

# Relation Between Trauma and Psychopathology: Mediating Roles of Dissociation and Fears About Death and Control

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**ABSTRACT.** We investigated mediational relations among trauma, dissociation, psychopathology (e.g., PTSD, borderline personality disorder, bulimic behaviors), and fears about death and lacking control in a sample of 325 non-treatment-seeking women. With the use of structural equation modeling, findings indicated that: (1) dissociation accounted for 27% of variance in the trauma-psychopathology relation (significant partial mediation), and (2) general ongoing fears about death and control accounted for an additional 20% of variance in the trauma-psychopathology relation beyond what was already accounted for by dissociation (total of 47% of variance explained in the trauma-psychopathology relation; signifi-

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cant partial mediation). Findings are discussed, and postulations about relations are proposed. [Article copies available for a fee from The Haworth Document Delivery Service: 1-800-HAWORTH. E-mail address: <docdelivery@haworthpress.com> Website: <<http://www.HaworthPress.com>> © 2004 by The Haworth Press, Inc. All rights reserved.]

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Why do some people suffer more psychologically after enduring trauma than others? Though some survivors of trauma report high levels of problematic symptoms and psychopathology (e.g., Rothbaum, Foa, Riggs, Murdock, & Walsh, 1992), others do not. For example, about 70-75% of trauma survivors may not develop posttraumatic stress disorder (PTSD; Breslau, David, Andreski, & Peterson, 1991; Weiss et al., 1992). Thus, there must be variables other than the occurrence of trauma itself that relate to the development and maintenance of symptoms (Yehuda, 1998; Yehuda & McFarlane, 1995).

A variety of factors may influence psychopathology in trauma survivors (e.g., number of traumatic events; Follette, Polusny, Bechtle, & Naugle, 1996). One factor that has received a great deal of attention in recent years is dissociation. A prolific literature has emerged that examines dissociative phenomena as a possible link between various forms of trauma and psychopathology. Studies have consistently revealed that individuals who endured some type of trauma (e.g., childhood abuse, assault, witnessing disaster) report higher levels of dissociative phenomena (e.g., Bremner & Brett, 1997; Bremner et al., 1992; Cardena & Spiegel, 1993; Carlson & Rosser-Hogan, 1991; Chu & Dill, 1990; Dancu, Riggs, Hearst-Ikeda, Shoyer, & Foa, 1996; Sandberg & Lynn, 1992). Individuals who experienced more severe sexual abuse and more frequent physical abuse as children may be at particularly high risk for elevated levels of dissociation (e.g., Carlson, Armstrong, Loewenstein, & Roth, 1998; Kirby, Chu, & Dill, 1993). In addition, traumatized individuals who report higher levels of dissociative phenomena also report higher levels of psychopathology such as PTSD (e.g., Classen, Koopman, Hales, & Spiegel, 1998; Dancu et al., 1996; Foa, Riggs, & Gershuny, 1995; Harvey & Bryant, 1998; Koopman, Classen, & Spiegel, 1994; Yehuda et al., 1996).

Dissociation may indeed mediate partially the trauma-psychopathology relation (e.g., Foa, Riggs, & Gershuny, 1995; Gershuny & Thayer, 1999; Lifton & Olson, 1999); in other words, the relation between trauma and psychopathology may be explained in part by dissociation. Over a century ago, Pierre Janet theorized that dissociation comprises a component of the initial stages of response to trauma, and that dissociation is a key element in one's eventual ad-

aptation (see van der Kolk, van der Hart, & Marmar, 1996). Though Janet conceptualized dissociation as a means of coping initially with the psychological upheaval of trauma, he further speculated that chronic long-term dissociation may indeed impede adaptation and lead to psychopathological processes (Nemiah, 1998; Ross, 1996; van der Kolk et al., 1996).

Recently, it was speculated that fears about death and lack of control may help further explain relations among trauma, dissociation, and psychopathology (Gershuny & Thayer, 1999). Drawing upon recent empirical findings that emotional numbing may relate most strongly to arousal (Foa, Riggs, & Gershuny, 1995; Litz, Schlenger, Weather, Caddell, Fairbank, & Lavange, 1997), and the classic literature of Lifton (e.g., Lifton, 1968, 1973; Lifton & Olson, 1999) that postulated relations among death anxiety, dissociation, and posttraumatic responses, Gershuny and Thayer (1999) speculated that fears about death and losing control may help explain the relation among trauma, dissociation, and psychopathology.

