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RELATIONS BETWEEN VETERANS' COPING STRATEGIES AND SYMPTOMS
OF PTSD AND DEPRESSION

by

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A Thesis

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Abstract

Mental health problems, especially posttraumatic stress disorder (PTSD) and depression are significant concerns for veterans. Coping strategies may compound or alleviate mental health problems. Prior research shows maladaptive coping strategies are used by people with more severe PTSD and depression, while adaptive strategies are used by people who are more resilient. This study investigated how coping strategies contribute to symptoms of PTSD and depression in two samples of veterans: 55 veterans recruited from a Veterans Affairs Medical Center (VAMC) (12 women, 43 men; $M_{age} = 36.58$; 43.6% White, 45.5% Black), 71 student veterans enrolled at a university (22 women, 49 men; $M_{age} = 30.15$; 69.0% White, 23.9% Black). Hierarchical linear regressions were conducted to determine the relative contribution of veterans' coping strategies to both PTSD severity and depression severity. Results for VAMC veterans showed composite approach coping and composite avoidant coping predicted PTSD and depression. Specifically, denial predicted greater PTSD severity, while behavioral disengagement and self-blame predicted higher depression severity. Acceptance predicted lower depression severity. For student veterans, composite avoidant coping predicted PTSD and depression. Self-blame and self-distraction predicted higher PTSD severity, while self-blame and behavioral disengagement predicted higher depression severity. Results show avoidant coping strategies are maladaptive; this suggests that treatments for both disorders should include interventions to reduce avoidant coping.

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Relations between Veterans' Coping Strategies and Symptoms of PTSD and Depression

Due to frequent exposure to stressful and traumatic situations, mental health problems are a significant concern for veterans. In fact, a study of Veterans Affairs (VA) health care utilization in 2007 found that 25% of the 103,000 new users of the VA system had at least one mental health diagnosis. Of the new VA users with mental health diagnoses, 13% had posttraumatic stress disorder (PTSD) (Seal, Bertenthal, Miner, Sen, & Marmar, 2007). Research on veterans of Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF) has estimated that PTSD occurs in 10 to 18% of this cohort, about twice the prevalence of PTSD in the general U.S. population (7 to 8%) (Litz & Schlenger, 2009). Furthermore, the prevalence of depressive disorders is estimated to be between 4 and 14% among OEF/OIF veterans, [7 to 14% (Hoge et al., 2004), 4 to 9% (Grieger et al., 2006), and 14% probable major depression (Schell & Marshall, 2008)]. Due to the high rates of mental health disorders, especially PTSD and depression, among OEF/OIF veterans, this study will investigate how coping is related to depression and PTSD in veterans deployed in support of a conflict following 9/11/01.

Coping

Individuals differ with respect to how they cope, or manage stress, threat, and challenge (Lazarus, 1993). Coping strategies have both behavioral and cognitive components, and different typologies have been proposed to classify these different styles. One classification divides coping strategies into “problem-focused” or “emotion-focused,” while another classifies them as “approach” versus “avoidant” (Littleton, Horsley, John, & Nelson, 2007). Problem-focused coping refers to attempts to actively deal with the stressor (e.g. planning), while emotion-focused coping refers to managing the emotional distress (e.g. venting) (Folkman, Lazarus, Gruen, & DeLongis, 1986; Littleton et al., 2007). Approach coping refers to acknowledging the

problem both cognitively and emotionally or orienting oneself towards the problem (e.g., acceptance), while avoidant coping refers to avoiding thinking about the problem itself, as well as reminders of it, or orienting oneself away from the problem (e.g., denial) (Roth & Cohen, 1986).

Some forms of coping have been shown to be more adaptive while others are considered maladaptive, although this determination depends on the situation. Lazarus (1993) stated that “[t]here may be no universally good or bad coping process, though some might more often be better or worse than others” (p. 235). Typically, problem-focused efforts of coping are considered more adaptive than emotion-focused coping; however, in situations where one has little to no control over the circumstances, emotion-focused coping may be more adaptive (Carver, Scheier, & Weintraub, 1989; Lazarus, 1993). Moreover, approach coping is usually considered more adaptive than avoidant coping, but there is some evidence that in uncontrollable situations avoidant coping may be better (Roth & Cohen, 1986). Thus, in combat situations, emotion-focused and avoidant coping may be more adaptive.

