The purpose of this archival research was to investigate whether coping moderated the association between disability status and the outcome of psychosocial adaptation while controlling for demographic variables, posttraumatic stress disorder, and environmental conditions and social support. This research analyzed data from the U.S.’s National Vietnam Veterans Readjustment Study (NVVRS; R.A. Kulka et al., 1990a). In this study, the existence of a disability significantly and negatively predicted psychosocial adaptation after controlling for specific variables. Further, the multiple regression analysis showed that the association of disability and adaptation was moderated by problem-solving coping, indicating that the negative effect of disability on adaptation was smaller for participants with lower levels of problem-solving coping. Clinical implications of these findings are discussed. © 2008 Wiley Periodicals, Inc. J Clin Psychol 65:94–112, 2009.

Keywords: Vietnam veterans; psychosocial adaptation; coping; PTSD; disability

In the past three decades, an extensive amount of research has been published on psychiatric disorders, especially posttraumatic stress disorder (PTSD), among U.S. veterans of the Vietnam war. A steady stream of articles has been published that have utilized data from the federally commissioned National Vietnam Veterans Readjustment Study (NVVRS; Kulka et al., 1990a), an epidemiological study that
used a randomly selected, stratified, nationally representative sample of U.S. Vietnam veterans. While the original intent of the NVVRS was to examine veterans’ readjustment after war experience, most published research using NVVRS data has examined the presence or strength of psychiatric disorders, such as PTSD, and not other psychosocial outcomes. To date, one article (Zatzick et al., 1997) has been published on quality of life outcomes, and one article (Suvak, Vogt, Savarese, King, & King, 2002) has been published on coping and adjustment using the NVVRS data.

Kulka et al. (1990a) noted that 11% of the NVVRS sample had a service-connected physical disability (SCPD), and that Vietnam theater veterans with SCPD were significantly more likely to have current PTSD than those without an SCPD (21.4 vs. 14.5%). This corroborates Martz and Cook’s (2001) findings that disability is a risk factor for PTSD among veterans with certain disabilities. In their summary of the NVVRS data, Kulka et al (1990a) reported that individuals with disabilities in this sample also were more likely to have a generalized anxiety disorder, nonspecific psychological distress, and dissatisfaction with current life circumstances. Most noteworthy is Kulka et al.’s (1990a) statement that “Vietnam theater veterans with service-connected physical disabilities are at elevated risk for a variety of readjustment problems” (p. 274). In view of this statement as well as decades of research on the effects of disability on individuals’ psychological states (for summaries, see Livneh & Antonak, 1997; Martz & Livneh, 2007), the possible psychosocial effects of the existence of a disability need to be examined among Vietnam veterans, using the NVVRS data. While Zatzick et al’s (1997) NVVRS research included health-related functioning, using such variables as bed-days in the past 2 weeks, self-reported physical health status, and current physical functioning, they did not incorporate measures of a physical disability, which the present study examines. Hence, this study is distinct from Zatzick et al.’s research by its investigation of whether coping moderates the association between disability status and the outcome of psychosocial adaptation while controlling for demographic variables, PTSD, environmental conditions, and social support.

Coping and Psychosocial Adaptation

The constructs of coping and psychosocial adaptation have been studied for decades (Zeidner & Saklofske, 1996), using a variety of definitions and methods. Coping can be defined as “constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person” (Lazarus & Folkman, 1984, p. 141). Compared to coping, psychosocial adaptation to specific traumas such as chronic illness and disability (CID) can be viewed as a longer term outcome that reflects psychological equilibrium, reintegration, and a reassertion of a positive self-concept (Livneh, 2001; Livneh & Antonak, 1997; Shontz, 1975). The effectiveness of different types of coping in varying contexts and their effects on psychosocial adaptation has been discussed extensively in the literature (see Folkman & Moskowitz, 2004; Suls & Fletcher, 1985).

Using the NVVRS dataset, Suvak et al. (2002) examined whether war-zone coping strategies predicted life adjustment, as measured by achievement, life satisfaction, and lifetime adaptation and moderated by combat exposure. Coping strategies were grouped into three factors: Problem-Focused Coping (PFC), Emotion-Focused Wishful Thinking (EFCWT), and Emotion-Focused Blunting and Venting (EFCBV). PFC and EFCBV were significant predictors in the final step for all

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three outcomes of achievement, life satisfaction, and adaptation, with EFCBV having an inverse relationship. Further, in the final step of the regression analysis, nonlinear (i.e., quadratic) associations were found among PFC and achievement, PFC and lifetime adaptation, and EFCWT and achievement, each varying as a function of combat exposure. This research has indicated that the use of emotional coping strategies during combat predicted lowered life adjustment after the war experience while the use of problem-solving coping was associated with increased adaptation and achievement later in life. Suvak et al. interpreted the nonlinear associations as suggesting that specific coping strategies become no longer useful in increasingly stressful combat situations. They asserted that this finding is in concordance with Lazarus and Folkman’s (1984) transactional theory of coping, for which the appraisal of stress and the context in which it occurs influence coping abilities.

