Suicidal ideation in treatment-seeking Veterans of Operations Enduring Freedom and Iraqi Freedom: The role of coping strategies, resilience, and social support

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Abstract
Background: Recent epidemiologic studies have found an increased risk of suicide among Veterans of Operations Enduring Freedom and Iraqi Freedom (OEF–OIF) with psychiatric disorders. However, little is known about whether variables other than psychiatric conditions, such as coping strategies, resilience, and social support, may be related to suicidality in this population.

Methods: A total of 167 OEF–OIF Veterans seeking behavioral or primary care services completed a survey containing measures of combat exposure, psychopathology, pain, psychological resilience, social support, and cognitive coping strategies.

Results: Thirty-six respondents (21.6%) reported contemplating suicide in the two weeks prior to completing the survey. Compared to suicide non-contemplators, suicide contemplators were older, and more likely to screen positive for depression and posttraumatic stress disorder (PTSD), and to report a deployment-related pain condition or complaint. They also scored higher on measures of worry, self-punishment, and cognitive-behavioral avoidance strategies, and lower on measures of psychological resilience and postdeployment social support. Multivariate analysis revealed that a positive depression screen, and higher scores on measures of self-punishment and cognitive social avoidance coping were positively associated with suicidal ideation, while higher scores on measures of psychological resilience (i.e., positive acceptance of change) were negatively related to suicidal ideation. Moderator analysis revealed that a positive screen for depression or PTSD significantly diminished the protective effect of postdeployment social support on suicidal ideation.

Conclusions: 1 in 5 treatment-seeking OEF–OIF Veterans may contemplate suicide. Interventions to reduce depressive symptoms, and maladaptive cognitive-behavioral coping strategies of self-punishment and cognitive social avoidance, and to bolster psychological resilience may help mitigate suicidality in this population.

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1. Introduction

Recent epidemiologic studies have found an increased risk of suicide among OEF–OIF Veterans with psychiatric disorders (Guerra et al., 2010; Jakupcak et al., 2009, 2010; Kang and Bullman, 2008; Pietrzak et al., 2010a; Tanielian and Jaycox, 2008). While these studies are helpful in characterizing the prevalence and psychiatric risk factors associated with suicidal ideation in OEF–OIF Veterans, little research has examined the role that factors such as psychological resilience, social support, and cognitive-behavioral coping strategies may have in buffering the deleterious effects of psychiatric disorders such as posttraumatic stress disorder (PTSD) and depression on the likelihood of suicidal ideation.

Several risk and protective factors for suicidality have been identified in Veterans and civilian samples. Risk factors for suicidality include depression, PTSD, substance use problems, and related psychiatric disorders (Harris and Barraclough, 1997; Jakupcak et al., 2009, 2010; Kang and Bullman, 2008; Kessler et al., 1999; Mills et al., 2006; Pietrzak et al., 2010a; Tanielian and Jaycox, 2008; Wilcox et al., 2004), physical problems (e.g., pain; Braden and Sullivan, 2008; Ratcliffe et al., 2008), as well as functional difficulties (Kirkcaldy et al., 2006; Pietrzak et al., 2010a). Demographic factors such as marriage, greater education and income, and employment (Agerbo, 2007; Jakupcak et al., 2010), as well as
Alcohol problems, self-reported pain, and greater engagement of OEF correlates of suicidal ideation in a sample of treatment-seeking and demographic, psychiatric, psychosocial, and coping strategy for suicide prevention efforts. Importantly, however, a recent study of treatment-seeking OEF Veterans found that the potentially protective effect of social support may be diminished in the presence of psychopathology. Specifically, while greater satisfaction with social networks was associated with decreased suicide risk, it was significantly less protective for Veterans with PTSD (Jakupcak et al., 2010). Results of this study underscore the importance of examining whether psychopathology may moderate the relation between postdeployment social support and suicidal ideation in treatment-seeking OEF—OIF Veterans.

