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# Emotional response at the time of a potentially traumatizing event and PTSD symptomatology: A preliminary retrospective analysis of the DSM-IV Criterion A-2

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**Abstract**

DSM-IV added an emotional response component to the definition of Criterion A for PTSD. The present study investigated the relationship between retrospective reports of emotional responses (fear, helplessness, and horror) and disrupted emotional responses ("numbing") at the time of a potentially traumatizing event and reports of PTSD symptomatology among undergraduate participants. We found that, of the DSM-IV criteria, only helplessness was significantly correlated with post-traumatic symptomatology. Reports of peritraumatic emotional numbing uniquely predicted subsequent PTSD symptomatology beyond coincident emotional responses, suggesting that further research is needed to explore the various dimensions of peritraumatic emotional response relevant to the development of PTSD. © 1998 Elsevier Science Ltd. All rights reserved.

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## 1. Introduction

A significant and commonly debated issue in the field of traumatic stress concerns the characteristics that define a potentially traumatizing event (March, 1993). Since the formal introduction of post-traumatic stress disorder (PTSD) into the diagnostic nosology in 1981, the definition of what constitutes a potentially traumatizing event

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(Criterion A) has undergone a transformation. The DSM-III-R, for example, specified a Criterion A event as one that was "outside the range of normal human experience". (American Psychiatric Association, 1987, p. 250). However, since experiences that are unequivocally potentially traumatizing unfortunately occur with alarming frequency (e.g., sexual assault; Resnick et al., 1993), this definition of a potentially traumatizing event required modification.

Recently, the field has moved away from a purely situational approach to defining a potentially traumatizing event to an interactionist approach, incorporating the individual's personal perception of, and subjective reaction to, an event in the definition of Criterion A. In order to meet Criterion A for PTSD in the current DSM-IV, an individual must both experience, witness or be confronted by an event involving serious life threat, injury, or threats to physical integrity and respond with a subjective response of fear, helplessness, or horror (APA, 1994; see Davidson and Foa, 1993).

Although inclusion of a subjective criterion in the definition of a potentially traumatizing event has conceptual appeal, there is little empirical evidence documenting the association between specific emotional responses to an index event and the development of PTSD. A few studies, however, do provide some general support for the relationship between subjective emotional reaction to events and the subsequent development of post-traumatic symptomatology. For instance, numerous studies have revealed an association between the subjective perception of threat during a potentially traumatizing event and the later development of post-traumatic symptoms (e.g., Blanchard et al., 1995; Green, 1993; King et al., 1995; Marmar et al., 1996). One of these studies also assessed retrospective accounts of "peritraumatic emotional distress", defined as degree of fear, shame, anger, guilt, frustration, and helplessness experienced at the time of the potentially traumatizing event (Marmar et al., 1994). Emergency service personnel with high levels of both post-traumatic and general psychiatric symptomatology reported significantly higher degrees of peritraumatic emotional distress than did those personnel who did not display significant symptomatology. Although these data suggest that emotional reaction at the time of the event may be implicated in the subsequent development of PTSD, they fail to provide empirical support for the specific emotional responses required in DSM-IV.

A potential oversight in the current definition of the subjective component of a potentially traumatizing event is the exclusion of any type of disrupted or numbed response in the face of an event. Many individuals report dissociative experiences at the time of an event which would suggest the absence of an emotional response or a numbing to emotion. Indeed, many recent studies have revealed an association between peritraumatic dissociation and subsequent symptomatology (Marmar et al., 1994; Tichenor et al., 1996; Shalev et al., 1996). Some form of numbing or emotional disruption at the time of an event may well be an important subjective component of a Criterion A event.

In this study, we conducted a secondary analysis of an existing dataset to explore the empirical basis of the new DSM definition of a potentially traumatizing event. We investigated the relationship between retrospective accounts of the specific emotions outlined in the subjective component of Criterion A in the DSM-IV (i.e., fear,

helplessness, and horror) and classification of an event as potentially traumatizing as well as subsequent post-traumatic symptomatology in an analogue sample. In addition, we explored whether reports of feeling "numb" at the time of an event were related to classification of events and subsequent symptomatology, in order to determine whether disrupted emotional responding during an event might be a relevant factor to consider.