The current study will extend Suvak et al.’s (2002) research by positing coping (not combat exposure) as a moderator of adjustment and by using a larger subsample of the NVVRS data (Suvak et al.’s study used $N=408$, the extended interview subsample.) The present study also is distinct from Suvak et al.’s study because they did not include disability factors.

Coping With and Adaptation to Disability

The research on coping with a disability has been expanding at a rapid rate (see Martz & Livneh, 2007). While psychosocial adaptation, also called psychosocial adjustment, has been researched for decades (Livneh & Antonak, 1997), not many studies have been published that simultaneously examined coping and adaptation in the context of disability. Hanson, Buckelew, Hewett, and O’Neal (1993) conducted a 5-year longitudinal study among 28 individuals with spinal cord injuries and found that the coping strategies utilized at Time 1 did not predict psychosocial adaptation after 5 years (Time 2). Yet, the coping strategies that predicted psychosocial adaptation at Time 2 were cognitive restructuring, which was positively related to psychosocial adaptation, and wish-fulfilling fantasy, which was negatively related to adaptation.

The role of coping strategies following traumatic brain injury (TBI) was investigated by Moore and Stambrook (1992, 1994). In their earlier study of 53 male survivors of TBI, individuals characterized by having higher use of positive reappraisal and self-controlling coping strategies (as measured by the Ways of Coping-Revised Questionnaire; Folkman & Lazarus, 1988) and lower external locus of control reported significantly lower mood disturbance and lower levels of depression. In the authors’ latter study of 175 survivors of TBI, coping strategies that included denial, escape, and resignation were linked to poorer quality-of-life outcomes. The authors also suggested that positive reappraisal appeared to be associated with better psychosocial outcomes.

Hill, Niven, and Knussen (1995) examined the role of coping strategies in psychosocial adaptation to phantom limb pain among 228 amputees who resided in Scotland. The strategy of catastrophizing was found to be the strongest predictor of psychosocial dysfunction in this sample, while reinterpretation (a cognitive strategy) of pain sensations also contributed significantly to the variance in poor psychosocial adaptation. Livneh and Wilson (2003) found that problem-focused coping was positively associated with psychosocial adaptation while disengagement coping was inversely related to adaptation, after controlling for disability-related variables.
Martz, Livneh, Priebe, Wuermser, and Ottomanelli (2005) found that among 313 individuals with spinal cord injuries, disengagement-type coping (i.e., disability denial and avoidance) was inversely related to levels of psychosocial adaptation. Desmond and MacLachlan (2006) found that among 796 veterans with amputations in the United Kingdom, increased levels of avoidance coping predicted significantly lower levels of adjustment and social adaptation while social support coping successfully predicted better social adaptation.

NVVRS Research

Although the experience of traumatic events such as war or disability can be a catalyst for growth and adjustment (Tedeschi & Calhoun, 1996), not everyone who experiences trauma functions well over time. Most of the multivariate analysis using the NVVRS data has focused on outcomes that reflected poor functioning or psychiatric disorders among Vietnam veterans (Fontana & Rosenheck, 1994, 1999; Jordan et al., 1991; King, King, Foy, & Gudanowski, 1996; King, King, Foy, Keane, & Fairbank, 1999; King, King, Gudanowski, & Vreven, 1995). Hence, there is a need to investigate what promotes adjustment after experiencing conflict situations, especially in the context of the specific trauma of disability.

The following is a brief overview of the findings of published, multivariate NVVRS studies for the purpose of mapping what NVVRS variables should be controlled for in the current study. These variables also will be considered in light of the research on what variables typically predict psychosocial adaptation to disability.

The specific framework suggested by Livneh and Antonak (1997) for examining psychosocial adaptation will be adopted in this research. They asserted that four groups of variables influence psychosocial outcomes after disability onset: demographics, personality, disability-related, and environmental variables.

The following NVVRS research was considered as an indication of potential demographic predictors of adaptation. Fontana and Rosenheck's (1994) research, using a male subsample from the NVVRS data, found that only one demographic predictor significantly predicted PTSD; namely, having a Hispanic ethnicity. King et al. (1999) reanalyzed the NVVRS data using continuous variables within Fontana and Rosenheck’s (1994) framework and found that the following prewar variables predicted PTSD: early trauma history (for both women and men) and age at entry into Vietnam (for men). King et al. (1996) found that for both men and women, the prewar variable of prior trauma history had a significant direct effect on PTSD.

Other NVVRS variables that were possible predictors of adaptation were environmental conditions and social support. Fontana and Rosenheck (1994) found that experiencing postmilitary traumas, rejection by society at homecoming, and lack of support by family and friends directly predicted PTSD. King et al. (1999) found that additional stressful life events positively predicted PTSD, and that the following variables had an inverse association with PTSD: hardiness, functional social support (for men and women), and structural social support (for men). The following section will briefly review research that indicates the importance of investigating PTSD as a contributing factor that influences psychosocial adaptation to disability.