Folkman and Moskowitz (2004) and Roth and Cohen (1986) discussed the contributing factors to the effectiveness of coping strategies. Folkman and Moskowitz described the most important factors as the situation itself, the desired outcomes and the contextual fit; while Roth and Cohen described the most important factors as time, controllability, and fit. Folkman and Moskowitz (2004) looked at the effectiveness of coping, comparing problem-focused and emotion-focused, explaining how both coping styles may be effective at different points throughout the coping process.

Roth and Cohen (1986) looked at the effectiveness of approach and avoidance coping. Regarding time, Roth and Cohen concluded that avoidance may be more effective for short-term

consequences, but approach is more effective in the long-term. Regarding controllability, they found avoidance may be better when the situation is uncontrollable, but approach is better when there is ability for control. Regarding fit, they found that coping style preference as well as demands of the situation contribute to how effective a coping style is. Furthermore, both approach and avoidance have costs and benefits which contribute to their long-term effectiveness. Approach is beneficial as it uses appropriate action and can help with resolution, but it may increase distress as one worries over the stressor by thinking about it. Avoidance may allow for stress reduction as one does not think about the stressor in the moment, but it may interfere with appropriate action, cause emotional numbness, and disrupt behaviors through avoiding. Thus, the benefits of avoidance are more short-term and the costs are long-term, but for approach the costs are short-term and the benefits are long-term (Roth & Cohen, 1986).

Maladaptive Coping. Grasso et al. (2012) found that students who experienced a potentially traumatic event (PTE) and had probable PTSD used more avoidant coping and less approach coping than those students who had experienced a PTE but did not have probable PTSD as well as those students who had not been exposed to trauma. More specifically the PTE/probable PTSD students reported using more denial, self-distraction, substance-use, venting, behavioral disengagement, instrumental support and self-blame, and less active coping. Students who were exposed to potentially traumatic events and used more avoidant coping were more likely to have higher PTSD symptom severity. Whereas students who were exposed to trauma but did not have probable PTSD used more social support and less avoidant coping (Grasso et al., 2012). These findings suggest that using social support and using less avoidant coping may be more resilient by buffering against PTSD symptoms in trauma exposed populations.

Avoidant coping has also been associated with worse outcomes for depression. Hassija, Luterek, Naragon-Gainey, Moore, and Simpson (2012) found use of avoidant emotional coping (specifically self-distraction, denial, behavioral-disengagement, self-blame, and substance use) by veterans was associated with greater severity of depression and PTSD. Conversely, emotional expression was associated with lower severity of depression and PTSD.

Both active duty military members and veterans with PTSD tend to use the maladaptive coping strategies of behavioral disengagement, venting, and self-blame, all of which reflect avoidant coping (Rice, Overby, Boykin, Jeter, & Villarreal, 2014). Littleton et al. (2007) found that avoidant coping (both emotional/cognitive and problem/behavioral) is associated with distress (general distress, depression, and PTSD symptoms). In student veterans, avoidant coping was associated with increased symptoms of generalized anxiety disorder (GAD), depression, and PTSD (Romero, Riggs, & Ruggero, 2015). Boden, Bonn-Miller, Vujanovic, and Drescher (2012) found that avoidant coping was associated with PTSD symptoms in veterans at both intake and discharge from a residential PTSD treatment program while active coping was inversely associated at both time points. Furthermore, increases in active coping were associated with diminished PTSD symptom severity at discharge.

Emotion-focused coping is also associated with more psychological disorders than problem-focused coping. In a study of Israeli soldiers who had participated in the Lebanon War, soldiers who used emotion-focused coping were found to have worse psychological outcomes than soldiers who predominately used problem-focused coping strategies (Solomon, Avitzur, & Mikulincer, 1990). In fact, soldiers who reported lower levels of emotion-focused coping, even with low problem-focused coping, had the least severe psychological symptoms; while soldiers who reported high levels of emotion-focused coping and low problem-focused coping had the

most severe psychological symptoms. Thus, the use of emotion-focused coping seems to be more related to problematic psychological symptoms.