## 2. Methods

As part of a larger questionnaire study of psychopathology, 244 (75% female) undergraduate participants completed a self-report measure of PTSD that included items specifically assessing DSM-IV PTSD Criteria A-1 and A-2 (with the addition of an item that evaluated the presence of emotional numbing at the time of the event). Participants were predominantly Caucasian, freshman with a modal age of 18. Participants were asked whether they had ever experienced an extremely stressful or traumatic event using a question adapted directly from DSM-IV (Criterion A-1; APA, 1994). A traumatic event was defined as "things like: a serious threat to your life or physical well-being, any type of unwanted sexual experience; events where there was a serious threat or harm to a family member or close friend; having your home or community suddenly destroyed; or seeing another person being seriously injured or dying as a result of an accident or some form of violence". This is similar to a previous methodology used to obtain information about exposure to traumatic events in undergraduate populations (e.g., Kelly et al., 1995). Individuals who reported experiencing more than one such event were asked to complete the symptom measure (described below) with the worst event they had ever experienced in mind. Those participants who had never experienced such an event were asked to think of the most stressful event they ever confronted in order to complete the measure. All participants were asked to rate the degree to which they had felt "fear", "helpless", "horrified", and "numb" at the time of the index event on 9-point Likert scales ranging from 0 ("Not at all") to 8 ("Intensely"); with 4 labeled "moderately". Finally, all participants reported the degree to which they were experiencing current PTSD symptomatology by filling out the PTSD Checklist (PCL; Weathers et al., 1993) in reference to their index event. The PCL is a paper and pencil measure of PTSD that evaluates the severity of each of the 17 symptoms of PTSD experienced in the past month on 5-pt. Likert-type scales (1) "not at all", (2) "a little bit", (3) "moderately", (4) "quite a bit", (5) "extremely". The PCL has been shown to have excellent psychometric properties in both veteran (Weathers et al., 1993) and civilian samples (Blanchard et al., 1996).

Because the questions addressed in this study hinge on the validity of our definition of a potentially traumatizing event, a doctoral level clinician (blind to the study question) with extensive experience in structured interviews assessing potentially traumatizing events coded each reported event as either "definitely or most likely a potentially traumatizing event" "definitely or most likely not a potentially traumatizing event" or "not enough information provided to make a distinction". Participants who had responded "I don't know" to whether they had experienced

a potentially traumatizing event ($N = 36$) were dropped from subsequent analyses as were those participants whose events were rated as "not enough information provided" by the clinician ($N = 59$, 29 of whom had defined their event as potentially traumatizing). For 38 of the participants (8 of whom had defined their event as potentially traumatizing) there was disagreement between the clinician rating and the subject's report; these participants were also dropped from further analyses. Six of the remaining participants (3 who had identified a potentially traumatizing event) did not fill out the emotional response portion of the questionnaire and were also dropped from the sample. The final study group consisted of 85 individuals who reported a clinician-confirmed event defined as potentially traumatizing and 48 individuals who reported an event defined as stressful.

## 3. Results

To explore whether reports of severity of emotional responses at the time of the index event differed between participants identifying potentially traumatizing versus those reporting highly stressful, but not traumatizing, events, we conducted a one-way MANOVA (potentially traumatizing events versus highly stressful events) using the four emotional response scales as dependent measures. A significant main effect emerged, $F(4, 128) = 12.51$, $p < 0.001$, indicating that individuals reporting a potentially traumatizing event reported significantly higher levels of fear, helplessness, horror and numbing at the time of the event than those who reported a non-potentially traumatizing event (see Table 1, for univariate analyses), lending support to the subjective component of Criterion A.

