

# Journal of Interpersonal Violence

<http://jiv.sagepub.com/>

---

## **Beyond Fear : The Role of Peritraumatic Responses in Posttraumatic Stress and Depressive Symptoms Among Female Crime Victims**

Shireen L. Rizvi, Debra Kaysen, Cassidy A. Gutner, Michael G. Griffin and  
Patricia A. Resick

*J Interpers Violence* 2008 23: 853 originally published online 21 February 2008  
DOI: 10.1177/0886260508314851

The online version of this article can be found at:  
<http://jiv.sagepub.com/content/23/6/853>

---

Published by:



<http://www.sagepublications.com>

On behalf of:

[American Professional Society on the Abuse of Children](#)

**Additional services and information for *Journal of Interpersonal Violence* can be found at:**

**Email Alerts:** <http://jiv.sagepub.com/cgi/alerts>

**Subscriptions:** <http://jiv.sagepub.com/subscriptions>

**Reprints:** <http://www.sagepub.com/journalsReprints.nav>

**Permissions:** <http://www.sagepub.com/journalsPermissions.nav>

**Citations:** <http://jiv.sagepub.com/content/23/6/853.refs.html>

# Beyond Fear

## The Role of Peritraumatic Responses in Posttraumatic Stress and Depressive Symptoms Among Female Crime Victims

Shireen L. Rizvi

*National Center for Posttraumatic Stress Disorder  
and Boston University School of Medicine*

Debra Kaysen

*University of Washington*

Cassidy A. Gutner

*National Center for Posttraumatic Stress Disorder*

Michael G. Griffin

*University of Missouri—St. Louis*

Patricia A. Resick

*National Center for Posttraumatic Stress Disorder  
and Boston University School of Medicine*

This study examines peritraumatic (and posttrauma) responses in a sample of female crime victims who had been sexually or physically assaulted within the previous 2 months. Women were interviewed about their emotional and behavioral responses during the trauma and assessed for posttraumatic stress disorder and depression symptomatology. Results indicate that women experience a wide range of behavioral and emotional responses during a traumatic event and that these responses have implications for posttrauma adjustment. Women who experienced behaviors typical of a freeze response are more likely to have a greater degree of symptomatology after the assault. Peritraumatic emotions, other than fear, such as sadness, humiliation, and anger, also appear to be related to posttrauma depression symptoms. These findings highlight the necessity of exploring the full range of possible reactions during a trauma.

**Keywords:** *trauma; peritraumatic responses; emotion; posttraumatic stress disorder*

Exposure to violent crime, especially interpersonal victimization, has long been associated with both posttraumatic stress disorder (PTSD) and depressive symptoms. However, there is tremendous variability in response and recovery following a trauma (Litz & Roemer, 1996). Indeed, recent research has suggested that peritraumatic responses (i.e., behavioral and emotional responses experienced by the victim during the traumatic event) are important predictors of subsequent distress (Bernat, Ronfeldt, Calhoun, & Arias, 1998; Davis, Taylor, & Lurigio, 1996; Epstein, Saunders, & Kilpatrick, 1997; Ozer, Best, Lipsey, & Weiss, 2003). Despite the importance that both theories of PTSD and outcome literature have placed on peritraumatic responses, relatively little research has focused on this area in the context of violent crime.

Peritraumatic dissociation is the most studied of the peritraumatic responses (Ozer et al., 2003). Although some studies have not found significant links between peritraumatic dissociation and PTSD, after controlling for baseline PTSD symptoms (Marshall & Schell, 2002; Simeon, Greenberg, Nelson, Schmeidler, & Hollander, 2005), the majority of longitudinal studies, across various types of trauma-exposed populations, have found peritraumatic dissociation to be a significant risk factor for development of PTSD and depressive symptoms (e.g., Birmes et al., 2003; Johnson, Pike, & Chard, 2001; Koopman, Classen, & Spiegel, 1994; Marmar et al., 1999; Shalev, Bonne, & Peri, 1996). A recent meta-analysis found greater peritraumatic dissociative experiences were associated with higher PTSD symptoms and higher rates of PTSD diagnoses (Ozer et al., 2003).

Peritraumatic behavioral responses' impact on later posttrauma symptomatology has been largely understudied. Recent research suggests that there is a great deal of variability in behavioral responses in female crime victims (Kaysen, Morris, Rizvi, & Resick, 2005). Approximately one third of women report active physical resistance (i.e., biting, cursing, kicking), and a large proportion of women, especially victims of rape, report passive or "frozen" behavioral responses (Kaysen et al., 2005). When compared to women who do not resist, victims of completed rape who used forceful resistance strategies (e.g., screaming, kicking) appear less likely to report

---

**Authors' Note:** This research was supported in part by National Institute of Mental Health Grant R01-MH-46992 (principal investigator, Patricia A. Resick, PhD), by National Institute on Alcohol Abuse and Alcoholism Grant F32-AA-014728 (principal investigator, Debra Kaysen, PhD), and by National Institute of Mental Health Grant R29-MH-55688 (principal investigator, Michael G. Griffin, PhD). Correspondence regarding this article should be addressed to Shireen L. Rizvi, PhD, New School for Social Research, Department of Psychology, 65 Fifth Ave., New York, NY 10003; e-mail: RizviS@newschool.edu.

symptoms of distress (Selkin, 1978), depression, and self-blame (Bart & O'Brien, 1985; Janoff-Bulman, 1979).