Stratta et al. (2015) found that emotion-focused coping was predictive of psychological problems in a sample of students affected by the earthquake in L'Aquila Italy. Hassija et al. (2012) also found low emotional expression and high emotional avoidance were significantly associated with increased depression and PTSD symptom severity in a sample of trauma exposed veterans. Schnider, Elhai, and Gray (2007) found that once time since loss was controlled for, avoidant emotional coping was significantly predictive of both complicated grief and PTSD severity for students who experienced a traumatic loss. Both emotional and avoidant coping do seem to be maladaptive.

Adaptive Coping. Problem-focused coping, emotion-focused coping, and seeking social support have been positively associated with resilience and posttraumatic growth and are generally considered to be adaptive (Wolfe & Ray, 2015). Thus, using effective coping methods may be important for adjusting to stressors and avoiding negative consequences. Stratta et al. (2015) found positive reframing, active coping, humor, acceptance, and planning were significantly positively correlated with personal competence, while venting and self-blame were negatively correlated with personal competence. They also found problem-focused coping and social support were predictive of self-efficacy. Both adolescents and adults showed fewer depressive symptoms when using adaptive coping, even in the presence of some maladaptive coping strategies (Thompson et al., 2010).

In a sample of active duty service members and veterans without PTSD, acceptance and positive reframing were associated with a greater degree of resilience, and behavioral disengagement and self-blame were associated with lower levels of resilience (Rice & Liu,

2016). For veterans, specifically, higher resilience was associated with more humor, religion, active coping, and planning, and using less denial, substance abuse, and venting. As for predicting resilience, only use of more positive reframing and less self-blame were significant for active duty, while use of more humor and less self-blame were significant predictors for veterans (Rice & Liu, 2016). Furthermore, veterans who used more active coping and instrumental support were also more likely to seek mental health services after a positive screen for depression (Osei-Bonsu et al., 2014).

Present Study

The present study extends prior research on the relationships among coping and PTSD and depression by looking at the 14 subscales of the Brief Coping Orientations to Problems Experienced Scale (B-COPE; Carver, 1997) individually and in composite approach versus avoidant categories. We examined the relative contribution of each of these strategies on the severity of PTSD and depression. We examined how these strategies contribute to PTSD and depression both positively and negatively, allowing us to discuss possible interventions for PTSD and depression using coping strategies.

We investigated the relationship between coping strategies and PTSD and depression in two samples: (Sample 1) veterans recruited from a Veterans Affairs Medical Center (VAMC) and (Sample 2) student veterans recruited from a university. We compared the samples to see if there were statistically significant differences in characteristics of the samples: age, race, branch of service, number of deployments, PTSD severity, depression severity, and coping strategies used. We then analyzed the samples separately to look at how coping strategies relate to PTSD and depression in each sample.

Hypotheses

1. We anticipated that the samples would be significantly different in terms of age and race. We expected VAMC veterans to be slightly older and to have a higher percentage of Black individuals as is consistent with the broader post-9/11/01 veteran population. According to the U.S. Census Bureau about 40% of post-9/11/01 veterans are under age 35 and the 15.3% are Black (Holder, 2018) while the mean age of student veterans is 33 and 10.6% are Black (Cole & Kim, 2013). We expected all other characteristics of the sample would not be significantly different (e.g., branch of service, gender, total months deployed, PTSD severity, depression severity, and levels of coping styles).
2. We hypothesized that behavioral disengagement and self-blame would be the strongest predictors (relative to all other coping styles) of higher PTSD severity and depression severity in both samples. Hassija et al. (2012) found that use of avoidant emotional coping, including behavioral disengagement and self-blame, was associated with greater severity of PTSD and depression.
3. We hypothesized that active coping would be the strongest predictor (relative to all other coping styles) of lower PTSD and depression severity, in both samples, due to the benefits of active coping.

Method

Participants

Sample 1 (VAMC veterans). Sample 1 included 55 veterans, 12 women (21.8%) and 43 men, who were recruited from a large Veterans Affairs Medical Center in the southeastern United States. The participants ranged in age from 21 to 66 years of age, $M_{age} = 36.58$ years (SD

= 10.74). The sample was 45.5% Black, 43.6% White, and 10.9% other ethnicities. Participants were approached in waiting areas at the medical center and invited to participate in the study. Inclusion criteria included having been deployed in support of a post-9/11/01 conflict and being at least 18 years old.