Recent findings lend support to the above speculation and indicate that a relation between peritraumatic dissociation and PTSD severity is mediated by peritraumatic fears about death and losing control (Gershuny, Cloitre, & Otto, 2003). However to date, theoretical speculations have not been tested empirically via analyses of *pervasive* (general) dissociation, *pervasive* (general) death fears, and *pervasive* (general) control fears. Therefore, the current study addresses the following questions: (1) How much of the relation between trauma and psychopathology is accounted for by general dissociation? and (2) Do general fears about death and losing control help explain the relation between trauma and psychopathology above and beyond that which may be accounted for by dissociation?

The current study also broadly conceptualizes "psychopathology." Recent studies have called for empirical work to take into consideration a variety of forms of potentially trauma-related psychopathology (e.g., Cloitre, Scarvalone, & Difede, 1997). Traumatic histories may play important pathogenic roles in borderline personality disorder and bulimic disorder (e.g., Brodsky, Cloitre, & Dulit, 1995; Herman, 1997; Herman, Perry, & van der Kolk, 1989; Laporte & Guttman, 1996; Ogata et al., 1990) and indeed may be higher in prevalence in those disorders than in other forms of psychopathology such as mood disorders (e.g., Hall, Sachs, Rayens, & Lutenbacher, 1993), alcohol use disorders (e.g., Windle, Windle, Scheidt, & Miller, 1995), anxiety disorders (e.g., Mancini, van Ameringen, & MacMillan, 1995), other Axis II disorders (e.g., Laporte & Guttman, 1996), and in the general community (e.g., McCauley, Kern, Kolodner, Dill, et al., 1997). As such, we included borderline personality disorder features and bulimia features, in addition to symptoms of PTSD and general distress, in our conceptualization of "psychopathology."

## METHODS

### *Participants*

Participants were 325 female undergraduate and graduate students at the University of Missouri-Columbia who were recruited from "Introduction to Psychology" courses, upper-level psychology courses, and the graduate departments of psychology and social work. Introductory psychology students received class credit for their participation; upper-level undergraduate and graduate students were entered into a raffle in which five of them each had a chance to win \$75. Seventy percent (70%) of participants were between ages of 18-19, 15% were 20-24, 8% were 25-29, 5% were 30-39, 1% was 40-49, and 1% was 50 or over. Eighty-six percent were Caucasian, 8% African-American, 2% Asian-American, 2% Hispanic, and 1% Native American.<sup>1</sup>

### *Measures*

The Traumatic Event Survey-Lifetime (TES-L; Gershuny, 1999) assesses lifetime experience with a variety of traumatic events and takes into account DSM-IV criterion "A," which states that fear, horror, and/or helplessness must be experienced for an event to be deemed a trauma. Types of events assessed include those widely regarded as potentially traumatic (see Elliott, 1997; Foa, Cashman, Jaycox, & Perry, 1997) include: (a) natural disasters (e.g., earthquake, flood, tornado), (b) accidents (e.g., automobile, boat, plane, train), (c) illness and death (e.g., personal, loved one), (d) combat, (e) interpersonal violence in adulthood (e.g., robbery, physical assault, sexual assault), (f) abuse in childhood (e.g., physical, sexual), and (g) witnessing violence. Questions regarding physical and sexual assault, and physical and sexual abuse, were worded to ask about specific behaviors rather than an "assault" or "abuse" per se to increase likelihood of accurate and truthful reporting (e.g., Elliott, 1997). Childhood sexual abuse was defined as: (1) any sexual activity prior to age 18 that was unwanted by the participant, or (2) any sexual activity prior to age 13 in which the perpetrator was at least five years older, or (3) any intrafamilial sexual activity prior to age 18 in which the perpetrator was at least five years older (Sher, Gershuny, Peterson, & Raskin, 1997). In addition to responding to the aforementioned "traumatic" events, participants were also given an opportunity to report an event they perceived as traumatic but that was not already probed in the TES-L (this was categorized as "other"). This "other" category was probed in exactly the same way as the other traumatic event categories, but participants were also asked to briefly describe the "other" event on an additional piece of paper. Each event was probed by asking participants how many times a specific situation occurred, with possible

answers ranging from 0-5 (0 = never, 1 = once, 2 = 2-5 times, 3 = 6-10 times, 4 = 11-20 times, 5 = 21 or more times). Follow-up questions to each event asked how long ago the event occurred, and the degree of fear, horror, and/or helplessness experienced during the event. If more than one event in a category was experienced, follow-up questions pertained to the "most emotionally disturbing" event.