Two studies have examined the "freeze" response, otherwise known as tonic immobility (TI) or rape-induced paralysis (Galliano, Noble, Puechl, & Travis, 1993; Heidt, Marx, & Forsyth, 2005). This has been likened to behaviors described in the nonhuman animal literature, where animals subjected to situations that involve life threat or physical restraint respond with temporary gross motor inhibition (Suarez & Gallup, 1976; Woodruff, 1977). One study found 37% of rape victims describe complete immobility during the assault; this immobility was associated with later self-blame (Galliano et al., 1993). In a retrospective examination of TI and child sexual abuse experiences, approximately 52% of the sample was categorized as experiencing TI during the abuse. TI was predictive of adult depressive and PTSD symptoms (Heidt et al., 2005). These results, although based on only two studies, suggest a need for further examination of peritraumatic behaviors and later posttraumatic distress.

In comparison to peritraumatic behaviors, peritraumatic emotions are integral to PTSD diagnosis. Criterion A2 of the *Diagnostic and Statistical Manual of Mental Disorders* (4th ed., text revision; *DSM-IV-TR*; American Psychiatric Association [APA], 2000) diagnosis for PTSD specifies that individuals must report experiencing intense fear, helplessness, or horror at the time of the traumatic event. Peritraumatic fear, helplessness, and horror have been associated with higher degrees of PTSD, with an average effect size of .26 (Ozer et al., 2003). However, the relative lack of examination of other types of peritraumatic emotional responses may fail to account for additional important emotional responses (Bernat et al., 1998; Kaysen et al., 2005). For example, anger and shame have both been identified as PTSD risk factors longitudinally (Andrews, Brewin, Rose, & Kirk, 2000; Brewin, Andrews, & Rose, 2000; Riggs, Dancu, Gershuny, Greenberg, & Foa, 1992). Other peritraumatic emotions, such as disgust, sadness, guilt, and surprise, have been proposed as potentially resulting in PTSD or depression (Holmes, Grey, & Young, 2005; Lee, Scragg, & Turner, 2001).

The purpose of the current study was to investigate peritraumatic responses and posttrauma distress. This study attempted to overcome limitations in previous research by examining both behavioral and emotional peritraumatic responses within a sample of female victims assessed within 2 months of a physical or sexual assault. Specific aims were as follows: examine the frequency of peritraumatic responses, categorize peritraumatic responses into meaningful classifications of response, and assess peritraumatic responses as predictors of PTSD and depressive symptoms. Consistent with previous

research, we predicted that behaviors indicative of resistance would be associated with lower posttrauma symptomatology, whereas behaviors indicative of “freezing” would be associated with greater levels of posttrauma symptomatology. Given the paucity of research on peritraumatic emotions other than fear, we had no specific directional hypotheses regarding their relation to posttrauma symptoms.

## Method

### Participants

Female participants, age 18 and older, were included who had experienced rape or first-degree physical assault within 2 months of the interview. *Rape* was defined as any crime involving vaginal, oral, or anal penetration. First-degree assault was defined according to Missouri legal code as a physical assault during which the participant experienced an injury or felt that the perpetrator was trying to kill or injure them. Participants were recruited through local police departments, hospitals, and victim assistance agencies. Women were informed of the project through postcards (describing the study) mailed to them by collaborating agencies, most frequently the St. Louis Police Department, and were asked to return the postcards or call the researchers if they were interested in participating. Callers who were more than 2 months postcrime were not invited to participate. Exclusion criteria were a lack of English literacy, demonstrated psychosis, or intoxication at the time of assessment (for consent and validity purposes). Participants were paid for their participation.

This study combines samples from two larger projects using the same recruitment procedures and measures detailed later. Sample 1 consists of 127 rape victims and 73 assault victims, and Sample 2 consists of 18 rape victims and 78 assault victims. Thus, the total sample consisted of 296 individuals: 145 rape victims and 151 assault victims. The vast majority participated within 1 month postassault (82.1%), with average length of time since assault being 20.2 days ( $SD = 11.8$ , range = 3 to 60).

The mean age was 32.2 years ( $SD = 9.5$ , range = 18 to 77). Average education level was 12.5 years (median = 12 years, range = 2 to 20 years). The racial breakdown of the sample was as follows: 69% African American, 27% Caucasian, and 4% other. The two samples were compared on these demographic variables as well as on measures of posttrauma distress (see below). There were no statistically significant differences between the two

samples, with the exception of age. Women in the second sample were significantly older ( $M = 34.5$ ,  $SD = 10.7$ ) than the first sample ( $M = 31.0$ ,  $SD = 8.6$ ),  $t(293) = 3.0$ ,  $p = .003$ . The samples were combined for all further analyses.

