

Posttraumatic Stress Disorder and Current Relationship Functioning Among World War II Ex-Prisoners of War

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This study examined the association of posttraumatic stress disorder (PTSD) with the quality of intimate relationships among present-day male World War II ex-prisoners of war (POWs). Ex-POWs had considerable marital stability; those with PTSD were no less likely to be in an intimate relationship. Ex-POWs in an intimate relationship who had PTSD ($N = 125$) were compared with ex-POWs in a relationship who did not have PTSD ($N = 206$). Marital functioning was within a range expected for persons without traumatic exposure. Yet, over 30% of those with PTSD reported relationship problems compared with only 11% of those without PTSD. Ex-POWs with PTSD reported poorer adjustment and communication with their partners and more difficulties with intimacy. Emotional numbing was significantly associated with relationship difficulties independent of other symptom complexes and severity of PTSD. Implications for clinical practice are discussed.

The long-term medical and psychological consequences of being a former prisoner of war (POW) have been well documented (e.g., Page, 1992; Sutker & Allain, 1996). However, little is known about the enduring interpersonal consequences of this trauma, particularly its effect on intimate relationships. In general, younger couples in which a partner has experienced trauma (i.e., combat, rape, childhood sexual abuse) report impairment in relationship satisfaction, dyadic adjustment, emotional expressiveness, intimacy, communication, and sexual relations as well as overt hostility (Carroll, Rueger, Foy, & Donahue, 1985; Compton & Follette, 1998; DiLillo & Long, 1999; Jordan et al., 1992; Kulka et al., 1990; Riggs, Byrne, Weathers, & Litz, 1998; Roberts, Penk, Gearing, Robinowitz, Dolan, & Patterson, 1982; Solomon, Mikulincer, Fried, & Wosner, 1987). The

relationship problems of younger trauma survivors appear to be due, in part, to the effects of PTSD (Carroll et al., 1985; Kulka et al., 1990; Riggs et al., 1998). In addition, those with PTSD have higher separation and divorce rates than their non-PTSD counterparts (Jordan et al., 1992; Pavalko & Elder, 1990; Riggs et al., 1998).

Most of the current empirical evidence about the intimate relationships of trauma survivors is based on studies of younger combat veterans, particularly U.S. veterans of the Vietnam conflict and Israeli veterans. World War II (WWII) veterans who were held as POWs offer an ideal population in which to examine the association of PTSD symptoms with long-term relationship difficulties. First, the rates of PTSD among WWII ex-POWs are estimated at 30% to 70% (Eberly & Engdahl, 1991; Molinari & Williams, 1995; Speed, Engdahl, Schwartz, & Eberly, 1989) as compared with about 15% among Vietnam combat veterans (Kulka et al., 1990). Though the exact longitudinal trajectory of PTSD in American ex-POWs is unknown, evidence exists for symptom stability (Engdahl, Harkness, Eberly, Page, & Bielinski, 1993; Kluznik, Speed, van Valkenburg, & Magraw, 1986; Page, 1992) and patterns in which symptoms are highest after exposure, decline for years, and then increase again in late life (Port, Engdahl, & Frazier, 2001). Thus, older ex-POWs are likely to suffer a chronic course of PTSD with symptoms waxing and waning across the life span (Zeiss & Dickman, 1989). WWII ex-POWs are also valuable because the time since their exposure to internment is relatively similar, and the traumas of internment are well

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documented, relatively uniform, and severe (Port, Engdahl, Frazier, & Eberly, 2002), although some research suggests that POWs who were interned during the Pacific had greater duration and intensity of trauma captivity and more psychiatric difficulties than those in the European theater (Sutker & Allain, 1995). Understanding the interpersonal correlates of ex-POWs has the potential to provide knowledge about the long-term effects of trauma and thus aid in the development of effective psychological interventions.

Studies that have examined the impact of the internment experience on relationship quality have typically been limited in scope, have used nonstandardized measures, and have had relatively small sample sizes. These limitations make interpretation of the results difficult in the context of the more general literature on intimate relationship quality or PTSD. Nevertheless, the findings of these studies suggest that the POW experience may have a profound negative impact on relationships. For example, Bernstein (1998) found that, among a small sample of WWII ex-POWs, both former POWs and their partners reported feeling emotionally distant from each other. In a small sample of Vietnam ex-POWs, Hall and Malone (1976) reported that the men were often emotionally detached from their significant partners. Over half of these men reported that they preferred to maintain this distance throughout the course of their relationship. On the other hand, in a sample of Vietnam combat veterans who were seeking mental health services, Carroll et al. (1985) found that those with PTSD had less self-disclosure and expressiveness toward their partners and more aggression, but overall, their relationship satisfaction did not differ. Finally, in a study of Australian WWII ex-POWs and their wives, Dent et al. (1998) concluded that there was little evidence of the men's enduring problems having long-term effects on their marriages, although assessment of relationship variables was limited.