PTSD and Disability

A solid basis of research has been established indicating that individuals may be susceptible to PTSD after an injury or the onset of a disability (Alter et al., 1996; Blanchard & Hickling, 1997; Epstein, 1993; Jaspers, 1998; Martz, 2005; Martz,
Birks, & Blackwell, 2005; Shalev, 1992; Shalev, Peri, Canetti, & Schreiber, 1996; Ursano et al., 1999). In research conducted among veterans, Helzer, Robins, and McEvoy (1987) examined PTSD rates in a stratified sample among 2,493 individuals, 64 of whom were Vietnam veterans and 43 of whom had experienced combat. Those who experienced combat but were not wounded had a 4% rate of PTSD compared to 20% rate among those who were wounded.

Buydens-Branchey, Noumair, and Branchey’s (1990) study, conducted among 84 veterans who visited an orthopedic clinic, indicated that injury during combat significantly increased the PTSD levels compared to combat soldiers without injuries. Martz and Cook (2001) found the following rates of PTSD among 45,320 veterans: burns 13.4%, spinal cord injuries 11.6%, amputations 8.1%, major chest trauma 7.6%, heart failure/shock 7.3%, and cardiac arrest 5.1%. They found that burns, spinal cord injuries, amputations, and heart failure/shock were significant risk factors for PTSD. Delimar and Sivik (1995) assessed for PTSD in three groups of soldiers (n = 30 per group), all of whom had at least 3 months of combat experience in the Croatian war of 1991 to 1993, and found a PTSD rate of 33.3% among soldiers with permanent disabilities (e.g., amputation).

Martz (2004) examined whether PTSD predicted adaptation (as measured by eight reactions to disability) among individuals with spinal cord injuries. In this cross-sectional study, she found that PTSD symptoms fluctuated in a specific manner in association with the process of adaptation to disability. She concluded that adaptation to a sudden-onset disability is complex, and requires pervasive shifts of cognition and emotional states.

Research Question and Hypotheses

In this study, coping is posited as a moderator of the relationship between disability and psychosocial adaptation while controlling for demographics, PTSD, and environmental conditions and social support. Disability is hypothesized to be related to poorer psychosocial adaptation. Problem-solving coping is hypothesized to be positively related and emotion-focused coping negatively related to psychosocial adaptation.

Methods

Participants

Data were obtained from the NVVRS, which was a nationally representative, stratified, random sample of 3,016 Vietnam veterans. These data were collected, by means of extended interviews and self-report questionnaires, between 1986 and 1988 (Kulka et al., 1990a, 1990b). This random sample was drawn from 8.2 million veterans who were on active duty during the Vietnam war and who had left U.S. military service by September 1987 (Weiss et al., 1992). Several groups were intentionally oversampled in this study: African Americans, Hispanics, women, and veterans with service-connected disabilities (King et al., 1995). For an extensive summary of demographic characteristics of this sample, see Kulka et al.’s (1990a, 1990b) books.

For this study, all NVVRS data were used in factor analyses of the variables. For the examination of the research question, data from the Vietnam theater veterans (n = 1618) were used due to the large amounts of missing data for the variables.
considered among other participants (e.g., nontheater veterans, civilians) in the NVRRS dataset.

**Instruments**

**Coping.** According to Suvak et al. (2002), the 25 coping items used in the NVVRS dataset were derived from a large number of coping items from Folkman and Lazarus's (1980) Ways of Coping Checklist. These 25 items were selected by a team of NVVRS researchers as representing the “most appropriate to coping with the stressors of a war zone” (Suvak et al., 2002, p. 977). Each item was scored on a scale of 1 (a great deal) to 5 (not at all) according to how much the veteran relied on each coping strategy. Participant scores for the variables on these three dimensions of coping were reverse-scored and summed so that higher scores on each dimension indicate higher levels of that coping style (see the Statistical Analysis section for an explanation of the derivation of coping factors and Appendix for a list of the items in each factor, the range of the subscales, and the factor loadings).

**Psychosocial adaptation.** Using the NVVRS questionnaire, Psychosocial Adaptation was represented by a 12-item scale reflecting the presence or absence of personal, postmilitary difficulties (see Appendix for a list of the actual items and the range of the scale.] This scale was created by the original NVVRS researchers to reflect life adjustment. In the current study, the 12-item Psychosocial Adaptation scale exhibited a Cronbach's alpha of .84 while Suvak et al. (2002) also found a Cronbach’s alpha of .84. Participant scores on these 12 items were summed and then reversed-scored so that higher scores indicate better psychosocial adaptation.

