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Does Wartime Captivity Affect Late-life Mental Health? A Study of Vietnam-era Repatriated Prisoners of War

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Abstract

Our earlier study of U.S. prisoners of war in Vietnam (King et al., 2011) examined personal and military demographics and aspects of the stressful experience of wartime imprisonment as they related to psychological well-being shortly after homecoming in 1973. Research with repatriated prisoners of war (RPWs) from other military eras suggests that the severity of captivity stressors might predict long-term distress. However, the extent to which effects of the captivity experience persisted for Vietnam-era RPWs is unknown. The present study extended our previous analyses by examining the associations of demographic factors, captivity stressors, and repatriation mental health with subsequent symptoms of posttraumatic stress disorder (PTSD), anxiety, and depressive symptoms (measured nearly 30 years later) in a sample of 292 Vietnam-era RPWs. Results indicated that although most of the men in our sample were within normal limits on anxiety and depressive symptoms, a substantial minority reported experiencing clinically significant levels. Levels of PTSD symptoms were generally low, with only a modest proportion demonstrating elevations. Multiple regression analyses showed that age at capture and posttraumatic stress symptoms at repatriation predicted all three long-term mental health outcomes. In addition, physical torture predicted long-term PTSD symptoms. Findings highlight the potential long-term effects of wartime captivity, and also suggest that most Vietnam-era RPWs demonstrate remarkable resilience to extraordinarily stressful life experiences.

Keywords

Repatriated prisoners of war; PTSD; long-term psychological adjustment; Vietnam-era; resilience; anxiety; depression

Plentiful scientific research has demonstrated that being a prisoner of war often leads to lasting negative sequelae. Much of this research has been conducted with repatriated prisoners of war (RPWs) from World War II (WWII) and Korea (e.g., Port, Engdahl, Frazier, & Eberly, 2002). During the Vietnam era, a total of 662 U.S. military personnel were captured, survived imprisonment, and were repatriated. Some prisoners successfully escaped or accepted early release ($n = 94$), but a majority of the population ($n = 568$) was repatriated in the spring of 1973 (Segovia, Moore, Linnville, Hoyt, & Hain, 2012). Personal reports (e.g., Risner, 1973) have described the highly stressful nature of war imprisonment in Vietnam, emphasizing the high levels of injuries and illnesses U.S. prisoners experienced during captivity. Along with boredom, poor medical care, and lack of adequate nutrition were episodes of torture, which could involve both psychological (e.g., death threats, hearing others being tortured) and physical (e.g., beatings, painful rope binding) mistreatment. Despite the existence of such individual reports, relatively little empirical research has focused on the experiences of this group.

Documenting the captivity environment and specific stressors endured by Vietnam-era RPWs is important because the prisoner of war experience across eras (and even within a particular conflict, such as WWII) can vary greatly in terms of captors' treatment of the prisoners and the long-lasting consequences (e.g., Engdahl, Page, & Miller, 1991). Thus, the effects of being a prisoner of war on subsequent psychological health documented in these studies may be very different for Vietnam RPWs. The purpose of the present study was to examine the associations of demographic factors, specific aspects of the prisoner of war experience, and mental health status upon repatriation with long-term mental health outcomes (PTSD, anxiety, and depressive symptoms) in later life for Americans who were prisoners of war in Vietnam.

Prisoner of War Experience and Later Psychological Distress

Being a prisoner of war has long been known to be related to poorer adjustment relative to the adjustment of service members who were not held in captivity (see review in Eberly, Harkness & Engdahl, 1991). Even decades after their return, RPWs have been found to have higher levels of posttraumatic stress symptoms (e.g., Port et al., 2002) and depression (e.g., Page, Engdahl, & Eberly, 1991; Sutker & Allain, 1996). For example, one sample of WWII and Korea RPWs assessed 20-30 years after captivity reported high levels of PTSD symptoms; only 10% reported having none (Engdahl, Dikel, Eberly, & Blank, 1997). Another study of WWII and Korea RPWs conducted in the 1990s found that PTSD symptoms across a 4-year period exhibited a variable course and seemed to increase with age (Port et al., 2002). In a study of former WWII RPWs 40 years after their imprisonment, 67% had PTSD at some point (Kluznik, Speed, Van Valkenburg, & Magraw, 1986). Of those affected, 29% had fully recovered, 39% reported mild symptoms, 24% had improved but had moderate residual symptoms, and 8% had not recovered or had deteriorated.