One area that warrants further investigation is the mechanism by which PTSD may affect relationships: There may be unique effects of the PTSD symptom clusters of reexperiencing, avoidance (i.e., effortful avoidance and numbing), and hyperarousal. In particular, emotional numbing may contribute to traumatized ex-POWs' relationship distress by impairing their sharing of feelings with spouses and their ability to resonate with spouses' emotional experience. A number of theorists and marital therapists have independently posited that such emotional engagement is crucial for maintaining intimacy and resolving marital conflict (Greenberg & Johnson, 1988; Wile, 1993). The reciprocal effects of such numbing are likely to include reductions in the support available from partners who may serve as primary confidants and caretakers for veterans. It has been shown that caregiver burden in partners of Vietnam War veterans with PTSD is an important variable in evaluating intra- and interpersonal adjustment (Beckham, Lytle, & Feldman, 1996). Consistent with this hypothesis concerning the deleterious effects of numbing, a small investigation of the intimate relationships of Vietnam combat veterans found that PTSD symptoms of emotional numbing were particularly related to marital distress (Riggs et al., 1998).

There are a number of challenges to interpreting any

association found between traumatic exposures over 5 decades ago and current relationship functioning. Most basically, the selective exiting of the most affected respondents from marriage could obscure some of the long-term consequences of trauma. Such selective exiting would be evident if survivors of trauma with the greatest levels of symptoms were more likely than others to divorce or not to remarry if divorced or widowed. Similarly, there may be more exits from the most adversely affected marriages. An assessment limited to survivors who are currently in an intimate relationship would thus be biased in terms of underestimating the effects of exposure to trauma on intimate relationships. Over 5 decades, even a modest annual effect on divorce and remarriage could have a substantial cumulative effect on the observed association between symptoms and the quality of relationships. For our present purposes, therefore, it is important to examine the overall rate of marital dissolution in our sample and whether this rate differs between men who have PTSD and those who do not. Furthermore, it is important to examine what other differences exist between men who have maintained an intimate relationship and those who have not. Although interesting in themselves, results of these analyses should further qualify any interpretation of our data concerning the current relationship functioning of this present day sample of long-term survivors of a POW experience.

After examining overall marital stability and differences between POWs who were currently in an intimate relationship with those who were not, we proceeded to our main analyses. Specifically, ex-POWs with and without PTSD were compared in terms of their marital adjustment, communication, intimacy, and steps taken toward ending the relationship. The hypotheses were that ex-POWs with PTSD would report poorer relationship adjustment, greater communication difficulties, and more problems with intimacy and that they had taken more steps toward separation and divorce than their counterparts without PTSD. In addition, the association of intimate relationship functioning and the specific PTSD symptom clusters (i.e., reexperiencing, avoidance, hyperarousal) was inspected. Consistent with the findings of Riggs et al. (1998), we hypothesized that the strongest associations would emerge between emotional numbing and measures of relationship functioning.

Method

The data reported here were gathered as part of a cross-sectional investigation conducted in two phases: an initial screening survey of all ex-POWs and a follow-up questionnaire of ex-POWs with current partners. An initial survey was mailed to all members of the American Ex-Prisoner of War Association who were currently residing in the state of California ($N = 1,148$). Founded in 1942, this organization is a national association for American citizens who were captured by the enemy, including all former prisoners of war from any theater in any war, and all former civilian internees, nonmilitary persons captured and held by the enemy during wartime. The American Ex-POW Association currently has over 300 chapters and state departments, representing over 30,000 members nationwide.

The initial survey included questions on demographic informa-

tion, military experience, physical well-being, use of mental health care, severity of POW trauma, and PTSD symptoms related to internment. The second phase involved a follow-up questionnaire sent only to those respondents who indicated they were currently living with a spouse or domestic partner. It included assessments of psychological distress, PTSD symptoms, and relationship quality. Two contact attempts, including a re-mailing of the questionnaire, were made before considering a person a nonresponder.

Of the 1,148 initial surveys sent out, 619 were completed and returned. One hundred and fourteen (10%) potential respondents were deceased. Of the remainder, 34 (3%) refused to complete the survey; 16 (1%) were too ill to complete the survey; and the remaining 366 (35%) simply did not return the survey. We could not determine what proportion of this group actually received the questionnaire nor if all of them are still living. Taking the known deceased veterans out of the denominator, the response rate among veterans not known to be deceased was 60%.

Of the 619 respondents who completed the initial screening survey, 159 (26%) were not married or currently living with a partner and thus were not sent the follow-up questionnaire. Of the 460 respondents with partners who completed the initial survey, 84% ($n = 386$) completed the follow-up questionnaire. We compared the 386 persons who responded to the second phase of the study with the 74 who were invited to participate but did not. There were few demographic or clinical differences between the two groups. Those who did not participate had rated their current physical health at baseline as marginally worse than did those who participated ($M = 3.66$ vs. 3.39), $t(402) = 1.94$, $p < .05$. There were no other differences between the groups on such variables as age, race, or severity of trauma or PTSD symptoms.