**Disability variable.** To assess disability, participant responses were used to the question (K4b in database) “A military service-received wound handicapped me later,” which was measured on a scale ranging from 1 (very true) to 4 (not at all true). This variable was reverse-scored so that higher scores indicate greater degree of a service-connected physical disability.

**Background and control variables.** Several additional variables were used in the analyses as control or background variables, given their demonstrated or potential relationships with psychosocial adaptation. The background variables included indicators of participant gender (female = 1, male = 0), ethnicity (1 = White, 0 = otherwise), marital status (1 = married, 0 = otherwise), educational attainment (1 = graduated high school, 0 = otherwise), age, and employment (1 = working, 0 = otherwise).

The control variables included measures of PTSD, homecoming warmth, and number of traumatic events experienced. While a multimethod approach was used in the NVVRS to assess PTSD (see Kulka et al., 1990a, pp. 51–52), Weiss et al. (1992, p. 370) reported on research that was conducted on the predictive validity of the various PTSD scales. When comparing the NVVRS survey data with clinicians’ assessments, the Mississippi Scale for Combat-Related Disorders (M-PTSD; a 35-item scale by Keane, Caddell, & Taylor, 1988) achieved a 77.3 sensitivity rate, an 82.8 specificity rate, and a κ of .53 for diagnosing PTSD. Thus, the M-PTSD was selected for use in this research study from among the nine instruments used in the NVVRS to measure PTSD; it purports to measure posttraumatic stress in military situations. For homecoming warmth, participants’ responses were used to the question “How do you feel about your reception from family/friends” on a scale ranging from 1 (terrible) to 7 (delighted). For number of traumatic events experienced, participants’ responses were used that indicated the number of separate
traumatic events reported by them to the NVVRS researchers, which were then totaled by NVVRS researchers to create this variable.

Statistical Analyses

Before conducting the analyses related to the research questions, the following exploratory (EFA) and confirmatory factor analyses (CFA) were conducted to investigate the composition of the coping items. To minimize capitalization on idiosyncrasies in the data, the total sample was randomly divided into two samples. EFA were conducted on the first sample, for which the goal was to identify the number of factors as well as to prune items that did not load onto interpretable factors. On the second sample, an EFA was conducted, specifying the number of factors identified in the first sample, followed by a CFA, specifying the number of factors from the first sample analyses and the variables indicating the factors to which they were most strongly related.

The sample size for the EFA in the first subsample was 1,515. About 56% of these cases had missing data on at least one item and thus were not included in these analyses. An initial principle-components analysis indicated five components with eigenvalues greater than 1. Thus, the initial rotated EFA specified five common factors. As the factors underlying coping were believed to be correlated, an oblique rotation was specified. After rotation, none of the 25 items had large factor loadings onto the fourth or fifth rotated factors. Therefore, the analysis was conducted specifying three obliquely rotated factors. Many items had small communalities based on this solution, meaning that the many items were not well explained by the obtained solution. Fifteen items with communalities less than .45 were dropped from further consideration. The obliquely rotated, three-factor model was rerun on the remaining 10 items. The solution accounted for 65% of the variance in the 10 items. Four items, four items, and two items had large factor loadings on the first, second, and third factors, respectively. The smallest factor loading on any factor was .56. The three factors were moderately and positively correlated. Inspection of the item-content suggests that Factor 1 (Items 8, 19, 22, 25) involves coping through emotion-focused wishful thinking, Factor 2 (Items 1, 12, 13, 21) involves coping through problem solving, and Factor 3 (Items 3, 15) involves coping through social interaction.

The next set of analyses was conducted on the “holdout” sample that was not used in the initial, exploratory analyses presented earlier. First, an obliquely rotated, three-factor EFA was conducted using the 10 variables that were identified in the first step. Second, a CFA was conducted using those 10 variables to assess the fit of the three-factor model to the data. The sample size for this second sample was 1,501. About 55% of these cases had missing data on at least 1 of the 10 variables. For the EFA, a list-wise deletion procedure was used. For the CFA, full-information maximum likelihood estimation was used to utilize all of the available information for estimating factor loadings and correlations; thus, the sample size for the CFA was not reduced and remained at 1,501.

The results of the EFA on the second sample mirrored the results from the first sample. The three-factor solution accounted for 64% of the variance in the 10 items. The same items had similar loadings onto the three factors, and the interfactor correlations were of a similar magnitude. The results of the CFA suggested that this three-factor solution fit the data well, \( \chi^2(32, N = 1,501) = 172.97, p < .001, \text{CFI} = .94, \text{RMSEA} = .05 \). The standardized factor loadings were all large (minimum = .62), and the three factors correlated significantly.
The aforementioned analyses suggest that three correlated, yet distinguishable, factors underlie coping with the Vietnam War. In this study, Emotion-Focused Wishful-Thinking (WT) Coping displayed a Cronbach’s \( \alpha \) of .79, Problem-Solving (PS) Coping exhibited a Cronbach’s \( \alpha \) of .79, and the two-item Social (S) Coping reflected a Cronbach’s \( \alpha \) of .67. In subsequent analyses, these three factors were retained and included data from both the exploratory and validation samples. Suvak et al.’s (2002) factor analyses of the NVVRS coping data produced different results than did the present research [Their results yielded the following three factors: (1) Problem-Focused Coping (eight items): Cronbach’s \( \alpha \) of .84; (2) Emotion-Focused Wishful-Thinking (seven items): Cronbach’s \( \alpha \) of .81; and (3) Emotion-Focused Blunting and Venting (six items): Cronbach’s \( \alpha \) of .73.] However, Suvak et al. used only the subsample of the dataset that contained extended interviews, whereas this study used the full NVVRS dataset.