Maladaptive cognitive coping strategies and experiential avoidance are associated with increased psychological distress, as well as suicidal ideation and attempts. Maladaptive coping strategies such as escape avoidance and avoidance of support-seeking (Kasl ow et al., 2004; Orbach et al., 1990), blaming and negative cognitive reframing (Horesh et al., 1996), and having a negative view and less positive appraisals of oneself (Johnson et al., 2010; Stellrecht et al., 2006), have been found to be related to suicidality. Suicidal individuals may engage in an interpersonal style that elicits rejection from others and engenders withdrawal of interpersonal support (e.g., negating the need for help, seeking negative feedback), which may increase risk for suicidal behavior (D’Zurilla et al., 1998; Kidd and Carroll, 2007; Stellrecht et al., 2006). Maladaptive cognitive coping strategies, such as engagement of self-punishment and worry to manage unwanted thoughts, as well as experiential avoidance coping (e.g., avoiding thinking about interpersonal difficulties; avoidance of social activities) may also increase psychological difficulties (Berman et al., 2010; Beutler et al., 2003; Chawla and Ostafin, 2007), which may in turn increase risk of suicidal ideation (Gould et al., 2004) and attempts (Orbach et al., 1990).

Recent studies of OEF—OIF Veterans have found that depression and PTSD, most notably emotional numbing symptoms, are associated with elevated risk of suicidal ideation (Guerra et al., 2010; Jakupcak et al., 2009, 2010; Pietrzak et al., 2010a), and that being married and having greater satisfaction with one’s social network is associated with reduced risk of suicidal ideation (Jakupcak et al., 2010). In a study of a community sample of predominantly National Guard/Reservist OEF—OIF Veterans, our research group found that 12.5% had contemplated suicide, and that PTSD, depression, and increased psychosocial difficulties were positively associated with suicidal ideation, while increased postdeployment social support and sense of purpose and control were negatively associated with suicidal ideation (Pietrzak et al., 2010a). Although these results provide some insight into risk and protective variables associated with suicidal ideation in returning Veterans, their generalizability is limited to predominantly older, non-treatment-seeking National Guard and Reservist Veterans. OEF—OIF Veterans who are seeking treatment are often more symptomatic and at greater risk for suicidality. Characterization of a broad range of risk and protective factors, including demographic (e.g., age, marital status), psychiatric (e.g., PTSD, depression), physical (e.g., pain), psychosocial (e.g., psychological resilience, social support), and coping (e.g., cognitive control and avoidance strategies) variables related to suicidal ideation in treatment-seeking OEF—OIF Veterans may help identify potential targets for suicide prevention efforts.

The purpose of the current study was to examine the prevalence, and demographic, psychiatric, psychosocial, and coping strategy correlates of suicidal ideation in a sample of treatment-seeking OEF—OIF Veterans. We hypothesized that PTSD, depression, and alcohol problems, self-reported pain, and greater engagement of maladaptive cognitive coping-behavioral strategies such as worry, self-punishment, and avoidance would be positively related to suicidal ideation, and that greater resilience and postdeployment social support would be negatively related to suicidal ideation.

2. Method

2.1. Participants

A total of 167 OEF—OIF Veterans were recruited from mental health (N = 102; 61.1%) or primary care (N = 65; 38.9%) clinics at VA Connecticut Healthcare System, West Haven, CT. A research assistant approached Veterans in waiting areas of primary care and mental health clinics and asked if they would be interested in completing a survey on the needs of OEF—OIF Veterans. If a Veteran expressed interest in participating, s/he was asked to provide written informed consent and to complete the survey. The survey was completed in a single visit. All respondents were within a year of returning from their only or most recent deployment. The participation rate was high, with more than 80% of those who were approached agreeing to participate in the study. Participants were not compensated for their participation. The study was approved by institutional review boards of the VA Connecticut Healthcare System and Yale University. All participants provided written informed consent.

2.2. Assessments

The Combat Experiences Scale (CES) is a 15-item self-report instrument from the Deployment Risk and Resilience Inventory (DRRI; Vogt et al., 2008) that assesses exposure to combat, such as firing a weapon, being fired on by enemy or friendly fire, witnessing injury and death. Higher scores indicate greater combat exposure. In the current sample, Cronbach’s α on CES items was 0.93.

The Patient Health Questionnaire-9 (PHQ-9; Kroenke et al., 2001) is a 9-item self-report depression screening instrument derived from the clinician-administered Primary Care Evaluation of Mental Disorders. Higher scores indicate greater depressive symptoms, with scores >15 indicative of a positive screen for depression. One question asks respondents to rate the frequency of suicidal ideation: “Over the last 2 weeks, how often have you been bothered by any of the following problems? – Thinking that you would be better off dead or that you want to hurt yourself in some way.” Responses are “Not at all;” “Several days;” “More than half the days;” and “Nearly every day.” In this study, suicidal ideation was operationalized as endorsement of any of the latter three responses. Cronbach’s α on PHQ-9 items was 0.92.