Following collection of the data, a decision was made to limit analyses of both the initial and follow-up samples to respondents who had been WWII military POWs. This entailed eliminating from the initial sample 31 respondents who had served in either the Korean Conflict or the Vietnam War and 43 who had been civilian POWs, leaving 545 WWII military POWs. In the follow-up sample, this entailed eliminating 23 civilian POWs, 24 interned in Korea or Vietnam, and 1 WWII POW with a male partner. Lastly, 7 WWII ex-POWs did not provide complete information on PTSD symptoms and thus were eliminated because a diagnosis could not be made, leaving 331 respondents with partners for whom both screening and follow-up data were analyzed and are reported here.

Initial Measures

Demographic information collected included age, race, marital status, annual income, years of education completed, and number of children. Information on military experience such as era, theater, branch, and length of service was also gathered as were physical well-being measures: current self-rated health and number of visits to physician in past year. Participants were asked to rate their current health compared with others their age. The response options were *excellent* (1), *very good* (2), *good* (3), *fair* (4) and *poor* (5). Participants were also asked to indicate how many times over the past year they had visited a medical doctor, not including times spent overnight. Use of mental health care consisted of two questions. Participants were asked to indicate whether they ever received mental health treatment or ever had a drug or alcohol problem. Patients were also asked to rate the long-term impact of their POW experiences on five areas of their life: physical health, psychological well-being, social activities, working life, and marriage. The long-term impact of each event was rated on a 5-point scale ranging from *not at all* (0) to *considerable effect* (4).

POW Trauma Index. The POW Trauma Index (Sutker, Winstead, Goist, Malow, & Allain, 1986), a 16-item self-report measure, was used to assess the presence or absence of POW stressor severity, including exposure to extreme temperatures, forced marches, weight loss greater than 35%, intimidation, confinement illnesses, beatings, having been wounded at capture, personal death threats, overcrowding, interrogating, general death threats, solitary confinement, physical torture, brainwashing/reeducation, witnessing others being tortured, and being fired on by allies. Respondents were asked to indicate on a dichotomous yes–no scale whether or not these events occurred to them during their POW internment. The POW Trauma Index was used as a continuous measure of severity of POW trauma. Cronbach's alpha for the POW Trauma Index was relatively high ($\alpha = .81$).

PTSD Checklist (PCL). The PCL (Weathers, Litz, Herman, Huska, & Keane, 1993) is a 17-item self-report measure that corresponds to the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV)*; American Psychiatric Association, 1994) criteria for PTSD and includes five reexperiencing symptoms, seven avoidance–numbing symptoms and five hyperarousal symptoms. The PCL was introduced as “a list of problems and complaints that POWs sometimes have in response to stressful POW experiences.” Respondents are asked to indicate the extent to which they have been bothered by each symptom in the past month on a 5-point Likert scale ranging from *not at all* (1) to *extremely* (5). POW experiences served as the trauma referent for all trauma-specific items, for example, “In the past month how much have you been bothered by repeated, disturbing memories, thoughts, or images of a stressful POW experience?” PTSD that was due to other events was not assessed.

The PCL has demonstrated high internal consistency, test–retest reliability, and concurrent validity and corresponds highly with a diagnosis of PTSD based on structured interview (sensitivity = .82, specificity = .83; Weathers et al., 1993). Cronbach's alpha for the PCL given to the ex-POWs in the initial phase was very high ($\alpha = .96$).

Participants were categorized as having PTSD if they acknowledged at least “moderate” symptoms (a rating of 3 or more) for at least one Criterion B (reexperiencing) symptom, three Criterion C (avoidance/numbing) symptoms, and two Criterion D (hyperarousal) symptoms in the past month. This procedure has been used by other investigators (Riggs et al., 1998; Schnurr et al., 2000). The PCL does not assess for Criterion A. With respect to Criterion A.1, in which the person experienced, witnessed, or was confronted with an event in which there was life threat, serious injury, or threat to physical integrity, the POW experience is arguably sufficient to meet this criterion. We did not assess whether participants met Criterion A.2, which stipulates that the person responded to the event with fear, helplessness, or horror.

Follow-Up Measures

PCL. The PCL (Weathers et al., 1993) was again completed at the second assessment. Cronbach's alpha for the PCL given at the second phase was very high ($\alpha = .96$). The PTSD diagnostic classification was made with this variable.

Dyadic Adjustment Scale (DAS). The DAS (Spanier, 1976) is a 32-item self-report measure of relationship satisfaction, consensus, cohesion, and affectional expression. Internal consistency was very high, with alpha coefficients above .90 (Spanier, 1976). Scores below 98 are considered to reflect significant distress within the relationship (Heyman, Sayers, & Bellack, 1994). Cronbach's alpha for the DAS in this sample was acceptable ($\alpha = .73$).

Personal Assessment of Intimacy in Relationships (PAIR).

The PAIR (Schaeffer & Olsen, 1981) is a 36-item self-report measure of five types of intimacy: emotional, social, sexual, intellectual and recreational. Participants were asked to rate their relationships on how much they perceived they shared with and differed between themselves and their partners across these domains. Scaling involves a 5-point Likert scale of agreement to disagreement. Scores can range from 0 to 150. Reliability and validity are acceptable (Schaeffer & Olsen, 1981). Cronbach's alpha for the PAIR in this sample was acceptable ($\alpha = .70$).