## Measures

A battery of interviews and self-report questionnaires were administered to participants, of which the following are relevant to the purposes of this study:

*Trauma Interview (Resick, 1986; Resick, Jordan, Girelli, & Hutter, 1988).* This measure was used to assess peritraumatic reactions. The trauma interview is a structured interview yielding descriptive characteristics about the participant and traumatic event. Included are questions regarding how much they felt particular emotions during the actual traumatic event as well as behaviors they may have engaged in on a 0 to 4 scale, where 0 indicated *not at all* and 4 indicated *the entire length of the event*. The 18 peritraumatic emotions and 11 peritraumatic behaviors that were assessed are listed in Table 1.

*Clinician Administered PTSD Scale (CAPS).* The CAPS (Blake et al., 1990) is a clinician-administered interview used to assess PTSD. This scale yields a PTSD diagnosis and continuous measure of PTSD severity. The CAPS has been shown to have excellent psychometric properties (see Weathers, Keane, & Davidson, 2001).

*Beck Depression Inventory (BDI).* The BDI (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961) is a widely used 21-item self-report questionnaire that evaluates cognitive and vegetative symptoms of depression. Correlations with clinician ratings of depression ranged from .62 to .66 within a sample of female physical and sexual assault victims (Foa, Riggs, Dancu, & Rothbaum, 1993). Internal consistency for the BDI ranges from .73 to .92, with a mean of .86 (Beck, Steer, & Garbin, 1988).

*Peritraumatic Dissociative Experiences Questionnaire–Rater Version (PDEQ).* As reported elsewhere, we used a six-item version of the PDEQ (Griffin, Resick, & Mechanic, 1997). Two items from the original PDEQ (Marmar, Weiss, & Metzler, 1998) were not administered because they were

**Table 1**  
**Descriptive and Results From Exploratory Factor**  
**Analysis of Peritraumatic Responses**

	<i>M</i>	<i>SD</i>	Factor 1	Factor 2	Factor 3	Factor 4
Hurt	3.11	1.34	<b>.766</b>	.048	.003	-.026
Sad	2.64	1.58	<b>.678</b>	.130	-.056	-.024
Betrayed	2.84	1.53	<b>.670</b>	-.071	.020	-.018
Humiliated	2.83	1.57	<b>.629</b>	.029	.010	.173
Angry	2.92	1.50	<b>.626</b>	-.061	.035	-.125
Embarrassed	1.97	1.71	<b>.545</b>	-.029	.122	.262
Disgusted, repulsed	3.07	1.33	<b>.392</b>	.144	.027	.116
Guilty	1.20	1.57	<b>.378</b>	-.018	-.006	.309
Shocked, surprised	3.24	1.13	<b>.329</b>	.295	-.157	.293
Afraid	3.28	1.21	-.086	<b>.875</b>	.006	.008
Terrified	3.10	1.34	.081	<b>.788</b>	-.026	-.065
Worried	3.23	1.23	.011	<b>.697</b>	.006	.020
Helpless	3.12	1.31	.172	<b>.365</b>	-.067	.255
Anxious	2.67	1.51	.056	<b>.344</b>	.040	.153
Tried to struggle free	1.97	1.60	-.111	.012	<b>.790</b>	.057
Kicked, hit, punched	1.12	1.50	.066	.012	<b>.705</b>	-.224
Bit or scratched	0.48	1.01	-.062	-.031	<b>.555</b>	.008
Screamed	1.51	1.57	.010	.141	<b>.537</b>	-.148
Begged, pleaded, cried	2.32	1.64	-.085	.242	<b>.494</b>	.404
Cursed, threatened	1.09	1.53	.280	-.314	<b>.480</b>	-.024
Did exactly as told	1.70	1.74	-.103	.142	-.198	<b>.744</b>
Gave up or quit fighting	1.17	1.36	.114	-.073	-.062	<b>.594</b>
Kept quiet and motionless	1.25	1.38	.004	-.159	-.388	<b>.580</b>
Tried to reason	2.14	1.63	.018	-.033	.341	<b>.401</b>
Confused, disoriented	2.15	1.51	.317	.048	.012	.095
Numb	1.69	1.51	.270	.113	-.080	.199
Detached as in a dream	1.77	1.59	.242	.105	-.105	.034
Passed out	0.19	0.60	.073	-.009	.013	-.020
Calm	0.53	1.06	-.075	-.317	-.193	.105
Percentage of variance explained			23.74	11.18	6.27	5.44
Eigenvalues			6.88	3.24	1.82	1.58

deemed as less applicable to sexual assault. Questions were rated on a 5-point scale, with 1 indicating *none of the time* and 5 indicating *all of the time*. These items were summed to create a measure of peritraumatic dissociation (possible range = 6 to 30), with higher scores indicating greater peritraumatic dissociation. This scale has been demonstrated to have good internal consistency and convergent validity with both measures of PTSD and physiological measures in female rape victims (Griffin et al., 1997).