**Type of Analysis Used in This Study**

A moderation model, instead of mediation, was selected for this research because coping was viewed as influencing the strength and direction of the associations among disability and psychosocial outcomes while controlling for demographics, PTSD, and environmental conditions and social support. A mediation model would have focused on whether disability indirectly influenced psychosocial outcomes through coping. Because coping strategies are more of a fluid, statelike concept that can attenuate the impact of demographic or medical variables on adaptation and are modifiable by therapeutic interventions, emphasis was placed in this research study on how coping altered the impact of disability on psychosocial adjustment. The presence of significant interactions (i.e., between coping factors and disability) indicated moderation by coping.

**Results**

Only a minimal amount of missing data was evident among the variables examined (maximum = 5%), so a list-wise deletion strategy was used for the data analysis, yielding a total sample size of 1,536. Table 1 presents descriptive statistics for the variables in this study. To aid the interpretation of interactions with the coping-style variables, these variables were centered at their sample mean values. According to zero-order correlations, psychosocial adaptation was significantly and negatively associated with the existence of a disability and significantly and negatively associated with all three coping styles.

Table 2 presents the results of the hierarchical regression analysis, in which subsets of the predictor variables were entered in different steps. The background and control variables were entered in Step 1. Together, these variables significantly predicted psychosocial adaptation, \( R^2 = .55, F(9, 1526) = 206.56, p < .001 \). In Step 2, the three coping variables were added to the model. The \( \Delta R^2 \) was not statistically significant, \( F(3, 1523) = .49, p = .69 \), suggesting that together, these coping variables do not add significant predictive utility for psychosocial adaptation over and above the control and background variables. In the Step 3, the disability predictor was added to the model. The \( \Delta R^2 \) was statistically significant, \( F(1, 1522) = 29.32, p < .001 \), suggesting that disability adds significant predictive utility for psychosocial adaptation over and above the other predictor variables. Finally, in Step 4, interactions between disability and the three coping variables were added to the model. The \( \Delta R^2 \) was statistically significant, \( F(3, 1519) = 2.86, p = .04 \), suggesting
Table 1  
Means, SDs, and Correlations for Psychosocial Adaptation and Its Correlates

<table>
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<th>Variable</th>
<th>M</th>
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<th>2</th>
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<th>5</th>
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<th>10</th>
<th>11</th>
<th>12</th>
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<td>.13*</td>
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<td>.11*</td>
<td>.20*</td>
<td>.05*</td>
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<td>.32*</td>
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<td>.15*</td>
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<td>7. Working</td>
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<td>.20*</td>
<td>.22*</td>
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<td>.18*</td>
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<td>1.00</td>
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<td>-.05*</td>
<td>.19*</td>
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<td>-.07*</td>
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<td>-.04</td>
<td>.06*</td>
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<td>-.18*</td>
<td>-.14*</td>
<td>-.04*</td>
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<td>.03</td>
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<td>.21*</td>
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<td>.17*</td>
<td>-.03</td>
<td>-.05*</td>
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<td>.29*</td>
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<td>-.17*</td>
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Note.  
N = 1,536.  
*All correlations >.03 are statistically significant at α = .05. PTSD = Posttraumatic Stress Disorder; PS = Problem Solving; WT = Wishful Thinking; S = Social.
that together, these interactions add significant predictive utility for psychosocial adaptation over and above the other predictor variables.

Before interpreting model parameters, the nonsignificant predictors were pruned to simplify the model, which involved dropping the following predictors: ethnicity, education, WT coping, S coping, and the interactions of these two coping measures with disability. The reduction in $R^2$ after dropping these predictors from the model was not statistically significant, $F(6, 1519) = 5.03, p = .79$. Table 3 presents the parameters of this final regression model. Psychosocial adaptation was significantly and positively associated with being female, married, older, working, and receiving a warm homecoming, and significantly and negatively associated with PTSD and the number of traumatic events experienced. Pertinent to one aim of the present study, after controlling for other variables in the model, the existence of a disability was significantly and negatively associated with psychosocial adaptation when evaluated at the mean of PS coping. Of note, PS coping was positively, but not significantly, associated with psychosocial adaptation when evaluated at the “not true” response to the service-related disability item.