Communications Pattern Questionnaire—Short Form (CPQ-S).

The CPQ-S (Christensen, 1987, 1988; Christensen & Sullaway, 1984) is an eight-item brief version of the Communication Patterns Questionnaire that assesses perception of problem-solving interactions. This self-report measure assesses partner perceptions of communication during two phases of conflict: (a) "when the issue or problem arises" (items assess discussion or avoidance of the issue) and (b) "during a discussion of the issue or problem" (items assess blame, negotiation, criticizing-defending, and demand-withdrawal). Items are rated on a 9-point scale ranging from 1 (*very unlikely*) to 9 (*very likely*).

The CPQ-S contains four theoretically derived subscales: three asymmetrical and one symmetrical. The first two asymmetrical subscales focus on demand-withdraw interactions. One involves the female partner as demanding and the male partner as the one who withdraws, and the second represents the opposite. The third asymmetrical subscale represents the total demand-withdraw interaction and is created by summing the first two subscales. The fourth subscale, constructive communication, consists of mutual discussion, expression, and negotiation. Reliability and validity of the CPQ-S have been demonstrated (Christensen, 1987, 1988; Christensen & Heavey, 1990). Cronbach's alphas for both the Constructive Communication and the Demand-Withdraw subscales in this sample were relatively high (both α s = .85).

Results

Initial Sample

Demographic data for the initial sample of 545 WWII ex-POWs are presented in Table 1. They had a mean age of 80 years, with a range of 70 to 100 years old. The majority were Caucasian, most had some education beyond high school, and the median annual household income was between \$30,000 and \$40,000. The majority of ex-POWs had been held captive in the European Theater (58%), with the remainder interned in the Pacific Theater (42%). Forty-six percent served in the Army, 42% in the Air Force, 8% in the Navy, and 4% in the Marines. The average length of internment was 21.0 months ($SD = 16.4$), with a range of 1 to 90 months. Overall, 74% of the sample were currently married or living with a partner, 7% were divorced or separated, 16% were widowed, and 3% had never married.

Differences Between WWII Ex-POWs With and Without Partners

Table 1 also presents comparisons between those with partners and those without partners in terms of key demographic and clinical variables available in the initial survey. As can be seen, those with partners were marginally younger and had more children and higher incomes. However, the lack of any differences for other demographic or clinical variables, including severity of symptoms and rates of PTSD diagnoses, is striking. Overall, more than 37% of the sample met criteria for PTSD related to their captivity experience, but the differences associated with having a

Table 1
Differences Between Ex-Prisoners of War With and Without Partners

Variable	Screened (<i>n</i> = 545)	Married (<i>n</i> = 406)	Unmarried (<i>n</i> = 139)	t-test or chi-square statistic
Demographics				
Age	80.0 (3.3)	80.0 (3.3)	80.1 (3.5)	$t(540) = 0.36$
No. of children	2.8 (2.0)	3.0 (1.9)	2.3 (1.9)	$t(541) = -3.74^{**}$
White	86%	82%	86%	$\chi^2(1, N = 545) = 1.50$
More than high school education	68%	69%	66%	$\chi^2(1, N = 542) = 0.51$
More than \$30,000 income	60%	64%	48%	$\chi^2(1, N = 462) = 8.73^{**}$
Physical well-being				
Current self-rated health	3.5 (1.1)	3.4 (1.1)	3.5 (1.0)	$t(541) = 0.94$
Visits to physician in past year	12.5 (14.1)	13.1 (14.7)	10.8 (11.9)	$t(498) = -1.80$
Trauma and effects				
POW Trauma Index	10.1 (3.3)	10.2 (3.4)	9.9 (3.2)	$t(537) = -0.96$
Post-Traumatic Stress Disorder Checklist	43.2 (18.9)	43.1 (19.0)	43.3 (18.8)	$t(513) = 0.10$
Impact of POW experiences on marriage	1.9 (1.5)	1.9 (1.4)	2.10 (1.6) ^a	$t(516) = 1.29$
Impact of POW experiences on physical health	2.9 (1.2)	2.9 (1.2)	2.9 (1.2)	$t(532) = 0.18$
Impact of POW experiences on psychological health	2.5 (1.3)	2.4 (1.3)	2.5 (1.4)	$t(526) = 0.56$
Impact of POW experiences on work	2.1 (1.4)	2.1 (1.4)	2.1 (1.4)	$t(520) = 0.21$
Impact of POW experiences on social activities	2.1 (1.4)	2.1 (1.4)	2.3 (1.4)	$t(524) = 1.43$
Ever received mental health treatment	29%	28%	29%	$\chi^2(1, 539) = 0.10$
Ever had a drug or alcohol problem	6%	6%	7%	$\chi^2(1, 543) = 0.10$

Note. POW = Prisoner of war. For continuous variables, means and standard deviations (in parentheses) are presented. For dichotomous variables, percentages are presented.