## Data Analytic Plan

Given the number of peritraumatic reactions assessed, exploratory factor analysis (EFA) was conducted to determine underlying latent constructs and collapse the data into more meaningful categories. EFA was chosen as the aims of this study are predominantly exploratory, given that there is an insufficient basis to specify an a priori model. Recommendations for the proper execution of an EFA were followed as set forth by Fabrigar, Wegener, MacCallum, and Strahan (1999). Specifically, Maximum Likelihood was chosen as the model-fitting procedure, a parallel analysis (Hayton, Allen, & Scarpello, 2004) and scree test were conducted to determine the appropriate number of factors, and factors were rotated obliquely using promax because we expected the factors to be correlated. Parallel analysis is considered to be a more accurate method for factor determination because it adjusts for the effect of sampling error. Parallel analysis involves the comparison of the actual correlation matrix with randomly generated matrices. Only factors with higher actual eigenvalues than those generated by the random data are retained (see Hayton et al., 2004, for a description and step-by-step computation guide). The EFA was computed on the individuals with complete data ( $n = 269$ ) across all items of the interview.

Finally, regression analyses were computed to determine if different types of peritraumatic responses (as measured by the factors) predicted a significant proportion of variance in PTSD and depression symptomatology. Because the majority of participants were assessed within 1 month postcrime and a diagnosis of PTSD cannot be formally given until 1 month postcrime or later, we used the continuous measure of PTSD severity on the CAPS as a dependent variable as opposed to the presence/absence of the diagnosis.

## Results

Average CAPS severity score for the full sample was 64.8 ( $SD = 25.4$ ). This mean score is consistent with severe PTSD symptomatology (Weathers et al., 2001). Mean BDI score was 19.7 ( $SD = 12.1$ ), indicating a moderate level of depression (Beck et al., 1988), and mean peritraumatic dissociation score was 15.0 ( $SD = 5.2$ ). Compared to physical assault victims, sexual assault victims had significantly higher CAPS ( $M = 70.8$  vs.  $M = 59.3$ ),  $t(282) = 3.9$ ,  $p < .001$ , BDI ( $M = 21.3$  vs.  $M = 18.2$ ),  $t(285) = 2.2$ ,  $p = .03$ , and dissociation scores ( $M = 15.9$  vs.  $M = 14.2$ ),  $t(291) = 2.93$ ,  $p = .004$ . Mean scores of the peritraumatic emotions and behaviors are provided in Table 1.



**Table 2**  
**Correlations Among Variables in Regression Analyses**

	BDI	CAPS	Dissociation	Negative Affect	Fear Factor	Active Response	Freeze Response
CAPS	.61***						
Dissociation	.28***	.36***					
Negative affect	.34***	.34***	.26***				
Fear factor	.23***	.33***	.26***	.56***			
Active response	-.02	-.04	.11*	.38***	.17**		
Freeze response	.39***	.45***	.27***	.55***	.57***	.03	
Type of trauma	-.13*	-.22***	-.23***	-.18**	-.30***	-.12*	-.50***

Note: BDI = Beck Depression Inventory; CAPS = Clinician Administered Posttraumatic Stress Disorder Scale Total Severity Score; Dissociation = Peritraumatic Dissociation Total Score.  
 \* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

## EFA

The 29 peritraumatic emotion and behavior variables were entered into an EFA. The scree test indicated the last substantial “drop” in eigenvalues to occur between four and five factors. The parallel analysis confirmed a four-factor model. This four-factor model accounted for 46.6% of the total variance. Using .32 as the lower limit for factor loadings (Tabachnick & Fidell, 2001), the four factors as well as the factor loadings are presented in Table 1. The following variables did not load on any factor: “numb”; “detached, as if in a dream”; “confused, disoriented”; “calm”; and “passed out.” Descriptive fit indices indicate that this model provided a good fit to the data: Goodness of Fit Index = .92, Comparative Fit Index = .93, Root Mean Square Error of Approximation = .05.

The first factor consists of “negative affect,” excluding fear and anxiety. The second factor, the “fear factor,” consists of emotions describing fear and anxiety. The third factor, “active response,” consists of behaviors that appear to indicate active resistance or a “fight” response. Finally, the fourth factor, “freeze response,” includes four variables that tend to indicate TI, or a more passive or frozen response. Correlations between the four factors, CAPS score, BDI score, dissociation, and type of trauma are displayed in Table 2. Trauma type was coded as 0 for *rape* and 1 for *physical assault*; therefore, negative correlations between variables and trauma type are indicative of higher scores for rape as compared to physical assault victims.

**Table 3**  
**Summary of Hierarchical Regression Analysis for Variables**  
**Predicting PTSD and Depression Symptom Severity**

Step in Analysis	DV: CAPS Total Score ( <i>N</i> = 257)					DV: BDI Total ( <i>N</i> = 260)				
	<i>B</i>	<i>SE B</i>	$\beta$	<i>R</i> <sup>2</sup>	$\Delta R^2$	<i>B</i>	<i>SE B</i>	$\beta$	<i>R</i> <sup>2</sup>	$\Delta R^2$
Step 1				.05	.05**				.02	.02
Type of trauma	-8.24	3.56	-.16*			-3.49	1.80	-.14 <sup>†</sup>		
Time since trauma	-0.19	0.15	-.09			0.03	0.08	.03		
Step 2				.12	.08***				.08	.06***
Dissociation	1.31	0.30	.28***			0.59	0.16	.25***		
Step 3				.27	.15***				.24	.17***
Negative affect	3.94	2.21	.15 <sup>†</sup>			3.59	1.11	.27**		
Fear factor	0.80	2.00	.03			-0.96	1.01	-.07		
Active response	-3.61	1.75	-.13*			-2.43	0.90	-.18**		
Freeze response	8.80	2.29	.32***			4.21	1.19	.30***		

Note: DV = dependent variable; CAPS = Clinician Administered PTSD Scale; BDI = Beck Depression Inventory; PTSD = posttraumatic stress disorder.