Sample 2 (Student Veterans). Sample 2 included 71 student veterans, 22 (31.0%) women and 49 men, who were recruited from a large, public, mid-south university. Participants in Sample 2 ranged in age from 20 to 53 years of age, $M_{age} = 30.15$ years ($SD = 7.29$). The sample was 69.0% White, 23.9% Black, and 7.1% other ethnicities. Participants were recruited via emailed announcements to a registry of enrolled student veterans. Inclusion criteria included necessity of veteran status and at least part-time enrollment at the university. Participants included in the present analyses had all been deployed in support of a post-9/11/01 conflict.

Materials

PTSD Checklist for DSM-5 (PCL-5; Weathers et al., 2013). The PCL-5 is a 20- item, self-report questionnaire in which participants indicate how much they have been bothered by specific PTSD symptoms over the past month on a 5-point Likert scale ranging from 0 to 4: 0 *not at all*, 1 *a little bit*, 2 *moderately*, 3 *quite a bit*, 4 *extremely*. The items are totaled for a sum score reflecting total PTSD severity. Possible scores range from 0 to 80 with higher scores reflecting greater severity. The PCL-5 has shown good test-retest reliability ($r = .84$) and internal consistency ($\alpha = .96$) in a veteran sample (Bovin et al., 2015). The PCL-5 also showed good internal consistency in both our samples: sample 1 ($\alpha = .97$), sample 2 ($\alpha = .97$).

Beck Depression Inventory-II (BDI-II; Beck, Steer, & Brown, 1996). The BDI-II is a 21-item, self-report measure used to assess level of depressive symptomology. For each item, respondents choose one of four statements that describes how they have been feeling over the

last two weeks. The statements range in severity from 0 (least severe) to 3 (most severe). Items are totaled with scores range from 0 to 63; higher scores are considered more symptomatic.

Internal consistency for the BDI-II is high for both our samples: sample 1 ($\alpha = .96$), sample 2 ($\alpha = .95$).

Brief Coping Orientations to Problems Experienced Scale (B-COPE; Carver, 1997).

The B-COPE is a 28-item self-report measure used to examine an individual's strategies of coping in response to stressful situations. The measure is divided into 14 subscales which include: self-distraction, active coping, denial, substance use, emotional support, instrumental support, behavioral disengagement, venting, positive reframing, planning, humor, acceptance, religion, and self-blame. Each subscale is composed of two items. Responses are measured on a 4-point Likert scale from 1 to 4: 1 *I haven't been doing this at all*, 2 *I've been doing this a little bit*, 3 *I've been doing this a medium amount*, 4 *I've been doing this a lot*. Carver (1997) reported the internal consistency for the Brief COPE subscales, ranging from $\alpha = .50$ for venting to $\alpha = .90$ for substance use. In our samples, internal consistency ranged from $\alpha = .57$ for self-distraction to $\alpha = .93$ for substance use in sample 1 and from $\alpha = .61$ for self-distraction to $\alpha = .95$ for substance use in sample 2. Internal consistencies for all subscales, in both samples, can be found in Table 1 in Appendix A.

Procedure

Sample 1. Participants were recruited from a VAMC. Research assistants approached veterans in waiting areas to invite them to participate. Individuals who were interested were scheduled for two appointments to complete an extensive assessment battery. The battery included both interview and questionnaire based measures of psychopathology and substance use. These two appointments occurred within a one to two-week timeframe. Participants were

compensated \$20 for each assessment appointment. The measures used in this study were part of a comprehensive assessment battery. The full list of measures is provided in Appendix A.

Measures were administered in a fixed order; the PCL-5 was administered on the first day and the BDI-II and B-COPE were administered on the second day (on average a week later). This study was approved by the institutional review board (IRB) at the University of Memphis.

Sample 2. Participants were recruited from a large public university. Veterans who were enrolled students were emailed a link to an online survey. Those who were interested completed the online survey which assessed a broad range of mental health and risk-taking behavior constructs. The full list of measures is provided in Appendix B. Measures were administered in a fixed order; all measures were administered in one session. Participants were compensated \$10 for completion of the survey. This study was approved by the IRB at the university.

