

Emotional Numbing in Relation to Stressful Civilian Experiences Among College Students

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Investigators have shown that hyperarousal is the best predictor of emotional numbing (EN), as compared with avoidance and reexperiencing. The aim of the present study was to extend this finding to the context of stressful civilian experiences among college students. Participants ($N = 1,292$) completed self-report checklists of stressful civilian experiences and PTSD symptoms. The results of multiple regression analyses in two subsamples consistently indicated that both hyperarousal and avoidance were good predictors of EN. These findings suggest that avoidance may play a more important role in the relationship between hyperarousal and EN in college students.

The aim of this study was to replicate previous findings of a relationship between emotional numbing (EN) and the hyperarousal symptom cluster of posttraumatic stress disorder (PTSD), and extend these findings to the context of stressful civilian experiences among college students. EN has typically been defined operationally as consisting of three PTSD symptoms within the C/avoidance and numbing cluster: C(4) "markedly diminished interest or participation in significant activities," C(5) "feeling of detachment or estrangement from others," and C(6) "restricted range of affect (e.g. unable to have loving feelings)" (American Psychiatric Association, 1994; Litz & Gray, 2002). The conceptual importance of EN has been emphasized in theories of PTSD (e.g., Horowitz, 1986) and underscored empirically by the results of research demonstrating its significant role in predicting psychosocial functioning in trauma survivors (e.g., Kuhn, Blanchard, & Hickling, 2003).

Although currently included within the same cluster of symptoms according to the *Diagnostic and Statistical Manual of Mental Disorders*, fourth edition (*DSM-IV*; American Psychiatric Association, 1994), it is increasingly apparent that EN and avoidance constitute separate constructs. The statistical independence of EN and avoidance has been demonstrated in studies of male combat veterans (Amdur & Liberzon, 2001; King, Leskin, King, & Weathers, 1998). Hyperarousal has been shown to be the most robust statistical predictor of EN, as compared with avoidance and reexperiencing, in studies of combat veterans (Flack, Litz, Hsieh, Kaloupek, & Keane, 2000; Litz et al., 1997), and female sexual assault survivors (Tull & Roemer, 2003). In addition, Weems, Saltzman, Reiss, and Carrion (2003) showed that hyperarousal symptoms and EN were not only contiguously related but that hyperarousal predicted EN 1 year later (the reverse was not true), independently of reexperiencing and avoidance, in a sample of 7- to 14-year-old children with histories of trauma and PTSD symptoms.

Litz and Gray (2002) proposed an information-processing model to explain the role of EN in PTSD. In this model, the emotional constriction that characterizes EN is thought to be caused by the chronic reexperiencing of traumatic events associated with hyperaroused states. Hyperarousal is directly related to the kinds of emotional

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constriction characteristic of EN because it is difficult to express and experience both strong unpleasant emotions (e.g., the "irritability or outbursts of anger" and "exaggerated startle response" within the D/hyperarousal cluster) and interest, attachment, or a full range of emotions (including pleasant ones, such as happiness) at the same time. Thus, from this perspective, hyperarousal should be the strongest predictor of EN because it is more closely associated with EN than reexperiencing.

The Present Study

In the present study, we attempted to replicate previous findings on the relationship between EN and hyperarousal, and extend them to the context of stressful civilian experiences in a nonclinical sample of college students. Consistent with previous empirical findings and with the Litz and Gray (2002) information-processing perspective, we hypothesized that hyperarousal would be the strongest predictor of EN, as compared with reexperiencing, avoidance, and total number of stressful civilian experiences in our sample of college students.

Method

Participants

Complete data were collected from 1,292 undergraduate students who were enrolled in multiple sections of the introductory psychology course at a large, public university in a rural section of the mid-Atlantic region of the United States. The sample consisted of more women ($n = 777$; 60.1%) than men ($n = 515$; 39.9%). The modal age of participants was 19 years of age, with 95% of the sample falling between 17 and 22 years.

Procedures

All students enrolled in the introductory psychology course were asked to complete a set of screening measures, two of which were used in the present study, at the start of a semester in a classroom setting. Students were told about the general screening purpose of the instruments and that they were free not to complete any instrument or item that they wished. They were also given contact information for a clinical referral in the event that considering any of the items caused them to become unduly upset. Finally, by handing in a given instrument, students understood that they were consenting to the use of

their information for scientific purposes. An institutional review board approved the procedures used in this study.