<sup>†</sup>*p* < .10. \**p* < .05. \*\**p* < .01. \*\*\**p* < .001.

## Predicting Posttrauma Symptomatology

Factor scores were computed for each individual. Prior to conducting these analyses, variables were tested for multicollinearity, by running a series of four regressions (each factor regressed onto the remaining factors). The value of *R* was less than .7 for all regressions, indicating that there was not substantial multicollinearity across the four factors. Because of the significant differences between rape and physical assault victims in terms of the dependent variables and previous findings that peritraumatic dissociation is related to the development of PTSD (Ozer et al., 2003), hierarchical regressions were computed to control for type of trauma and dissociation. Therefore, type of trauma and days since trauma (to control for possible time effects) were entered as the first step, dissociation as Step 2, and the four factors were entered as a block as Step 3. Predicting PTSD symptom severity (CAPS severity score), each individual step significantly improved the model (Table 3). The four factors significantly improved the model over time since trauma, type of trauma, and dissociation. The overall model *R*<sup>2</sup> was .27, *F*(4,225) = 11.25, *p* < .001. Individual beta weights in the final model indicate that type of trauma, dissociation, the active response factor, and the freeze response contribute unique variance to the CAPS total score, with rape, more dissociation, fewer active responses, and greater freeze

responses associated with higher PTSD symptom severity. Notably, because the bivariate relationship between the active response factor and PTSD was quite weak ( $-.04$ ) and it had a significant beta weight, there is evidence of a suppressor effect (Cohen & Cohen, 1983). However, post hoc analyses indicate that results of the hierarchical regression do not substantially change when the active response factor is omitted.

A similar pattern of results was found in the prediction of BDI total score from type of trauma, peritraumatic dissociation, and other peritraumatic responses. Each individual step significantly improved the model (Table 3). The overall model  $R^2$  was  $.24$ ,  $F(4,226) = 12.54$ ,  $p < .001$ . Examination of individual beta weights in the final model indicates that all variables except the fear factor contribute unique variance to the prediction of BDI total score. Rape, more dissociation, more negative affective responses, fewer active responses, and more freeze responses were associated with higher endorsement of depressive symptoms. Similar evidence for a suppressor effect was found with the active response factor, given the weak bivariate relationship between it and the BDI score ( $-.02$ ), but again, post hoc analyses indicate that results of the regression do not change when this factor is removed from the analyses.

## Discussion

This study sought to more fully describe the range and importance of peritraumatic responses experienced by recent rape and physical assault victims. Nearly 300 women were assessed within 2 months posttrauma about their peritraumatic reactions, PTSD, and depressive symptoms. Through EFA, peritraumatic responses were reduced to four meaningful factors: “negative affect” (other than fear), “fear,” “active responding,” and “freeze responses.” Results indicate these factors added significantly to models predicting PTSD and depressive symptoms, even after including type of trauma and peritraumatic dissociation. Moreover, responses indicative of a freeze response, or TI, were associated with greater PTSD and depressive symptomatology. Although the active responses factor did not have a strong direct relationship with posttrauma symptomatology, once other variables were included in the model, fighting was associated with lower symptomatology.

These findings have important implications for determining possible pathways for the development of subsequent PTSD. It is possible that these behavioral responses influence posttrauma symptomatology through cognitive appraisals of these responses, such as self-blame (Heidt et al.,

2005). That is, individuals who feel they did all they could to fight back may be less likely to blame or criticize themselves afterward. Those who shut down, perhaps involuntarily, are more likely to feel they could have done more to prevent the event and therefore feel that they are to blame for the trauma (regardless of how realistic these beliefs are) (Lee et al., 2001). It is also possible that various behavioral responses influence the degree of social support or blame that victims receive from others after the event, thereby leading to posttrauma symptoms (Kaysen et al., 2005). For example, other people may be less likely to be supportive if they perceive that the victim shut down or did not fight back, even if those reactions seemed involuntary. There is some evidence for this phenomenon in both experimental and qualitative studies, indicating that a lack of physical resistance is associated with more victim blame from police as well as other individuals (Branscombe, Owen, Garstka, & Coleman, 1996; Branscombe & Weir, 1992; Campbell & Johnson, 1997; Jordan, 2004). This is the first study to include both active responding, as well as “freeze” responses, as predictors of posttrauma symptoms and to indicate that both types of behaviors had separate and important effects. The results call into question the relative importance of the *DSM-IV-TR* criterion A2 (APA, 2000) in that peritraumatic factors other than fear and horror appeared to have greater influence on the development of posttrauma symptomatology.