The Posttraumatic Stress Disorder Checklist-Military Version (PCL-M; Weathers et al., 1993) is a 17-item screening instrument based on diagnostic criteria for PTSD. Respondents who scored ≥50 and who met B, C, and D criteria for PTSD (i.e., endorsement of “moderate” of greater severity of symptoms that comprise these clusters) were identified as screening positive for PTSD. This definition provides a conservative estimate of the prevalence of PTSD that corresponds to DSM-IV criteria for PTSD. Cronbach’s α on PCL-M items was 0.96.

The CAGE Questionnaire (Ewing, 1984) is a 4-item instrument used to identify individuals with a possible alcohol problem. Despite its brevity, it has been shown to have good validity in screening large populations. A score ≥2 is indicative of a possible alcohol problem. Cronbach’s α on CAGE items was .72.

Pain complaints were assessed with a question that asked respondents to report their deployment-related health conditions or concerns. Endorsement of any of the following was indicative of a pain complaint: headaches; swollen, stiff, or painful joints; back pain; muscle aches; and chest pain or pressure.
The Connor–Davidson Resilience Scale (CD-RISC; Connor and Davidson, 2003) is a 25-item self-report assessment of psychological resilience. Total scores range from 0 to 100, with higher scores reflecting greater resilience. Cronbach’s α on CD-RISC items was 0.94. Exploratory factor analysis in the current sample revealed a 4-factor solution (eigenvalues of 12.54, 1.74, 1.16, 1.02) reflecting positive acceptance of change (sample item: “Having to cope with stress can make me stronger”); “Past successes give me confidence in dealing with new challenges and difficulties”); tolerance of negative affect (sample item: “I can make unpopular or difficult decisions that affect other people, if it is necessary”); belief in fate (sample item: “When there are no clear solutions to my problems, sometimes fate or God can help”); and availability of secure relationships (sample item: “I have at least one close and secure relationship which helps me when I am stressed”).

The Unit Support Scale (USS) is a 12-item self-report instrument from the DRRI (Vogt et al., 2008) that assesses the amount of assistance and encouragement in the war zone from unit leaders and members, and the military in general. Cronbach’s α on USS items was 0.93. Factor analysis in the current sample revealed a 3-factor solution (Pietrzak et al., 2010c). These factors included: (1) Unit member support (sample item: “My unit was like a family to me”); (2) Leader support (sample item: “My superiors made a real attempt to treat me as a person”); and (3) Military support (sample item: “The military appreciated my service”).

The Postdeployment Social Support Scale (PSSS) is a 15-item self-report measure from the DRRI (Vogt et al., 2008) that assesses postdeployment emotional support and instrumental assistance provided by family, friends, coworkers, employers, and community. Cronbach’s α on PSSS items was 0.82. Exploratory factor analysis in the current sample revealed a 4-factor solution (Pietrzak et al., 2010c): (1) Instrumental support (sample item: “My friends or relatives would lend me money if I needed it”); (2) Community support (sample item: “The American people made me feel at home when I returned”); (3) Accessibility of family and friends (sample item: “I have people I can talk to about my deployment”); and (4) Understanding from others (sample item: “People at home do not understand what I have been through”; items reverse-scored for computation of total scores).

The Thought Control Questionnaire (TCQ; Wells and Davies, 1994) is a 30-item self-report measure that assesses the frequency of use of five thought control strategies: worry (“When I experience an unpleasant/unwanted thought, I dwell on other worries”); α in current sample = .80), self-punishment (“When I experience an unpleasant/unwanted thought, I get angry at myself for having the thought”; α = .76), reappraisal (“When I experience an unpleasant/unwanted thought, I try a different way of thinking about it”; α = .79), behavioral distraction (“When I experience an unpleasant/unwanted thought, I occupy myself with work instead”; α = .67), cognitive distraction (“When I experience an unpleasant/unwanted thought, I call to mind positive images instead”; α = .62), and social control (“When I experience an unpleasant/unwanted thought, I find out how my friends deal with these thoughts”; α = .60). Frequency of endorsement of these strategies is rated on a four-point Likert scale, from “1” (“Never”) to “4” (“Almost always”). TCQ subscale scores were calculated by summing the items of each subscale.

