pairs, which can be seen as consistent with Ehlers and Clark's prediction.

One of the positive outcomes of the "greatest psychological controversy of the 1990s" (Lindsay & Read, 2001), the so-called memory wars, has been the development and widespread use of paradigms demonstrated to get false memories under laboratory control. Roediger and McDermott (1995) revived a paradigm by Deese (1959) wherein participants try to remember lists of words, with the members of each list being associatively related to a non-presented target word, the so-called "critical lure". For example, a standardized list with the non-presented critical lure "sleep", begins "bed, rest, awake, tired" (Stadler, Roediger, & McDermott, 1999). On both recognition and free recall tasks, participants mistakenly claim that the critical lure was presented in the study list, often at rates comparable to that of words that were actually presented. Moreover, when asked for a rating of how sure they were that the word was actually presented, it is evident that on a variety of different measures (Remember/Know, confidence), "memory" for the non-event is compelling. This paradigm, often called the DRM paradigm, is thus a productive way of eliciting false memories in the laboratory context.

False memories in this paradigm are often seen as source-monitoring errors (see e.g., Brédart, 2000; Schacter, Verfaellie, & Pradere, 1996). The presentation of a series of words all thematically related to the same lure word conjures it up in the participant's mind. Then, in the recall test, if the participant recalls the lure word but fails to correctly classify it as self-generated, rather than actually presented, a false memory occurs.

There is reason to believe that PTSD patients may have a particular impairment in source-monitoring, and thus a tendency towards higher production of false memories, due to an association between the disorder and dissociation. For instance, Bremner et al. (1992) demonstrated a link between war-induced PTSD and dissociation, and Winograd, Peluso, and Glover (1998) showed that dissociative symptoms were positively correlated with susceptibility to false memories on a DRM task. Thus a source-monitoring account would predict that PTSD patients should produce more false recall of critical lures on a DRM task.

In fact, two studies have used the DRM paradigm with trauma-exposed people, a subset of whom had developed PTSD as a consequence, plus a group of individuals who had not experienced a severe trauma (Bremner, Shobe, & Kihlstrom, 2000; Zoellner, Foa, Brigidi, & Przeworski, 2000). Both studies used Roediger and McDermott's (1995) materials, and tested memory for the words by recognition and free recall. In a recognition test, Zoellner et al. found that the PTSD group did not significantly differ from the non-PTSD group on either correctly recognizing presented words or on falsely recognizing critical lures. Bremner et al. also reported no difference between the groups for correct recognition but found that the PTSD group falsely recognised more critical lures than other trauma-exposed participants. When comparing the two trauma-exposed groups on correct recall of words, Zoellner et al. reported no difference, whereas Bremner et al. found that PTSD patients recalled fewer words than participants without PTSD. On numbers of critical lures mistakenly recalled, neither study reported significant differences between the two groups, and in both cases the trend was actually for non-PTSD participants to recall more lures.

The present experiment was aimed at investigating this discrepancy between the results on correct recall of words from DRM lists. Furthermore, to shed more light on the unexpected finding in both previous studies of this issue that trauma-exposed groups have equivalent susceptibility to recall critical lures. In addition, a novelty of the present study was that trauma-related DRM lists were used, in addition to lists similar to Roediger and McDermott's (see Geraerts, Smeets, Jelicic, van Heerden, & Merckelbach (2005), for a similar and independent development of trauma-related DRM). To the extent that studies show that PTSD patients and trau-

ma-exposed non-PTSD patients show similar patterns on trauma-related cognitive tasks, this may pose a problem for models of cognition in PTSD, especially those predicting that trauma-exposed people who had developed PTSD would have impaired trauma-related cognition. For instance in Ehlers and Clark's (2000) model, several sets of factors intervene between trauma exposure and the development of persistent PTSD: Besides the characteristics of the trauma and its sequelae, a person's beliefs and coping style will play a role, as well as peritraumatic processing, and of most relevance here, an individual's cognitive strategies aimed at inhibiting the reminders of the unpleasant event. In this model, PTSD patients have self-reinforcing thought patterns, where their attempts at pushing thoughts of the trauma out of their mind actually have the opposite effect of making the unpleasant thoughts rebound into consciousness more often. Trauma-related cognition would thus be expected to be particularly impaired for PTSD patients compared to trauma-exposed controls.