To explore associations between emotional response at the time of a potentially traumatizing event and subsequent post-traumatic symptomatology, we calculated correlations between ratings of fear, helplessness, horror, and numbing and mean PCL scores among those individuals who had identified a potentially traumatic event. Nine participants had numerous missing items on the PCL and so were dropped from further analyses. The types of potentially traumatizing events reported by this sample are presented in Table 2. The most frequently reported types of events were life-threatening illness or injury to others (predominantly life-threatening illnesses to

Table 1
Means, standard deviations and univariate comparisons of degree of emotional response to reported potentially traumatizing events versus nonpotentially traumatizing events

| | Potentially traumatizing ($N = 85$) | Nonpotentially traumatizing ($N = 48$) | | |
|---|---|---|---|---|
| | *M* (SD) | *M* (SD) | *F* | *p* |
| Fear | 6.21 (2.43) | 4.77 (2.51) | 10.39 | 0.002 |
| Helplessness | 6.60 (2.20) | 4.04 (2.90) | 33.11 | 0.000 |
| Horror | 5.81 (2.55) | 2.92 (2.88) | 35.51 | 0.000 |
| Numbness | 5.07 (2.83) | 2.42 (2.72) | 27.77 | 0.000 |

Table 2
Number (percentage) of participants reporting various types of potentially traumatizing events ($N = 76$)

| Type of event | To self | To other |
|---|---|---|
| Natural disaster | 1 (1%) | |
| Serious accident | 13 (17%) | 4 (5%) |
| Physical assault/abuse | 7 (9%) | 5 (7%) |
| Sexual assault/abuse | 7 (9%) | 3 (4%) |
| Life-threatening illness or injury | 3 (4%) | 19 (25%) |
| Sudden, unexpected death | — | 14 (18%) |

Table 3
Correlations between degree of emotional response to potentially traumatizing events and mean levels of intrusive, avoidant and arousal symptoms as reported on the PCL ($N = 76$)

| | Intrusive symptoms | Avoidant symptoms | Arousal symptoms |
|---|---|---|---|
| Fear | −0.14 | 0.06 | 0.06 |
| Helplessness | 0.35[b] | 0.25[a] | 0.25[a] |
| Horror | 0.23[a] | 0.11 | 0.16 |
| Numbness | 0.25[a] | 0.29[b] | 0.16 |

[a] $p < 0.05$.
[b] $p < 0.01$.

parents), serious accidents to self (predominantly car accidents involving serious injury) and unexpected death to others (predominantly suicide, homicide, and fatal car accidents).

Scores on the PCL ranged from 17 to 78, with a mean of 31.21 ($SD = 13.44$), indicating considerable range of symptomatology in this sample. The following associations between specific emotional responses and post-traumatic symptomatology were revealed: fear, $r(74) = -0.02$, $p > 0.85$; helplessness, $r(74) = 0.29$, $p < 0.05$, horror, $r(74) = 0.13$, $p > 0.25$, numbing, $r(74) = 0.34$, $p < 0.01$. Contrary to our expectation, reports of fear and horror at the time of the event were not reliably associated with reports of subsequent symptomatology. To explore whether emotional responses were differentially associated with specific sub-classes of PTSD symptoms, we calculated correlations between each of the four reports of emotional responses and the mean response on the PCL signifying intrusive (Criterion B), avoidant (Criterion C) and hyperarousal symptoms (Criterion D) (see Table 3). Reports of helplessness were significantly associated with each PTSD symptom cluster. Reports of numbing at the time of the event were associated with intrusive and avoidant symptoms, while horror was associated only with intrusive symptoms.

To explore whether reports of numbness at the time of the event were uniquely associated with PTSD symptom severity, we conducted a hierarchical regression predicting level of post-traumatic symptomatology in which we first entered reports of

fear, helplessness and horror as a block, and then entered reports of numbing as a second block. Numbing significantly improved the model, $R^2$ *change* $= 0.05$, $F$ *change* $= 4.4$, $p < 0.05$, and in the final step, both numbing and helplessness emerged as significant predictors, *betas* 0.26 and 0.29 respectively, $p < 0.05$. Statistics for the overall model were *Adj* $R^2 = 0.13$, $F(\mathrm{df}) = 3.82$, $p < 0.01$.