Relatively little research is available on the emotional distress of Vietnam RPWs; most of what literature there is has focused on short-term adjustment (stress reactions) and other forms of psychological distress in one subgroup of Vietnam-era RPWs, Air Force pilots and crew (Ursano, Boydston, & Wheatley, 1981). In this sample, Ursano and colleagues reported a fairly high level of psychiatric disturbance: 23% at repatriation, increasing to over 27% at 5-year follow-up for RPWs imprisoned before 1969, and 23% decreasing to just over 19% for RPWs imprisoned after 1969. An internal report from the Naval Health Research Center that focused on a subset of RPWs who had been Navy aviators (Hourani & Hilton, 2002) found fairly low levels of distress, including PTSD and depressive symptoms, which did not differ from a matched control group who had not been prisoners of war. Finally, our analyses of short-term adjustment of Vietnam-era RPWs at repatriation (King et al., 2011)

found modest levels of posttraumatic stress symptoms, interpersonal negativity, and general distress. The current study extends these findings by examining long-term mental health outcomes in a sample of Vietnam-era RPWs ($N = 292$) who were assessed shortly after repatriation and completed mail surveys in 2002, approximately 30 years later.

Prisoner of War Experience: Characteristics Related to Psychological Distress

Some studies have attempted to understand more about the effects of war imprisonment by examining characteristics of the captivity experience as predictors of post-captivity adjustment; these studies have generally found positive relations between captivity severity and psychopathology. For example, in a study of WWII and Korea RPWs, Gold et al. (2000) found that trauma severity (assessed as diseases suffered in captivity such as malaria, dysentery, and intestinal worms), along with the maturation factors of age and education level at time of exposure, predicted long-term PTSD symptoms, but interim measures of distress (administered in 1965) did not. Another study of WWII and Korea RPWs (Page et al., 1991) found that illness during captivity predicted depression 40 years later. However, these studies did not ask about captivity experiences but rather assessed illnesses and weight loss as proxies for severity.

Several other studies have specifically examined predictors of post-captivity distress. These studies have generally found that factors related to being less experienced (e.g., younger age, enlisted status) and severity of captivity stressors predicted higher levels of subsequent distress. For example, Engdahl et al.'s (1997) study of WWII and Korea RPWs found that age at capture, combat exposure, weight loss during captivity, and having experienced or witnessed torture or beatings during captivity predicted subsequent PTSD. Despite the long-term evaluation, this study did not include indicators of short-term adjustment as predictors of subsequent PTSD. Speed et al. (1989) also found that the experience of torture and/or beatings and weight loss during captivity were the strongest predictors of persistent PTSD in WWII RPWs.

Specific to Vietnam-era RPWs, Ursano et al. (1981) attributed the greater degree of psychiatric readjustment problems observed among Vietnam RPWs captured before 1969 relative to those observed among RPWs captured after 1969 to the harsher conditions under which those captured earlier were held, although they did not specifically ask about those conditions. Demographic factors were not related to psychiatric diagnostic status for RPWs captured before 1969, but for those captured post-1969, rank was a significant predictor of psychiatric diagnosis and suggested that higher rank might serve a protective function.

In our previous analyses of data collected from Army, Navy, and Marine RPWs from Vietnam (King et al., 2011), we determined that being older, being an officer, having more education, and having longer military service time prior to capture related to better repatriation mental health. In addition, we found that the captivity stressors of the proportion of time held in South Vietnam, nutrition, and psychological torture were related to repatriation mental health. Interestingly, officer/enlisted status (potentially reflecting maturity, similar to what others have interpreted with RPWs from other wars—e.g., Zeiss & Dickman, 1989) moderated effects of captivity stressors on distress. In another study (O'Connell, 1976, cited in Hunter, 1978), length of captivity predicted presence/absence of a psychiatric diagnosis among Navy RPWs two years post-repatriation, although most were doing well psychiatrically.

Purpose of the Current Study

In the present study, we tested the extent to which demographic factors (age at capture, education at capture, and officer/enlisted status), captivity stressors (captivity duration, physical torture, and psychological torture), and indicators of mental health at repatriation (posttraumatic stress symptoms, general distress, and interpersonal negativity) predicted long-term mental health outcomes (PTSD, anxiety, and depressive symptoms) in Vietnam-era RPWs. We hypothesized that the more mature (older, more educated, officer status) men, those who had fewer stressors during captivity (shorter duration and less torture), and those who returned with higher initial levels of psychological health would exhibit fewer symptoms of mental distress in the long-term. This paper extends the results described in King et al. (2011) by examining these long-term outcomes reported nearly 30 years after the captivity experience. In addition, we have been able to access data from the Air Force RPWs. Thus, these analyses are based on a sample of RPWs who represent the full complement of U.S. Army, Navy, Marine, and Air Force military personnel held captive during the Vietnam War and who completed assessments in both 1973 and 2002.

Method

Participants

Data from the R.E. Mitchell Center for Prisoner of War Studies (collected in 1973) and from a mail survey (collected in 2002) were available for the present study, with responses from 292 RPWs from the Vietnam War. This group represented Army ($n = 21$; 7.2%), Navy ($n = 88$; 30.1%), Marines ($n = 7$; 2.4%), and Air Force ($n = 176$; 60.3%), Vietnam-era RPWs.