In their study, Bremner et al. reported that PTSD symptoms correlated negatively with the number of correctly recalled words, but not with recall of critical lures. Zoellner et al., on the other hand, found that PTSD severity did not correlate significantly with the number of correctly recalled words but correlated positively with recall of critical lures. Furthermore, depressive symptoms did not correlate with either dependent variable. It was of interest to investigate the relations between the equivalent variables in our study.

All of the traumas in Bremner et al.'s study and the majority in Zoellner et al.'s were sexual in nature. In the present study, the traumas were war-related: all of them had been exposed to war-related traumas, like bombs, shelling, injuries, and fires. There are as yet not enough data from the study of cognitive processes in PTSD to know whether to expect that different traumas would have different cognitive effects, but we note that models of information processing in PTSD, and the DSM classification appear to assume that different traumas will give rise to the same symptoms and underlying cognitive causes.

In this study, we tested 50 participants with PTSD induced by war-related trauma, and 50 traumatised control participants without PTSD. The study investigated whether source-monitoring in general, and trauma-related source-monitoring in particular, are worse in PTSD, leading to more false recall of war-related critical lures. Also, if source-monitoring is impaired for trauma-related words in the PTSD group, then these false memories might be associated with more Remember responses.

The study was carried out in 2003 in Tuzla, northern Bosnia, which was the main Muslim enclave during the war from 1992 to 1996. Therefore, the inducing events for the PTSD patients occurred at least 7 years previously. Mooren, de Jong, Kleber, and Ruvic (2003) reported that amongst their Bosnian control sample of 102 people not seeking clinical help in 1996, the mean score on the Impact of Event Scale was over 36. This is consistent with the notion that, because the war was one of the most brutal in living memory, there is a sense in which all Bosnians have been traumatised by it, and because all participants in the current study were Bosnian, and all but five of them spent the whole of the war in Bosnia, this will have tended to work against the hypotheses.

1. Method

1.1. Participants

Participants with PTSD were recruited from various mental health institutions in and around Tuzla (e.g., the Psychiatric clinic, the Health centre, the Neurological clinic). Exclusion criteria for the study were known neurological disease, head injuries, severe psychotic symptoms, a prescription of antipsychotic medicine, severe depression, and as a control for intellectual level, a repeated year at school, or low final school grades. School leavers in Bosnia receive a mark from 1 to 5, grading their overall academic performance, where 1 is worst and 5 is best. Only participants with 3 or above were included in the study. Participant characteristics are presented in Table 1.

Inclusion criteria were that participants were aged between 30 and 50, and in the PTSD group, that patients had a diagnosis of PTSD, according to DSM-IV criteria. Diagnosis was performed by research clinicians, led by the third author, on the basis of a Structured Clinical Interview for DSM-IV, and in conjunction with other clinicians (psychiatrists, neurologists, psychologists) who knew the participants. All participants had experienced many DSM-IV criterion A traumas during the war, and it was these (and not any other) traumas which were associated to the disorder in PTSD patients. Participants without PTSD were placed in the control

Table 1
Demographic and psychometric characteristics of the samples (standard deviation in brackets)

	PTSD	Control	$t(98)$	p
Age	42.6 (5.2)	38.5 (6.8)	3.3	.001
Education	12.7 (2.1)	13.6 (2.3)	1.98	.062
School grade	4.0 (0.8)	4.3 (0.7)	1.89	.051
BDI	16.9 (7.9)	5.6 (4.6)	8.7	.001
IES	43.2 (13.3)	9.0 (6.0)	16.6	.001

group, and it was also checked that they had not been clinically diagnosed at any point previously with PTSD, although all Bosnians experienced the horror of the war, directly or indirectly. The group of PTSD patients and the group of controls each included 25 women and 25 men.

All participants gave informed consent to participate and were treated in accordance with the APA ethical guidelines for research with human participants. They were rewarded for participation with a small gift, worth around $2.