The Death Anxiety Questionnaire (DAQ; Conte, Weiner, Plutchik, 1982) is a 15 item questionnaire that assesses general fears about death. Three questions were added to this questionnaire for the purposes of this study: (1) "Does the thought of death frighten you?" (2) "Are you afraid to die?" and (3) "Does the thought of not knowing what it is like to die or be dead concern you?" This slightly modified scale demonstrated excellent internal consistency with the current sample ( $\alpha = .90$ ) and a good single factor structure.

The Fear of No Control Scale (FONCS; Gershuny, 1999) is a 5 item questionnaire that assesses degrees to which participants fear lacking control. Participants rate on a 1-5 point scale (1 = not at all agree, 5 = agree a great deal) their level of agreement with a series of statements: "I am afraid of losing control or not being in control," "I am afraid that I won't have control over situations when I need or want to," "I am afraid that something terrible might happen and I won't be prepared and able to control the situation," "I am afraid of not being in control of my actions," and "I am afraid of not being able to control other people's actions." This scale demonstrated good internal consistency with the current sample ( $\alpha = .84$ ) and a good single factor structure.

The Dissociative Experiences Scale-II (DES-II; Carlson & Putnam, 1993) is a 28 item measure widely used to assesses the frequency of a variety of general dissociative phenomena based on the percentage of time participants experience a number of dissociative events. The DES-II demonstrated excellent internal consistency in the current sample ( $\alpha = .91$ ). The DES reportedly measures three factors (Carlson & Putnam, 1993): absorption, amnesia, and depersonalization/derealization. We subjected items to exploratory and confirmatory factor analyses that indeed supported a three-factor solution: absorption, amnesia, and depersonalization/derealization/numbing. Internal consistencies for these three factors in the current sample were satisfactory (absorption  $\alpha = .84$ , amnesia  $\alpha = .80$ , depersonalization/derealization/numbing  $\alpha = .78$ ).

The Brief Symptom Inventory (BSI; Derogatis & Spencer, 1982) is a 53 item inventory assessing a variety of psychological symptoms (e.g., anxiety, obsessive-compulsive fears and behaviors, depression, somatization, hostility, interpersonal sensitivity, paranoia) experienced within the past week. A global severity index (GSI) is computed from responses to all items on the inventory, providing a measure of general distress based on number and inten-

sity of symptoms. The GSI of the BSI showed excellent internal consistency in the current sample ( $\alpha = .96$ ).

The Posttraumatic Diagnostic Scale (PTDS; Foa, Cashman, Jaycox, & Perry, 1997) is a 17 item scale that assesses PTSD severity by measuring the frequency with which participants experience each of the PTSD symptoms included in the DSM-IV (APA, 1994). A Total Symptom Severity score is obtained by summing ratings across all items. Internal consistency for this scale was excellent with the current sample ( $\alpha = .94$ ).

The Impact of Event Scale (IES; Horowitz, Wilner, & Alvarez, 1979) is a 15 item questionnaire that measures PTSD-related symptoms: intrusion and avoidance/numbing. Internal consistency in the current study was excellent ( $\alpha = .94$ ).

The Bulimia subscale of the Eating Disorders Inventory (EDI; Garner, Olmstead, & Polivy, 1983) is a seven item scale that assesses episodes of uncontrollable overeating and the impulse to engage in self-induced vomiting. Internal consistency for this subscale in the current study was good ( $\alpha = .87$ ).

The Personality Assessment Inventory-Borderline Scale (PAI-BOR; Morey, 1991) is a 24 item inventory that assesses the degree to which participants report a variety of features related to borderline personality disorder. The PAI-BOR demonstrated good internal consistency with the current sample ( $\alpha = .86$ ).

The Marlowe-Crowne Social Desirability Scale-Short Form (Reynolds, 1982) is a 13 item scale that assesses participants' tendencies to respond in socially desirable rather than necessarily truthful ways and was administered to control for possible effects of untruthful responding.

### ***Procedure***

All questionnaires were completed during single testing sessions with groups of 20-45 individuals. Participants were guaranteed privacy of responses; study ID numbers were untraceable to names to promote greater honesty and to protect confidentiality.