Pertinent to the main purpose of the present study is the significant interaction between PS coping and disability on psychosocial adaptation. This interaction suggests that PS coping moderates the effect of disability on psychosocial adaptation. The nature of this significant interaction suggests that disability has less of a negative impact on psychosocial adaptation for those lower in PS coping. In other words, veterans with a more severe disability who adopt more PS coping strategies report lower psychosocial adaptation to their conditions while those with a less severe disability who adopt more PS coping exhibit higher psychosocial adaptation.
Discussion

The primary purpose of this study was to examine whether coping moderated the impact of disability on psychosocial adjustment while controlling for demographics, PTSD, environmental factors, and social support. The results indicate that the existence of a disability significantly and negatively predicted psychosocial adaptation, which concurs with the decades of research on psychosocial reactions to disability (Livneh & Antonak, 1997). One of the most important results of this study was the significant interaction of disability and PS coping on adaptation. The moderation of the association between disability and psychosocial adaptation by PS coping indicated that PS coping differentially impacted adaptation outcomes. That is, the effect of using PS coping in the presence of a severe disability was distinct from the effect of such coping in the presence of a less severe disability. In the latter condition, the usage of more PS coping was related to higher psychosocial adaptation.

Other research, which did not control for severity of disability, has indicated that PS coping may be helpful in adapting to disability on multiple levels (e.g., psychological, vocational, interpersonal) (Livneh, Antonak, & Gerhardt, 1999; Martz & Livneh, 2007). For example, Livneh et al. (1999), in a sample of 61 individuals with amputation, found that PS coping was a significant predictor of lower reported depression and better psychosocial adjustment after controlling for both sociodemographic variables and type of amputation (i.e., lower vs. upper loss of extremities). Elliott, Bush, and Chen’s (2006) longitudinal study investigated the use of five forms of problem-solving (using the Social Problem-Solving Inventory-Revised; D’Zurilla, Nezu, & Maydeu-Olivares, 2002) among individuals with spinal cord injuries and found that the use of rational problem solving at discharge from an inpatient rehabilitation unit significantly predicted a lower likelihood of occurrence of pressure ulcers (which can be a major health issue and can disturb adaptation) in the subsequent 3 years. PS coping may be effective in increasing adaptation to disability because it reflects an active approach to problems (e.g., taking care of one’s physical problems) rather than avoidance of the challenges related to disability. Suls and Fletcher’s (1985) meta-analysis of coping research indicated that nonavoidant or “attention” coping strategies (including PS coping) are related to better long-term outcomes over time, although avoidant coping can sometimes be effective in a short-term manner (e.g., to reduce stress). In these studies, PS coping, therefore, may have

<table>
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<th>Variable</th>
<th>B</th>
<th>SEB</th>
<th>β</th>
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</thead>
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<tr>
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<td>Gender</td>
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<td>0.10</td>
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<tr>
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<tr>
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<td>0.06</td>
<td>0.07</td>
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<td>−0.11</td>
</tr>
<tr>
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<td>0.02</td>
<td>0.03</td>
<td>0.01</td>
</tr>
<tr>
<td>Disability</td>
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<td>0.10</td>
<td>−0.10</td>
</tr>
<tr>
<td>Disability × PS Coping</td>
<td>−0.06*</td>
<td>0.02</td>
<td>−0.05</td>
</tr>
</tbody>
</table>

Note. $R^2 = .57$ ($N = 1,536, p < .01$). PTSD = Posttraumatic Stress Disorder; PS = Problem Solving.
*p < .05.
reflected a reality-basis approach in which an individual acknowledges issues and finds alternative ways of resolving challenges.

In the present study, the unexpected negative, albeit negligible, correlations between PS coping and psychosocial adaptation maybe a reflection of (a) the measurement of coping employed in the NVVRS study as well as the time lag between the experienced traumatic events and when data were collected from war veterans, and (b) the psychosocial adaptation measure adopted for the purposes of this study. Adaptation, as a construct, represents holistic, multidimensional, and more long-term adjustment to stressors, in comparison to the more immediate coping strategies. One way of understanding why adaptation increased as coping strategies significantly decreased in this study is to reexamine the definition of coping as the responses that people choose to use when they do not have sufficient resources to deal with a new stressor (Lazarus & Folkman, 1984). The positive associations of all three coping strategies and severity of disability found in this study may reflect individuals' responses to disability-related stress. It is possible that once an individual has become accustomed to a new stressor, coping strategies are used less because the stressor has been integrated, which is reflected by greater psychosocial adaptation as found in this study.