1.2. Testers

Ten local clinicians from Tuzla agreed to act as testers for this project. The group included neuropsychiatrists, clinical psychologists, and social workers. All had lengthy experience with PTSD patients. Many of the testers had worked together with the second author on previous research projects (e.g., Dybdahl, 2001), and were trained in the administration of the tests for this project in two day-long seminars. All testers administered tests to both groups—PTSD patients and trauma-exposed controls. Testers were blind to the hypotheses, but they were not in all cases blind to PTSD status of the participants.

1.3. Materials

Owing to cultural and linguistic differences, simply translating Roediger and McDermott's materials into Bosnian would not produce DRM lists psychologically equivalent to the originals. Instead 10 equivalent lists were generated using the principle that the lists were composed of the 10 words presumed to be most strongly associated to the critical lure. Similarly, 10 war-related critical lures were chosen and lists generated. Then these were tested on pilot participants, after which some lists were adjusted or replaced to increase the production of the critical lure. This process was carried out two more times, before 10 war-related and 10 non-war-related DRM lists emerged, that had a propensity for provoking recall of the critical lure. The lists are in the Appendix A. In total, 40 participants took part in the piloting procedure. By using the Oslo Corpus of Bosnian Texts, (http://www.tekstlab.uio.no/Bosnian/Corpus.html), which contains about 1.5 million words mainly from the 1990s, it was established that the mean word frequency was 147 ($SD = 180$) for the war-related critical lures, and 178 ($SD = 233$) for the non-war-related, $t(9) = 0.3$, ns. The mean word length was 6.0 ($SD = 1.1$) and 6.4 ($SD = 2.5$) letters, respectively, $t(9) = 0.5$, ns.

1.4. Procedure

The participants were first administered the 15-item version of the Impact of Event Scale (Horowitz, Wilner, & Alvarez, 1979), and the Beck Depression Inventory (Beck, Steer, & Brown, 1996). Both were translated into Bosnian and back-translated, and have been in extensive use in Bosnia for over a decade. The satisfactory psychometric properties of both original scales are well-documented (see for example, Weiss (1996); Beck & Steer (1993)). As in Dybdahl (2001), the Impact of Event Scale was modified to have the items refer to the totality of war experiences rather than to a single event. The Impact of Event Scale provides a self-report measure of the posttraumatic symptoms of intrusion, avoidance, and hyperarousal. Then the participants were told that they would be read several word lists, and that after each list they would be asked to write down all words that they had just heard. They were instructed to write down the last words first, and then any other

words they could recall. The war-related and non-war-related lists were alternated. After the 20th list they were asked to go back over the words that they had written down, and for each one make a Remember/Know/Guess judgement about the phenomenological quality of the recall (Gardiner, Ramponi, & Richardson-Klavehn, 2002; Gardiner & Conway, 1999; Rajaram, 1993). The instructions for this were explained in detail by the experimenter.

2. Results

The mean proportion of words recalled per list, by Group, List, and Word type is shown in Table 2. Separate 2-way ANOVAs, with the factors of Group and List were carried out for correctly recalled words and for the critical lures. The former analysis showed main effects of Group and List but no significant interaction: $F(1,98) = 29.15$, $p < .001$; $F(1,98) = 38.21$, $p < .001$; $F(1,98) = 3.06$, ns, respectively. The control group recalled a higher proportion of words than did PTSD patients, and, overall, fewer war-related words were recalled.

For recall of critical lures, there was a main effect of Group, but not of List, $F(1,98) = 6.83$, $p < .01$ and $F(1,98) < 1$, respectively, qualified by a significant interaction, $F(1,98) = 7.34$, $p < .01$. *T*-tests showed that for non-war-related critical lures, there was no difference between the groups, $t(98) = 0.9$, whereas for war critical lures there was a significant difference, PTSD patients falsely recalling more of them, $t(98) = 3.3$, $p < .001$.