Peritraumatic emotions, other than fear and anxiety, were also significant predictors of posttrauma distress but only of depression, not of PTSD symptoms. It is possible that these other emotions (e.g., shame, anger, sadness) are more important for understanding the etiology of depression than of PTSD (Creamer, McFarlane, & Burgess, 2005; Dalgleish & Power, 2004). It has been suggested that depression following trauma exposure may have different predictors than pure PTSD and may be a separate process (O'Donnell, Creamer, & Pattison, 2004; Shalev et al., 1998). A perception of betrayal, accompanied by hurt, anger, or sadness, may reflect the losses that occur in intimate crimes that women most frequently experience, such as rape or domestic violence.

Fear responses during the trauma were not uniquely related to subsequent PTSD and depression symptomatology, suggesting that fear may not be a good discriminator for posttrauma adjustment in victims of severe interpersonal violence. It is certainly possible that with other types of traumatic events, such as motor vehicle accidents, disasters, or terrorist attacks, there may be more variability in both proximity to the event and in the range of fear responses. Further research is needed to elucidate the unique aspects of these responses.

This study did not attempt to predict why individuals may have engaged in these responses. It is likely that peritraumatic responses are multiply determined by factors such as crime characteristics, victim drug or alcohol use, perpetrator characteristics (e.g., relationship to victim, drug/alcohol use, use of weapon), or victim prior trauma history. This study also did not account for other factors that may affect how individuals recover (or fail to recover) following a trauma, such as precrime psychopathology, prior trauma history, coping, social support, or cognitive appraisals of their symptoms and reactions. However, given the lack of research into peritraumatic responses more broadly, the current study represents an important first step in understanding these very complex relationships.

This study has several limitations that limit to some extent the conclusions that can be drawn. Any methodology that seeks to assess peritraumatic responses relies on retrospective data, and this study is no exception. Moreover, self-reports of these peritraumatic responses were assessed contemporaneously with symptom measures, and symptom severity may thus influence memories of the event (Briere, 1997). However, given that participants were assessed within 2 months postcrime and many were interviewed within days of the trauma, the methodology of the current study represents an improvement over those studies assessing peritraumatic responses in months, years, or even decades after the traumatic event. Future research should attempt longitudinal studies to assess both changes in recall of these responses over time and predictive utility of peritraumatic responses for chronic posttrauma symptoms. Second, the sample itself may limit generalizability. Specifically, the sample consisted of crime victims who reported their experiences to police or other authorities and thus may have overrepresented severe crimes (Kaysen et al., 2005). In addition, the inclusion of only completed assaults may have limited the range of peritraumatic responses participants endorsed (such as active responses). It would be important to replicate these findings across different populations and types of trauma. Third, the interview used to assess peritraumatic responses did not account for temporal sequences of responses. That is, individuals could state they both fought back as well as shut down during the event (which could have lasted minutes or hours), but there is no way of knowing whether shutting down occurred before, after, or in between fighting. It is likely that there is a temporal order to factors elucidated by the model. Finally, although results indicated peritraumatic responses predicted PTSD and depressive symptoms, it is important to recognize that a great deal of variance was unexplained by this model. There are a myriad of other factors that contribute to differences in adjustment following sexual or physical

assault. However, an examination of peritraumatic responses has been relatively neglected by the trauma literature. These results suggest that these reactions merit further study.

## References

- American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (4th ed., text revision). Washington, DC: Author.
- Andrews, B., Brewin, C. R., Rose, S., & Kirk, M. (2000). Predicting PTSD symptoms in victims of violent crime: The role of shame, anger, and childhood abuse. *Journal of Abnormal Psychology, 109*(1), 69-73.
- Bart, P. B., & O'Brien, P. H. (1985). *Stopping rape: Effective survival strategies*. New York: Pergamon.
- 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.
- Beck, A. T., Ward, C. H., Mendelson, M., Mock, J., & Erbaugh, J. (1961). An inventory for measuring depression. *Archives of General Psychiatry, 141*, 1311.
- Bernat, J. A., Ronfeldt, H. M., Calhoun, K. S., & Arias, I. (1998). Prevalence of traumatic events and peritraumatic predictors of posttraumatic stress symptoms in a nonclinical sample of college students. *Journal of Traumatic Stress, 11*(4), 645-664.
- Birmes, P., Brunet, A., Carreras, D., Ducasse, J. L., Charlet, J. P., Lauque, D., et al. (2003). The predictive power of peritraumatic dissociation and acute stress symptoms for posttraumatic stress symptoms: A three-month prospective study. *American Journal of Psychiatry, 160*(7), 1337-1339.
- Blake, D. D., Weathers, F. W., Nagy, L. M., Kaloupek, D. G., Klauminzer, G., Charney, D. S., et al. (1990). A clinician rating scale for assessing current and lifetime PTSD: The CAPS-1. *The Behavior Therapist, 18*, 187-188.
- Branscombe, N. R., Owen, S., Garstka, T. A., & Coleman, J. (1996). Rape and accident counterfactuals: Who might have done otherwise and would it have changed the outcome? *Journal of Applied Social Psychology, 26*(12), 1042-1067.
- Branscombe, N. R., & Weir, J. A. (1992). Resistance as stereotype-inconsistency: Consequences for judgments of rape victims. *Journal of Social and Clinical Psychology, 11*(1), 80-102.
- Brewin, C. R., Andrews, B., & Rose, S. (2000). Fear, helplessness, and horror in posttraumatic stress disorder: Investigating DSM-IV criterion A2 in victims of violent crimes. *Journal of Traumatic Stress, 13*(3), 499-509.
- Briere, J. (1997). Methodological issues in the study of sexual abuse effects. *Journal of Consulting and Clinical Psychology, 60*(2), 196-203.
- Campbell, R., & Johnson, C. R. (1997). Police officers' perceptions of rape: Is there consistency between state law and individual beliefs? *Journal of Interpersonal Violence, 12*(2), 255-274.
- Cohen, J., & Cohen, P. (1983). *Applied multiple regression/correlation analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum.
- Creamer, M., McFarlane, A. C., & Burgess, P. (2005). Psychopathology following trauma: The role of subjective experience. *Journal of Affective Disorders, 86*(2-3), 175-182.

