Acute Dissociative Reactions in Veterans with PTSD

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ABSTRACT. This study examined the prevalence of acute dissociative reactions to a recent stressful event among 102 male Vietnam veterans

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seeking help for posttraumatic stress disorder (PTSD) at a Veterans Affairs treatment center. Prior to treatment, patients completed a battery of questionnaires, including the Stanford Acute Stress Reaction Questionnaire to assess acute dissociative experiences in reaction to a recent stressful event. Most (80%) combat veterans reported experiencing five acute dissociative symptoms in the previous month in reaction to this event. These symptoms were positively associated with being African American or Hispanic/Latino, having been physically abused in childhood, choosing a combat-related intrusion experience as the most stressful recent event, combat-related traumatic stress symptoms, and having service connected disability. These results have both theoretical and clinical implications. *[Article copies available for a fee from The Haworth Document Delivery Service: 1-800-342-9678. E-mail address: <getinfo@haworthpressinc.com> Website: <http://www.HaworthPress.com> © 2001 by The Haworth Press, Inc. All rights reserved.]*

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Considerable research has been conducted on posttraumatic stress disorder (PTSD) among combat veterans (Engel et al., 1993; Grinker & Spiegel, 1945; Kardiner & Spiegel, 1947; Ross & Wonders, 1993; Solomon, Laor, & McFarlane, 1996; Solomon, Mikulincer, & Benbenistry, 1989; Weathers, Litz, & Keane, 1995). Of the core symptoms thought to comprise the PTSD syndrome, dissociative symptoms are conspicuously absent as a separate category in the fourth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV, American Psychiatric Association (APA), 1994). However, three symptoms currently categorized in the DSM-IV diagnostic criteria for PTSD as symptoms of avoidance and numbing, specifically, "feeling of detachment or estrangement from others," "restricted range of affect," and "inability to recall an important aspect of the trauma," could be reclassified as dissociative symptoms (Spiegel, 1988; Butler, Duran, Jasiukaitis, Koopman, & Spiegel, 1996).

In contrast to the PTSD diagnosis, five kinds of dissociative symptoms (derealization, emotional numbing, depersonalization, a lack of awareness for one's surroundings [stupor], and psychogenic amnesia) have been identified in the diagnosis of acute stress disorder (ASD) in the DSM-IV (APA, 1994), distinguishing dissociative symptoms as a core component of the diagnosis. These dissociative symptoms have

been included in the ASD diagnosis because they were found to be highly associated with other ASD symptoms and predictive of later PTSD symptoms (Classen, Koopman, Hales, & Spiegel, 1998; Marmar et al., 1994; Shalev, Peri, Canetti, & Schreiber, 1996; Spiegel, Koopman, Cardena, & Classen, 1996).

Few studies have examined acute dissociative reactions among combat veterans, with two notable exceptions (Bremner et al., 1992; Marmar et al., 1994). However, United States Army doctrine described early forms of PTSD during military operations as "shell shock" (Salmon, 1919), "combat fatigue" (Hanson, 1949), and "war neurosis" (Kardiner & Spiegel, 1947; Mullins, 1973). These symptoms can be identified as dissociative, e.g., apathy and loss of initiative (Department of the Army, 1994), which are indicative of emotional numbing. Although several studies have examined the link between prior dissociative responses to acute stress and later PTSD (Classen et al., 1998; Koopman, Classen, & Spiegel, 1994; Marmar et al., 1994; Shalev et al., 1996), we could find no published research examining dissociative responses to current acute life stress among veterans diagnosed with PTSD. However, Wolfe and colleagues (Wolfe, Brown, & Bucsela, 1992) found that female Vietnam veterans diagnosed with PTSD were significantly more susceptible to greater distress after the onset of Desert Storm than those not diagnosed with PTSD. Similarly, another study found that among a mixed-sex group of U.S. Army veterans, those soldiers who had previously served in Vietnam developed PTSD symptoms even in anticipation of being deployed to the Persian Gulf (McCarroll, Gagan, Hermsen, & Ursano, 1997).

These findings suggest that people with PTSD may be vulnerable to experiencing greater distress to acute life stress compared to other people. Research on Vietnam veterans hospitalized for psychiatric disorders showed that experience of extreme stressors was associated distinctively with PTSD symptoms and not notably with major depression, mania, or panic (Breslau & Davis, 1987). Given that not all psychiatric symptoms are increased by the effects of experiencing stressful events, it is important to specifically examine for their effects on dissociative symptoms.

We conducted a study to examine the prevalence of acute dissociative reactions among Vietnam veterans currently diagnosed with PTSD. A secondary purpose was to examine whether these reactions were associated with severity of posttraumatic stress symptoms among combat veterans who had been diagnosed with PTSD. We predicted that acute dissociative reactions would be positively associated with posttraumatic stress symptoms. Past research with Vietnam veterans

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(Spiegel, Hunt, & Dondershine, 1988) suggests that dissociation is mobilized as a defense both during and after traumatic experiences, and is an important component of PTSD, even though it has been overlooked in the development of the diagnosis (Spiegel & Cardena, 1991).

Mixed findings on the relationship between trauma, PTSD, and dissociation suggest that further clarification of the relationship between dissociation and PTSD may have clinical implications for diagnosis and ensuing treatment among trauma survivors. Although, dissociative symptoms are not systematically assessed among persons diagnosed with PTSD, several reasons suggest that they could be key elements of PTSD. Posttraumatic stress disorder may be greater among people who are more hypnotizable (Spiegel et al., 1988), suggesting that the strong capacity for dissociative experience among hypnotizable persons may make them more vulnerable to developing PTSD in reaction to a traumatic event (Butler et al., 1996). Also, there are empirical studies linking dissociative symptoms in the immediate aftermath of trauma to later PTSD symptoms (Classen et al., 1998; Marmar et al., 1994; Shalev et al., 1996; Spiegel et al., 1996). Furthermore, the diagnosis of disorders of extreme stress not otherwise specified (DESNOS), which includes pathological dissociation, has been found to be highly comorbid with PTSD (Ford, 1999).