More detailed demographic information on the sample, separated by branch of service, is presented in Table 1. A majority of respondents reported being Caucasian and Protestant. Many were married (although Army personnel appeared less likely to be married) and had attended some college before being captured. At follow-up (2002), a majority of respondents from each service were married and had completed college or received graduate-level training. Those in the Army and Marines tended to be slightly younger and less well-educated than those in the Navy and Air Force.

Procedure

Upon release from captivity in 1973, all RPWs were transported to Clark Air Force Base in the Philippines, where they completed initial comprehensive medical and psychological examinations. After being judged medically stable, they were evacuated to stateside military hospitals. There, medical and psychological evaluations and debriefings continued for up to two weeks. In all, mental health assessments were conducted by approximately 80 psychiatrists and psychologists within these facilities. In 2002, all available participants were sent a follow-up survey that included measures of psychological distress. A total of 472 RPWs who were living and still maintained registration with the R. E. Mitchell Center were mailed this survey; the response rate was 61.8% (study N of 292). This study was approved by the IRBs of VA Boston Healthcare System and the R.E. Mitchell Center for Prisoner of War Studies.

Measures

Demographic factors, information about the captivity experience, and indicators of repatriation mental health were assessed shortly after repatriation in 1973.

Demographic factors—Age and education at time of capture were assessed in years. Officer/Enlisted status was indexed as 1 = officer and 0 = enlisted. Officers in the military

are individuals commissioned by their government to assume positions of authority and serve in leadership roles across all branches of the Armed Services, commanding units of lower-level enlisted and noncommissioned personnel (the enlisted ranks) and assuming administrative, managerial, or professional status.

Captivity stressors—Captivity duration was defined as the number of months from capture to repatriation. Physical torture was assessed with 10 items reflecting frequency of exposure to incidents of physical mistreatment, including deprivations, withdrawal of sustenance, or other forms of physical punishment (e.g., being tied up with ropes, prolonged sitting or standing, sleep deprivation). Response options for each item were 0 = *never*, 1 = *occasionally*, 2 = *fairly often*, and 3 = *very often*. Average item scores were computed. Psychological torture was assessed with 15 items reflecting frequency of exposure to incidents of psychological abuse, including threats of non-repatriation, attempts to elicit guilt for role in war, offers of special treatment, or other forms of psychological punishment or manipulation. Response options were 0 = *never*, 1 = *occasionally*, 2 = *fairly often*, and 3 = *very often*. Average item scores were computed.

Repatriation mental health—Posttraumatic stress symptoms were assessed using a 13-item scale, created from psychiatric interview items, based roughly on the three major symptom clusters of PTSD as defined by the Diagnostic and Statistical Manual of Mental Disorders, 4th Edition, (DSM-IV; American Psychiatric Association, 1994): reexperiencing, numbing/avoidance, and hyperarousal. From the psychiatric interview protocol administered to RPWs, items with content judged to represent some aspect of PTSD were extracted. These data were collected prior to the introduction of PTSD into the diagnostic nosology; as such, this scale was assembled from the best available information. It contains one re-experiencing (“recurrent intrusive thoughts or images”), six numbing/avoidance (e.g., “emotional numbness”), and six hyperarousal (e.g., “startle reactions”) items. Because of differences in the response formats for the items, item scores were converted to standard Z scores based on the whole sample of RPWs assessed in 1973; each item has a mean of 0 and a standard deviation of 1. Higher composite scores (the average across items) indicate higher posttraumatic stress symptomatology. This measure has an internal consistency reliability estimate of .80.

General distress was measured with 10 items that assessed demoralization, anxiety, and emotional problems exhibited by the RPWs during repatriation assessments. Sample items include “feelings of guilt,” “sad or depressed,” and “emotional lability.” Response options for each item were 0 = *none*, 1 = *mild*, 2 = *moderate*, and 3 = *marked*. Average item scores were computed to provide one composite score, with higher values reflecting higher degrees of general distress. The internal consistency estimate for this measure is .83.

Interpersonal negativity was measured with 16 items derived from the initial psychiatric evaluations. These items assessed the degree to which the RPWs presented with a negatively valenced, pessimistic, or skeptical disposition. Sample items include “uncooperative,” “suspicious and guarded,” and “complaining.” Ratings were made using a scale where 0 = *not at all*, 1 = *sometimes*, and 2 = *often*. A total score was computed as the average of item scores, with higher values reflecting greater negativity. The internal consistency coefficient for this measure is .83.

Long-term mental health outcomes—Long-term mental health outcomes were assessed via mail survey in 2002. PTSD symptoms were assessed with the civilian version of the Posttraumatic Stress Disorder Checklist (PCL-C; Weathers, Litz, Herman, Huska, & Keane, 1993), a 17-item scale based on the PTSD symptom criteria from the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition: DSM-IV-TR (*DSM-IV-TR*;

American Psychiatric Association, 2000). This version of the PCL was used because participants were civilians for a long period of time at assessment. Respondents indicated how much they were bothered by reexperiencing, avoidance and numbing, and hyperarousal symptoms in the past month. Items were rated on a 5-point scale with response options 1 = *not at all*, 2 = *a little bit*, 3 = *moderately*, 4 = *quite a bit*, and 5 = *extremely*. The PCL-C has high internal consistency reliability (present sample $\alpha = .94$) and is strongly related to other measures of PTSD (e.g., the Clinician-Administered PTSD Scale; Blake et al., 1995).

