

## SHORT REPORTS

# Directed Forgetting in Acute Stress Disorder

Michelle L. Moulds and Richard A. Bryant  
University of New South Wales

The rationale underpinning the diagnosis of acute stress disorder is that cognitive mechanisms result in avoidant processing of aversive experiences. This study investigated acutely traumatized participants with either acute stress disorder (ASD;  $n = 15$ ) or no ASD ( $n = 14$ ) and nontraumatized comparison participants ( $n = 16$ ). Participants were administered intermixed presentations on a computer screen of positive, neutral, and trauma-related words that were followed by instructions to either remember or forget each word. On a subsequent recall test, ASD participants displayed poorer recall of to-be-forgotten trauma-related words than did non-ASD participants. Severity of psychopathology was negatively correlated with to-be-remembered positive words. These findings are consistent with the proposal that people who develop ASD display an aptitude for superior forgetting of aversive material.

Acute stress disorder (ASD) describes acute stress reactions that are characterized by dissociative mechanisms that purportedly impede the individual's awareness of trauma-related memories and their associated affect. The emphasis on acute dissociation in this diagnosis is reflected by its requirement that three dissociative symptoms be endorsed (American Psychiatric Association, 1994). The theoretical basis of ASD is that dissociative mechanisms result in reduced awareness of aversive experiences (Bryant & Harvey, 1997a), and this is associated with impoverished encoding of trauma-related information. It has been proposed that this cognitive style impedes the resolution of a traumatic experience and contributes to the relationship between ASD and chronic posttraumatic stress disorder (PTSD; Bryant & Harvey, 1998; Harvey & Bryant, 1998, 1999). Specifically, an avoidant encoding style may permit individuals to disengage attention from threat-related stimuli. To date, there is little experimental evidence for such an avoidant encoding cognitive style.

The directed forgetting paradigm, which holds that individuals are able to remember and to forget information in keeping with experimental instruction, is a suitable means to investigate avoidant encoding (Johnson, 1994). Encoding mechanisms are considered responsible for a directed forgetting effect when participants are presented with target stimuli and cued (item by item) to either remember or forget each stimulus (i.e., the item method; Basden, Basden, & Gargano, 1993; Myers, Brewin, & Power, 1998). One recent study found that adult survivors of childhood sexual abuse with PTSD did not display recall deficits for trauma-related words that they were instructed to remember (McNally,

Metzger, Lasko, Clancy, & Pitman, 1998). Cloitre, Cancienne, Brodsky, Dulit, and Perry (1996) found that borderline personality disorder participants with parental abuse histories demonstrated enhanced directed remembering (but not directed forgetting) of positive, negative, and neutral words compared with individuals with borderline personality disorder (without a history of any abuse) and a control group. Similarly, Korfine and Hooley (2000) found no enhanced directed forgetting in their sample of borderline personality disorder participants; in contrast, they found that borderline participants remembered more borderline-related words (e.g., *abandon or emptiness*) that they were instructed to forget. These results suggest that trauma-related psychopathology is not related to an avoidant encoding style in chronic traumatized samples.

The objective of the current study was to investigate the hypothesis that ASD participants display deficits in the encoding of traumatic information. Although previous studies of directed forgetting in traumatized populations have not indicated an avoidant encoding style (Cloitre et al., 1996; McNally et al., 1998), we hypothesized that the dissociative features that are associated with ASD may be characterized by avoidant encoding more than chronic PTSD. We compared the recall of ASD, trauma-exposed non-ASD, and nontraumatized comparison participants. On the basis that ASD is characterized by dissociative mechanisms, we predicted that whereas the non-ASD and comparison groups would display normal directed forgetting regardless of valence of words, ASD participants would display poorer recall of trauma-related material, regardless of experimental instructions.

---

Michelle L. Moulds and Richard A. Bryant, School of Psychology, University of New South Wales, Sydney, New South Wales, Australia.

This research was supported by a grant from the Australian Research Council.

Correspondence concerning this article should be addressed to Richard A. Bryant, School of Psychology, University of New South Wales, Sydney, New South Wales 2052, Australia. E-mail: R.Bryant@unsw.edu.au

## Method

### Design

A 3 (Group: ASD, non-ASD, comparison)  $\times$  2 (Instructions: remember, forget)  $\times$  3 (Word Valence: trauma-related, positive, neutral) design was used; the second and third factors were repeated measures.