Measures

Stressful Events Checklist (SEC)

A checklist of 13 stressful events was developed by the first author based on the types of events typically included in checklists for the evaluation of potentially traumatic events in civilians (Norris & Riad, 1997), and on specific events that were being screened for a subsequent study. Participants were asked to indicate any of the following 13 types of events that they had "experienced or witnessed personally:" serious disaster (flood, fire, explosion, etc.), serious accident (bad car wreck, on-the-job accident, etc.), self or family member sent to jail, put up for foster care or adoption, parents separated or divorced, very serious physical or mental illness, emotional abuse or neglect, abortion or miscarriage, someone close to you died suddenly or unexpectedly, violence between family members, robbery/mugging/or attack, physical/sexual abuse/attack, and other seriously stressful event or incident. Participants reported a mean of 2.54 ($SD = 2.05$) stressful experiences. Men reported a significantly greater number of stressful experiences overall ($M = 2.71$, $SD = 2.16$) than women ($M = 2.41$, $SD = 1.95$), $t(290) = 2.42$, $p < .02$ (two-tailed test).

PTSD Checklist-Civilian Version (PCL-C; Weathers, Litz, Huska, & Keane, 1994)

The PTSD PCL-C consists of 17 items, one for each of the 17 symptoms of PTSD as defined in the *DSM-IV*. Respondents are asked to rate each item on a 5-point scale (from *not at all* to *extremely*) to indicate the extent to which they "have been bothered by that problem in the past month . . . in response to stressful life experiences." The PCL-C has demonstrated good psychometric properties with a college-student population (Ruggiero, Del Ben, Scotti, & Rabalais, 2003).

Consistent with the procedures used in previous research (e.g., Flack et al., 2000), avoidance and numbing symptoms were disaggregated in the present study by summing the first three items of the C cluster ("avoiding thinking about or talking about a stressful experience from the past or avoiding having feelings related to it," "avoiding activities or situations because they reminded you of a stressful experience from the past," and "inability to recall an important aspect of the trauma") to produce an "avoidance" variable, and the next three items ("loss of interest

in activities that you used to enjoy," "feeling distant or cut off from other people," and "feeling emotionally numb or being unable to have loving feelings for those close to you") to produce an EN variable. Participants' mean summed score on the PCL-C was 28.97 ($SD = 10.13$), with a range from 17 to 73. These figures are quite similar to those obtained by Ruggiero et al. (2003) in their sample of college students ($M = 29.4$, $SD = 12.9$, range = 17–79). The mean summed PCL-C scores for men ($M = 28.72$, $SD = 9.81$) and women ($M = 29.14$, $SD = 10.33$) in the present sample did not differ significantly, $t(290) = 0.74$, *ns*.

Predictor Variables, Derivation of Subsamples, and Indices of Internal Consistency

Also consistent with the procedures used by Flack et al. (2000), two sets of multiple regression analyses were used to examine the individual and combined contributions of the reexperiencing, avoidance (avoiding thinking/talking, avoiding activities/situations, inability to recall), and hyperarousal symptom clusters, and total stressful events, to the prediction of EN (disinterest, detachment, restricted range of affect). These analyses were run on two subsamples to test the hypotheses (Test subsample) and then to corroborate the initial set of findings (Validation subsample). Test and Validation subsamples were chosen by randomly assigning two thirds of the entire sample to the Test subsample ($n = 869$) and the remaining third to the Validation subsample ($n = 423$). The percentages of women and men in the original sample were maintained in each subsample.

Cronbach's alphas were computed to evaluate the internal consistency of each symptom cluster within both subsamples. The results of these computations were as follows for the Test and Validation subsamples: reexperiencing $\alpha = .81$ and $.80$, avoidance $\alpha = .64$ and $.67$, hyperarousal $\alpha = .79$ and $.79$, and EN $\alpha = .68$ and $.69$, respectively.

Results

Pearson correlation coefficients were calculated between the EN index, the reexperiencing, avoidance, and hyperarousal symptom clusters, and total stressful events in both subsamples (see Table 1). All three symptom clusters demonstrated positive zero-order correlations of moderate magnitudes with EN in both the Test and Validation subsamples. The total number of stressful events was also positively correlated with EN in both subsamples,

Table 1. Correlations Between Emotional Numbing Index and Predictor Variables Across Subsamples

	Test Subsample ($n = 869$)			
	Reexperiencing	Avoidance	Hyperarousal	Stressful events
EN	.48***	.52***	.58***	.21***
Reexperiencing		.62***	.57***	.32***
Avoidance			.57***	.30***
Hyperarousal				.29***
	Validation Subsample ($n = 423$)			
	Reexperiencing	Avoidance	Hyperarousal	Stressful events
EN	.49***	.55***	.56***	.22***
Reexperiencing		.68***	.60***	.38***
Avoidance			.57***	.33***
Hyperarousal				.28***

Note. EN = emotional numbing.

*** $p < .001$.

although the magnitudes of both of those correlations were considerably smaller than those between the symptom clusters and EN.

Since all of the predictors shared unique variance with EN, multiple regression analyses using simultaneous entry were employed to examine the contributions of the four predictors to the EN criterion in both subsamples. The significance level was set at .05 for entry, and at .15 for retention, into the models. Coefficients of the estimated regression models, their associated standard errors, standardized coefficients, r s, and R^2 values are given for the Test subsample in Table 2, and for the Validation subsample in Table 3.