## 4. Discussion

These preliminary findings provide mixed support for the current defining criteria for Criterion A in the DSM-IV. Although higher levels of fear, helplessness, and horror were associated with events defined as potentially traumatizing, reports of fear showed no relationship with post-traumatic symptomatology and reports of horror related only minimally to intrusive symptoms. On the other hand, reports of helplessness were significantly associated with all three symptom clusters and showed a modest correlation with overall post-traumatic symptomatology. Interestingly, reports of numbing at the time of the event were also modestly correlated with post-traumatic symptomatology and these reports were uniquely associated with post-traumatic symptoms, even when the variance associated with the DSM-specified emotions was accounted for. Future research is needed to determine whether inclusion of numbing or another construct of disrupted emotion is needed.

These findings suggest that the subjective reaction at the time of an event that is most predictive of subsequent distress involves a sense of helplessness and some form of disrupted emotional reaction. The importance of helplessness is consistent with models which highlight the etiological significance of unpredictability and uncontrollability of a traumatic event (Foa et al., 1989). The absence of a significant association between fear and symptomatology is, however, puzzling given that feared response during a trauma is a central component of the conditioning element of behavioral theories of PTSD (e.g., Keane et al., 1985). Perhaps a fear response simply does not discriminate between individuals who cope effectively with exposure to a potentially traumatizing event. On the other hand, it seems that some form of disruption in emotional response (and therefore emotional processing) occurring at the time of the event may increase the risk of subsequent symptomatology, a finding consistent with current information processing theories of PTSD (e.g., Foa and Riggs, 1993; Litz and Keane, 1989)

It is quite possible that a number of emotions other than fear, helplessness and horror (e.g., shame, disgust, rage) are relevant to the development of post-traumatic symptomatology. Given that the three emotions included in DSM-IV were not empirically derived, an investigation of the role a range of emotional reactions plays in the development of PTSD is indicated. Similarly, we included a single item measuring "numbing" in order to capture the phenomenon of disrupted emotion, but again a range of quite different experiences may be relevant (e.g., dissociation, confusion, shock, feeling overwhelmed). Considerably more research is needed to expand our understanding of these loosely defined constructs which appear to be quite important in the development of post-traumatic reactions.

The time course of an individual's emotional reaction also requires further investigation. For instance, it is unclear whether it is necessary for the emotional response to occur at the time of the trauma, rather than at a later point in time. It is possible that some individuals may feel numb or confused at the time of the event and then later experience horror or helplessness when the meaning of the event becomes clear. This may be particularly relevant to the experience of early childhood traumas. Finally, questions remain regarding differences in relevant emotional responding across types of events and various demographic categories.

Several methodological limitations in this preliminary investigation need to be mentioned. Most importantly, our data are retrospective and therefore are subject to any number of biases in recall. For example, symptomatic individuals may be more likely to recall a strong emotional experience or emotional numbing than are individuals who are not currently symptomatic. (It is notable however that this finding does not emerge for fear.) Also, potentially traumatizing events were gathered using a broad question and relying on self-report, and all ambiguous events were dropped from analyses, possibly limiting the range of events reported. Further, given that PTSD symptoms were measured with a paper-and-pencil instrument, using an analogue sample, our study requires extension and replication to determine the clinical significance of our findings. Finally, participants in the study were predominantly Caucasian and 18 years old, limiting the ability to generalize these findings to other ethnic groups and a range of age groups. Future studies should utilize more heterogeneous samples.

Despite the limitations noted above, these data do seem to indicate a need for further examination of the subjective component of Criterion A and the importance of exploring other potentially important subjective factors. Future studies are needed that utilize clinical populations, interviewer-based measures of a potentially traumatizing event, and measurement of a broad range of peritraumatic emotional experiences. In addition, prospective studies which measure emotional response immediately following an event and predict PTSD symptomatology at a later date would improve our understanding of the relevance of subjective responses to symptomatology. Increased understanding of the nature of peritraumatic emotional responses associated with the development of subsequent difficulties will facilitate early intervention with those individuals likely to be at risk.

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## References

American Psychiatric Association (1987). *The diagnostic and statistical manual of mental disorders (3rd ed., revised)*. Washington, DC: American Psychiatric Association.

American Psychiatric Association (1994). *The diagnostic and statistical manual of mental disorders (4th edition)*. Washington, DC: American Psychiatric Association.