The concept that dissociative symptoms are part of the PTSD symptom cluster has been questioned by Yehuda et al. (1996), who found that, among aging Holocaust survivors, dissociative symptoms were significantly related to PTSD but not to the severity of exposure to trauma. If dissociation is part of the traumatic stress reaction, it should intensify as a function of exposure to trauma. Yehuda et al. (1996) also found that a subgroup of Holocaust survivors with PTSD had dissociative experiences within the normal range. Similar results have been found among adolescents who survived childhood trauma in Cambodia, where dissociation was not associated with the severity of exposure to traumatic life events (Realmuto et al., 1992). One possibility is that dissociative symptoms that are associated with PTSD are event-specific responses to traumatic life events, rather than the somewhat more trait-like symptoms assessed using the Dissociative Experiences Scale (Bernstein & Putnam, 1986), which was the measure used to assess dissociative symptoms in both the Yehuda et al. (1996) and the Realmuto et al. (1992) studies. Dissociative symptoms experienced in response to acute life stress may constitute such a form of dissociation.

Dissociative Symptoms and Ethnic Background

We hypothesized that veterans of African-American, Hispanic, and other ethnic minority backgrounds would be more likely to react to current life stressors with dissociative symptoms, based on previous research finding that combat veterans of these ethnic backgrounds are more likely to experience PTSD (Ross & Wonders, 1993; Sutker, Davis, Uddo, & Ditta, 1995). A conceptual framework for understanding why minority ethnic background is related to greater traumatic stress symptoms has been described by Loo (1994). This conceptual model identifies four possible pathways for the development of "race-related PTSD": contradictions in self-schema, coercion to use a racially prejudiced behavioral repertoire, cumulative stressful or life threatening experiences related to race, and reductions in the sense of belonging and social support that could buffer PTSD. In addition, with respect to PTSD, ethnicity may be a proxy for SES and other variables that may be related to an increased likelihood of living in environments where there is a greater threat of exposure to violence. It was beyond the scope of this study to examine the specific pathways that could explain why ethnic background could be related to acute dissociative symptoms among veterans with PTSD. However, we wanted to test the generalizability of the greater vulnerability among individuals of ethnic minority background to developing PTSD to see whether veterans of African American or Hispanic/Latino background who have been diagnosed with PTSD would also report greater acute dissociative symptoms.

Dissociative Symptoms and Prior Stressful Life Events

We also examined the relationship of dissociative reactions to several types of stressors in this population: (1) childhood events (parental divorce and sexual and physical abuse), (2) degree of combat exposure, and (3) whether the stressor nominated as most stressful recent event was a combat-related intrusion symptom. Research and clinical literature indicate that trauma symptoms intensify with repeated trauma (Dancu, Riggs, Hearst-Ikeda, Shoyer, & Foa, 1996; Hillman, 1981; Terr, 1991), referred to as sensitization (Post, Weiss, & Smith, 1995). Therefore, among military personnel who endure traumatic combat events, those who have experienced traumatic life events prior to and/or following the combat trauma are thought to be at greater risk for developing posttraumatic stress symptoms compared to those not experiencing traumatic life events in addition to the combat trauma. This is

supported by evidence that precombat abuse leads to a higher incidence of PTSD among veterans (Bremner, Southwick, Johnson, Yehuda, & Charney, 1993; Donovan, Padin-Rivera, Dowd, & Blake, 1996; Engel et al., 1993; Zaidi & Foy, 1994), and that patients with PTSD have a significantly higher rate of total premilitary traumatic events than patients without PTSD (Bremner et al., 1993).

Childhood stressful life events, such as parental divorce and sexual and physical abuse, may be particularly relevant to the way veterans and individuals with PTSD cope with further stress. A high percentage (45%) of veterans with PTSD have been physically abused during childhood (Zaidi & Foy, 1994). These rates have been found to be higher in Vietnam veterans with PTSD than those without PTSD (Bremner et al., 1993), and compared with non-PTSD subjects in a community, those with PTSD have significantly greater experiences of child abuse and parental separation or divorce before age 10 years (Davidson, Hughes, Blazer, & George, 1991). History of childhood abuse, regardless of abuse type (i.e., physical abuse only, combined physical/sexual abuse), has been found to be significantly associated with the presence of Complex PTSD, which is comorbid with PTSD (Vielhauer, 1996). Furthermore, severity of combat-related PTSD was found to be positively correlated with physical abuse history (Zaidi & Foy, 1994), while greater PTSD symptomology was found to be predicted by the father's negative parenting behaviors such as inconsistent love (McCranie, Hyer, Boudewyns & Woods, 1992) as well as childhood physical abuse (Donovan et al., 1996). Individuals abused in childhood may have acquired characteristic methods of coping with stressful experiences, such as emotional numbing, which may make them more susceptible to dissociation following subsequent trauma such as combat stress (Bremner et al., 1993). In a study of male Vietnam combat veterans, dissociation was best predicted by childhood abuse (Lieneck, 1997). Similarly, in a population of psychiatric outpatients, dissociative symptoms were significantly related to repeated childhood abuse. Furthermore, numerous episodes of physical child abuse and father-perpetrated sexual child abuse were significantly related to the degree of dissociation (Lipschitz, Kaplan, Sorkenn, Chorney, & Asnis, 1996). These findings suggest that not only may dissociative symptoms be a precursor to PTSD, but they may also be intensified among veterans who develop PTSD.