## Participants

There were 15 ASD (13 female, 2 male), 14 non-ASD (9 female, 5 male), and 16 control (14 female, 2 male) participants. ASD and trauma-exposed non-ASD groups were survivors of nonsexual assault (5 non-ASD, 9 ASD) or motor vehicle accidents (9 non-ASD, 6 ASD) who were admitted to Westmead Hospital, Sydney, New South Wales, as a result of physical injuries sustained in the traumatic event or were referred to the PTSD unit at Westmead Hospital. Inclusion criteria included (a) involvement in a nonsexual assault or motor vehicle accident in the previous 4 weeks, (b) proficiency in English, (c) age between 16 and 65 years, (d) no narcotic analgesia within the previous 24 hr, and (e) no diagnosis of organic mental disorder, psychosis, or substance abuse. Participants were allocated to the non-ASD group if they did not satisfy the dissociation, reexperiencing, and avoidance criteria for ASD. Non-ASD participants were permitted to satisfy the arousal criteria because most trauma-exposed individuals (including those who do not develop PTSD) satisfy the arousal criteria (Harvey & Bryant, 1998). That is, although non-ASD participants may have reported some degree of arousal that is reported by most trauma survivors, they lacked the range of symptoms that are associated with a psychopathological response to trauma. Participants in the comparison group were undergraduate psychology students who completed the experiment for research credit. Completion of a trauma history checklist indicated that no comparison group participants had been exposed to a traumatic event in the 4 weeks before the study.

## Measures

Diagnosis of ASD was obtained by the Acute Stress Disorder Interview (ASDI; Bryant, Harvey, Dang, & Sackville, 1998), which is a 19-item clinical interview that possesses sound test-retest reliability (.88), sensitivity (91%), and specificity (93%) relative to independent clinical diagnosis. Participants were also administered the Impact of Event Scale (IES; Horowitz, Wilner, & Alvarez, 1979), Beck Depression Inventory (BDI; Beck & Steer, 1987), Beck Anxiety Inventory (BAI; Beck & Steer, 1990), and the Dissociative Experiences Scale—Taxon (DES-T; Waller, Putnam, & Carlson, 1996). Internal consistencies for these measures are as follows: IES—Intrusion and IES—Avoidance, .79 to .91 and .82 to .91, respectively (Zilberg, Weiss, & Horowitz, 1982); BDI, .86 (Beck, Steer, & Garbin, 1988); BAI, .92 (Beck & Steer, 1990); DES—T, .93 (Carlson & Armstrong, 1994).

## Materials

Three types of words were used: trauma related (e.g., *terrifying, threatened*), positive (e.g., *celebrate, cheerful*) and neutral (e.g., *windows, stairs*; see the appendix for the complete list). Positive and neutral words were those used by McNally et al. (1998). Trauma-related words were chosen for their relevance to physical threat because all traumatized participants in this study had been exposed to some form of physical threat. In addition, words were rated by 22 clinical psychology interns on a 10-point scale ranging from 0 (*extremely positive*) to 10 (*extremely distressing*) on the basis of their perceptions of the impact of each word on survivors of assault and motor vehicle accidents. The mean rating for trauma-related ( $M = 8.2$ ,  $SD = 1.2$ ), positive ( $M = 1.3$ ,  $SD = 0.7$ ), and neutral ( $M = 4.1$ ,  $SD = 1.9$ ) words indicated the suitability of the words. Four sets of 15 words each were generated. Each set comprised 5 trauma-related, 5 positive, and 5 neutral words. Within each set of 15 words, the mean frequency of usage (Francis & Kučera, 1982) and the number of syllables were matched. Frequency of usage and number of syllables were also matched among the four word sets.

## Procedure

Following written informed consent, participants read the following instructions (identical to those of McNally et al., 1998) on a computer screen:

This is a memory experiment. You will be seeing a list of 34 words, one at a time. Each word will appear for two seconds, and will be followed by an instruction lasting three seconds. You will be instructed either to REMEMBER or to FORGET each word. Because the list is long, and you will only be tested on the half you are told to remember, it is a good idea to follow the instructions. Try to remember the REMEMBER words for the test that will follow the list. Here is how the word-by-word instructions work. After each word has been shown for two seconds, either RRRR or FFFF will appear at the center of the screen for three seconds. If RRRR appears, try to remember the word you just saw—it will be on the test. If FFFF appears, you need not remember that word—it will NOT be on the test. The instructions are there to help you select the words to learn and remember from the list. Any questions?