^aThe unmarried participants responding to this item were referring to their past marriages.

** $p < .01$.

partner were not significant. Furthermore, among the formerly married, there was no difference from those currently with partners in the ex-POWs' ratings of how their experience in captivity had affected their intimate relationship. In short, within the limits of the variables examined, there was no evidence of a substantial selection bias in ex-POWs marrying and remaining married.

Follow-up Sample: POWs With Partners

The mean age for ex-POWs with partners was 80 years ($SD = 3.20$), with a range of 71 through 100. Forty-five percent served in the Army, 44% in the Air Force, 6% in the Navy, and 5% in the Marines. The majority were Caucasian, and almost all were married (98%) rather than living with someone in a marriage-type relationship. For 70% of the participants, their current marriage was their first. The mean length of duration of these marriages was 54.0 years ($SD = 4.6$), and only 19% of the sample had been married at the time of their captivity. The mean DAS score for the sample was 113.63 ($SD = 21.87$), with a range from 28 to 150.

A series of analyses were conducted to examine the association of PTSD with difficulties in the marriages of the participants. First, analyses linked a diagnosis of PTSD with relationship variables. Next, correlations between continuous measures of PTSD symptom clusters (reexperiencing, arousal, avoidance) and the relationship variables were assessed. Finally, multiple regression analyses examined the relative contribution of different relationship variables to severity of PTSD symptoms. On the basis of earlier findings that implicate emotional numbing symptoms as particularly detrimental to relationship functioning (Riggs et al., 1998), the avoidance symptoms were divided into categories of effortful avoidance (i.e., attempts to avoid reminders and attempts to avoid thoughts and feelings) and emotional numbing (i.e., emotional restriction, detachment from others, and loss of interest in pleasurable activities) for these analyses.

Ex-POWs with PTSD were more likely to be maritally distressed (according to the standard DAS cutoff point of 98), 31% versus 11% for ex-POWs without PTSD, $\chi^2(1, N = 386) = 19.65, p < .001$. Ex-POWs with PTSD were also more likely to have considered marital separation (20%

vs. 8%), $\chi^2(1, N = 386) = 10.08, p < .01$, or divorce (11% vs. 5%), $\chi^2(1, N = 386) = 4.01, p < .05$. Ex-POWs with PTSD were also more likely to ever have talked with a clergyman, doctor, counselor, or therapist about problems in their marriage (33% vs. 15%), $\chi^2(1, N = 386) = 13.90, p < .001$.

As shown in Table 2, *t* tests were used to compare ex-POWs with and without PTSD on the four summary continuous measures (dyadic adjustment, intimacy, demand-withdraw communication, and constructive communication). A Bonferroni correction was used to control Type I errors, so that only effects significant at the $p < .01$ level were interpreted. Results of these analyses indicate detrimental effects of PTSD for all four measures of relationship functioning: relationship satisfaction, $t(309) = 5.94, p < .001$; intimacy, $t(305) = 6.81, p < .001$; demand-withdraw communication, $t(307) = -5.08, p < .001$; and constructive communication, $t(316) = 3.66, p < .001$. We also used *t* tests to compare ex-POWs by branch of service and theater of captivity on PTSD and measures of relationship functioning. Those in the Air Force ($n = 147, M = 35.29, SD = 15.62$) reported significantly lower PTSD symptoms than those in other branches of service ($N = 184, M = 43.51, SD = 17.69$), $t(326) = 4.47, p < .001$, but no significant differences were found between these groups on any of the relationship measures. Those who were held captive in the Pacific theater reported significantly higher PTSD ($N = 120, M = 46.00, SD = 17.47$) than did those held captive in the European theater ($N = 211, M = 36.26, SD = 16.13$), $t(326) = -5.11, p < .001$, but no significant differences were found between these groups on any of the relationship measures.

In interpreting these and subsequent results, it should be noted that the various indices of couple functioning were significantly correlated with each other at the $p \leq .01$ significance level. The DAS was correlated with demand-withdraw ($-.56$), constructive communication ($.63$), and intimacy ($.79$). Demand-withdraw was correlated with constructive communication ($-.54$) and intimacy ($-.60$). Constructive communication was correlated with intimacy ($.74$).

Results of the correlation analyses indicated that overall

Table 2
Mean Scores (and Standard Deviations) on Relationship Variables for Groups With and Without Posttraumatic Stress Disorder (PTSD)

Group	Relationship measure			
	DAS	Intimacy	Demand-Withdraw Communication	Constructive Communication
PTSD ($N = 120$)	104.85 (24.37)	96.70 (20.14)	24.62 (10.53)	14.12 (7.18)
Non-PTSD ($N = 198$)	119.27 (18.13)	114.17 (21.93)	18.44 (10.28)	17.00 (6.57)

Note. DAS = Dyadic Adjustment Scale; Intimacy = Personal Assessment of Intimacy in Relationships. The Demand-Withdraw Communication and Constructive Communication scales are from the Communications Pattern Questionnaire—Short Form. Numbers in parentheses are standard deviations. Differences between PTSD and non-PTSD groups on all relationship measures are significant at $p < .001$.