## **RESULTS**

### ***Participants' Experiences with Potentially Traumatic Events***

All 325 participants reported at least one event that may be considered traumatic. Most common events were: natural disasters (50%); accidents (76%); tragic deaths of loved ones (71%); and serious, debilitating, or life-threatening illnesses of loved ones (83%). In addition, 21% reported childhood (i.e., before age 18) physical abuse, 30% reported childhood sexual abuse with 4-5%

reporting unwanted sexual activity before age 13 or incest before age 18; 9% reported adulthood rape (i.e., unwanted, forced sexual intercourse); 13% reported adulthood (age 18 or older) sexual assault (i.e., unwanted, forced sexual activity that did not include intercourse); 14% reported adulthood physical assault; 36% witnessed the murder or injury of another person; 28% reported serious, debilitating, or life-threatening personal illness; 7% reported a mugging/robbery; and 1% reported combat. Though most of the above prevalence rates are similar to those found in other community and university samples (e.g., Breslau et al., 1991; Elliott, 1997; Vrana & Lauterbach, 1994), the prevalence rates for natural disasters, accidents, tragic deaths of loved ones, and serious illnesses of others may be inflated. We can explain the seemingly inflated prevalence rate for natural disasters. During the second week of data collection, an F2 tornado struck a neighborhood in Columbia, Missouri, that was heavily populated with students and caused a great deal of damage. Thus, numerous students endured the natural disaster of a tornado. The seemingly high rates reported for accidents, death of loved ones, and illness of loved ones may be due to measurement error, or they may represent "accurate" reports of the experiences of participants in the current study. Again, all other prevalence rates reported in the current study appear in line with rates reported in other studies and thus are likely accurate representations.

### ***Bivariate Relations Among Study Variables***

Pearson correlations were conducted to examine relations among all study variables (see Table 1 for correlation matrix). Of all forms of psychopathology, trauma frequency and fear/horror/helplessness related most strongly to PTSD severity and least strongly to bulimic behaviors; dissociative experiences related most strongly to general distress and borderline personality symptoms. General death and control fears positively related to all forms of psychopathology and dissociation.

## **STRUCTURAL EQUATION MODELING: RELATIONS AMONG TRAUMA AND PSYCHOPATHOLOGY AND THE MEDIATING ROLES OF DISSOCIATION AND FEARS ABOUT DEATH AND CONTROL**

### ***Measurement Methods, Parameters, and Indices***

For all models, latent variables were comprised of effect manifest variables: "trauma" = trauma frequency, level of fear/horror/helplessness experienced during trauma (based on DSM-IV conceptualization of Criterion A "trauma"; APA, 1994); "dissociation" = absorption, amnesia, depersonaliza-

TABLE 1. Correlations Among Study Variables: Predictors, Criteria, and Mediators

VARIABLES	Time trauma	Freq trauma	Fear trauma	DES-absorb	DES-amnes	DES-depers	BSI/GSI	EDI	PAI-BOR	PTSD	IES	DAQ	FONC
Freq trauma	.13*	-											
Fear trauma	.12*	.31***	-										
DES-absorb	-.15**	.24***	.07	-									
DES-amnes	-.13*	.24***	.07	.61***	-								
DES-depers	-.12*	.23***	.03	.65***	.63***	-							
BSI/GSI	-.15**	.30***	.24***	.51***	.44***	.52***	-						
EDI	-.04	.15**	.10	.23***	.20***	.25***	.44***	-					
PAI-BOR	-.16**	.29***	.20***	.46***	.41***	.43***	.71***	.36***	-				
PTSD	-.06	.40***	.42***	.24***	.29***	.31***	.50***	.24***	.37***	-			
IES	-.16**	.26***	.36***	.30***	.28***	.23***	.45***	.22***	.37***	.68***	-		
DAQ	-.13*	.08	.23***	.20***	.20***	.19***	.35***	.24***	.35***	.27***	.24***	-	
FONC	.00	.08	.20***	.17**	.11*	.21***	.45***	.23***	.30***	.20***	.15**	.35***	-
SocDes	-.06	-.12*	-.18***	-.19***	-.06	-.12*	-.25***	-.24***	-.33***	-.09	-.05	-.22***	-.21***

\* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ 

Note: Time trauma = time since trauma occurred; Freq trauma = trauma frequency; Fear trauma = trauma fear/horror/helplessness; DES-absorb = dissociation-absorption; DES-amnes = dissociation-amnesia; DES-depers = dissociation/depersonalization/derealization/numbing; BSI/GSI = general distress; EDI = bulimic behaviors; PAI-BOR = borderline personality; PTSD = PTSD severity; IES = intrusion/avoidance symptoms; DAQ = death anxiety; FOMC = fear of lacking control; SocDes = social desirability.



tion/derealization/numbing; "psychopathology" = PTSD severity, intrusion/avoidance, borderline personality, bulimic behaviors, and general distress (global severity index). For "psychopathology," PTSD severity and intrusion/avoidance were covaried, and general distress, borderline personality, and bulimic behaviors were also covaried based on theoretical conceptualizations of symptoms and indications from empirically derived Lagrange multipliers (SAS, 1990). Fear about death was included in models as a manifest variable derived from a measure of general death anxiety (see above Measures subsection), and fear about losing control also was included in models as a manifest variable derived from a measure of general fears about losing control designed for the purposes of the current study. For all model analyses, variables "time since trauma" (measurement of how much time lapsed since the most disturbing trauma) and "social desirability" were entered early as covariates to control for effects.<sup>2</sup>

Using the program PROC CALIS ins SAS (SAS, 1990), several fit indices from maximum likelihood estimations were examined to determine goodness-of-fit for each model (Loehlin, 1992) as assessed by examining significance of the chi-square value, goodness-of-fit index (GFI; SAS, 1990), Comparative Fit Index (CFI; Bentler, 1990), Normed Fit Index (NFI; Bentler & Bonnett, 1980), and RMSEA Estimate (RMSEA; SAS, 1990). Goodness-of-fit is suggested when values greater than .90 appear on the GFI, CFI, and NFI which yield values between 0 and 1.0 (Bentler & Bonnett, 1980), and an RMSEA Estimate is below .05 (an Estimate above 1.0 signifies poor model fit). A non-significant chi-square value also provides indication of good model fit, but because chi-square may be sensitive to sample size, it should be interpreted cautiously (Marsh, Balla, & McDonald, 1988), and thus examination of the other fit indices (GFI, CFI, and NFI) is most important and useful (Loehlin, 1992). Relative model fit was examined by making a comparison of Schwarz's Bayesian Criterion (BIC; SAS, 1990) between models, with a lower BIC indicating better fit. Because we were not comparing nested models, chi-square difference tests could not be used. Statistically, a mediator effect is demonstrated when the inclusion of the mediator variable significantly reduces the effect of the predictor variable on the criterion (Baron & Kenney, 1986); significant reduction is demonstrated when the mediator variable(s) accounts for more than 5% of the predictor-criterion relation.

### **Measurement Models**

*Model 1: Trauma and Psychopathology.*<sup>3</sup> This model contained the latent variables "trauma" (predictor) and "psychopathology" (criterion). To secure a mathematically identified solution, variance of the "trauma" latent variable was set to 1, and the path from the general distress manifest variable to the "psychopathology" latent variable was set to 1. This model provided an excel-

lent fit to the data as demonstrated by all fit indices: chi-square value was not significant ( $X^2 = 15.29$ ,  $df = 9$ ,  $p = .08$ ), and GFI = .99, CFI = .99, NFI = .98, and RMSEA = .047. In addition, the BIC = -36.71, and the standardized path coefficient from trauma to psychopathology was .88. In this model, trauma accounted for 78% of the variance in psychopathology.

*Model 2: Trauma, Dissociation, and Psychopathology.* This model contained the latent variables "trauma" (predictor), "psychopathology" (criterion), and "dissociation" (mediator). To secure a mathematically identified solution, variance of "trauma" again was set to 1, the path from the absorption manifest variable to the "dissociation" latent variable was set to 1, and the path from the general distress manifest variable to the "psychopathology" latent variable was set to 1. This model provided an excellent fit to the data. Although chi-square was significant ( $X^2 = 85.20$ ,  $df = 28$ ,  $p < .001$ ), other fit indices demonstrated a good fit: GFI = .95, CFI = .95, NFI = .93, and RMSEA = .079. The BIC = -76.57 indicating that Model 2 provides a better fit to the data than Model 1. In addition, trauma and dissociation together explained 93% of the variance in psychopathology. The path coefficient between trauma and psychopathology decreased from .88 to .71; dissociation partially mediated and accounted for 27% of the variance in the relation between trauma and psychopathology.