We further examined the relationship of dissociative symptoms to the current stressor event of experiencing combat-related intrusion symptoms. The severity of exposure to combat trauma and the perceived threat it posed have also been found to be associated with greater posttraumatic stress (Donovan et al., 1996; Foy, Sipprelle, Rueger, &

Carroll, 1984; Gallers, Foy, Donahoe, & Goldfarb, 1988; Green, Grace, Lindy, Gleser, & Leonard, 1990; King, King, Fairbank, Keane, & Adams, 1998; Southwick et al., 1993; Sutker, Uddo, Brailey, Vasterling, & Errera, 1994). In this study, we are interested in exploring whether PTSD intrusion symptoms such as flashbacks of combat-related experiences may induce further PTSD-related symptoms. In other words, PTSD symptoms themselves may be a source of stress, and may in turn trigger dissociative reactions.

Dissociative Symptoms and Disability Status

Finally, we hypothesized that veterans who currently had service-connected disability status, would be more likely to report greater dissociative symptoms in response to recent stress. We based this hypothesis on the monetary incentive that veterans receive with psychological dysfunction that could result in greater reports of dissociative symptoms among those who obtain a service-connected disability status. Previous research indicates that veterans seeking Veterans Affairs disability compensation for combat-related PTSD reported higher levels of psychopathology compared to non-compensation-seeking veterans (Frueh, Gold, & de Arellana, 1997).

To summarize, we conducted a study of Vietnam veterans with PTSD to examine the prevalence of acute dissociative reactions in response to a stressor occurring in the past month. Furthermore, we hypothesized that the intensity of acute dissociative reactions in response to the recent stressor would be greater among those veterans who: were of either African American or Hispanic/Latino ethnic background, reported particular stressful life events in their childhood (either physical or sexual abuse or having their parents divorce), had greater exposure to combat stress, nominated a combat-related intrusion symptom as their most stressful recent event, experienced more combat-related traumatic stress symptoms, or had service-connected disability.

METHODS

Subjects

Subjects in the present report were 102 adult men drawn from a larger sample of 221 male combat veterans involved in inpatient treatment for Posttraumatic Stress Disorder at a large Veterans Affairs med-

ical center. Data were retrieved from archival assessment files and hospital medical records. Patient anonymity was ensured. Instruments for this study were administered as part of the regular intake assessment for the treatment program. Subjects consisted of admissions into the inpatient PTSD treatment program during the period from May 1992 to August 1993. The sample of 221 included all subjects who had completed our principal dependent measure (which represents 61% of the total admissions during this period); the data from the 102 subjects reported here represents the subsample for whom we also had complete data on all the independent variables measures. All patients were diagnosed with PTSD at intake using the Clinician Administered PTSD Scale [the CAPS (Blake et al., 1990)], a structured interview assessing combat-related PTSD symptom frequency and intensity, and inquiring about the traumatic stressor using an open-ended trauma query regarding their combat experience. Each patient gave informed consent for assessment and treatment as part of his application for admission. Intake assessment was completed within the first two weeks of treatment. Shortly after admission, each patient was interviewed by a staff social worker to review his personal and treatment history. Demographic data and information about childhood history were collected from these structured interviews. Beginning around the third day after admission, patients were scheduled for an appointment at the assessment lab where they completed a number of paper and pencil self-report instruments. Standard instructions regarding completion of each instrument were given by a psychology technician.

Measures

Demographic Characteristics. As part of the intake battery, the respondent reported information about education, ethnic background, age, income, marital status, branch of service, and service connection to the Veterans Affairs medical center.

Stressful Childhood Life Events. As part of the intake battery, each subject was asked about whether each of three types of stressful life events occurred during his childhood: sexual abuse, physical abuse, and parents' divorce. Items were scored "0" if they never occurred and "1" if they had occurred. Previous research indicates that these types of childhood events may be particularly relevant to how veterans and individuals with PTSD are affected by later stressors (Bremner et al., 1993; Davidson et al., 1991; Lieneck, 1997).

Combat Exposure Scale. (Keane et al., 1989). This is a seven-item measure of the degree of exposure to war zone trauma. It used Likert scaling to assess the frequency of occurrence of certain types of combat experiences. Psychometric characteristics were good, with internal consistency alpha of .85, and test-retest reliability of .97.

Impact of Event Scale (IES). (Horowitz, Wilner, & Alvarez, 1979). This is a 15-item scale designed to assess the experience of traumatic stress symptoms (intrusion and avoidance) during the previous seven days in response to a specified stressful event. In the present study, the specified event was combat experience. The scale has been widely used in a variety of trauma populations as an indicator of PTSD symptom severity. The scale has well-established psychometric characteristics (Schwarzwald, Solomon, Weisenberg, & Mikulincer, 1987; Zilberg, Weiss, & Horowitz, 1982). We used the IES total score in this study.

Stanford Acute Stress Reaction Questionnaire (SASRQ). The Stanford Acute Stress Reaction Questionnaire was derived from an earlier version used in studies of acute stress reactions to an earthquake (Cardena & Spiegel, 1993), firestorm (Koopman et al., 1994, Koopman, Classen & Spiegel, 1996), and an execution (Freinkel, Koopman, & Spiegel, 1994). An open-ended item was used to elicit information about whether the major life stress in the previous month was or was not combat-related: "Recall the stressful events in your life during the last month: *What was the most stressful of the events (e.g., a combat-related flashback or other stressful experience)? Please describe it briefly.*" These events were dichotomously coded by a research assistant, kept blind, according to whether or not a combat-related intrusion (such as a nightmare, flashback, memory, or thought) was mentioned as the stressful event. These event descriptions were also coded for other kinds of stressful events, including: financial, one's health, other's health, personal relationships, coming to the PTSD veterans program, and other. This instrument also assesses acute stress reactions to this stressful event, including dissociative symptoms. Dissociative symptoms were assessed specifically in reaction to the stressful event. The directions asked the participants to "decide how well it (the item) describes your experience since the stressful event described above." Participants are further reminded to "refer to this event in answering the items that mention 'the stressful event.'" These characteristics of the SASRQ enable measurement of event-specific dissociation, rather than more general dissociative experiences, the latter of which could be measured without referring to a specific event. The version used in this study had 18 items assessing the frequency of five dissociative symptoms occurring after