PTSD scores, as well as each of the clusters of PTSD symptoms, were related to poorer marital functioning on all four measures of marital functioning. Correlation coefficients between the total PTSD score and the relationship variables ranged from .26 to .43 in absolute magnitude (see Table 3). Coefficients for the cluster scores ranged from .18 to .47 in absolute magnitude. In addition, measures of effortful avoidance (absolute magnitude range = .22 to .36) and emotional numbing (absolute magnitude range = .33 to .49) were also significantly correlated with all measures of relationship functioning.

Hierarchical regression analyses were used to examine the unique contribution of each PTSD symptom cluster to difficulties in relationships. Relationship functioning variables were regressed on four PTSD symptom scores: reexperiencing, arousal, effortful avoidance, and numbing. In each case, the target predictor was entered into the regression equation after all other symptom clusters had been entered. The change in R^2 associated with each of the symptom clusters is presented in Table 4.

Because the results were quite similar across measures of relationship, only the results for the DAS are reported here. Overall, symptoms of PTSD accounted for 17% of the variance in adjustment scores, $F(4, 301) = 15.69, p < .001$, multiple $R = .42$. An examination of the change in R^2 associated with each of the symptom clusters (see Table 4) indicated that only the emotional numbing symptoms significantly explained unique variance in dyadic adjustment, $F(1, 301) = 14.19, p < .001$. Thus, across a number of measures of relationship functioning, support was consistently found for the a priori hypothesis that, of the PTSD symptom clusters, numbing had a unique independent contribution to problems in intimate relationships. Yet, it could be that emotional numbing was simply a good surrogate measure of overall severity of PTSD symptoms. We examined this possibility in two ways. First, additional analyses were conducted that simultaneously entered overall severity and emotional numbing scores. For all measures of relationship functioning, the independent contribution of emotional numbing remained significant while the contribution of overall severity did not, thus giving greater confidence to the unique importance of emotional numbing.

Second, we examined the correlations of each subscale to the overall PCL total (PTSD severity) subtracting the subscale. Each subscale was correlated with the overall PCL total in a similar fashion (.85 for reexperiencing, .79 for effortful avoidance, .80 for numbing, and .86 for arousal).

Discussion

The results attest to both the strengths of the intimate relationships of this sample of WWII ex-POWs and the possible enduring effects of PTSD. Despite their experience in captivity, most of these men married after their return and achieved a marital stability exceeding that of younger generations. Even the widely used Dyadic Adjustment Scale does not have norms for persons as old as those in this sample (mean age 80). However, as a group, this sample of ex-POWs currently enjoys a level of relationship satisfaction comparable to the general population. Nonetheless, ex-POWs with PTSD were three times more likely to score in the maritally distressed range on the DAS than were ex-POWs without PTSD, and they experienced significantly more problems on every measure of intimate functioning examined. Even so, the mean DAS scores of ex-POWs with PTSD were in the nondistressed range. Finally, support was found for a hypothesized unique, independent deleterious effect of emotional numbing on relationship functioning, and this did not appear to simply reflect the association of numbing with overall severity of PTSD symptoms.

Before discussing the substantive implications of these findings, some features of the study should be reviewed. The sample was recruited from the largest existing organization of ex-POWs, and thus we did not rely on either presence in the Veterans Administration Hospital system or help seeking to identify WWII ex-POWs. However, we do not know whether WWII ex-POWs living in California who are members of the American Ex-Prisoner of War Association differ from WWII ex-POWs who are non-Californians and do not have this affiliation. The percentage of Air Force veterans in this sample is higher than in previous research on ex-POWs (32% for Speed et al., 1989; Zeiss & Dickman, 1989), and thus this sample may overrepresent airmen who

Table 3
Correlations Between Descriptive Statistics for PTSD Symptom Clusters and Relationship Variables

PTSD factor	Relationship measure				<i>M</i>	<i>(SD)</i>
	DAS	Intimacy	Demand–Withdraw	Constructive Communication		
Total PTSD	-.36	-.43	.30	-.26	39.8	(17.3)
Reexperiencing	-.27	-.35	.23	-.18	11.9	(5.9)
Arousal	-.35	-.39	.29	-.24	12.8	(5.6)
Avoidance	-.38	-.47	.31	-.30	15.2	(7.1)
Effortful Avoidance	-.30	-.36	.22	-.22	4.4	(2.6)
Emotional numbing	-.41	-.49	.34	-.33	6.4	(3.3)
<i>M (SD)</i>	114.0 (21.7)	107.5 (22.9)	20.8 (10.8)	1.6 (1.3)		

Note. PTSD = posttraumatic stress disorder; DAS = Dyadic Adjustment Scale; Intimacy = Personal Assessment of Intimacy in Relationships. The Demand–Withdraw Communication and Constructive Communication scales are from the Communications Pattern Questionnaire—Short Form. All correlations are significant at the $p < .001$ level.