During the encoding phase, participants were shown two sets of 15 words, as well as 4 buffer items (2 primacy and 2 recency items). The word sets were balanced across participants, and the order of presentation of words from the two sets was randomized. Each word was shown for 2s, and the instruction to either remember (RRRR) or forget (FFFF) was shown for 2 s.

Following this, participants were supplied with a blank piece of paper and given 5 min to write down as many words as they could remember from the encoding list, regardless of the TBR (i.e., to-be-remembered) or TBF (i.e., to-be-forgotten) instruction. Participants were told to guess if they were unsure.

## Results and Discussion

### Participant Characteristics

Table 1 contains the mean participant characteristics. One-way analyses of variance (ANOVAs) indicated that whereas groups did not differ on age, the ASD group had higher scores on the ASDI, IES—Intrusions, IES—Avoidance, IES—Total, BDI, and BAI than did non-ASD and comparison group participants.

The proportion of trauma, positive, and neutral words recalled in the encoding task was calculated for each participant. The mean proportions of words recalled are presented in Table 2. Separate univariate ANOVAs were conducted for each of the word types in both the TBR and TBF conditions to test the hypothesis that ASD participants would have reduced recall of trauma words. To control for any potential influence of age and education, these variables were controlled for in the analyses. One-way ANOVA of TBR words indicated significant differences for TBR trauma,  $F(2, 40) = 3.71$ ,  $p < .05$ ,  $\eta^2 = .16$ ; positive,  $F(2, 40) = 5.81$ ,  $p < .01$ ,  $\eta^2 = .23$ ; and neutral,  $F(2, 40) = 4.00$ ,  $p < .05$ ,  $\eta^2 = .17$ , words. One-way ANOVA of TBF words indicated significant differences for TBF trauma words,  $F(2, 40) = 6.75$ ,  $p < .01$ ,  $\eta^2 = .25$ .

Post hoc contrasts indicated greater recall of TBR trauma words in the comparison than in the non-ASD group ( $p < .05$ ), greater recall of TBF trauma words in the non-ASD than in the ASD group ( $p < .01$ ) and in the non-ASD group than in the comparison group ( $p < .05$ ); greater recall of TBR positive words in the comparison group than in the ASD group ( $p < .01$ ) and non-ASD group ( $p < .05$ ); and greater recall of TBR neutral words in the comparison group than in the non-ASD group ( $p < .01$ ).

According to the avoidant encoding notion, all participants would display normal directed forgetting for all words, with the exception that ASD participants would recall fewer trauma words in both the TBR and TBF conditions. Planned comparisons indicated normal directed forgetting effects for neutral words for the ASD,  $t(14) = 4.84$ ,  $p < .01$ ,  $d = 1.88$ ; non-ASD,  $t(13) = 2.88$ ,

Table 1  
Mean Participant Characteristics

Variable	Non-ASD		ASD		Control		<i>F</i>	<i>p</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Age	28.71	13.99	35.27	11.11	26.56	14.39	1.79	.18
ASDI	4.79 <sub>a</sub>	2.99	12.87 <sub>b</sub>	3.02	0.00 <sub>c</sub>	0.00	111.99	.01
IES (I)	8.57 <sub>a</sub>	11.02	26.13 <sub>b</sub>	7.81	0.00 <sub>c</sub>	0.00	47.02	.01
IES (A)	6.93 <sub>a</sub>	8.67	25.13 <sub>b</sub>	8.91	0.00 <sub>c</sub>	0.00	51.83	.01
BDI	3.57 <sub>a</sub>	4.67	15.64 <sub>b</sub>	7.90	8.38 <sub>a</sub>	5.50	13.71	.01
BAI	8.00 <sub>a</sub>	8.74	21.13 <sub>b</sub>	10.33	9.31 <sub>a</sub>	6.72	10.35	.01
DES-T	31.54	52.73	112.00	168.40	69.38	116.65	1.47	.24

*Note.* ASD = acute stress disorder; ASDI = Acute Stress Disorder Interview; IES (I) = Impact of Event Scale—Intrusions; IES (A) = Impact of Events—Avoidance; BDI = Beck Depression Inventory; BAI = Beck Anxiety Inventory; DES-T = Dissociative Experience Scale—Taxon. Means with different subscripts differ at  $p < .05$  in Tukey comparisons.

$p < .05$ ,  $d = 1.06$ ; and comparison,  $t(15) = 4.88$ ,  $p < .01$ ,  $d = 1.80$ , groups. Directed forgetting was observed for positive words in only the comparison group,  $t(15) = 3.35$ ,  $p < .01$ ,  $d = 1.35$ . Directed forgetting for trauma words was observed in the ASD,  $t(14) = 7.48$ ,  $p < .01$ ,  $d = 2.54$ , and comparison,  $t(15) = 4.73$ ,  $p < .01$ ,  $d = 1.71$ , groups but not in the non-ASD groups.