*Model 3: Mediating Roles of General Death and Control Fears.* This model contained the latent variables "trauma" (predictor), "psychopathology" (criterion), and "dissociation" (mediator), and the manifest variables of general death fears (mediator) and general control fears (mediator). Residuals of death and control fear variables were covaried. Although chi-square was significant ( $X^2 = 122.79$ ,  $df = 42$ ,  $p < .001$ ), the model provided a good fit to the data: GFI = .94, CFI = .94, NFI = .91, and RMSEA = .077. The BIC = -119.87 indicating that Model 3 also provided a better fit to the data than did Model 2. Though a reduction in the path coefficients between trauma and dissociation, and dissociation and psychopathology, were not detected, a significant reduction in the standardized path coefficient between trauma and psychopathology was revealed (.71 to .55); general fears about death and control partially mediated the relation between trauma and psychopathology above and beyond that which was accounted for by dissociation alone and explained an additional 20% of the variance in the relation between trauma and psychopathology.

Together, dissociation, general death fears, and general control fears explained a total of 47% of the variance in the trauma-psychopathology relation.<sup>4</sup>

## DISCUSSION

Findings indicated that dissociation partially mediated the relation between trauma and psychopathology (accounted for 27% of the variance), and that to-

gether trauma and dissociation accounted for the vast majority of variance in psychopathology (93%). In addition, general fears about death and lacking control mediated the relation between trauma and psychopathology above and beyond that which was already accounted for by dissociation (accounted for additional 20% of the variance in psychopathology; total = 47%).

#### ***Dissociation: Mediator of Trauma-Psychopathology Relation***

As predicted based on correlational findings from prior studies, dissociation partially mediated the relation between trauma and psychopathology, explaining in part why higher levels of trauma predict higher levels of psychopathology. As noted by others (e.g., Yehuda, 1998; Yehuda & McFarlane, 1995), not everyone who experiences a trauma also experiences long-term distress, so other factors must come into play in the development and maintenance of psychopathology above and beyond the occurrence of trauma alone. Dissociation appears to be such factor.

Why might dissociation partially explain the relation between trauma and psychopathology? If dissociation is mobilized as a means of coping with trauma for a long period of time, it may interfere with adequate processing of the trauma and inhibit emotional healing and functional adaptation (e.g., Foa & Hearst-Ikeda, 1996; Herman, 1997). It is possible that higher levels of dissociative symptoms also represent a breakdown in functioning. The deterioration in some areas of functioning may lead to breakdowns in other domains, and result in related forms of psychopathology. For example, high levels of dissociative phenomena such as depersonalization and derealization may inhibit one from interacting effectively with others. Feeling a pervasive sense of separateness from oneself and one's surroundings may contribute to a sense of isolation and inhibited social functioning.

#### ***Death and Control Fears: Mediators of Trauma-Dissociation-Psychopathology Relations***

Findings from a prior study revealed that event-related death and control fears mediated the relation between peritraumatic dissociation and PTSD severity (Gershuny et al., 2003). Expanding on this finding, the current study demonstrated that *general* fears about death and lack of control partially mediated the relation between trauma and psychopathology above and beyond that which was already accounted for by dissociation. Being confronted with death and lack of control may arouse intense fear and psychological discomfort (e.g., Feifel & Nagy, 1981). When individuals are confronted with such overwhelming fear from which they cannot physically escape, other means of cognitive and affective escape may be mustered. Dissociation (e.g., depersonalization, numbing) may provide such a means of escape (Butler, Duran,

Jasiukatis, Koopman, & Spiegel, 1996; Gershuny & Thayer, 1999; Herman, 1997; Lifton & Olson, 1999; van der Kolk, 1987). Dissociation in response to such overwhelming death and control fears may become persistent over time and represent a pervasively "stunned" state (Lifton & Olson, 1999). One may become conditioned over time to respond to fear or intense anxiety, particularly as elicited by trauma cues and/or perceived threat of death or lack of control, with dissociative reactions. In turn, dissociative reactions may themselves render someone more vulnerable to external controls and thus come to perceive themselves as lacking personal control (Butler et al., 1996), and a reciprocal relation among dissociation, fears about death and control, and psychopathology, may result. Indeed, as theorized (Gershuny & Thayer, 1999) and demonstrated empirically in this study, dissociation explains some of the relation between trauma and psychopathology, and fears about death and control explain even more of the relation between trauma and psychopathology above and beyond that which was accounted for by dissociation.