Anxiety and depressive symptoms were measured with the Brief Symptom Inventory (BSI; Derogatis, 1993), a 53-item measure that assesses overall mental health as well as specific domains of emotional functioning. The 6-item anxiety and 6-item depression subscales of the BSI were used. Respondents were asked “How much were you distressed by _____?” in the past week. Items are rated on a 5-point scale with response options 0 = *not at all*, 1 = *a little bit*, 2 = *moderately*, 3 = *quite a bit*, and 4 = *extremely*. Items include “Suddenly scared for no reason” (anxiety) and “Feeling lonely” (depression). Standardized scores (T scores) were calculated using male non-patient norms (Derogatis, 1993). The anxiety and depression subscales have been shown to have good psychometric properties (Morlan & Tan, 1998). The internal consistency reliability in this sample was high (.83 for anxiety, .87 for depression).

Analyses

We first examined whether the 292 RPWs who participated in the current study differed from those 274 RPWs for whom 1973 repatriation data were available but for whom 2002 data were not available by conducting *t*-tests (continuous variables) or chi square tests (categorical variables). For the remainder of the analyses, we focused on the 292 RPWs who had data for both time points. Descriptive information was derived and comparisons by branch of service were conducted using one-way ANOVA (continuous variables) and chi square (for the categorical officer/enlisted variable); $p < .05$ was accepted for these analyses. Scheffe’s test ($p < .01$) was used to accomplish post-hoc pairwise comparisons. We then computed bivariate correlations to examine associations among all study variables.

Finally, forward-entry multiple regression analyses were conducted to examine predictors of each of the three long-term mental health outcomes (PTSD, anxiety, and depressive symptoms). For each regression analysis, demographic factors (age at capture, education at capture, and officer/enlisted status) were entered in the first step. Only variables having effect sizes corresponding to $p < .05$ were retained. In the second step, captivity stressors (captivity duration, physical torture, and psychological torture) were entered. Again, only variables that reached a probability level of $p < .05$ were retained. In the third step, indicators of repatriation mental health (posttraumatic stress symptoms, general distress, and interpersonal negativity) were entered.

Results

Comparisons between 2002 Survey Respondents and Nonrespondents

From the original 1973 group of returning RPWs, 63.8% of the Navy, 26.9% of the Marines, 27.0% of the Army, and 52.8% of the Air Force personnel completed the 2002 long-term follow-up. Comparisons between those who completed repatriation assessments in 1973 but were not a part of the 2002 survey (nonrespondents) versus those for whom data were available for both occasions (respondents) indicated that respondents were significantly older at capture, $t(561) = 2.92$, $p < .01$, more educated, $t(532) = 4.22$, $p < .001$, and more likely to be officers $\chi^2(1) = 23.46$, $p < .001$ than nonrespondents. Respondents and

nonrespondents did not differ significantly on any of the captivity stressors or indicators of repatriation mental health. Results of these analyses are available upon request.

Descriptive Statistics

Table 2 presents the means and standard deviations of each variable in the study by service branch. With regard to age and education at capture, significant differences were found between Army personnel and both Navy and Air Force personnel, with Army men being younger and with fewer years of formal education than either the Navy or Air Force personnel. Officer/Enlisted status varied by service; the Army had the lowest proportion of officer RPWs and the Navy and Air Force had the highest proportion. RPWs were held in captivity between 1 and 99 months. Although the average number of months ranged from 48.6 (Army) to 60.8 (Navy), the SDs were quite high, and there were no significant differences between the branches. Regarding torture, the reported average of each branch varied around a value of 1.00, which reflects a response of “occasionally” when asked about experiences of physical and psychological torture. However, Navy respondents reported experiencing psychological torture that occurred, on average, closer to “fairly often,” which was highest among the branches and was significantly more than reported by Air Force respondents.

RPWs in this sample reported a wide range of posttraumatic stress symptoms shortly after repatriation. Those in the Air Force scored generally below the mean, the Navy reported scores close to the mean, and the Marines and Army scored above the mean, but only the Army scores differed significantly from those reported by the Air Force RPWs. Overall, RPWs were judged to be experiencing low levels of general distress, although scores ranged from no recognition of distress to moderate levels; again, only the Army scores were significantly different from those of the Air Force. RPWs were rated as displaying, on average, little interpersonal negativity during repatriation psychiatric evaluations for any of the branches, although, again, a portion of RPWs had scores reflecting a mild to moderate range.