- Dalgleish, T., & Power, M. J. (2004). The I of the storm-relations between self and conscious emotion experience: Comment on Lambie and Marcel (2002). *Psychological Review*, *111*(3), 812-819.
- Davis, R. C., Taylor, B., & Lurigio, A. J. (1996). Adjusting to criminal victimization: The correlates of postcrime distress. *Violence and Victims*, *11*(1), 21-38.
- Epstein, J. N., Saunders, B. E., & Kilpatrick, D. G. (1997). Predicting PTSD in women with a history of childhood rape. *Journal of Traumatic Stress*, *10*(4), 573-588.
- Fabrigar, L. R., Wegener, D. T., MacCallum, R. C., & Strahan, E. J. (1999). Evaluating the use of exploratory factor analysis in psychological research. *Psychological Methods*, *4*(3), 272-299.
- Foa, E. B., Riggs, D. S., Dancu, C. V., & Rothbaum, B. O. (1993). Reliability and validity of a brief instrument for assessing post-traumatic stress disorder. *Journal of Traumatic Stress*, *6*, 459-473.
- Galliano, G., Noble, L. M., Puechl, C., & Travis, L. A. (1993). Victim reactions during rape/sexual assault: A preliminary study of the immobility response and its correlates. *Journal of Interpersonal Violence*, *8*, 109-114.
- Griffin, M. G., Resick, P. A., & Mechanic, M. B. (1997). Objective assessment of peritraumatic dissociation: Psychophysiological indicators. *American Journal of Psychiatry*, *154*(8), 1081-1088.
- Hayton, J. C., Allen, D. G., & Scarpello, V. (2004). Factor retention decisions in exploratory factor analysis: A tutorial on parallel analysis. *Organizational Research Methods*, *7*(2), 191-205.
- Heidt, J. M., Marx, B. P., & Forsyth, J. P. (2005). Tonic immobility and childhood sexual abuse: A preliminary report evaluating the sequela of rape-induced paralysis. *Behavior Research and Therapy*, *43*(9), 1157-1171.
- Holmes, E. A., Grey, N., & Young, K. A. D. (2005). Intrusive images and "hotspots" of trauma memories in posttraumatic stress disorder: An exploratory investigation of emotions and cognitive themes. *Journal of Behavior Therapy and Experimental Psychiatry*, *36*, 3-17.
- Janoff-Bulman, R. (1979). Characterological versus behavioral self-blame: Inquiries into depression and rape. *Journal of Personality and Social Psychology*, *37*, 1798-1809.
- Johnson, D. M., Pike, J. L., & Chard, K. M. (2001). Factors predicting PTSD, depression, and dissociative severity in female treatment-seeking childhood sexual abuse survivors. *Child Abuse & Neglect*, *25*(1), 179-198.
- Jordan, J. (2004). Beyond belief? Police, rape and women's credibility. *Criminal Justice: International Journal of Policy & Practice*, *4*(1), 29-59.
- Kaysen, D., Morris, M. K., Rizvi, S. L., & Resick, P. A. (2005). Peritraumatic responses and their relationship to perceptions of threat in female crime victims. *Violence Against Women*, *11*(12), 1515-1535.
- Koopman, C., Classen, C., & Spiegel, D. A. (1994). Predictors of posttraumatic stress symptoms among survivors of the Oakland/Berkeley, Calif., firestorm. *American Journal of Psychiatry*, *151*(6), 888-894.
- Lee, D. A., Scragg, P., & Turner, S. (2001). The role of shame and guilt in traumatic events: A clinical model of shame-based and guilt based PTSD. *British Journal of Medical Psychology*, *74*, 451-466.
- Litz, B. T., & Roemer, L. (1996). Post-traumatic stress disorder: An overview. *Clinical Psychology and Psychotherapy*, *3*(3), 153-168.
- Marmar, C. R., Weiss, D. S., & Metzler, T. (1998). Peritraumatic dissociation and posttraumatic stress disorder. In J. D. Bremner & C. R. Marmar (Eds.), *Trauma, memory, and dissociation* (pp. 229-252). Washington, DC: American Psychiatric Press.