The mean number of Remember/Know judgments for the Groups is shown in Table 3. Separate ANOVAs for correctly recalled words and critical lures were performed on participants' Remember/Know judgments, with the between-participants factor of Group, and the within-participants factors of Remember/Know and List. For correct recall, besides the main effects of Group and List reported above, there was a significant main effect of Remember/Know, $F(1,98) = 67.5$, $p < .001$, with more Know than Remember judgements, qualified by the interaction between Remember/Know and List, as well as the 3-way interaction, $F(1,98) = 8.1$, $p < .01$ and $F(1,98) = 8.5$, $p < .01$, respectively. Breaking down the interactions showed that PTSD participants made fewer Know judgements than controls for correctly recalled war-related words, $t(98) = 3.7$, $p < .001$, and no other differences between the groups were significant.

For critical lures, besides the main effects of Group and List and the interaction between the two reported above, only the main effect of Remember/Know was significant, $F(1,98) = 34.5$, $p < .001$, with more Know responses. The prediction that war-related false memories for PTSD patients should be particularly likely to give a Remember response would have resulted in a 3-way interaction. Possibly because of reduced sensi-

Table 2
The mean proportion of words recalled for studied words and critical lures, for both types of List, and both Groups (*SD* in brackets)

Word type	List	PTSD	Control
Studied	War	.58 (.10)	.66 (.10)
	Non-war	.63 (.88)	.72 (.09)
Critical lure	War	.34 (.25)	.19 (.21)
	Non-war	.30 (.18)	.27 (.19)

Table 3
The proportions of Remember and Know judgements associated with words recalled (*SD* in brackets)

Word type	List	Remember/Know	PTSD	Control
Studied	War	R	.21 (.16)	.16 (.16)
		K	.37 (.16)	.50 (.20)
	Non-war	R	.18 (.17)	.19 (.19)
		K	.45 (.17)	.53 (.22)
Critical lure	War	R	.15 (.13)	.04 (.08)
		K	.19 (.20)	.15 (.19)
	Non-war	R	.08 (.11)	.08 (.12)
		K	.22 (.17)	.19 (.16)

tivity due to low numbers of data points, the interaction was not significant, $F(1,98) = 1.7$, $p = .20$. However, Table 3 shows that numerically the prediction appears supported, and a t-test shows that in fact the PTSD group had more Remember responses to war-related false memories than the Control group $t(98) = 3.3$, $p < .001$, but that this was not the case for Know responses or for any other condition.

Pearson correlations between the BDI, IES and the cognitive measures, partialling out the contribution of the variables of age, school grade, and number of years of education, gave the following pattern: BDI scores correlated positively with both the production of war- and non-war-related critical lures, $r = .33$, and $r = .26$, respectively, $ps < .05$, and negatively with the correct recall of words in the lists, $r = -.30$, and $r = -.34$, respectively, $ps < .005$. Scores on the IES correlated non-significantly with the production of critical lures: for war, $r = .10$, and for non-war, $r = .10$. For correctly recalled words, significant negative correlations were obtained: $r = -.30$, $p < .005$ and $r = -.27$, $p < .01$, respectively.

Both BDI and IES correlated significantly with our measures of correct recall. To investigate these associations, further two multiple regressions were carried out for each dependent variable (correctly recalled war words and correctly recalled non-war words): one where BDI was entered first, followed by IES, and the other where the independent variables were entered in the opposite order. For war-related words, the adjusted r^2 for BDI was .12, and entering IES also gave an adjusted r^2 of .12. The reverse order gave an adjusted r^2 of .10, and entering BDI increased this to .12, and this change approached significance, $F(1,97) = 3.6$, $p = .06$. For non-war words, the adjusted r^2 for BDI alone was .16, and entering IES gave a lower adjusted r^2 of .15. The other order gave an adjusted r^2 of .09 for IES, and adding BDI this increased significantly to .15, $F(1,97) = 7.9$, $p < .01$. Therefore, the pattern was essentially similar for both dependent variables: entering the BDI scores explained additional variance over and above that accounted for by IES scores, but the reverse was not the case.

Correlations were also obtained between BDI, IES and the proportions of Remember/Know responses for critical lures and studied words, as above with age, school grade, and years of education partialled out. For critical lures, these revealed that for the BDI, significant positive correlations were obtained for Remember and Know responses for war-related lists, for both $r = .20$, $p < .05$, in line with the overall correlation between BDI and war-related critical lures, reported above. For non-war-related critical lures and the BDI, Remember responses just failed to reach significance, $r = .19$, $p = .06$, whereas Know responses were not significant, $r = .10$, ns. For the IES, where in the overall analysis reported above no significant correlations were obtained with recall of critical lures, non-war-related lures had no significant correlations with Remember responses or with Know responses, $r = .13$ and .01, respectively. However with war-related lures, Remember responses correlated significantly, $r = .29$, $p < .005$, and Know responses did not, $r = -.01$.