Average scores on the long-term mental health outcome of PTSD symptoms were generally indicative of normative levels of symptomatology. With regard to anxiety and depressive symptoms, the average scores for the Navy and Air Force RPWs were close to the T-score mean of 50, but Army and Marine RPWs scored higher on average, with the Army mean over one standard deviation (10 points) above the normative mean (Derogotis, 1993). On all long-term outcomes, the averages for Army personnel were significantly higher than those for Navy and Air Force personnel.

Correlational Analyses

Bivariate correlations among study variables are presented in Table 3, with data aggregated across branch of service. Long-term PTSD symptoms were negatively associated with age at capture and officer status and positively associated with physical torture and posttraumatic stress after repatriation. Anxiety symptoms were negatively related to age at capture and officer status, and positively associated with posttraumatic stress and general distress after repatriation. Depressive symptoms were negatively related to age at capture and officer status, and positively associated with all three repatriation mental health outcomes.

Regression Analyses

Multiple regression analyses using forward entry were conducted for each of the three 2002 long-term mental health outcomes. In the regression examining long-term PTSD symptoms (Table 4), the first step included demographic factors and accounted for a significant 4% of the variance. Age at capture was a significant predictor and was retained. Along with this

variable, captivity stressors were added in the second step. Age at capture and physical torture were significant and retained in the model, which accounted for 6% of the variance in PTSD symptoms. In the third step, indicators of repatriation mental health were added; age at capture, physical torture, and posttraumatic stress symptoms at repatriation were retained as significant predictors of long-term PTSD symptoms (see Table 4).

In the regression analysis predicting long-term anxiety symptoms (Table 5), the first step of the model accounted for a significant 4% of the variance. Age at capture was a significant predictor and was retained in the model. The addition of captivity stressors did not improve the model, and age at capture was the only retained variable in the second step. With the addition of repatriation mental health indicators, the model accounted for 10% of the variance in anxiety symptoms. In this final step, both age at capture and posttraumatic stress after repatriation were significant indicators of long-term anxiety symptoms.

The results of the regression analysis examining long-term depressive symptoms (Table 6) were similar to those for anxiety symptoms. The first step of the model accounted for a significant 4% of the variance in depressive symptoms, with age at capture the only significant variable. None of the captivity stressors added in Step 2 were significant, and age at capture remained the only retained variable. The final model (Step 3) accounted for 7% of the variance and both age at capture and posttraumatic stress at repatriation were retained as significant predictors of long-term depressive symptoms (see Table 6).

Discussion

This study extends our previous work on Vietnam-era RPWs (King et al., 2011) by focusing on a set of long-term mental health outcomes (posttraumatic stress, anxiety, and depressive symptoms) and by examining predictors of these outcomes. Further, we were able to broaden our sample to include Air Force RPWs, thus allowing us to examine long-term mental health outcomes with a sample that contains representatives of all four branches of service.

In terms of the extent of mental health symptomatology in our sample 30 years later, most RPWs exhibited fairly normative levels of anxiety and depression. However, about 20% of the sample scored 60 or above on the anxiety subscale of the BSI, which is one standard deviation above the mean and indicative of clinically significant anxiety symptoms (Derogatis, 1993). Additionally, about one third of the sample scored within the clinically significant range on the depression subscale of the BSI. These results indicate that a substantial portion of our sample reported experiencing problematic levels of anxiety and depression. Similar findings have been reported for other cohorts of RPWs (e.g., Page et al. 1991; Sutker & Allain, 1996). In contrast, PTSD symptom scores were fairly low, ranging from 17 - 69. Only 18 RPWs (6%) met or exceeded the total score of 42 that is often used as a cut point for a possible PTSD diagnosis among older veterans (Cook, Thompson, Coyne, & Sheikh, 2003).

These relatively low levels of PTSD symptoms are inconsistent with research on U.S. RPWs from previous wars, which has generally found that RPWs tend to have high levels of PTSD symptoms (e.g., Eberly et al., 1991; Port et al., 2002). It should be noted, however, that the cohort of Vietnam-era RPWs is unique. They had, on average, more resilience-promoting resources such as maturity (e.g., age, education) than RPWs of other eras. Further, this group was comprised primarily of officers, who likely already possessed other adaptive resources (e.g., leadership skills, experience, motivation) that would lead to less traumatization as well. In addition, the aviators and pilots within the group (a majority) had undergone Survival, Evasion, Resistance, and Escape (SERE) training, aimed specifically at

preparing them for potential capture and survival under extreme conditions: methods for escape and evasion, maintaining the integrity of military rank and structure, resisting interrogation and indoctrination, communicating secretly, and coping during solitary confinement and torture (King et al., 2011). This training would be expected to provide a substantial advantage for maintaining psychological stability when compared to RPWs from prior eras. It should also be noted that while this group appeared to have fairly low levels of PTSD symptoms at the time of follow-up survey, it is yet possible for them to have later exacerbations of symptoms.