- Marmar, C. R., Weiss, D. S., Metzler, T. J., Delucchi, K. L., Best, S. R., & Wentworth, K. A. (1999). Longitudinal course and predictors of continuing distress following critical incident exposure in emergency services personnel. *Journal of Nervous and Mental Disease, 187*(1), 15-22.
- Marshall, G. N., & Schell, T. L. (2002). Reappraising the link between peritraumatic dissociation and PTSD symptom severity: Evidence from a longitudinal study of community violence survivors. *Journal of Abnormal Psychology, 111*(4), 626-636.
- O'Donnell, M. L., Creamer, M., & Pattison, P. (2004). Posttraumatic stress disorder and depression following trauma: Understanding comorbidity. *American Journal of Psychiatry, 161*(8), 1390-1396.
- Ozer, E. J., Best, S. R., Lipsey, T. L., & Weiss, D. S. (2003). Predictors of posttraumatic stress disorder and symptoms in adults: A meta-analysis. *Psychological Bulletin, 129*, 52-73.
- Resick, P. A. (1986). Post-traumatic stress disorder in a Vietnam nurse: Behavioral analysis of a case study (Special issue: A woman's recovery from the trauma of war). *Women and Therapy, 5*, 55-65.
- Resick, P. A., Jordan, C. G., Girelli, S. A., & Hutter, C. K. (1988). A comparative outcome study of behavioral group therapy for sexual assault victims. *Behavior Therapy, 19*, 385-401.
- Riggs, D. S., Dancu, C. V., Gershuny, B. S., Greenberg, D., & Foa, E. B. (1992). Anger and post-traumatic stress disorder in female crime victims. *Journal of Traumatic Stress, 5*(4), 613-625.
- Selkin, J. (1978). Protecting personal space: Victim and resister reaction assaultive rape. *Journal of Community Psychology, 6*, 263-268.
- Shalev, A. Y., Bonne, O. B., & Peri, T. (1996). Auditory startle response during exposure to war express. *Comprehensive Psychiatry, 37*(2), 134-138.
- Shalev, A. Y., Freedman, S., Peri, T., Brandes, D., Sahar, T., Orr, S. P., et al. (1998). Prospective study of posttraumatic stress disorder and depression following trauma. *American Journal of Psychiatry, 155*(5), 630-637.
- Simeon, D., Greenberg, J., Nelson, D., Schmeidler, J., & Hollander, E. (2005). Dissociation and posttraumatic stress 1 year after the world trade center disaster: Follow-up of a longitudinal survey. *Journal of Clinical Psychiatry, 66*(2), 231-237.
- Suarez, S. D., & Gallup, G. G. (1976). Tonic immobility as a response to rape theoretical note. *The Psychological Record, 29*, 315-320.
- Tabachnick, B. G., & Fidell, L. S. (2001). *Using multivariate statistics*. New York: Harper Collins College Publishers.
- Weathers, F. W., Keane, T. M., & Davidson, J. R. (2001). Clinician-administered PTSD scale: A review of the first ten years of research. *Depression and Anxiety, 13*, 132-156.
- Woodruff, M. L. (1977). Limbic modulation of contact defensive immobility. *The Psychological Record, 1*, 161-175.

**Shireen L. Rizvi**, PhD, received her doctorate in clinical psychology from the University of Washington in 2004, and she completed her postdoctoral fellowship at the National Center for Post-Traumatic Stress Disorder (PTSD) at the VA Boston Healthcare System. She is currently assistant professor of psychology at the New School for Social Research in New York City. Her research and clinical interests are in the treatment of PTSD and borderline personality disorder. She also studies the emotion of shame and its relation to psychopathology.

**Debra Kaysen**, PhD, received her doctorate in clinical psychology from the University of Missouri–St. Louis in 2003. She is currently an assistant professor at the University of



Washington Department of Psychiatry and Behavioral Sciences. Her clinical interests are in the areas of PTSD, depression, and addictive behaviors. Her research interests are in the area of mechanisms explaining the development of PTSD and comorbid alcohol use disorders, and she has received grants from National Institute of Alcohol Abuse and Alcoholism and the Alcohol Beverage Medical Research Foundation.

**Cassidy A. Gutner**, MA, received her BA from Skidmore College in 2004, with a major in psychology and neuroscience. She recently received her MA in psychology from Boston University, where she is currently pursuing a doctoral degree in clinical psychology. She is presently a member of the Translational Research Program and the Center for Anxiety and Related Disorders at Boston University.

**Michael G. Griffin**, PhD, received his doctorate in experimental psychology from the University of Missouri–St. Louis in 1990 and completed a postdoctoral fellowship at Washington University Medical Center in 1991. He is currently an associate professor of psychology at the University of Missouri–St. Louis. His research interests are in the interconnection between psychology and biology (psychobiology), in particular the connection between psychological events and biological alterations. Specific research interests are primarily in the areas of PTSD and the biological alterations associated with this disorder. In particular, he is interested in studying psychophysiological and psychoendocrine changes that occur following exposure to highly traumatic events such as sexual and physical assault.

**Patricia A. Resick**, PhD, is the director of the Women's Health Sciences Division of the National Center for PTSD at VA Boston Healthcare System and a professor of psychiatry and psychology at the Boston University School of Medicine and Boston University. Her research interests include treatment of PTSD, dissemination of evidence-based treatments, PTSD comorbidity, and risk factors for the development of PTSD. She is the developer of cognitive processing therapy for PTSD and is currently president-elect of the International Society for Traumatic Stress Studies.