this event: depersonalization (5 items, e.g., "I had a sense of feeling detached from my body"), derealization (5 items, e.g., "I felt a sense of timelessness"), a lack of awareness of one's surroundings (stupor; 3 items, e.g., "I had difficulty understanding or taking in new information"), emotional numbing (4 items, e.g., "I did not feel the full range of emotions I usually feel"), and amnesia (1 item, "I had problems remembering everyday activities"). Responses were recorded on a 0-5 point scale, in which 0 = "not experienced," 1 = "very rarely experienced," 2 = "rarely experienced," 3 = "sometimes experienced," 4 = "often experienced," and 5 = "very often experienced." To summarize the frequency of symptoms, we recoded the item data dichotomously, with scores of 0-2 coded to indicate the nonoccurrence of a symptom and scores of 3-5 coded to indicate the occurrence of a symptom. A total score is calculated by summing the responses to each of the 18 items on the continuous 0-5 scales. To examine relationships between dissociative reactions and other variables, we used the total score to retain maximum variance for testing the hypotheses concerning the relationships between dissociative experiences and other variables. This scale was found to have high internal consistency (Cronbach's alpha = .89). A recent study found that a more recent, slightly revised, version of the SASRQ has very good reliability, construct validity, discriminant and convergent validity, and predictive validity (Cardena, Koopman, Classen, Waelde, & Spiegel, 2000).

Data Analysis

Descriptive statistics (means, standard deviations, and percentages) were computed for all variables in this study. Also, we computed a multiple regression analysis using the simultaneous procedure on the total score on the dissociative symptoms. The independent variables in this multiple regression were ethnic background (African American or Hispanic/Latino background), childhood stressful life events (physical and sexual abuse and parental divorce), combat exposure, whether or not the acute stressor was combat-related, total IES score, and whether or not disability was service-connected. We analyzed these data for the smaller sample (N = 102) that had no missing data on the independent and dependent variables examined in this study. To ensure that this smaller sample was representative of the larger sample from which it was drawn (N = 221), we analyzed for potential differences between the smaller sample and the larger sample from which it was drawn. We tested the statistical significance of categorical variables using chi-

square tests (ethnic background, physical abuse, sexual abuse, parental divorce, marital status, service connection, and combat-related recent stress). Similarly, we conducted t-tests for independent samples to test for statistical significance of differences on continuous variables (age, combat experiences score, IES total score, and acute dissociative reactions total score).

Final Sample

One hundred and two veterans drawn from the previous sample of 221 had complete data on the independent and dependent measures in this study. However, it did not appear that this was due to characteristics of the individuals who completed all of the measures compared with those individuals who did not. Some measures were not administered to some individuals, due to lack of time or other administrative reasons. The only statistically significant difference found between the sample with complete data and those with incomplete data was that those with complete data were somewhat less likely to be service-connected compared to those with incomplete data, X^2 (1) = 4.08, $p < .05$.

RESULTS

Demographic and Background Characteristics

Demographic characteristics are summarized in Table 1.

Description of Most Disturbing Life Stress in the Previous Month

Half of the sample (51%) reported that some form of combat-related intrusion symptom (nightmares, flashbacks, thoughts, memories) was the most disturbing event that had occurred in the previous month. For example, one participant reported: "I dreamed of death scenes pertaining to Vietnam, friends killed in combat," and another reported: "Flashback of ride in helicopter to D.M.Z. (demilitarized zone)." Participants who did not report a stressor that was directly combat-related identified a number of other types of stressors: 25% reported that the most disturbing event was coming to the PTSD treatment program to get help; 11% reported problems in relationships with other people (e.g., "Losing my significant other . . . after 3½ years [together]"); 16% reported problems in personal health (e.g., "Having . . . surgery on my back"); 5% reported problems in financial/material security (e.g., "No money"); 2% re-

TABLE 1. Descriptive Statistics Summarizing Demographic Characteristics and Scores on Independent and Dependent Variables

Variable	Percentage	Mean	Standard deviation
Education		13.3	2.3
Service connected disability	74		
Ethnic background			
African American	9		
Hispanic/Latino	11		
Caucasian	75		
Other ethnicity	5		
Marital status			
Married/living with partner	40		
Separated/divorced	50		
Widowed	1		
Never married	9		
Service branch			
Army veterans	71		
Marine veterans	19		
Navy veterans	8		
Air Force veterans	3		
Parents divorced	43		
Childhood physical abuse	32		
Childhood sexual abuse	20		
Combat Experiences Scale Score		26.1	6.9
Impact of Event Scale Score		47.7	8.5
Acute Dissociation Score		56.7	15.7

ported concerns about another person's health ("My girlfriend getting shot in the head"); and 12% reported problems in other areas (e.g., "I was in jail"). These percentages total over 100% because we coded multiple categories where participants reported more than one stressor.

Prevalence of Acute Dissociative Reactions

The majority (80%) of combat veterans reported that they had experienced all of five acute dissociative symptoms (emotional numbing,

derealization, depersonalization, amnesia for everyday events and a lack of awareness of their surroundings) at least "sometimes" in the previous month in reaction to a recent stressful event; 16% reported four dissociative symptoms; 2% reported three dissociative symptoms; 1% reported two dissociative symptoms, no one reported one dissociative symptom; and 1% reported having experienced none. The mean number of acute dissociative symptoms reported of the five assessed was 4.7 ($SD = 0.7$).