To index the extent to which directed forgetting effects were associated with posttraumatic psychopathology, we calculated Pearson product-moment correlations between recall of each word type with ASDI, IES, BAI, and BDI scores. Recall of TBR positive words was negatively correlated with the ASDI Total ( $r = -.46$ ,  $p < .001$ ), Dissociative ( $r = -.34$ ,  $p < .05$ ), Reexperiencing ( $r = -.43$ ,  $p < .01$ ), Avoidance ( $r = -.36$ ,  $p < .05$ ), and Arousal ( $r = -.50$ ,  $p < .01$ ) cluster scores and also with IES—Intrusion ( $r = -.38$ ,  $p < .01$ ), IES—Avoidance ( $r = -.32$ ,  $p < .05$ ), BAI ( $r = -.33$ ,  $p < .05$ ), and BDI ( $r = -.35$ ,  $p < .05$ ) scores.<sup>1</sup>

The major finding of this study was that ASD participants demonstrated poorer recall of TBF trauma-related words than did non-ASD participants. Whereas ASD participants recalled fewer TBF trauma-related words than did non-ASD participants, ASD and comparison group participants recalled them comparably. Although this pattern suggested that ASD participants performed in a manner that was similar to nonclinical individuals, the difference between ASD and non-ASD groups pointed to a differential encoding of information among those who had been recently traumatized. McNally et al. (1998) referred to this effect of “superior forgetting” (p. 600) as an alternative interpretation of avoidant encoding. That is, ASD participants might be more adept at using cognitive strategies that strategically limit encoding of aversive material. This interpretation is consistent with evidence that ASD individuals possess a range of avoidant cognitive strategies, including overgeneral memory retrieval (Harvey, Bryant, & Dang, 1998), distraction (Warda & Bryant, 1998), and thought suppression (Guthrie & Bryant, 2000). The notion of avoidant encoding is also consistent with the proposition that ASD is characterized by dissociative mechanisms that may impede encoding of aversive information in the aftermath of a trauma (Koopman, Classen, & Spiegel, 1994).

Non-ASD participants recalled comparable proportions of trauma words in both the TBR and TBF conditions. The absence

of a directed forgetting effect in the trauma-exposed non-ASD group might be attributed to these participants’ recent exposure to a traumatic event, which might have resulted in their enhanced attention to these trauma-related words (regardless of the TBR or TBF instruction). That is, the relevance of trauma stimuli to these participants might have negated the expected directed forgetting effect. The finding that this pattern was not observed in ASD participants, who were also recently exposed to trauma, added support to the notion of superior forgetting in ASD.

Contrary to the avoidant encoding hypothesis, the ASD group did not recall trauma-related TBR words differently from non-ASD and comparison participants. This finding replicates McNally et al.’s (1998) report of no enhanced recall of TBR trauma words in female survivors of childhood sexual abuse with PTSD. Information-processing theories predict that the dominance of threat-related information in fear networks will result in enhanced recall of trauma words (Litz & Keane, 1989). This pattern has been observed on a range of paradigms, including modified Stroop tests (McNally, Kaspi, Riemann, & Zeitlin, 1990) and dot probe paradigms (Bryant & Harvey, 1997b). The absence of enhanced recall in the current study may be attributed to either paradigm differences between directed forgetting and more attentionally based methods or differences among trauma populations.

The current findings contrast with both McNally et al. (1998) and Cloitre et al. (1996) in that these earlier studies did not find a superior forgetting effect. This discrepancy may be explained by characteristics of our acutely traumatized population. As predicted by the dissociation model, it is possible that features associated with the dissociative symptoms that are requisite in ASD (but not PTSD) may lead to enhanced forgetting in this group. Alternatively, it is possible that superior forgetting is more associated with psychopathological responses to recent than distant trauma. It is noteworthy that whereas our participants had suffered trauma several weeks before testing, those in the McNally et al. (1998) and Cloitre et al. (1996) studies had suffered their trauma many years before involvement in these studies.

<sup>1</sup> Recognition data are not presented because of a lack of directly relevant results.