Blanchard, E. B., Jones-Alexander, J., Buckley, T. C., & Forneris, C. A. (1996). Psychometric properties of the PTSD checklist (PCL). *Behavior Research and Therapy, 34*, 669–674.

Blanchard, E. B., Hickling, E. J., Mitnick, N., Taylor, A. E., Loos, W. R., & Buckley, T. C. (1995). The impact of severity of physical injury and perception of life threat in the development of post-traumatic stress disorder in motor vehicle accident victims. *Behavior Research and Therapy, 33*, 529–34.

Davidson J. R. T., & Foa, E. B. (Eds.) (1993). *Posttraumatic Stress Disorder: DSM-IV and Beyond*. Washington, DC: APA Press.

Foa, E. B., & Riggs, D. S. (1993). Posttraumatic stress disorder and rape. In J. M. Oldham, M. B. Riba, & A. Tasman. *American Psychiatric Press Review of Psychiatry, vol. 12* (pp. 273–303). Washington DC: American Psychiatric Press.

Foa, E. B., Steketee, G., & Olasov-Rothbaum, B. (1989). Behavioral/cognitive conceptualization of post-traumatic stress disorder. *Behavior Therapy, 20*, 155–176.

Green, B.L. (1993). Identifying survivors at risk: Trauma and stressors across events. In J. P. Wilson, & B. Raphael (Eds.), *International handbook of traumatic stress syndromes* (pp. 135–144). New York: Plenum Press.

Keane, T. M., Zimering, R. T., & Caddell, J. M. (1985). A behavioral formulation of post-traumatic stress disorder in Vietnam veterans. *The Behavior Therapist, 8*, 9–12.

Kelly, A. E., Coenen, M. E., & Johnston, B. L. (1995). Confidants' feedback and traumatic life events. *Journal of Traumatic Stress, 8*, 161–169.

King, D. W., King, L. A., Gudanowski, D. M., & Vreven, D. L. (1995). Alternative representations of warzone stressors: Relationships to posttraumatic stress disorder in male and female Vietnam veterans. *Journal of Abnormal Psychology, 104*, 184–196.

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.

March, J. S. (1993). What constitutes a stressor? The "criterion A" issue. In J. R. T. Davidson, & E. B. Foa (Eds.), *Posttraumatic stress disorder: DSM-IV and beyond*. Washington, DC: APA.

Marmar, C. R., Weiss, D. S., Metzler, T. J., Ronfeldt, H. M., & Foreman, C. (1996). Stress responses of emergency services personnel to the Loma Prieta earthquake Interstate 880 freeway collapse and control traumatic incidents. *Journal of Traumatic Stress, 9*, 63–85.

Marmar, C. R., Weiss, D. S., Schlenger, W. E., Fairbank, J. A., Jordan, B. K., Kulka, R. A., & Hough, R. L. (1994). Peritraumatic dissociation and posttraumatic stress in male Vietnam theater veterans. *American Journal of Psychiatry, 151*, 902–907.

Resnick, H. S., Kilpatrick, D. G., Dansky, B. S., Saunders, B. E., & Best, C. L. (1993). Prevalence of civilian trauma and posttraumatic stress disorder in a representative national sample of women. *Journal of Consulting and Clinical Psychology, 61*, 984–991.

Shalev, A. Y., Peri, T., Canetti, L., & Schreiber, S. (1996). Predictors of PTSD in injured trauma survivors: a prospective study. *American Journal of Psychiatry, 153*, 219–225.

Tichenor, V., Marmar, C. R., Weiss, D. S., Metzler, T. J., & Ronfeldt, H. M. (1996). The relationship of peritraumatic dissociation and posttraumatic stress: Findings in female Vietnam theater veterans. *Journal of Consulting and Clinical Psychology, 64*, 1054–1059.

Weathers, F. W., Litz, B. T., Herman, D. S., Huska, J. A., & Keane, T. M. (1993). *The PTSD checklist (PCL): reliability, validity, and diagnostic utility*. Paper presented at the Meeting of the International Society for Traumatic Stress Studies. San Antonio, TX.