Gershuny and colleagues (Gershuny, Cloitre, & Otto, 2003) speculated previously that because fears about death and control represent the core cognitions of panic, dissociative phenomena actually may represent a panic process. Whether that panic process occurs during the traumatic event or more pervasively after the event is over, such a process may influence the level of psychopathology endured post trauma. This speculation awaits further research.

### ***Study Limitations***

The generalizability of findings to other samples (e.g., treatment-seeking women, men) is uncertain. In addition, though we were able to explain 47% of the variance in the trauma-psychopathology relation with the inclusion of dissociation and fears about death and lack of control, 53% of the variance remains unexplained. Additional variables (e.g., guilt, coping, personality, social support and expressed emotion) may be included in future models to try to provide a more complete explanation of why some individuals experience higher levels of suffering after trauma than others. Also, cross-sectional designs are not optimal for understanding predictive, etiological relations among constructs. To better understand predictive relations, a longitudinal, prospective design would be useful in future studies.

### NOTES

1. Though a sample of convenience, this nonclinical sample of university-affiliated females may help increase potential generalizability of findings to a less frequently studied trauma sample. Lauterbach (1999) recently noted that university samples warrant more consideration in trauma research because a large proportion of university students report traumatic experiences as part of their history, many report PTSD symp-

toms, and university students may be less likely to feign symptoms. In addition, a mixed-trauma sample (i.e., a sample of individuals who experienced a variety of types of traumas) was studied to allow findings to be representative of trauma survivors in general and to further increase potential generalizability of findings.

2. Trauma, dissociation, and psychopathology were all measured dimensionally rather than categorically in this study because dimensional approaches retain information that maximizes power and the potential for detecting differences (Trull, Widiger, & Guthrie, 1990). Trauma frequency and levels of fear/horror/helplessness experienced during the trauma were included as part of the conceptualization of "trauma" because the number of potentially traumatic events *as well as* the individual's perception of fear, horror, and/or helplessness during that event are necessary precursors for "trauma" and PTSD in the DSM-IV (APA, 1994). Indeed, studies have pointed to the importance of examining both the frequency of trauma (e.g., Follette et al., 1996) and levels of trauma-related fear (e.g., Bryant & Harvey, 1995) in studies of post traumatic psychopathology. Recent studies also have called for empirical work to take into consideration a variety of forms of psychopathology in trauma survivors (e.g., Cloitre, Scarvalone, & Difede, 1997) rather than focusing exclusively on PTSD. Thus, psychopathology was operationalized in the current study as being comprised of PTSD severity, global distress severity, borderline personality symptom severity, and bulimic behavior severity because arguably all may be trauma-related (i.e., have strong relations to a history of trauma above other forms of distress; e.g., Brodsky, Cloitre, & Dulit, 1995).

3. In all measurement models examined, manifest variables were all highly significantly related to their respective latent variables.

4. Because analyses were based on data collected cross-sectionally rather than longitudinally, it is difficult to disentangle whether what we are putting forth as mediators (dissociation, fears about death and lack of control) are indeed causal to psychopathology as included in our statistical models or a response to psychopathology. We tested several other structural equation models that included psychopathology as a mediator of trauma and dissociation, and psychopathology as a mediator of trauma and fears about death and lack of control. None of these models provided a good fit to the data, supporting our conceptualization of these variables in the current study as predictors/mediators.

In all models, bulimic behaviors related least strongly of all assessed forms of psychopathology to the various predictor and mediator variables. Thus, it appeared that bulimic behaviors are not strongly related to trauma in our nonclinical sample of adult women. Though prior studies of clinical samples have supported a strong relation between trauma history and eating disorders (e.g., Katz & Gleaves, 1996), our findings seem more in line with prior studies of nonclinical samples that also did not find a strong relation between trauma and eating disorders (e.g., Valdiserri & Kihlstrom, 1995). Because of this relatively weak relation, we re-analyzed our models without the inclusion of bulimic behaviors as part of "psychopathology"; overall results, however, remained the same. Therefore, we decided to maintain the inclusion of bulimic behaviors in our model, noting that its lack of relational strength to other variables in the models is informative.

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