Subjects reports, by symptom scale, indicated that they had, on average, experienced both emotional numbing and amnesia "often" since the recent most stressful event (numbing *mean* = 3.77, $SD = .95$, range = .25-5.0; amnesia (single item) average score = 3.61, $SD = 1.23$, range = 0-5.0) and derealization, depersonalization, and stupor "sometimes" since that time (derealization *mean* = 2.83, $SD = 1.12$, range = .20-5.0; depersonalization *mean* = 2.72, $SD = 1.16$, range = 0-5.0; stupor *mean* = 3.43, $SD = .96$, range = 0-5.0).

Relationships of Acute Dissociative Reactions to Ethnic Background, Childhood Stressful Life Events, Combat Experiences, Combat-Related Recent Stress, Intrusive and Avoidance Traumatic Stress Symptoms, and Service Connection

Table 2 shows the results of the multiple regression analysis of the relationships of the independent variables to the acute dissociative reactions total score. The overall model for the multiple regression analysis that was conducted on acute dissociative reactions total score was statistically significant [$F(9, 92) = 7.45$, $p < .001$], overall adjusted $R^2 = .37$. Statistically significant and positive relationships with acute dissociative reactions total score were found with six of the independent variables. These included: being of either African American or Hispanic ethnic background, physical abuse, choosing a combat-related intrusion experience as the most stressful recent event, IES total score, and being service connected. The acute dissociative reactions total score was not significantly related to: sexual abuse, parents' divorce, or severity of combat experiences.

DISCUSSION

This study found a high prevalence of acute dissociative reactions ($M = 4.7$) in response to a recent life stress among Vietnam veterans

TABLE 2. Relationships of Acute Dissociative Reactions Total Score to Ethnic Background, Childhood Stressful Life Events, Combat Experiences, Combat-Related Recent Intrusions, Intrusive and Avoidance Traumatic Stress Symptoms, and Service Connection (N = 102)

Independent variable	B	Beta	t	p
African American	9.66	0.18	2.05	0.043
Hispanic/Latino	9.74	0.19	2.37	0.020
Physical abuse	8.60	0.26	2.88	0.005
Sexual abuse	−3.51	−0.09	−1.06	0.290
Parents divorced	1.72	0.05	0.66	0.512
Combat Experiences Scale	0.01	0.01	0.08	0.939
Combat-related recent intrusions	8.57	0.27	3.19	0.002
Impact of Event Scale total score	0.96	0.52	6.30	0.001
Service connected	6.16	0.17	2.09	0.040
(Intercept)	−3.15		−0.34	0.733

Note. The overall model for the multiple regression analysis that was conducted on acute dissociative symptoms total score was statistically significant [$F(9, 92) = 7.45$, $p < .001$], overall adjusted $R^2 = .37$.

who were diagnosed with PTSD. Four-fifths of the sample reported that they experienced all of the following acute dissociative symptoms in response to a stressful event in the previous month: depersonalization, derealization, emotional numbing, amnesia for everyday activities, and a lack of awareness of current surroundings. While these acute dissociative reactions were not directly related to the severity of initial exposure to combat, they were experienced most intensely by veterans who reported that their most stressful recent event was an intrusion symptom related to their previous combat experience. Also, the intensity of experiencing acute dissociative reactions was related to current PTSD symptoms of intrusion and avoidance regarding the combat experience. Notably, the results suggest that these relationships operate independently of the relationship of dissociative symptoms with service-related disability status because each accounted for independent variance in the analyses. Thus, these relationships were independent of a financial incentive for service-connected veterans to report high levels of symptomatology. As one reviewer observed, however, it is important to keep in mind that service-connected disability status may also reflect a more severe disorder or a more direct connection to wartime trauma, such as being wounded or having been a POW. Although we

could not distinguish financial incentive from severity of condition at the time of determination of disability status in the present sample, in either case disability status explained additional variance in acute dissociative reactions in response to a recent stressor.

We viewed combat-related intrusions such as nightmares pertaining to Vietnam or combat-related flashbacks as independent stressor variables rather than PTSD symptoms. Given that all the participants had PTSD and that combat-related flashbacks are a major symptom of PTSD, we were interested in exploring whether these symptoms had further consequences that could in turn trigger dissociative reactions. The high prevalence of acute dissociative reactions demonstrate that this population reacts with aberrant or unusually high levels of stress and dissociation to experiences such as PTSD symptoms, coming to the PTSD treatment program for help, relationship problems, personal health problems, and financial/material security problems. These findings demonstrate that dissociative symptoms may be a salient characteristic of long-term stress responses to traumatic life events. Broadening our framework for understanding the experiences of veterans with PTSD may allow us to treat them more effectively.

Given that dissociative symptoms are not specifically included in the diagnosis of PTSD, these results suggest that we need to better understand how to interpret acute dissociative states among veterans with PTSD. These findings may help to illuminate the stress sensitivity observed among those with PTSD. The dissociative state may facilitate flashbacks and other intrusive recollections of the original traumatic stressor, thereby infusing subsequent even relatively minor stress with associations to the original more serious one. Further research is needed to clarify whether dissociative symptoms should be identified as a separate symptom category at the core of PTSD as has been previously suggested (Spiegel, 1988) or whether it should be interpreted as a symptom category separate from the PTSD diagnosis as has been argued by Yehuda et al. (1996). Given that we used the SASRQ, which measures event-specific dissociation, future studies could examine whether dissociative symptoms associated with ASD and PTSD are indeed event-specific responses to traumatic life events, rather than being similar to the wider range of symptoms and experiences assessed by the Dissociative Experiences Scale (Bernstein & Putnam, 1986). Regardless of which view one takes, it seems clear from these results that when evaluating veterans for posttraumatic stress disorder, clinicians should also assess for dissociative symptoms.