Table 2  
*Mean Proportion of Words Recalled*

Group	Trauma R	Trauma F	Positive R	Positive F	Neutral R	Neutral F
Non-ASD						
<i>M</i>	.30	.30	.21	.10	.30	.10
<i>SD</i>	.24	.15	.23	.10	.19	.19
ASD						
<i>M</i>	.43	.11	.15	.15	.44	.09
<i>SD</i>	.15	.10	.14	.14	.20	.17
Control						
<i>M</i>	.55	.18	.43	.13	.56	.15
<i>SD</i>	.28	.16	.28	.16	.30	.15

*Note.* R = to-be-remembered; F = to-be-forgotten.

In terms of the mechanisms that may mediate the observed effects, McNally et al. (1998) suggest that concentration deficits associated with traumatic stress limit cognitive resources that may be allocated to encoding. This interpretation is in keeping with our observation that comparison participants displayed better recall overall than both ASD and non-ASD participants. The finding that recall of TBR positive words was negatively associated with most psychopathology measures suggests that encoding of positive information is impaired by the severity of psychopathological response. Mood-congruent encoding is expected by network theories because the dominance of negatively valenced representations will limit attentional focus on positive stimuli (Litz & Keane, 1989).

The finding that participants in the comparison group displayed superior recall on all TBR words to that of non-ASD participants suggests that the latter group encoded material less effectively than nontraumatized participants. It is likely that non-ASD participants had fewer cognitive resources available to complete the directed forgetting task than did comparison participants. This interpretation is in keeping with the observation that non-ASD participants in the acute phase displayed some levels of acute stress, including elevated arousal, which may have limited their cognitive resources.

We recognize a number of limitations in this study. First, the absence of a traumatized control group that possesses posttraumatic stress symptoms but without dissociative reactions precludes definitive comments about the relationship between dissociative symptoms and directed forgetting effects. Second, the current design does not allow inferences about the extent to which the superior forgetting effect is a function of developing ASD or a preexisting factor that may predispose one to developing ASD. Third, although we used the same directed forgetting instructions as McNally et al. (1998), these instructions were marginally different from those used in other directed forgetting studies (e.g., Cloitre et al., 1996; Korfine & Hooley, 2000). Furthermore, we acknowledge that the instructions used in this experiment depart from the traditional directed forgetting instructions that explicitly ask participants to forget (i.e., rather than to not remember) given material. This may in part be associated with the absence of a directed forgetting effect observed in the non-ASD group. Fourth, we note the relatively high BDI and BAI scores of the comparison group and that these may have influenced the comparable responses of ASD and comparison participants. Fifth, comparing the current data with results of a study that uses the list method of

directed forgetting would clarify the relationship between impaired encoding and impaired retrieval of trauma-related information.

Applying the directed forgetting paradigm to ASD allows an experimental approach to delineating the cognitive mechanism that may mediate trauma memory management after trauma. Extending this study to other trauma populations, indexing the relationship of forgetting to general cognitive deficits, and investigation of retrieval biases will contribute to understanding cognitive mechanisms of posttraumatic adjustment.

## References

- American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: Author.
- Basden, B. H., Basden, D. R., & Gargano, G. J. (1993). Directed forgetting in implicit and explicit memory tests: A comparison of methods. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, *19*, 603–616.
- Beck, A. T., & Steer, R. A. (1987). *Manual for the Beck Depression Inventory*. San Antonio, TX: Psychological Corporation.
- Beck, A. T., & Steer, R. A. (1990). *Beck Anxiety Inventory—manual*. San Antonio, TX: Psychological Corporation.
- Beck, A. T., Steer, R. A., & Garbin, M. G. (1988). Psychometric properties of the Beck Depression Inventory: Twenty-five years of evaluation. *Clinical Psychology Review*, *8*, 77–100.
- Bryant, R. A., & Harvey, A. G. (1997a). Acute stress disorder: A critical review of diagnostic issues. *Clinical Psychology Review*, *17*, 757–773.
- Bryant, R. A., & Harvey, A. G. (1997b). Attentional bias in post-traumatic stress disorder. *Journal of Traumatic Stress*, *10*, 635–644.
- Bryant, R. A., & Harvey, A. G. (1998). The relationship between acute stress disorder and posttraumatic stress disorder following mild traumatic brain injury. *American Journal of Psychiatry*, *155*, 625–629.
- Bryant, R. A., Harvey, A. G., Dang, S. T., & Sackville T. (1998). Assessing acute stress disorder: Psychometric properties of a structured clinical interview. *Psychological Assessment*, *10*, 215–220.
- Carlson, E. B., & Armstrong, J. (1994). The diagnosis and assessment of dissociative disorders. In S. J. Lynn & J. W. Rhue (Eds.), *Dissociation: Clinical and theoretical perspectives* (pp. 159–174). New York: Guilford Press.
- Cloitre, M., Cancienne, J., Brodsky, B., Dulit, R., & Perry, S. W. (1996). Memory performance among women with parental abuse histories: Enhanced directed forgetting or directed remembering? *Journal of Abnormal Psychology*, *105*, 204–211.
- Francis, W. N., & Kučera, H. (1982). *Frequency analysis of English usage*. Boston: Houghton Mifflin.
- Guthrie, R. M., & Bryant, R. A. (2000). Attempted thought suppression