In reviewing findings from previous research, it can be argued that the salutary benefits of PS coping, however, may be context-specific and apply only when the degree of disability is taken into consideration, as the findings of the present study suggest. In this study, PS coping as a stand-alone variable did not add to the variance in psychosocial adaptation (\(B = .02, \text{n.s.}, \text{Table 3}\)); however, when viewed within the context of disability severity (i.e., in the interaction), PS coping contributed significantly, albeit modestly, to the prediction of adaptation. Whereas PS coping negatively influenced adaptation among veterans who reported more severe disability-triggering injuries, in those veterans who reported only minor, service-related disabilities, the use of increased PS coping bolstered adaptation outcomes. Hence, for those with less severe disabilities, higher reliance on PS coping was associated with better psychosocial outcomes than for those who reported lower use of PS coping.

It could be argued that, as applied to coping with more manageable functional limitations (e.g., mobility, manipulation, pain, fatigue, interpersonal relations) stemming from a disabling condition, PS coping has the capacity for successfully negotiating less severe limitations and, ultimately, reaching more positive psychosocial outcomes. However, in the context of more severe disabilities, the use of PS coping may in fact be detrimental as existing conditions may not be amenable to change and trigger frustration, feelings of helplessness, and ultimately lower perceived psychosocial adaptation. This finding may shed light on the inconsistent findings reported in the literature on the relationship between PS coping and other measures of psychosocial adaptation (Kennedy, Lowe, Grey, & Short, 1995; Wineman, Durand, & Steiner, 1994). Indeed, these findings also are consistent with the speculation that PS coping can be detrimental and possibly even result in poorer adaptation in situations that are regarded as inherently uncontrollable and unmanageable (Aldwin, 1994; Zeidner & Saklofske, 1996).

Although all three coping strategies (WT, PS, and S coping) were initially significantly and negatively associated with psychosocial adaptation, none contributed significantly to the variance in adaptation after controlling for various sociodemographic and experiential variables. The significant, positive correlations among the three coping strategies, although inconsistent with prior research on coping with stress and trauma (Mikulincer & Solomon, 1989; Sutker, Davis, Uddo,
& Ditta, 1995; Zeidner & Ben-Zur, 1994), suggest that under severely stressful
conditions (e.g., war traumas or disabilities), people may employ multiple coping
strategies to manage the situation. For example, Lawrence and Fauerbach (2003)
found that both avoidant and active coping were positively and significantly
associated with PTSD at hospitalization and at 1 month among 158 individuals with
burn injuries. They suggested that the simultaneous use of a variety of coping
strategies (i.e., approach and avoidance) may be required, as individuals with
disabilities face numerous consequences connected to permanent changes in their
physical functioning.

Several factors may play a significant, yet presently unrecognized or not fully
explored, role in explaining the discrepancy among other researchers’ findings that
(a) support the general salutary role played by PS coping in achieving better
psychosocial adaptation, (b) suggest only a context-specific (e.g., severity of
disability) role for PS coping in psychosocial adaptation, and (c) fail to discover
any direct relationships between PS coping and adaptation to CID. These factors
include (a) duration since the onset of CID; (b) type of psychosocial outcome
measure adopted (e.g., anxiety, depression, general distress, acceptance); (c)
availability of social support; (d) extent of and flexibility in adopting a wide
spectrum of coping strategies such as PS coping, emotion-focused coping, and
avoidance; and (e) the intricate interactions of PS (and other) coping strategies with
traitlike personality attributes, such as locus of control, sense of coherence,
hardiness, time orientation, and CID intrusiveness.

Three clinical implications are suggested by our findings. First, if PS coping is
indeed a more effective strategy for improving psychosocial adaptation only among
veterans with less pronounced disabilities, then implementing therapeutic interven-
tions aimed at providing skill-training programs that integrate problem-solving
components (e.g., decision making, time management, conflict resolution, money
management) could become useful in countering the impact of more manageable
functional limitations associated with CID. Programs, such as the one developed by
Kennedy and Duff (2001) for coping effectively with spinal cord injuries, certainly
merit attention. Sharoff’s (2004) book on coping skills therapy is an excellent
resource for techniques that clinicians can use to promote coping among clients with
disabilities. Second, since severity of PTSD symptomatology predicted poorer
psychosocial outcomes in this and other studies (see earlier review), it may be
beneficial for clinicians to include direct treatment of PTSD, or other combat-
triggered stress reactions, as part of their overall coping-based therapeutic programs,
especially when a disability is present. Third, because the number of previous
traumas predicted lower levels of adaptation, clinicians should consider how the
number of previous traumas may affect an individual’s overall adaptation. Past
traumas may add to the traumatic load that an individual is attempting to
psychologically handle; previous traumas may act as “kindling” (Post, Weiss, &
Smith, 1995) and thus may prime individuals for poorer adaptive responses to
disability-related trauma.

Limitations

The NVVRS was a nationally representative, random sample, and the general-
izability of the findings obtained in this study is thus limited to Vietnam veterans and
not to veterans from other wars. This archival research also is limited because the
authors of the present study had no control over how certain variables were

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*References*

1. **Ditta, 1995**
2. **Zeidner & Ben-Zur, 1994**
3. **Lawrence & Fauerbach, 2003**
4. **Kennedy and Duff, 2001**
5. **Sharoff, 2004**
6. **Post, Weiss, & Smith, 1995**
measured by the original researchers. Additionally, only limited information is available about the reliability of some of these variables. Thus, the findings should be interpreted with caution, and the implications should be viewed as tentatively warranted.