Table 4
Unique Variance (R^2) Associated With Relationship Variables

PTSD factor	Relationship measure			
	DAS	Intimacy	Demand-Withdraw Communication	Constructive Communication
Reexperiencing	.007	.006	.001	.006
Arousal	.005	.000	.003	.000
Effortful Avoidance	.005	.008	.017	.004
Numbing	.039***	.082***	.032**	.049***

Note. DAS = Dyadic Adjustment Scale; Intimacy = Personal Assessment of Intimacy in Relationships. The Demand-Withdraw Communication and Constructive Communication scales are from the Communications Pattern Questionnaire—Short Form.

Change in R^2 significant at $p < .005$. *Change in R^2 significant at $p < .001$.

have lower levels of psychopathology than other WWII ex-POWs (Sutker & Allain, 1995).

We examined a full range of possible differences between ex-POWs currently with and without an intimate partner and failed to find evidence that our findings were biased by selective exit of ex-POWs with PTSD from marriage. However, we were unable to determine whether our results were biased by a PTSD diagnosis being associated with mortality or decreased likelihood of participating in the organization from which we drew our sample. We relied entirely on respondent self-report for characterization of the men as WWII ex-POWs and for all demographic, clinical, and relationship functioning data. The independence of the study from the VA system and any associated services and compensation may have increased the accuracy of designation of these men as ex-POWs, but we did not have the benefit of service records. However, it is worthwhile to note that the Ex-Prisoner of War Association verifies prisoner of war status using service records before processing membership applications. Our reliance on self-reported symptoms as measured with the PCL, rather than systematic clinician-administered interviews, for a diagnosis of PTSD is a limitation of this study. Future investigations should include clinical interviews. Although we have some confidence in the negative predictive value of a low score on the PCL, it is likely that there were some false positives in our designation of ex-POWs as having PTSD. We relied on well-validated measures of relationship functioning, but the absence of the wives' perspective on the quality of relationship functioning and their own adaptation to their husbands' history of captivity and current symptoms is a crucial limitation that should be addressed in future studies.

The relative strength of the intimate relationships of these men reflects a variety of factors. Despite some marital instability attributable to military service in WWII (Pavalko & Elder, 1990), there are both cohort and historical effects (Ono, 1999) such that marriages of WWII veterans are more stable than those of younger men living through the Korean Conflict and Vietnam War periods, regardless of whether the younger men engaged in military service. There is less of an empirical basis for interpreting the data concerning marital functioning. Much of what is known about marital satisfaction comes from studies of younger cohorts. In a review on late-life marriages, Gagnon, Hersen, Kabacoff, and Van Hasselt (1999) reported that older adult marriages

benefit from lower levels of conflict and greater sources of mutual pleasure. In addition, observational analyses revealed that older couples are less negative, more affectionate, and less likely to instigate negative interaction than are their middle-age counterparts (Carstensen, Gottman, & Levenson, 1995). However, some of the apparent increased affection and reduced negativity of older couples may reflect their collaborative avoidance of known areas of conflict rather than their skill in solving problems, and this has implications for efforts to resolve conflict in therapy (Coyne, Ellard, & Smith, 1990). Moreover, it appears that earlier assumptions about a U-shaped pattern of marital quality over the life span were an artifact of cross-sectional studies: In fact, marital quality declines with length of marriage (Van Laningham, Johnson, & Amato, 2001). On the other hand, with the departure of grown children and the declining centrality of sexual functioning for relationship quality, individual psychopathology has fewer implications for quality of intimate relationships (Coyne, Thompson, & Palmer, 2002).

Discussions of the stability and strength of the intimate relationships of these ex-POWs need to be tempered by the finding that more than 50 years after their captivity, over one third of the men met criteria for PTSD related to captivity and that symptoms, particularly emotional numbing, are related to problems in intimate relationships. Moreover, our null findings with respect to the preliminary hypothesis that ex-POWs with PTSD selectively exit from marriage can also be interpreted as a lack of evidence that marriage has conferred substantial benefit for the resolution of PTSD: ex-POWs who married—and most marriages began after captivity—were no less likely to have persistent PTSD over 50 years later.

The hypothesized unique link between emotional numbing and relationship difficulties held even when overall severity of symptoms was taken into account. This link is consistent with past research with Vietnam veterans with PTSD (Riggs et al., 1998) and can be tied to the marital therapy literature, which posits the significance of emotional involvement for the quality of intimate relations. These results suggest that the restricted experience or expression of emotions in older men with PTSD is a variable that warrants further empirical investigation and clinical attention when dealing with trauma survivors and difficulties in their relationships.

It was somewhat disappointing that although we were able to identify a specific role for emotional numbing in relationship problems, we were unable to identify a specific effect of either emotional numbing or PTSD on particular areas of functioning. Regardless of the area of relationship functioning examined, the results were the same. This set of results could reflect the long-term pervasiveness and non-specificity of emotional numbing and PTSD on intimate relationships. Alternatively, these findings could be another example of the operation of what Bank, Dishion, Skinner, and Patterson (1990) have termed the “glop factor” in family research. This refers to the fact that whenever there is an exclusive reliance on the self-report of one member of a couple, there is the likelihood that measures of relationship functioning will converge in a single positive–negative dimension. The potential theoretical and clinical importance of emotional numbing and our inability to identify a specific area of vulnerability of close relationships to its effects points to the need to do additional research involving partners and a wider range of assessments of relationship functioning.