The resulting regression equations accounted for 40% of the variance in the EN cluster in both subsamples. As predicted, the results from the Test subsample revealed that hyperarousal was the best predictor of EN, although both avoidance and reexperiencing were significant predictors as well. Contrary to our predictions, however, hyperarousal and avoidance were equally good predictors of EN in the Validation subsample, whereas

Table 2. Regression Analysis Results for Predictors of EN in the Test Subsample ($n = 869$)

Predictor variable	<i>B</i>	<i>SEB</i>	β
Reexperiencing	0.08	0.02	.13***
Avoidance	0.20	0.03	.23***
Hyperarousal	0.23	0.02	.38***
Total stressful events	-0.01	0.03	-.01

Note. $R^2 = .40$ ($p < .001$). EN = emotional numbing.

*** $p < .001$.

Table 3. Regression Analysis Results for Predictors of EN in the Validation Subsample ($n = 423$)

Predictor variable	<i>B</i>	<i>SEB</i>	β
Reexperiencing	0.05	0.04	.07
Avoidance	0.26	0.05	.31***
Hyperarousal	0.20	0.03	.34***
Total stressful events	-0.01	0.05	-.01

Note. $R^2 = .40$ ($p < .001$). EN = emotional numbing.
*** $p < .001$.

reexperiencing failed to enter significantly into this equation. Total stressful events failed to enter significantly into either set of equations.

Additional regression analyses were conducted to assess the effects of exposure only to more severely stressful events, to assess the effects of greater levels of PTSD symptoms, and to address the possibility of multicollinearity among the predictors. Thus, in the first of these analyses, regressions were conducted on data from only those participants in both subsamples who indicated exposure to more severe stressful events (disasters, accidents, emotional abuse/neglect, violence/family members, robbery/mugging/attack, and physical/sexual abuse/attack); the patterns of results did not differ significantly from those obtained in the original analyses. In the second set of analyses, both subgroups were divided on level of PTSD symptoms based on a median split of the total PCL scores, and the regressions were rerun only on the data from more symptomatic participants; again, the patterns of results did not differ from those found in the original analyses. Finally, the issue of multicollinearity among predictors was addressed by entering the reexperiencing, avoidance, and total stressful events clusters together in Step 1, and the hyperarousal cluster separately in Step 2, for both of the original subsamples; once again, the patterns of results did not differ significantly from those obtained in the initial analyses.

Discussion

The results of this study were only partially consistent with our expectations, which were based on the results of previous research: hyperarousal was the best predictor of EN in only one of our two subsamples of college students. Hyperarousal and avoidance were both consistently good predictors of EN in both subsamples. Although reexperiencing was also a good predictor of EN in the Test subsample, this finding was not replicated in the Validation subsample. The total number of stressful events was not a significant predictor of EN in either subsample.

These findings partially corroborate those of Flack et al. (2000) and Litz et al. (1997) with war-zone veterans, and those of Tull and Roemer (2003) with female sexual assault survivors. While the earlier results indicated that hyperarousal was the single best predictor of EN in veterans and sexual assault survivors, the present results suggest that hyperarousal and avoidance are both good predictors of EN in college students reporting a range of stressful life events. Findings from the previous studies also indicated a significant role for avoidance in the prediction of EN, but one that was statistically weaker than the contribution of hyperarousal. The differences between the present and earlier findings may reflect differences in the populations studied, differences in the methods used to assess PTSD symptoms and the range of stressful life experiences examined, and the use of different techniques for entering predictors into regression analyses. Foremost among the limitations in our design was the exclusive use of self-report measures to assess stressful events and PTSD symptoms in a rural, public-university population.

We conclude with some speculative ideas about the respective roles of avoidance and EN. Our data demonstrate that college students seem to respond to stressful experiences similarly to chronically traumatized combat veterans, albeit with a potentially more prominent role for avoidance in the explanation of EN. In the event that this pattern of findings is confirmed by subsequent research, the role of avoidance among college students might be explained by a developmental progression of symptomatic responses to stressful events over the life span. Perhaps in the first few months or years following a significantly stressful experience, college students are more prone to use both active avoidance and numbing in response to hyperaroused states brought on by reexperiencing. By contrast, in war-zone veterans of the Vietnam era, the early use of active avoidance may shade over into more passive forms over time, leading to a more important role for numbing in defending against unpleasant hyperaroused states. For example, chronically repeated "efforts to avoid . . . feelings . . . associated with the trauma" (PTSD Avoidance Criterion C1) may eventually lead to a "restricted range of affect" (PTSD Numbing Criterion C6) (American Psychiatric Association, 1994), perhaps reducing the need for active avoidance. Further research into the developmental trajectory of traumatization and its long-term consequences is required to address these issues.

Acknowledgment

We are grateful to J. T. Ptacek for his comments on an earlier version of this article.

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