We based our selection of predictors of distress on research with RPWs from other eras demonstrating that long-term mental health was predicted by the severity of captivity experiences (Gold et al., 2000) as well as by mental health status shortly after repatriation (e.g., Kluznik et al., 1986). Thus, we anticipated that both would predict long-term mental health in our sample, along with demographic factors (e.g., age, officer status) identified in our earlier work as predictors of mental health at repatriation (King et al., 2011). For each of the three long-term mental health indicators, results were similar, showing evidence for all three categories of predictors at the bivariate level and, to a lesser extent, in the multivariate analyses.

As in our previous analyses of adjustment at repatriation, age at capture was consistently inversely associated with mental health—in this case, symptoms of PTSD, anxiety, and depression—nearly 30 years after repatriation in both bivariate and multivariate analyses. It is noteworthy that it was age at capture rather than years of education at capture or officer/enlisted status that uniquely predicted subsequent mental health. Age at capture appears to be a marker for greater maturity and experience, serving as a protective factor against the lasting effects of captivity stressors.

Just one effect was found for the severity of captivity, both in bivariate and multiple regression analyses: Physical torture predicted greater long-term PTSD symptoms. Previous studies have generally found positive relationships between captivity severity and psychopathology, but these effects have not been strong, and many have been based on illness as a proxy for severity rather than directly inquiring about torture or other aspects of captivity (e.g., Gold et al., 2000). Our results are consistent with those of Engdahl et al. (1997), who found that WWII and Korea RPWs who experienced or witnessed torture or beatings during captivity had higher levels of later PTSD. In the present study, however, the effects of physical torture did not predict long-term levels of anxiety or depressive symptoms, perhaps because these symptoms are less closely tied to traumatic experiences. Psychological torture did not predict long-term mental health outcomes. These findings are also consistent with our analyses of adjustment at repatriation, in which few main effects were found for a range of captivity stressor measures (King et al., 2011). There are many factors that contribute to long-term mental health outcomes, many of which we were not able to assess in the current study. Despite this, posttraumatic stress symptoms at repatriation demonstrated a remarkable persistence in positively predicting PTSD as well as anxiety and depressive symptoms nearly 30 years later.

These findings must be interpreted with some caution, given the limitations of this study, particularly the constraints imposed by reliance on archival data for the earlier measures. Many of these measures were derived from information gleaned at repatriation by clinicians who conducted clinical interviews. Although this information was not intended for research purposes and lacks the rigor of modern-day psychometrics, we have presented a fairly strong justification for the use of these measures (see King et al., 2011).

The 2002 data collection did use psychometrically sound instruments to assess mental health outcomes. However, by 2002, we were able to obtain data on only approximately half of the full group of original RPWs, and those who still survived and were willing and able to respond appear to have more resources (e.g., education) than those who did not, suggesting a possible threat to the external validity of the findings. In addition, the three long-term outcomes were intercorrelated, raising questions about the extent to which they are unique versus overlapping constructs, and the use of forward-entry multiple regression yields findings that should be interpreted as suggestive for future, more hypothesis-driven inquiry.

An additional limitation of the present study is that we accounted for only a small amount of variance in the long-term distress variables. The study did not include the vast array of variables that have been shown in previous studies to influence long-term distress and adjustment, such as community reception at homecoming, resilience resources, social support, and many others (Litz, 2007). In addition, veterans' long-term levels of mental health have been shown to be related to lifecourse factors such as family, career, finances, and health (e.g., Bookwala, Frieze, & Grote, 1994). Including some of these theoretically relevant factors may have increased the explained variance in long-term outcomes.

In spite of these limitations, the unique nature of the present data cannot be overstated: The original data approximate the entire population of U.S. Vietnam-era RPWs who survived captivity and were repatriated, and we were able to assess the mental health of over half of this group nearly 30 years after their release. Documenting the welfare and experiences of these men is important not only for historical and scientific purposes, but also to honor their service. This study also contributes to our understanding of the lingering impact of extraordinary stressors on mental health, and the potential for mitigating that impact and promoting long-term resilience. These findings may have particular relevance for understanding the importance of resilience resources such as training, experience, and education in protecting individuals from the long-term consequences of traumatic experiences.