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As hypothesized, ethnic minority status is associated with acute dissociative symptoms. Compared to other veterans, African American and Hispanic/Latino veterans report significantly greater acute dissociative symptoms. These results extend previous research showing that individuals of ethnic minority backgrounds had more PTSD. Thus, it appears that ethnic differences in traumatic stress reactions need to be expanded to include dissociative symptoms. It is beyond the scope of this particular study to examine the specific pathways (e.g., Loo, 1994) to explain why ethnic background is related to dissociative symptoms in response to acute stress among veterans with PTSD. Future research, possibly guided by Loo (1994)'s model, should further examine for these possible mediators of dissociative symptoms among persons differing by ethnic background.

We also confirmed the hypothesis that acute dissociative symptoms are greater among veterans who reported childhood physical abuse; however, no relationship is found between acute dissociative reactions and childhood sexual abuse or parental divorce. The finding of the significant relationship with physical abuse supports the sensitization concept, in which traumatic life events increase individuals' traumatic stress symptoms following further trauma. It is notable that we find confirmation for this relationship even within a restricted sample in which all individuals have PTSD and within the context of an independent assessment of intrusive and avoidant traumatic stress symptoms, indicating that the relationship between dissociative symptoms and childhood physical abuse is not simply due to their relationship with PTSD symptoms.

These results suggest that treatment for veterans diagnosed with PTSD should take into consideration patients' acute dissociative symptoms, both in reaction to recalling combat-related trauma and other stressful life events. Given the restricted range of acute dissociative symptoms reported in this sample, future research should retest these relationships with a more heterogeneous sample, including veterans who have not been diagnosed with PTSD as well as those who have. Future research also could usefully attempt to replicate these findings among persons who are not combat veterans, to determine their generalizability.

Several limitations constrain interpretation of this study's results. First, this study only examines dissociation as an acute reaction to a specific stressor. We did not employ other measures of dissociation, such as the DES or the SCID-D, and so we could not examine the relationship of acute stress symptoms to other measures of possibly more stable

dissociative experiences or symptoms. Also, it is possible that some dissociative experiences may be part of a normal response to traumatic events (Putnam, 1985). They may help people cope with the immediate situation, reduce suffering at the time of the experience and its immediate aftermath (Putnam, 1989), and dissipate after the traumatic event (Cardena & Spiegel, 1993). In addition, our use of single item, self-report, forced choice measures of several childhood stressful life events may have limited the sensitivity of this assessment to detect these events. Furthermore, our use of a cross-sectional design does not allow us to examine changes in dissociative experiences in response to psychiatric treatment in this population.

A statistical limitation of this study is that we do not have sufficient statistical power to examine for subgroup differences by ethnic background in the relationships between dissociative symptoms to the independent variables. Given that research on Somalia veterans has found ethnic differences between African-Americans and non-African Americans in the factors related to PTSD (Litz, King, King, Orsillo & Friedman, 1997), future research should examine for such possible differences with dissociative trauma symptoms. Finally, we were not able in this study to address resilience factors such as social support that may alleviate combat-related trauma symptoms (Solomon, Mikulincer, & Flum, 1989). Future research must evaluate psychiatric interventions to help veterans with PTSD to cope with dissociative reactions to ongoing life stress.

Despite the methodological limitations of this study, the number of dissociative symptoms experienced was found to be significantly and positively associated with overall traumatic stress symptoms, providing further evidence of a relationship between PTSD and the dissociative disorders. Future research should evaluate psychiatric interventions to help combat veterans with PTSD to cope with dissociative reactions to ongoing life stress.

REFERENCES

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

Bernstein, E.M. & Putnam, F.W. (1986). Development, reliability, and validity of a dissociation scale. *Journal of Nervous and Mental Disease, 174*, 727-735.

Blake, D.D., Weathers, F.W., Nagy, L.M., Kaloupek, D.G., Klauminzer, G., Charney, D.S., & Keane, T.M. (1990). A clinician rating scale for assessing current and lifetime PTSD: The CAPS-1. *Behavioral Therapist, 13*, 187-188.

Bremner, J.D., Southwick, S., Brett, E., Fontana, A., Rosenheck, R., & Charney, D.S. (1992). Dissociation and posttraumatic stress disorder in Vietnam combat veterans. *American Journal of Psychiatry, 149*, 328-332.

Bremner J.D., Southwick S.M., Johnson D.R., Yehuda R., & Charney D.S. (1993). Childhood physical abuse and combat-related posttraumatic stress disorder in Vietnam Veterans. *American Journal of Psychiatry, 150*, 235-239.

Breslau, N. & Davis, G.C. (1987). Posttraumatic stress disorder: The etiologic specificity of wartime stressors. *American Journal of Psychiatry, 144*(5), 578-583.

Butler, L.D., Duran, R.E.F., Jasiukaitis, P., Koopman, C., & Spiegel, D. (1996). Hypnotizability and traumatic experience: A diathesis-stress model of dissociative symptomatology. *American Journal of Psychiatry, 153*(suppl.), 42-63.

Cardeña, E., Koopman, C., Classen C., Waelde, L., & Spiegel, D. (2000). Psychometric properties of the Stanford Acute Stress Reaction Questionnaire (SASRQ): A valid and reliable measure of acute stress. *Journal of Traumatic Stress, 13*(4), 719-734.

Cardeña, E., & Spiegel, D. (1993). Dissociative reactions to the Bay Area earthquake. *American Journal of Psychiatry, 150*, 474-478.