For studied words, with age, school grade, and years of education partialled out, Remember responses to non-war words failed to correlate significantly with either BDI or IES, $r = .07$ and $r = .12$, whereas Know responses to non-war words still showed the negative correlation, $r = -.27$ and $r = -.29$, $p < .01$. For studied war words, a different pattern emerged. For Remember responses, IES gave a *positive* correlation, $r = .28$, $p < .01$, and BDI a non-significant one, $r = .17$, whereas for Know responses the negative correlations obtained in the overall analysis were observed again, $r = -.40$, and $r = -.32$, $p < .001$, respectively.

3. Discussion

As previous studies have shown, PTSD patients were not more susceptible to recalling critical lures, when they were not trauma-related. However, on our war lists they produced more critical lures, even though they recalled fewer correct words than controls. Thus, the data for non-war-related lists replicated Bremner et al.'s (2000) findings: there was an advantage on correctly recalled words for trauma-exposed participants without PTSD over those with PTSD, but no difference between the groups on recall of critical lures, a finding which Zoellner et al. (2000) also reported. The control group also recalled more studied words from the war-related lists, but in contrast, the PTSD group incorrectly recalled more critical lures. In agreement with models such as Ehlers and Clark's (2000), trauma-related source-monitoring appears to be impaired in PTSD patients, even compared to a group of trauma-exposed controls.

The current study replicated Bremner et al.'s report of a significant negative correlation between PTSD severity and correct recall. Similarly, the absence here of significant correlations between scores on the IES

and the production of critical lures replicates Bremner et al.'s finding, and both these findings have here been extended to trauma-related critical lures. This stands in contrast to Zoellner et al.'s report of a high positive correlation (.72) between their measure of PTSD severity and recall of the critical lure, and suggests that that effect might be a quirk due to their small sample size. Also we found a reliable association between our measure of depression, and recall of both types of words, again in contrast to Zoellner et al. who had a null finding. Of interest, the correlations in our study between BDI and critical lure production were of the same magnitude as Zoellner et al.'s (∼.3), yet ours were significant due to the larger sample.

The overall picture that emerges is that depression, rather than PTSD symptoms per se, may be the driving force behind the production of false memories, because even though our measure of PTSD severity correlated significantly with the number of correctly recalled words (and .76 with the BDI), the multiple regression analyses suggested that the depression score is the key "active ingredient". This is consistent with the observation that PTSD patients and depressed patients are similar on other cognitive tasks (e.g., search in autobiographical memory, emotional Stroop tasks), and it would be interesting to investigate false memories in depressed patients.

This study provides evidence suggesting that PTSD patients have a particular susceptibility to trauma-related false memories, but backs up previous findings of no difference for recall of non-war-related false memories, with a bigger sample size than those previously used. Weaknesses of this study and the previous ones on false memories in PTSD, and many others besides, is that we have no way of knowing whether the differences between the groups existed before exposure to trauma. In other words, to what extent the cognitive differences reported here are a predisposition to or a consequence of the development of PTSD is not answerable from the current study. Either prospective studies or twin studies may help answer this question.

As in previous studies, more Remember judgments to studied words than to critical lures were observed, although the relative frequency of Remember and Know judgments were unusual in our data, in that overall there were more Know responses (cf. Roediger & McDermott, 1995; Zoellner et al., 2000). A point of interest in this study was to investigate whether Remember responses were more frequent for PTSD patients than controls when making false memories. Although the omnibus ANOVA did not show the predicted interaction, possibly due to a lack of power, it is worth remarking that only for war-related critical lures, the PTSD group had significantly more Remember responses than the controls. Furthermore, the significant positive correlation between IES and Remember responses to war-related words also tends to suggest a link between self-reported trauma and trauma-related cognition. Taking also into account the positive relation between depression and susceptibility to production of critical lures, our results support the following speculative scenario: depression stimulates the production of false memories, but the tendency to Remember war-related words, be they critical lures or studied words, is more related to trauma, as measured by self-report scale or diagnosis. Each of these claims needs supplementary confirmation, but depression may be associated with a deficit in source-monitoring, and the effect of trauma exposure might be effectively to increase the personal word frequency of all trauma-related concepts, thus making them easier to recall.