The Cognitive–Behavioral Avoidance Scale (CBAS; Ottenbret and Dobson, 2004) is a 31-item self-report instrument that assesses avoidance strategies. Items are rated on a 5-point Likert scale ranging from “Not at all true for me” to “Extremely true for me.” Four subscales, which reflect different avoidance strategies, are derived: cognitive social (sample item: “I just wait out tension in my relationships, hoping that it will go away.”); Cronbach’s α = 0.88); cognitive nonsocial (sample item: “I fail to do what is needed to follow through with achievement goals I have set for myself.”; Cronbach’s α = 0.92); behavioral social (sample item: “I avoid attending social activities.”); Cronbach’s α = .93); and behavioral nonsocial (sample item: “I avoid trying new activities that hold the potential for failure.”; Cronbach’s α = 0.86).

2.3. Data analysis

Non-normally distributed continuous variables were transformed using logarithmic base 10 transformations. Demographic characteristics between respondents with and without suicidal ideation and scores on psychosocial and cognitive–behavioral coping measures were compared using χ² tests and independent-samples t-tests. Cohen’s d values ([Mean_group1 − Mean_group2]/pooled standard deviation) were computed to estimate effect sizes of group differences (Cohen, 1988). A multivariate logistic regression analysis was then conducted to examine associations between independent variables and suicidal ideation. To reduce the number of independent variables entered into this model (Peduzzi et al., 1996), only those variables associated with suicidal ideation at the p < .001 level and with a Cohen’s d value ≥ 1.0 in bivariate analyses were entered into this analysis. Step 1 included psychopathology variables (e.g., PTSD, depression); Step 2 included cognitive–behavioral coping variables (e.g., self-punishment, avoidance); and Step 3 included protective variables (e.g., resilience). Interaction effects were also examined (e.g., PTSD × depression; self-punishment × avoidance scores). When significant associations were noted between an independent variable (e.g., CD-RISC) and suicidal ideation, secondary analyses were conducted to examine which subscale scores were associated with suicidal ideation. To test the hypothesis that psychopathology may diminish the protective effect of postdeployment social support on suicidal ideation among treatment-seeking OEF–OIF Veterans, a moderator analysis was conducted (Jakupcak et al., 2010).

3. Results

3.1. Prevalence of suicidal ideation

A total of 36 (21.6%) respondents endorsed suicidal ideation on the PHQ-9: 25 (15.0%) endorsed “Several days;” 7 (4.2%) “More than half the days;” and 4 (2.4%) “Nearly every day.”

3.2. Demographic, deployment, and clinical characteristics

The mean age of the full sample was 29.4 (standard deviation [SD] = 7.3, range = 19–51), 95.8% were male, 63.5% were white, 59.3% completed at least some college education, 60.5% were active duty, and the mean number of deployments was 1.6 (SD = 8, range = 1–5). A total of 81 (48.5%) individuals met screening criteria for PTSD, 89 (53.3%) for depression, and 68 (40.7%) for alcohol use problems. Table 1 displays demographic characteristics and prevalences of PTSD, depression, and alcohol use problems, and scores on all measures by suicidal ideation status. Compared to suicide non-contemplators, suicide contemplators were older, but other demographic characteristics did not differ. They were more likely to screen positive for PTSD and depression, and to report a pain condition or complaint. They also scored higher on measures of combat exposure, self-punishment, worry, and avoidance coping, and lower on measures of psychological resilience and postdeployment social support (i.e., instrumental support, understanding from others, and accessibility of family and friends subscales). Large effect size (d ≥ .80) group differences were evident for total self-punishment, worry, avoidance coping, resilience, and postdeployment social support scores.

Results of a multivariate logistic regression analysis examining predictors of suicidal ideation are shown in Table 2. The overall
model fit the data well (Hosmer and Lemeshow \( \chi^2 \) test of goodness-of-fit test \( [df = 8] = 5.70, p = .68 \); Nagelkerke \( R^2 = .50 \)), with 81.6% of cases correctly classified. A positive depression screen and scores on measures of self-punishment and cognitive social avoidance coping were positively associated with suicidal ideation, while scores on measures of psychological resilience were negatively related to suicidal ideation. The interaction of self-punishment and cognitive social avoidance coping scores was also significant (OR = 1.01, 95% CI = 1.01–1.02), but the interactions of positive PTSD and depression screens; psychological resilience and self-punishment scores, and psychological resilience and cognitive social avoidance coping scores, were not. Secondary analyses revealed that scores on the positive acceptance of change factor of the CD-RISC (OR = 0.92, 95% CI = 0.86–0.98), were independently negatively related to suicidal
ideation; other factors of the CD-RISC were not significant (all \( p \)'s > .09).