In addition, temporally situated social and environmental influences may make the findings of this study limited. King and King (1991) published a detailed article critiquing possible validity issues related to research specifically among Vietnam veterans. More recently, a volume of the *Journal of Traumatic Stress* contained five articles debating issues related to the NVVRS dataset (Dohrenwend et al., 2007; Kilpatrick, 2007; McNally, 2007; Schlenger et al., 2007; Turner, Turse, & Dohrenwend, 2007). Further, the conditions and uniqueness of the Vietnam war itself may have created differences in PTSD rates among veterans of various wars (McCranie & Hyer, 2000; Page, Engdahl, & Eberly, 1997). In addition, because this research was retrospective and used archival, cross-sectional data, no causal patterns can be established. While the proportions of variance that were explained in psychosocial adaptation were 57%, unexplained variance still exists, indicating that other variables that were not included in this study also may influence psychosocial outcomes.

**Conclusions**

This study provides unique findings that contribute to the knowledge about psychosocial factors related to the Vietnam War, which has been generated by the decades of research using data from the NVVRS and other sources. Because coping and adaptation in the context of disability had not yet been examined in previous research using the NVVRS data, this research advances knowledge primarily in two ways: (a) Disability was found to negatively influence psychosocial adaptation among Vietnam theater veterans, and (b) problem-solving coping was found to facilitate adaptation to disability in the context of a less severe disability.

The results of this study can be utilized for implementing psychosocial interventions related to Vietnam veterans whose disabilities are more manageable by the teaching of problem-solving skills. Problem solving is a life skill that can be used for general problem solving as well as for efforts directed to dealing with disability-related issues. However, these strategies may not be applicable for veterans with severely disabling conditions where management and control of functional limitations are highly constrained. The results of this research also can be tentatively used to generate further research on the merits of problem solving among other populations with disabilities. Because the existence of a disability often involves numerous challenges on multiple levels (e.g., personal, social, vocational, environmental), learning how to better cope by solving life problems can help individuals with disabilities better adapt to life and living.

**Appendix**

*Items Used in the Study*

**A. Lifetime adaptation**

Participants were asked whether they experienced the following problems since their last release from active service and whether they considered this to be a minor...
problem or a serious problem (responses: 1 = minor or 2 = serious; the scale was summed and then reversed-scored to reflect greater adaptation). The range of this 12-item scale was 12 to 24. In this sample, this scale’s Cronbach’s $\alpha$ was .84.

1. Was finding job a minor or serious problem?
2. Was having no money to live on a minor or serious problem?
3. Was holding a job a minor or serious problem?
4. Were drugs a minor or serious problem?
5. Was drinking too much a minor or serious problem?
6. Was a mental or emotional problem a minor or serious problem?
7. Was physical health a minor or serious problem?
8. Was not knowing what you want a minor or serious problem?
9. Was having trouble with the law a minor or serious problem?
10. Was finishing school a minor or serious problem?
11. Was discrimination because you were in the Armed Forces a minor or serious problem?
12. Was trouble with your spouse or children a minor or serious problem?

B. Coping questions

The creators of the NVVRS selected 25 questions from Folkman and Lazarus’s (1980) Ways of Coping Checklist, based on questions that would better reflect coping with war-zone stressors. The response ranged from 1 (a great deal) to 5 (not at all) (The scale was summed and then reversed-scored; see Methods for factor analyses and Cronbach’s $\alpha$ of each subscale, and Table 1 for factor correlations.) Each item presented next is followed by its standardized factor loading from the confirmatory factor analysis.

1. Wishful thinking Coping (4 items; range = 4–20)
   To cope with Vietnam – you imagined a better time/place, $\lambda$ = .77
   To cope with Vietnam – you wished situation would go away, $\lambda$ = .70
   To cope with Vietnam – you had fantasies how things turn out, $\lambda$ = .68
   To cope with Vietnam – you told self things that helped you feel better, $\lambda$ = .62.

2. Problem-solving Coping (4 items; range = 4–20)
   To cope with Vietnam – you made a plan of action, tried to follow it, $\lambda$ = .79
   To cope with Vietnam – you took positive action to solve a problem, $\lambda$ = .64
   To cope with Vietnam – you doubled efforts/ tried to make it work, $\lambda$ = .68
   To cope with Vietnam – you considered alternative way of handling problems, $\lambda$ = .65.

3. Social Coping(2 items; range = 2–10)
   To cope with Vietnam – you saw someone to help you feel better, $\lambda$ = .77
   To cope with Vietnam – you depended on others to cheer you up, $\lambda$ = .62.

References