Data Analytic Plan

Data analysis was conducted using IBM SPSS Statistics 24. A p value of .05 was used to determine significance. Missing data was handled by performing multiple imputations, 25 iterations. First, three Chi-squares for independence were run to determine if there are statistically significant differences in race, branch, or gender for the two samples. Independent samples t-tests were also run to check for differences between the two samples for age, total months deployed, coping strategies (14 subscales of the B-COPE), composite coping categories (avoidant coping and approach coping), PTSD severity (as measured by the PCL-5), and depression severity (as measured by the BDI-II). Next, bivariate correlations were run for each individual sample to examine if there were significant associations between coping strategies, composite coping categories and the two dependent-variables (PTSD and depression), to warrant further analysis. Demographic characteristics (age and gender) were also added to the

correlations to determine if any covariates should be included in the first step of the regression models. Analysis of Variance (ANOVAs) were also run for race and branch on PTSD severity, depression severity, composite coping strategies, and coping strategies. Only the coping strategies that showed significant correlations with PTSD and depression were retained for further analyses. Demographic characteristics with significant relationships to independent or dependent variables were used as covariates. Multicollinearity was screened, using a r value of .9 (Pallant, 2013).

Hierarchical linear regressions were run for each sample, to determine the relative contribution of composite coping categories (approach coping, avoidant coping) and coping strategies (B-COPE subscales) on PTSD severity and depression severity. A total of eight hierarchical regressions were run. With each sample, we ran four regressions: first regressions for composite coping categories for both PTSD and depression, two composite coping regression for each sample, then significantly correlated coping strategies regressions for both PTSD and depression for each sample, two significantly correlated coping strategies regressions for each sample. Composite approach and avoidant categories were categorized based on Grasso et al. (2012). Composite approach coping included nine subscales of the B-COPE: active, emotional support, instrumental support, venting, positive reframing, humor, planning, acceptance, and religion. The composite approach coping category had good internal consistency; $\alpha = .890$ (sample 1), $\alpha = .883$ (sample 2). Composite avoidant coping included five subscales of the B-COPE: denial, substance use, behavioral disengagement, self-blame, and self-distraction. The composite avoidant coping category had adequate to good internal consistency; $\alpha = .691$ (sample 1), $\alpha = .846$ (sample 2). Any demographic variables that showed significant correlations with coping strategies, coping types, PTSD, or depression were added to the regression as covariates

in the first step of the regression model. The five most highly correlated coping strategies that showed significant associations to each dependent variable (i.e. PTSD and depression) were added in the second step of each regression. Regressions were then run to determine the relative contribution of each coping style.

Results

Comparative Preliminary Analyses

Preliminary analyses suggested that the two samples were distinct and should not be combined. A Chi-square test for independence (with Yates Continuity Correction) indicated no significant association between student veteran status and gender, $\chi^2(1, n = 125) = .992, p = .319, phi = .107$. A Chi-square test for independence indicated a significant association between student veteran status and branch of service $\chi^2(4, n = 125) = 11.289, p = .024, phi = .301$. Sample 1 was 50% Army, 16.7% National guard or reserve, 16.7% Marines, 13.0% Air Force, and 3.7% Navy. Sample 2 was 35.2% Army, 23.9% Navy, 19.7% Marines, 14.1% National Guard or reserves, and 7.0% Air Force. As hypothesized, a Chi-square test for independence also indicated a significant association between student veteran status and race $\chi^2(5, n = 124) = 14.490, p = .013, phi = .342$, with a higher percentage of Black individuals in the VAMC sample.

Independent samples t-tests were conducted to compare age, total number of months deployed, PTSD severity, depression severity, composite avoidant coping, composite approach coping, and all subscales of the B-COPE for VAMC veterans and student veterans. There were significant differences between the two samples on age, avoidant coping, approach coping, active coping strategy, denial coping strategy, depression severity, and PTSD severity. Results from these t-tests are reported in Table 2 in Appendix A. Thus, we decided to conduct the substantive analyses separately within each sample.