- over extended periods in acute stress disorder. *Behaviour Research and Therapy*, 38, 899–907.
- Harvey, A. G., & Bryant, R. A. (1998). Relationship of acute stress disorder and posttraumatic stress disorder following motor vehicle accidents. *Journal of Consulting and Clinical Psychology*, 66, 507–512.
- Harvey, A. G., & Bryant, R. A. (1999). Relationship of acute stress disorder and posttraumatic stress disorder: A two-year prospective study. *Journal of Consulting and Clinical Psychology*, 67, 985–988.
- Harvey, A. G., Bryant, R. A., & Dang, S. T. (1998). Autobiographical memory in acute stress disorder. *Journal of Consulting and Clinical Psychology*, 66, 500–506.
- Horowitz, M. J., Wilner, N., & Alvarez, W. (1979). The Impact of Event Scale: A measure of subjective stress. *Psychosomatic Medicine*, 41, 209–218.
- Johnson, H. M. (1994). Processes of successful intentional forgetting. *Psychological Bulletin*, 116, 274–292.
- Koopman, C., Classen, C., & Spiegel, D. (1994). Predictors of posttraumatic stress symptoms among survivors of the Oakland/Berkeley, Calif., firestorm. *American Journal of Psychiatry*, 151, 888–894.
- Korfine, L., & Hooley, J. M. (2000). Directed forgetting of emotional stimuli in borderline personality disorder. *Journal of Abnormal Psychology*, 109, 214–221.
- Litz, B. T., & Keane, T. M. (1989). Information processing in anxiety disorders: Application to the understanding of post-traumatic stress disorder. *Clinical Psychology Review*, 9, 243–257.
- McNally, R. J., Kaspi, S. P., Riemann, B. C., & Zeitlin, S. B. (1990). Selective processing of threat cues in posttraumatic stress disorder. *Journal of Abnormal Psychology*, 99, 398–402.
- McNally, R. J., Metzger, L. J., Lasko, N. B., Clancy, S. A., & Pitman, R. K. (1998). Directed forgetting of trauma cues in adult survivors of childhood sexual abuse with and without posttraumatic stress disorder. *Journal of Abnormal Psychology*, 107, 596–601.
- Myers, L. B., Brewin, C. R., & Power, M. J. (1998). Repressive coping and the directed forgetting of emotional material. *Journal of Abnormal Psychology*, 107, 141–148.
- Waller, N. G., Putnam, F. W., & Carlson, E. B. (1996). Types of dissociation and dissociative types: A taxometric analysis of dissociative experiences. *Psychological Methods*, 1, 300–321.
- Warda, G., & Bryant, R. A. (1998). Thought control strategies in acute stress disorder. *Behaviour Research and Therapy*, 36, 1171–1175.
- Zilberg, N. J., Weiss, D. S., & Horowitz, M. J. (1982). The Impact of Event Scale: A cross-validation study and some empirical evidence supporting a conceptual model of stress response syndromes. *Journal of Consulting and Clinical Psychology*, 50, 407–414.

## Appendix

### Word Lists

Trauma	Positive	Neutral	Trauma	Positive	Neutral
Set 1			Set 2		
terrifying	carefree	curtain	bruise	reassured	mirror
shock	healthy	refrigerator	policemen	confident	banister
helpless	steady	dishwasher	threatened	cheerful	lamp
fear	secure	desk	injury	elation	freezer
sudden	relieved	cupboard	nightmare	pleasant	stool
Set 3			Set 4		
scream	happiness	porch	agony	easygoing	cabinet
bloodstained	charming	mailbox	distressed	affection	doorknob
confusion	sociable	windows	trapped	sincere	stairs
dangerous	outgoing	washer	emergency	ecstasy	panelling
scary	friendly	coffeepot	painful	celebrate	bowl

Received May 9, 2000

Revision received April 23, 2001

Accepted May 10, 2001 ■