Classen, C., Koopman, C., Hales, R., & Spiegel, D. (1998). Acute stress reactions as a predictor of posttraumatic stress symptoms following office building shootings. *American Journal of Psychiatry, 155*(5), 620-624.

Dancu, C.V., Riggs, D.S., Hearst-Ikeda, D., Shoyer, B.G., & Foa, E.B. (1996). Dissociative experiences and posttraumatic stress disorder among female victims of criminal assault and rape. *Journal of Traumatic Stress, 9*, 253-267.

Davidson, J.R., Hughes, D., Blazer, D.G., & George, L.K. (1991). Post-traumatic stress disorder in the community: An epidemiological study. *Psychological Medicine, 21*, 713-721.

Department of the Army. (1994). *Leaders' Manual for Combat Stress Control*. Department of the Army, U.S. Army, FM 22-S1.

Donovan, B.S., Padin-Rivera, E., Dowd, T., & Blake, D.D. (1996). Childhood factors and war zone stress in chronic PTSD. *Journal of Traumatic Stress, 9*, 361-368.

Engel, C.C., Jr., Engel, A.L., Campbell, S.J., McFall, M.E., Russo, J., & Katon, W. (1993). Posttraumatic stress disorder symptoms and precombat sexual and physical abuse in Desert Storm veterans. *Journal of Nervous and Mental Disease, 181*, 683-688.

Ford, J.D. (1999). Disorders of extreme stress following war-zone military trauma: Associated features of posttraumatic stress disorder or comorbid but distinct syndromes? *Journal of Consulting and Clinical Psychology, 67*(1), 3-12.

Foy, D.W., Sipprelle, R.C., Rueger, D.B., & Carroll, E.M. (1984). Etiology of posttraumatic stress disorder in Vietnam veterans: Analysis of premilitary, military, and combat exposure influences. *Consulting and Clinical Psychology, 52*, 79-87.

Freinkel, A., Koopman, C., & Spiegel, D. (1994). Dissociative symptoms in media execution witness. *American Journal of Psychiatry, 151*, 1335-1339.

Frueh, B.C., Gold, P.B., & de Arellana, M.A. (1997). Symptom overreporting in combat veterans evaluated for PTSD: Differentiation on the basis of compensation seeking status. *Journal of Personality Assessment, 68*(2), 369-384.

Gallers, J., Foy, D., Donahoe Jr., C.P., & Goldfarb, J. (1988). Posttraumatic stress disorder in Vietnam combat veterans: Effects of traumatic violence exposure and military adjustment. *Journal of Traumatic Stress, 1*, 181-192.

Green, B.L., Grace, M.C., Lindy, J.D., Gleser, G.C., & Leonard, A. (1990). Risk factors for PTSD and other diagnoses in a general sample of Vietnam veterans. *American Journal of Psychiatry, 147*, 729-733.

Grinker, R., & Spiegel, H. (1945). *Men Under Stress*. Philadelphia: Blakiston.

Hanson, F.R. (1949). The factor of fatigue in the neuroses of combat. *Army Medical Bulletin, 9*, 147-150.

Hillman, R.G. (1981)..The psychopathology of being held hostage. *American Journal of Psychiatry, 138*, 1193-1197.

Horowitz, M.J., Wilner N., & Alvarez W. (1979). Impact of Event Scale: A measure of subjective distress. *Psychosomatic Medicine, 41*, 209-218.

Kardiner, A., & Spiegel, H. (1947). *War Stress and Neurotic Illness*. New York: Haeber.

Keane, T.M., Fairbank, J.A., Caddell, J.M., Zimering, R.T., Taylor, K.L., & Mora, C.A. (1989). Clinical evaluation of a measure to assess combat exposure. *Psychological Assessment, 1*, 53-55.

King, L.A., King, D.W., Fairbank, J.A., Keane, T.M., & Adams, G.A. (1998). Resilience-recovery factors in posttraumatic stress disorder among female and male Vietnam veterans: hardiness, postwar social support, and additional stressful life events. *Journal of Personality and Social Psychology, 74*(2), 420-434.

Koopman, C., Classen C., & Spiegel, D. (1994). Predictors of posttraumatic stress symptoms among survivors of the Oakland/Berkeley, Calif., firestorm. *American Journal of Psychiatry, 151*, 888-894.

Koopman, C., Classen, C., & Spiegel, D. (1996). Dissociative responses in the immediate aftermath of the Oakland/Berkeley firestorm. *Journal of Traumatic Stress, 9*, 521-540.

Lieneck, M. (1997). The relationship between childhood trauma, combat exposure, postwar traumatic events and posttraumatic stress disorder: A test of an interaction model. *Dissertation Abstracts International, 57*(10-B), 6581.

Lipschitz, D.S., Kaplan, M.L., Sorkenn, J., Chorney, P., & Asnis, G.M. (1996). Childhood abuse, adult assault, and dissociation. *Comprehensive Psychiatry, 37*(4), 261-266.

Litz, B.T., King, L.A., King, D.W., Orsillo, S.M., & Friedman, M.J. (1997). Warriors as peacekeepers: Features of the Somalia experience and PTSD. *Journal of Consulting and Clinical Psychology, 65*, 1001-1010.

Loo, C.M. (1994). Race-related PTSD: The Asian American Vietnam veteran. *Journal of Traumatic Stress, 7*(4), 637-656.

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

McCarroll, J.E., Fagan, J.G., Hermsen, J.M., & Ursano, R.J. (1997). Posttraumatic stress disorder in U.S. Army Vietnam veterans who served in the Persian Gulf War. *The Journal of Nervous and Mental Disease, 185*(11), 682-885.

McCranie, E.W., Hyer, L.A., Boudewyns, P.A., & Woods, M.G. (1992). Negative parenting behavior, combat exposure, and PTSD symptom severity: Test of a person event interaction model. *Journal of Nervous & Mental Disease, 180*, 431-438.