Sample 1 (VAMC Sample)

Preliminary Analyses. The relationship between demographics (race and branch of service) with all coping strategies, composite avoidant coping, composite approach coping, PTSD severity, and depression severity were investigated using one-way ANOVAs. There were no significant associations between race and branch of service with any of the independent or dependent variables. The relationship between demographics (gender and age) and all coping strategies, composite avoidant coping, composite approach coping type, PTSD severity, and depression severity were investigated using Pearson product-moment correlation coefficients. Gender was not significantly correlated with any of the variables. Age was significantly correlated with denial, ($r = .278, p < .05$) and with acceptance, ($r = -.292, p < .05$). Age was used as a covariate in the first step of the following regression analyses. Correlations between PTSD severity, depression severity, composite coping categories, and the coping strategies that significantly correlate with the aforementioned, can be seen in Table 3 in Appendix A. Correlations between coping strategies and composite coping categories can be seen in Table 4 in Appendix A. Of the 14 coping strategies, only the 5 scales most highly correlated with both PTSD severity and depression severity were retained in further analyses.

Primary Analyses. Hierarchical linear regressions were run to determine the relative contribution of coping strategies on PTSD severity and depression severity. First, a regression was run to determine the relative contribution for the two composite categories of coping (approach and avoidant) with PTSD severity. Age was entered in Step 1 as a covariate. Composite avoidant coping and composite approach coping were entered in the Step 2. The standardized and unstandardized regression coefficients can be found in Table 5 in Appendix A.

Both composite approach coping and composite avoidant coping were significant predictors of PTSD severity.

To further explore which specific coping strategies had the largest relative contribution to PTSD severity, all coping strategies that were significantly correlated to PCL-5 total score (self-blame, venting, denial, and behavioral disengagement) were added to the regression models. Age was controlled for in Step 1. All significantly correlated coping strategies (self-blame, venting, denial, and behavioral disengagement) were added in Step 2. The standardized and unstandardized regression coefficients can be found in Table 6 in Appendix A. For VAMC veterans, only denial was a significant predictor of PTSD severity. Behavioral disengagement showed a trend predicting PTSD severity that fell short of statistical significance.

A second hierarchical linear regression was run to determine the relative contribution for the two composite categories of coping to depression severity. Age was entered in Step 1, as a covariate. Composite avoidant coping and composite approach coping were added in Step 2. The standardized and unstandardized regression coefficients are displayed in Table 7 in Appendix A. For VAMC veterans, only denial was a significant predictor of depression severity. Behavioral disengagement showed a trend predicting depression severity that fell short of statistical significance.

To further explore which specific coping strategies had the largest contribution to depression severity, all coping strategies that were significantly correlated with BDI-II total score were added to the regressions (self-blame, venting, denial, acceptance, and behavioral disengagement). Age was controlled for in Step 1. All significantly correlated coping strategies (denial, behavioral disengagement, venting, acceptance, and self-blame) were entered in Step 2. The standardized and unstandardized regression coefficients can be found in Table 8 in

Appendix A. For VAMC veterans, self-blame and behavioral disengagement were significant predictors of higher depression severity. Acceptance was a significant predictor of lower depression severity.

Sample 2 (Student Veterans)

Preliminary Analyses. The relationship between demographics (race and branch of service) with all coping strategies, composite avoidant coping, composite approach coping, PTSD severity, and depression severity were investigated using one-way ANOVAs. There were no significant associations for branch of service with any of the independent or dependent variable; race was significantly associated with religion ($p < .05$). The relationship between demographics (gender and age) and all coping strategies, composite avoidant coping, composite approach coping, PTSD severity, and depression severity were investigated using Pearson product-moment correlation coefficients. Gender was significantly correlated with planning ($r = .260, p < .05$) and age was significantly correlated with behavioral disengagement ($r = .347, p < .01$) and to avoidant coping ($r = .276, p < .05$). Age was used as a covariate in the first step of the following regression analyses. Gender was only used as a covariate in the regressions including approach coping. Although race was significantly correlated with religion, race was not entered as a covariate in the regression models because religion was not included in the forthcoming regressions models. Correlations between PTSD severity, depression severity, composite coping categories, and the coping strategies that significantly correlate with the aforementioned, can be seen in Table 9 in Appendix A. Correlations between coping strategies and composite coping categories can be seen in Table 10 in Appendix A. Of the 14 coping strategies, only the 5 scales most highly correlated with both PTSD severity and depression severity were retained in further analyses.