To confirm that the relation between depressive symptoms and suicidal ideation persisted when the suicidal ideation item is removed from the PHQ-9, post-hoc analyses were conducted with continuous PHQ-9 scores with and without the suicidal ideation item entered into the multivariate analysis described above. Results of these analyses revealed that odds ratios (ORs) of the association between PHQ-9 scores and suicidal ideation were comparable when the SI item was included, OR = 1.15 (95%CI = 1.05–1.27) or excluded, OR = 1.12 (95%CI = 1.02–1.23).

Results of a moderator analysis that examined whether psychopathology diminished the potentially protective effect of post-deployment social support on suicidal ideation revealed that while greater postdeployment social support was significantly negatively related to suicidal ideation in Veterans without depression or PTSD (Wald \( F = 8.05, \ p = .005; \ OR = .85, 95\%CI = .76–.95 \)), this effect was not significant in Veterans with depression or PTSD (Wald \( F = .94, \ p = .33; \ OR = .98, 95\%CI = .93–1.03 \)).

### 4. Discussion

This study examined the prevalence, and risk and protective variables associated with suicidal ideation in a sample of treatment-seeking OEF/OIF veterans. While the prevalence rate of suicidal ideation in this sample was higher than that observed in other samples of OEF–OIF Veterans (Jakupcak et al., 2009, 2010; Pietrzak et al., 2010a), rates of suicidal ideation may vary as a function of sample size; nature of the sample (i.e., mental and medical treatment-seeking vs. mental health-seeking only); and employment of different measures or criteria used to classify suicidal ideation. The higher rates of suicidal ideation observed in this study may also be attributable to the treatment-seeking nature of this sample, which was more symptomatic and had higher rates of psychopathology compared to other samples. The finding that 1 in 5 Veterans surveyed in this study endorsed current suicidal ideation and that suicide contemplators were equally likely to be recruited from mental health and primary care clinics underscores the importance of active screening and monitoring of suicidality in the returning Veteran population in both mental health and primary care settings.

Suicide contemplators were older than non-contemplators and were more likely to screen positive for PTSD and depression, and to report a deployment-related pain condition or complaint. They also scored higher on measures of self-punishment, worry, and avoidance coping strategies, and lower on measures of psychological resilience and postdeployment social support. Multivariate analysis revealed that a positive screen for depression, and higher scores on measures of self-punishment and cognitive–social avoidance coping were positively associated with suicidal ideation, while higher scores on measures of psychological resilience (i.e., positive acceptance of change) were negatively associated with suicidal ideation.

Suicide contemplators in the current study were more likely than non-contemplators to report a deployment-related pain complaint. While this association was significant in bivariate but not multivariate analysis, prior epidemiologic research has demonstrated a connection between chronic pain conditions and suicidal ideation and attempts even after adjustment for psychiatric disorders (Braden and Sullivan, 2008; Ratcliffe et al., 2008). Additional research in larger samples and using more comprehensive measures of pain symptoms and conditions is needed to further examine this association in OEF–OIF Veterans; and to evaluate whether pain management may help mitigate suicidality in returning Veterans.

The finding that suicidal ideation was associated with PTSD and depression in bivariate analyses, and depression in multivariate analysis corroborates previous research documenting an association between these disorders and suicidality in OEF–OIF Veterans (Jakupcak et al., 2009, 2010; Kang and Bullman, 2008; Pietrzak et al., 2010a; Tanielian and Jaycox, 2008); and other samples (Harris and Barraclough, 1997; Kessler et al., 1999; Kirkcaldy et al., 2006; Mills et al., 2006). It extends these findings to suggest that, when considered with other variables (e.g., depression, coping strategies, resilience, social support), PTSD is not independently related to suicidal ideation in treatment-seeking OEF–OIF Veterans. That said, consistent with a recently published study of OEF–OIF Veterans (Guerra et al., 2010), when the relation between PTSD symptom clusters of the emotional numbing model (King et al., 1998) and suicidal ideation was examined, PTSD-related emotional numbing symptoms were independently related to suicidal ideation (OR = 1.37; 95%CI = 1.19–1.57), while the other symptom clusters were not (all \( p \)'s > .29). Results were similar when symptom clusters of the dysphoria model of PTSD symptom structure (Simms et al., 2002) were entered, with dysphoria symptoms being independently related to suicidal ideation (OR = 1.35; 95%CI = 1.15–1.60), while the other clusters were not (all \( p \)'s > .08). Taken together, these results replicate studies of two independent samples of OEF–OIF Veterans (Guerra et al., 2010; Pietrzak et al., 2010b) to suggest that PTSD numbing/dysphoric symptoms are independently related to greater likelihood of suicidal ideation.