Mullins, W.S. (1973). Neuropsychiatry in World War II (Vol. 2). Washington, DC: Office of the Surgeon General.

Post, R.M., Weiss, S.R.B., & Smith, M.A. (1995). Sensitization and kindling: Implications for the evolving neural substrates of posttraumatic stress disorder. In M.J. Friedman, D.S. Charney, & A.Y. Deutch (Eds.), *Neurobiological and clinical consequences of stress: from normal adaptation to PTSD* (pp. 203-224), Philadelphia, PA: Lippincott-Raven Publishers.

Putnam, F.W. (1985). Dissociation as a response to extreme trauma. In R.P. Kluft (Ed.), *Childhood Antecedents of Multiple Personality* (pp. 65-98). Washington, DC: American Psychiatric Press.

Putnam, F.W. (1989). Pierre Janet and modern views of dissociation. *Journal of Traumatic Stress, 2*, 413-429.

Realmuto, G.M., Masten, A., Carole, L.F., Hubbard, J., Groteluschen, A., & Chhun, B. (1992). Adolescent survivors of massive childhood trauma in Cambodia: Life events and current symptoms. *Journal of Traumatic Stress, 5*(4), 589-599.

Ross, M.C., & Wonders, J. (1993). An exploration of the characteristics of posttraumatic stress disorder in reserve forces deployed during Desert Storm. *Archives of Psychiatric Nursing, 7*, 265-269.

Salmon, T.W. (1919). War neuroses and their lesson. *New York Medical Journal, 109*, 993-994.

Schwarzwald, J., Solomon, Z., Weisenberg, M., & Mikulincer, M. (1987). Validation of the Impact of Event Scale for psychological sequelae of combat. *Journal of Consulting and Clinical Psychology, 55*, 251-256.

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

Solomon, Z., Laror, N., & McFarlane, A.C. (1996). Acute posttraumatic reactions in soldiers and civilians. In B.A. van der Kolk, A.C. McFarlane, & L. Weisaeth (Eds.), *Traumatic Stress: The Effects of Overwhelming Experience on Mind, Body, and Society*, (pp.102-114). New York: The Guilford Press.

Solomon, Z., Mikulincer, M., & Benbenistry, R. (1989). Combat stress reaction: Clinical manifestations and correlates. *Military Psychology, 1*, 35-47.

Solomon, Z., Mikulincer, M., & Flum, H. (1989). The implications of life events and social integration in the course of combat-related posttraumatic stress disorder. *Social Psychiatry and Psychiatric Epidemiology, 24*, 41-48.

Southwick, S.M., Morgan, A., Nagy, L.M., Bremner, D., Nicolaou, A.L., Johnson, D.R., Rosenheck, R., & Charney, D.S. (1993). Trauma related symptoms in veterans of Operation Desert Storm: A preliminary report. *American Journal of Psychiatry, 150*, 1524-1528.

Spiegel, D. (1988). Dissociation and hypnosis in posttraumatic stress disorders. *Journal of Traumatic Stress, 1*, 17-33.

Spiegel, D., & Cardeña, E. (1991). Disintegrated experience: The dissociative disorders revisited. *Journal of Abnormal Psychology, 100*, 366-378.

Spiegel, D., Hunt, T., & Dondershine, H.E. (1988). Dissociation and hypnotizability in posttraumatic stress disorder. *American Journal of Psychiatry*, 145, 301-305.

Spiegel, D., Koopman, C., Cardeña, E., & Classen, C. (1996). Dissociative symptoms in the diagnosis of Acute Stress Disorder. In L.K. Michelson & W.J. Ray (Eds.), *Handbook of Dissociation: Theoretical, Empirical, and Clinical Perspectives*, (pp. 367-380). New York: Plenum Press.

Sutker, P.B., Uddo, M., Brailey, K., Vasterling, J.J., & Errera, P. (1994). Psychopathology in war-zone deployed and nondeployed Operation Desert Storm troops assigned graves registration duties. *Journal of Abnormal Psychology*, *103*, 383-390.

Sutker, P.B., David, J.M., Uddo, M., & Ditta, S.R. (1995). Assessment of psychological distress in Persian Gulf troops: Ethnicity and gender comparisons. *Journal of Personality Assessment*, *64*, 415-427.

Terr, L. (1991). Childhood traumas: An outline and overview. *American Journal of Psychiatry*, *148*, 10-20.

Vielhauer, M.J. (1996). Complex post-traumatic stress disorder associated with childhood sexual and physical abuse in male veterans with histories of substance abuse disorders. *Dissertation Abstracts International*, *57*(1-B), 0750.

Weathers, F.W., Litz, B.T., & Keane, T.M. (1995). Military Trauma. In J.R. Freedy & S.E. Hobfoll (Eds.), *Traumatic Stress: From Theory to Practice*, (pp. 103-128). New York: Plenum Press.

Wolfe, J., Brown, P.J., & Bucsela, M.L. (1992). Symptom responses of female Vietnam veterans to Operation Desert Storm. *American Journal of Psychiatry*, *149*, 676-679.

Yehuda, R., Elkin, A., Binder-Brynes, K., Kahan, B., Southwick, S.M., Schmeidler, J., & Giller, E.L. (1996). Dissociation in aging Holocaust survivors. *American Journal of Psychiatry*, *153*(7), 935-940.

Zaidi, L.Y., & Foy, D.W. (1994). Childhood abuse experiences and combat-related PTSD. *Journal of Traumatic Stress*, *7*, 33-42.

Zilberg, N., Weiss, D.S., & Horowitz, M.J. (1982). Impact of Event Scale: A cross-validation study and some empirical evidence. *Journal of Consulting and Clinical Psychology*, *50*, 407-414.

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