Primary Analyses. Hierarchical linear regressions were run to determine the relative contribution of coping strategies on both level of PTSD and level of depression. First, a regression was run to determine the relative contribution for the two composite categories of coping (avoidant and approach) to PTSD severity. Age and gender were controlled for in Step 1. Composite avoidant coping and composite approach coping were entered in Step 2. The standardized and unstandardized regression coefficients can be found in Table 11 in Appendix A. For student veterans, avoidant coping was a significant predictor of higher PTSD severity.

To further explore which specific coping strategies had the largest relative contribution to PTSD severity, the five coping strategies most highly correlated to PCL-5 total score (self-blame, self-distraction, denial, substance use, and behavioral disengagement) were added to the regressions in Step 2, after controlling for age. The standardized and unstandardized regression coefficients can be found in Table 12 in Appendix A. For student veterans, self-blame and self-distraction were significant predictors of higher PTSD severity.

Another hierarchical linear regression was conducted to determine the relative contribution for the composite avoidant coping and composite approach coping to depression severity. Age and gender were controlled for in Step 1. Composite avoidant coping and composite approach coping were entered at Step 2. The standardized and unstandardized regression coefficients can be found in Table 13 in Appendix A. For student veterans, avoidant coping was a significant predictor of higher depression severity.

To further explore which specific coping strategies had the largest relative contribution to depression severity, the five coping strategies that were most highly correlated to BDI-II total score (self-blame, self-distraction, denial, substance use, and behavioral disengagement) were included in the regression models in step 2, after controlling for age. The standardized and

unstandardized regression coefficients can be found in Table 14 in Appendix A. For student veterans, self-blame and behavioral disengagement were significant predictor of higher depression severity.

Discussion

The purpose of this study was to examine the positive and negative contributions of coping strategies on PTSD and depression severity in two samples of veterans. We extended previous research by examining coping strategies both independently and in combined coping categories and by looking at two separate samples to examine whether coping has universal trends in its associations with PTSD and depression.

Preliminary analyses suggested that these samples should be explored separately, with significant differences for age and race; our sample of VAMC veterans was older and had a higher percentage of Black participants. The samples were also significantly different with respect to PTSD severity and depression severity as well as composite coping types (avoidant coping, approach coping) and B-COPE subscales (active coping strategy, denial coping strategy). Student veterans had lower levels of both PTSD and depression and showed significantly lower scores on each of the previously mentioned aspects of coping.

It is also interesting to note the differences in the internal consistencies of each subscale of the B-COPE for the two samples. Although many of the subscales have Cronbach's alphas with similar values (a difference of less than .05) (self-distraction, active, substance use, emotional support, instrumental support, humor, religion, self-blame, and composite approach coping), there were some subscales with notable differences between the samples (a difference of greater than .05) (denial, behavioral disengagement, venting, positive reframing, planning, acceptance, and composite avoidant coping). We can only speculate as to why the samples show

differences in their internal consistencies for each subscale. The differences may be due in-part to the nature of the subscales being two items. As for the difference between composite avoidant coping for sample 1 ($\alpha = .69$) and sample 2 ($\alpha = .85$), this may be due to the differences in constructs we combined (although all avoidant in nature) these constructs themselves are distinct.

We conducted hierarchical linear regression analyses to investigate the relationship between coping strategies and PTSD severity. For VAMC veterans, both composite avoidant coping and composite approach coping were significant predictors of PTSD severity. Composite avoidant coping predicted higher PTSD severity, while approach coping predicted lower PTSD severity. However, after further analysis of the specific strategies that contribute to PTSD severity in sample 1, only denial was a significant predictor of higher PTSD severity. For student veterans, composite avoidant coping significantly predicted higher PTSD severity. Analysis of the components of composite avoidant coping showed that self-blame and self-distraction (i.e., doing things to keep one's mind off the problem [Carver, 1997]) were significant predictors of greater PTSD severity among student veterans. Veterans from the VAMC sample showed greater endorsement of denial as a coping strategy, and, for this sample, denial was associated with PTSD severity. Interestingly, self-distraction and self-blame were endorsed at higher levels by VAMC veterans but were only significant predictors of PTSD for student veterans.