Quite why our word lists provoked fewer false memories than the rates often reported elsewhere is a matter for speculation. Considerable effort was put into the preparation of the lists, with iterative improvements to them leading to the versions used here. As Stadler et al. (1999) put it, "We... are ourselves mystified by the wide variability in [DRM lists'] effectiveness and by which ones are and which ones are not effective" (p. 498). Perhaps it is possible to create more productive Bosnian DRM lists, but alternatively there may be cultural or linguistic factors rendering the paradigm less effective in Bosnian. Either way, the present study compared two groups' performance on the same lists so that any weakness in the lists' effectiveness should not have a bearing on the validity of our conclusions. In sum, this study showed that people with diagnosed PTSD are more susceptible to false memories for trauma-related material than controls, but that this is not the case for non-trauma-related lists.

Appendix A

The English translations of the word lists used to generate false memories are presented below. Note that in the Bosnian, no two words within a list share a morphemic root. The actual lists used are available on request from the first author.

Non-trauma lists

Critical lure	Wedding	School	Flowers	Sea	Love
Word list	Nuptial	Students	Bouquet	Beach	Girlfriend
	Bride	Teacher	Vase	Waves	Boyfriend
	Groom	Senior-teacher	Wild	Fish	Infatuation
	Best man	Professor	Smell	Swim	Date
	Bridesmaid	Class	Petals	Dive	Romance
	Party	Classroom	Violets	Sunbathe	Passion
	Ring	Lesson	Roses	Resort	Heart
	Registrar	Bell	Bee	Hotel	Hug
	City hall	Faculty	Crown	Tourists	Relationship
	Cake	Academy	Meadow	Ship	Secret
Critical lure	Sleep	Match	Child	Music	Letter
Word list	Dream	Players	Mummy	Melody	Postman
	Fall asleep	Referee	Daddy	Singer	Mail
	Sleepy	Score	Toys	Song	Envelope
	Wake up	Shoot	Girl	Instruments	Send
	Bed	Fun	Boy	Guitar	Write
	Pillow	Stadium	Doll	Opera	Mailbox
	Blanket	Half-time	Baby	Folk	Stamp
	Rest	Team	Kindergarten	Pop	Greeting card
	Get up	Centre	Nanny	Note	Telegram
	Night	Friendly	Toddler	Orchestra	Latin

Trauma lists (* = place name)

Critical lure	Blood	Concentration camp	War	Shell	Tears
Word list	Red	Prison	Peace	Shrapnel	Flowing
	Warm	Torture	Army	Firing	Burn
	Wound	Keraterm*	Weapon	Explode	Salty
	Thorn	Auschwitz*	Death	Whistle	Cry
	Knife	Sentry	Fight	Bomb	Sob
	Cut	Chain	Hunger	Cannon	Sweat
	Flowing	Omarska*	World	Tank	Joy
	Running	Guard	Bloody	Falling	Eyes
	Sticky	Jail	Civil	Crash	Sadness
	Fresh	Batkovici*	Bosnia	Mine	Bitter
Critical lure	Funeral	Wounded	Sarajevo	Rape	Refugees
Word list	Burial	Ill person	Siege	Humiliation	Displaced
	Procession	Bloody	Tunnel	Abuse	Homeless
	Grave	Bullet	Surrounded	Sexual	Driven out
	Shroud	Injured	Sniper	Women	Stolen
	Cemetery	Injury	Markale*	Girls	Poor
	Priest	Sufferer	Siren	Dishonor	Miserable
	Mosque	Pale	Bjelasnica*	Torture	Banish
	Dead soldier	Weak	Pale*	Force	Dwelling
	Coffin	Feeble	Jahorina*	Violation	Centre
	Prayer	Exhausted	Airport	Chetniks	Deprivation

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