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Table 1

Demographic Characteristics of RPWs by Branch of Service

Characteristic	Branch of Service			
	Army	Navy	Marines	Air Force
	<i>n</i> = 21 <i>n</i> (%)	<i>n</i> = 88 <i>n</i> (%)	<i>n</i> = 7 <i>n</i> (%)	<i>n</i> = 176 <i>n</i> (%)
Race				
Caucasian	20 (95.2)	87 (98.9)	7 (100.0)	135 (99.3)
Other	1 (4.8)	1 (1.1)	0 (0.0)	1 (0.7)
Religion				
Protestant	11 (52.4)	61 (69.3)	5 (71.4)	96 (71.1)
Catholic	7 (33.3)	23 (26.1)	1 (14.3)	24 (17.8)
Other, no preference, or atheist	3 (14.3)	4 (4.5)	1 (14.3)	15 (11.1)
Education (at capture)				
High School or Less	10 (50.0)	6 (7.1)	2 (33.3)	12 (7.1)
Some College	4 (20.0)	20 (23.5)	0 (0.0)	23 (13.5)
Completed College	3 (15.0)	49 (57.6)	4 (66.7)	110 (64.7)
Graduate/Professional School	3 (15.0)	10 (11.8)	0 (0.0)	25 (14.7)
Highest Educational Level (2002)				
High School or Less	3 (15.0)	0 (0.0)	1 (14.3)	1 (0.6)
Some College	5 (25.0)	7 (8.0)	1 (14.3)	13 (7.4)
Completed College	6 (30.0)	20 (22.7)	3 (49.2)	53 (30.1)
Graduate/Professional School ^a	6 (30.0)	61 (69.3)	2 (28.6)	109 (61.9)
Marital Status (at capture)				
Married	11 (52.4)	67 (76.1)	4 (57.1)	138 (80.2)
Not Married	10 (47.6)	21 (23.9)	3 (42.9)	34 (19.8)
Marital Status (2002)				
Married	17 (81.0)	74 (84.1)	7 (100.0)	166 (94.3)
Not Married	4 (19.0)	14 (15.9)	0 (0.0)	10 (5.7)
Age at time of capture (<i>M</i> , <i>SD</i>)	26.29 (6.71)	30.94 (4.83)	27.43 (6.58)	31.03 (5.38)
Age at 2002 survey (<i>M</i> , <i>SD</i>)	60.22 (6.73)	65.48 (5.03)	60.13 (6.28)	65.28 (6.61)

Note. Percentages presented reflect proportions of valid responses.

^aCategory includes both participants who did some graduate or professional work and participants who completed graduate or professional degree.

Table 2

Descriptive Statistics for Study Variables by Branch of Service

	Branch of Service				Overall Range	Omnibus Statistic	Comparisons
	Army (A) (n=21)	Navy (B) (n = 88)	Marines (C) (n = 7)	Air Force (D) (n = 176)			
	M (SD)	M (SD)	M (SD)	M (SD)			
Demographic Factors							
Age (at capture)	26.29 (6.71)	30.94 (4.83)	27.43 (6.58)	31.03 (5.38)	19.00 - 45.00	$F_{(3, 287)} = 5.85^{***}$	A < B, A < D
Education (at capture)	13.60 (2.54)	15.46 (1.46)	14.17 (2.99)	15.66 (1.39)	9 - 20	$F_{(3, 277)} = 11.80^{***}$	A < B, A < D
Officer/Enlisted Status	.57 (.51)	1.00 (.00)	.71 (.49)	.98 (.13)	0 - 1	$\chi^2(3) = 83.43^{***}$	A < B, A < D, B > C, D > C
Captivity Stressors							
Captivity Duration	48.62 (18.45)	60.83 (26.73)	54.57 (23.17)	52.83 (31.65)	1 - 99	$F_{(3, 288)} = 1.81$	
Physical Torture	.95 (.53)	1.23 (.45)	1.19 (.72)	1.01 (.52)	0 - 3.00	$F_{(3, 266)} = 3.63^{**}$	
Psychological Torture	1.22 (.59)	1.55 (.49)	1.40 (.58)	1.28 (.55)	0 - 2.80	$F_{(3, 261)} = 5.04^{**}$	B > D
Repatriation Mental health							
Posttraumatic Stress	.43 (1.16)	.06 (.45)	.24 (.75)	-.11 (.35)	-.37 - 4.20	$F_{(3, 287)} = 9.17^{***}$	A > D
General Distress	.39 (.46)	.23 (.27)	.18 (.08)	.15 (.22)	0 - 1.70	$F_{(3, 277)} = 5.30^{***}$	A > D
Interpersonal Negativity	.31 (.35)	.19 (.14)	.31 (.28)	.27 (.16)	0 - 1.56	$F_{(3, 280)} = 4.53^{**}$	
Long-term Mental Health							
PTSD Symptoms	33.48 (15.11)	24.04 (9.28)	25.29 (8.32)	24.13 (9.35)	17 - 69	$F_{(3, 285)} = 5.91^{***}$	A > B, A > D
Anxiety Symptoms	62.71 (13.32)	50.91 (10.51)	56.86 (10.76)	51.08 (10.59)	41.00 - 80.00	$F_{(3, 255)} = 7.99^{***}$	A > B, A > D
Depressive Symptoms	64.43 (12.09)	53.22 (10.33)	57.00 (12.73)	54.24 (10.61)	44.00 - 80.00	$F_{(3, 255)} = 6.55^{***}$	A > B, A > D

Note. N ranges from 259-292. Because Officer/Enlisted status was dichotomously scored (1/0), mean values indicate the proportion of the sample endorsing being an officer. Captivity duration was assessed in months. All pairwise comparisons are significant at the $p < .01$ level based on Scheffé's test.