It should also be noted that other unmeasured factors may jointly contribute to the variability in PTSD symptoms and relationship functioning; candidates include interpersonal skills, good ego strength, and other ex-POW and partner personality variables such as antisocial characteristics as well as contextual factors. Moreover, our assessment of alcohol only included one item for the entire sample and, given the importance of alcohol in PTSD demonstrated in past research, this is a limitation.¹ This plausible possibility does not detract from our results at a descriptive level but cautions against premature simplistic causal interpretations.

Our lack of data from wives in this study is a shortcoming not only for any test of convergence from the men’s data that would have been facilitated by their inclusion but for the lack of attention to unique aspects of the wives’ perspective such as spouse burden or personal adjustment problems tied to their husbands’ symptoms (Hankin, Abueg, Gallagher-Thompson, & Murphy, 1993). A recent study of Dutch survivors of WWII highlights the interdependence of the adjustment of partners in couples wherein there has been traumatic exposure (Bramsen, Henk, van der Ploeg, & Twisk, 2002). An existing literature is also relevant concerning caregiver burden in partners of Vietnam War veterans with PTSD. This may be an important variable in evaluating intra- and interpersonal adjustment (Beckham et al., 1996). The aging of the WWII ex-POWs and associated physical health problems and restrictions in the activities of daily living undoubtedly make caregiver issues more salient in this population.

Implications for Application and Public Policy

The ranks of WWII ex-POWs are being thinned by death, but they still make up the bulk of living ex-POWs from the U.S. armed forces. The U.S. Department of Veterans Affairs estimates that there are approximately 39,000 American ex-POWs currently living (Stenger, 2003) and that of these, approximately 36,100 were imprisoned during WWII, com-

pared with 590 during the Vietnam War. Surviving WWII ex-POWs are at an age of deteriorating health and functioning and accelerating involvement with the health care system. Even so, there is a tendency of older adults to be less involved with mental health services (German, Shapiro, & Skinner, 1985), and there is a risk that any exacerbation of symptoms in WWII ex-POWs may go unnoticed. Our data point to the need to consider intimate relationships not only as resources and partners in the health care of these men but also as being vulnerable to the enduring effects of these men’s captivity.

The large number of older adult ex-POWs with PTSD and its deleterious effect on their intimate relationships suggests that the treatment of these relationship problems may be an important target for therapeutic intervention, particularly as intimate relationships represent a primary source of support for most individuals (Beach, Martin, Blum, & Roman, 1993; McLeod, Kessler, & Landis, 1992; Syrotuik & D’Arcy, 1984). Unfortunately, information on the use and effectiveness of marital therapies with trauma survivors is sorely lacking (Riggs, 2000). In a review of the efficacy of marital and family therapies for survivors of trauma, Riggs (2000) concluded that there is little evidence that marital therapy is beneficial in treating PTSD symptoms. Riggs (2000) further suggested that marital therapy be used as an adjunct to treatments aimed more directly at the PTSD symptoms for survivors with significant disruption or dissatisfaction in their relationships.

The present results suggest that forms of marital therapy that encourage ex-POWs to label and express their feelings to their partners as well as educating partners as to the effects of traumatic exposure, emotional numbing, and difficulties with intimacy might be useful components of such interventions. In addition, findings imply that if emotional numbing is the core problem, interventions should focus on that symptom directly. For example, teaching older adult trauma survivors to identify and label feelings and providing psychoeducation to spouses may be sorely needed. In addition, educating POWs on the effects of PTSD, including emotional numbing on themselves and their relationship, and teaching them to ascribe the emotional numbing to the POW experience may also be beneficial for relationship functioning. However, problems with a lack of development and validation of treatments for the relationships of trauma survivors are compounded by a neglect of older couples in the marital therapy literature (Gottman, 1998). It could be that rather than focusing on the deficiencies in the emotional expressiveness and receptivity of these men and the consequences for their relationships, it would be more efficient

¹ In the second phase, we did include a single-item question to assess whether or not participants currently used alcohol, as well as the CAGE questionnaire (Ewing, 1984), a four-item screen for alcohol abuse/dependence to identify problem drinkers. We found that, although 62.4% of our sample reported using alcohol over the past year, less than 9% of those acknowledged that they ever had an alcohol problem (score of two or greater). Thus, the alcohol-related problems experienced by current drinkers may or may not have been current.

and acceptable to them to focus on the achievement and resources evident in their maintaining a long-term relationship despite their earlier trauma and subsequent symptoms. In addition, if a POW presents with concerns relating to PTSD, a medical or mental health practitioner might also be able to explore relationship difficulties in general and numbing in particular.

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