Maladaptive coping strategies of self-punishment and cognitive social avoidance were positively related to suicidal ideation. This finding replicates previous research, which has similarly suggested that maladaptive coping strategies (Kaslow et al., 2004; Orbach et al., 1990), negative cognitive re-framing (Chagnon, 2007; Horesh et al., 1996) and having a negative view of oneself (Johnson et al., 2010; Stellrecht et al., 2006) are associated with suicidality. Given that cognitive social avoidance, as assessed by the CBAS, assesses avoidance of thinking about problems in personal relationships (Ottenbreit and Dobson, 2004), this finding suggests that Veterans who experience greater interpersonal difficulties and who tend to avoid addressing such difficulties may be at greater risk of suicidal ideation. While these results are preliminary and require replication using a broader array of coping measures, they are consistent with prior research suggesting that assessment of coping strategies, particularly self-punishment and avoidance, may be useful in elucidating cognitive distortions, negative interpersonal response styles, and ineffective coping behaviors that may maintain suicidal urges (Chagnon, 2007).

Psychological resilience, most notably positive acceptance of change, was negatively associated with suicidal ideation, even after adjustment for risk variables. This finding corroborates previous research (Green et al., 2010; Greening and Stoppelbein, 2002; Ngugham et al., 2010; Pietrzak et al., 2010a; Roy et al., 2007a,b), which similarly found that higher scores on a measure of

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<td>Results of hierarchical logistic regression analyses of variables associated with suicidal ideation.</td>
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<td>Step 1 (Nagelkerke ( R^2 = .31 ))</td>
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<td>Positive PTSD screen*</td>
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<td>Positive depression screen*</td>
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<td>Step 2 (Nagelkerke ( R^2 = .49 ))</td>
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*Statistically significant association with suicidal ideation, \( p < .05 \).
psychological resilience (CD-RISC) are negatively related to suicidality. In the current study, post-hoc analyses revealed that scores on a CD-RISC subscale reflecting positive acceptance of change were negatively associated with suicidal ideation. This finding suggests that, in treatment-seeking OEF—OIF Veterans, greater perceptions of one’s ability to positively accept changes and focus on strengthening effects of stress may help protect against suicidal ideation. This finding is consistent with a recently published study of 497 OEF—OIF Veterans, which similarly found that higher scores on the CD-RISC were negatively associated with scores on the Beck Scale for Suicidal Ideation, even after adjustment for age, lifetime trauma exposure, and PTSD (Green et al., 2010). A previous study of college students also found that a greater sense of purpose in life and sense of coherence were negatively related to suicidal ideation and likelihood of future suicidal behavior (Edwards and Holden, 2001). Taken together, these findings highlight the importance of assessing psychological resilience and related constructs (e.g., sense of coherence and purpose in life) in treatment-seeking OEF—OIF Veterans and other populations at risk for suicidality. While resilience-enhancing interventions are in their infancy, treatment approaches that endeavor to bolster positive adaptation, such as well-being therapy (Fava and Tomba, 2009), hardiness training (Maddi, 2007), and psychosocial and educational resilience enhancement (Steinhardt and Dolbier, 2008) have been shown to enhance coping strategies and promote resilience. Interventions such as acceptance and commitment therapy (Bohlemeier et al., 2010) and mindfulness therapy (Hargus et al., 2010) may also be helpful in bolstering positive acceptance of change and possibly reducing depressive symptoms and suicidality, although further research is needed to examine whether these interventions, perhaps in the context of preparatory interventions (Kapur et al., 2009), gatekeeper training (Cross et al., 2007, 2010; Matthieu et al., 2008, 2009), and telehealth suicide prevention (Godleski et al., 2008), may help mitigate suicidality in OEF—OIF Veterans.