* $p < .05$

** $p < .01$

*** $p < .001$.

Table 3

Bivariate Correlations among Demographic Factors, Captivity Stressors, Repatriation Mental Health, and Long-term Mental Health Outcomes

Variable	1	2	3	4	5	6	7	8	9	10	11	12
<u>Demographic Factors</u>												
1. Age (at capture)	--											
2. Education (at capture)	.15**	--										
3 Officer/Enlisted Status	.26***	.52***	--									
<u>Captivity Stressors</u>												
4. Captivity Duration (months)	.04	-.15**	.02	--								
5. Physical torture	.20***	-.05	.11	.52***	--							
6. Psychological torture	.15*	.03	.06	.37	.70***	--						
<u>Repatriation Mental Health</u>												
7. Posttraumatic Stress	-.08	-.12	-.15**	.14*	.13*	.02	--					
8. General Distress	-.05	-.10	-.14*	.12*	.08	.05	.74***	--				
9. Interpersonal Negativity	-.05	-.01	-.03	.07	.04	.05	.63***	.42***	--			
<u>Long-Term Mental Health</u>												
10. PTSD Symptoms	-.23***	-.06	-.16**	.05	.12*	.06	.17**	.02***	.08	--		
11. Anxiety Symptoms	-.22***	-.04	-.17**	.00	.03	.02	.23***	.14*	.11	.73***	--	
12. Depressive Symptoms	-.21***	-.04	-.14*	-.03	.03	.02	.18**	.14*	.16**	.72***	.71***	--

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

Table 4

Models Regressing PTSD Symptoms on Other Study Variables

Variable	Step 1			Step 2			Step 3		
	B	SE	Beta	B	SE	Beta	B	SE	Beta
<u>Demographic Factors</u>									
Age (at capture)	-.33	.11	-.19**	-.38	.11	-.23***	-.36	.11	-.21***
Education (at capture)	--	--	--	--	--	--	--	--	--
Officer/Enlisted Status	--	--	--	--	--	--	--	--	--
<u>Captivity Stressors</u>									
Captivity Duration	--	--	--	--	--	--	--	--	--
Physical Torture	--	--	--	2.74	1.21	.14*	2.47	1.21	.13*
Psychological Torture	--	--	--	--	--	--	--	--	--
<u>Repatriation Mental Health</u>									
Posttraumatic Stress	--	--	--	--	--	--	2.68	1.39	.12*
General Distress	--	--	--	--	--	--	--	--	--
Interpersonal Negativity	--	--	--	--	--	--	--	--	--
R^2	.04, $F(1, 246) = 9.52^{**}$			.06, $F(2, 245) = 7.42^{***}$			.07, $F(3, 244) = 6.24^{***}$		

* $p < .05$

** $p < .01$

*** $p < .001$.

Table 5

Models Regressing Anxiety Symptoms on Other Study Variables

Variable	Step 1			Step 2			Step 3		
	B	SE	Beta	B	SE	Beta	B	SE	Beta
<u>Demographic Factors</u>									
Age (at capture)	-.42	.13	-.21**	-.42	.13	-.21	-.39	.13	-.20**
Education (at capture)	--	--	--	--	--	--	--	--	--
Officer/Enlisted Status	--	--	--	--	--	--	--	--	--
<u>Captivity Stressors</u>									
Captivity Duration	--	--	--	--	--	--	--	--	--
Physical Torture	--	--	--	--	--	--	--	--	--
Psychological Torture	--	--	--	--	--	--	--	--	--
<u>Repatriation Mental Health</u>									
Posttraumatic Stress	--	--	--	5.93	1.64	.23***	--	--	--
General Distress	--	--	--	--	--	--	--	--	--
Interpersonal Negativity	--	--	--	--	--	--	--	--	--
R^2	.04, $F(1, 220) = 10.19^{**}$			.04, $F(1, 220) = 10.19^{**}$			.10, $F(2, 219) = 11.90^{**}$		

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

Table 6

Models Regressing Depressive Symptoms on Other Study Variables

Variable	Step 1			Step 2			Step 3		
	B	SE	Beta	B	SE	Beta	B	SE	Beta
<u>Demographic Factors</u>									
Age (at capture)	-.39	.13	-.19**	-.39	.13	-.19**	-.36	.13	-.18**
Education (at capture)	--	--	--	--	--	--	--	--	--
Officer/Enlisted Status	--	--	--	--	--	--	--	--	--
<u>Captivity Stressors</u>									
Captivity Duration				--	--	--	--	--	--
Physical Torture				--	--	--	--	--	--
Psychological Torture				--	--	--	--	--	--
<u>Repatriation Mental Health</u>									
Posttraumatic Stress							4.48	1.65	.18**
General Distress							--	--	--
Interpersonal Negativity							--	--	--
R^2	.04, $F(1, 220) = 8.59$ **			.04, $F(1, 220) = 8.59$ **			.07, $F(2, 219) = 8.10$ ***		

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