Postdeployment social support was associated with suicidal ideation in bivariate, but not multivariate analysis. This finding stands in contrast to previous studies of OEF—OIF Veterans, which found that greater social support was negatively related to suicidal ideation (Jakupcak et al., 2010; Pietrzak et al., 2010a). One possible explanation for this finding is that the sample was comprised of a significant number of Veterans with psychopathology and that when considered with other variables (i.e., depression, self-punishment and cognitive social avoidance coping strategies), the potentially protective effect of social support is no longer significant. Indeed, a recent study of another treatment-seeking sample of OEF—OIF Veterans found that while greater satisfaction with social networks was associated with decreased suicide risk, this variable was significantly less protective for veterans reporting PTSD (Jakupcak et al., 2010). In the current sample, results of a moderator analysis revealed that postdeployment social support was significantly negatively related to suicidal ideation in Veterans without depression or PTSD, but that this effect was not significant in Veterans with depression or PTSD, this effect was not significant in Veterans with depression or PTSD. These findings suggest that psychopathology may diminish the protective effect of postdeployment social support on suicidal ideation among treatment-seeking OEF—OIF Veterans. While social support may help protect against suicidal ideation in less impaired samples of OEF—OIF Veterans (Pietrzak et al., 2010a), it may no longer be protective in treatment-seeking OEF—OIF Veterans who are experiencing greater levels of psychological distress.

This study had some methodological limitations, which must be noted. First, the study was cross-sectional, the sample was comprised of treatment-seeking OEF—OIF Veterans recruited from mental health and primary care clinics at a single VA hospital, and information regarding non-participants was not obtained. Further studies are needed to evaluate risk and protective factors associated with suicidality in larger, more representative samples of treatment-seeking OEF—OIF Veterans, as well as to investigate temporal relations among these factors. Second, while rates of suicidal ideation did not differ by recruitment site (i.e., mental health vs. primary care), it remains to be evaluated whether the results of this study generalize to the broader population of treatment-seeking OEF—OIF Veterans, many of whom may never present for treatment. Third, suicidal ideation as assessed by the PHQ-9 reflects two dimensions of suicidal ideation—passive death wishes and wishes for self harm (Thompson et al., 2004). Thus, variability in correlates of suicidal ideation observed across studies of OEF—OIF may be accounted for by differences in instruments used to assess suicidal ideation. Variables associated with the PHQ-9 suicidal ideation item in the current study may also be differentially related to these two specific aspects of suicidal ideation. Fourth, in order to keep our survey brief and focused, we employed screening instruments to assess PTSD, depression, and alcohol use problems. Thus, it is not clear whether results would be comparable if diagnostic instruments were employed, or whether other common deployment-related conditions such as traumatic brain injury may also increase suicidal ideation (Tanielian and Jaycox, 2008). Fifth, pre-deployment psychiatric history, as well as history of suicidality, which is one of the strongest predictors of current suicidal ideation (Kirkcaldy et al., 2006), were not assessed. Finally, our assessment of cognitive and behavioral coping styles did not cover the full range of coping strategies, which is broad and encompasses emotion-, problem-, and spiritual-focused coping strategies, which have been demonstrated in prior research to be related to suicidal ideation (D’Zurilla et al., 1998; Greening and Stoppelbein, 2002; Johnson et al., 2010; Kaslow et al., 2004; Marusic and Goodwin, 2006).

Despite these limitations, this study provides a characterization of psychiatric, psychosocial, and cognitive—behavioral coping variables related to suicidal ideation in treatment-seeking OEF—OIF Veterans. Additional research should examine risk and protective factors associated with suicidality in larger, more representative samples of treatment-seeking OEF—OIF veterans; evaluate further the role of physical pain and suicidality; elucidate additional, potentially modifiable protective variables (e.g., adaptive coping strategies); and test the efficacy of suicide prevention programs in this population.

Conflict of interest

The authors do not have any conflicts of interest related to this manuscript.

Contributors

Dr. Southwick designed the study and wrote the protocol. Dr. Pietrzak undertook the statistical analysis. Drs. Pietrzak and Ling, and Ms. Russo managed the literature searches and wrote the first draft of the manuscript. All authors contributed to and have approved the final manuscript.

Role of funding sources

None of these funding sources had a role in study design; in the collection, analysis and interpretation of data; in the writing of the report; or in the decision to submit the paper for publication.

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