Hierarchical linear regression analyses were also used to investigate the relationship between coping and depression. Analyses showed that for VAMC veterans, composite avoidant coping was a significant predictor of higher depression severity and composite approach coping was a significant predictor of lower depression severity. After further analysis of the specific strategies that contribute to depression level, behavioral disengagement and self-blame were

significant predictors of greater depression severity in sample 1, while acceptance was a significant predictor of lower depression severity. Composite avoidant coping was also a significant predictor of depression for student veterans. Further analysis of the specific coping strategies that contribute to depression level for student veterans showed that both self-blame and behavioral disengagement were significant predictor of depression. Composite avoidant coping predicted higher depression severity for VAMC veterans than for student veterans. Acceptance was significantly associated with lower depression severity for VAMC veterans, suggesting this strategy may be protective. The significance of acceptance may only be seen in the VAMC sample because the VAMC sample had a higher mean score for acceptance.

Findings from this study suggest that avoidant coping is maladaptive and is highly predictive of greater distress, regardless of whether distress is diagnosable or subthreshold. However, composite approach coping was only associated with lower PTSD severity in the more severe sample. Hassija et al. (2012) also found use of avoidant emotional coping was associated with greater severity of depression and PTSD for veterans. They also found that emotional expression was associated with lower severity of depression and PTSD in a sample of veterans receiving VA outpatient services for mental health. Similarly, Boyraz, Waits, Felix, and Wynes (2016) found that trauma exposed individuals who use avoidant coping mechanisms of denial, self-blame, and behavioral disengagement have more physical health complaints. However, they did not find that use of any approach coping strategies improved physical health of these individuals. These findings suggest that it may be more important to teach veterans not to use avoidant coping techniques than it is to teach them approach techniques.

Our results suggest that self-blame is the most problematic coping strategies for all veterans. Rice et al. (2014) also found that veterans with high PTSD used more self-blame than

those with low PTSD, but that these strategies were maladaptive for all. Rice and Liu (2016) found that use of self-blame was associated with lower levels of resilience. These results suggest that avoidant coping strategies are more harmful than approach strategies are protective of distress. It is not possible to say whether maladaptive coping led to higher levels of PTSD and depression in VAMC veterans or if maladaptive coping arises from distress, due to the cross-sectional nature of our data. Previous studies however have shown a bi-directional relationship between PTSD and coping (Solomon, Mikulincer, & Flum, 1988). Thus, coping is an important construct in relation to PTSD as it is both a predictor of PTSD and predicted by PTSD.

Limitations

While the findings of this study have important implications for working with veterans, it is important to note that these studies have some limitations that must be considered. Both studies were cross-sectional and thus causation cannot be attributed. In both studies, we used the PCL-5 rather than the Clinician Administered PTSD Screen, the gold standard of PTSD diagnosis. The sample sizes were both small, which resulted in reduced power to detect effects.

It may also be important to note that this study looked at levels of PTSD and depressive symptoms but not at objective indicators of functioning. By looking at symptom levels rather than functioning we may not be getting a clear picture of how PTSD and depression affect participants' daily lives and their need for coping mechanisms. Furthermore, we did not include a measure of social support or resources available. Coping strategies may be limited by the resources available and thus if someone does not have access to social or instrumental support the person may be more likely to turn to maladaptive strategies of coping such as denial or self-blame.

Future Studies and Implications

Future research should assess how resilience relates to specific coping strategies and levels of distress. Researchers may also wish to investigate coping profiles to determine which coping styles might confer resilience. Furthermore, longitudinal data following military personnel pre-to-post deployment would be best to gauge level of coping prior to being exposed to combat stress.

The clinical implications are that avoidant coping is a significant predictor of PTSD and depression in veterans. Coping skills training may be an important factor for symptom reduction of both PTSD and depression. Studies involving coping skills training have been found effective at reducing symptoms of depression and reductions were maintained one-month post-treatment (Craig, Miner, Remtulla, Miller, & Zanussi, 2016; Jones, Perkins, Cook, & Ong, 2008). Coping skills training has also been used incorporated in PTSD treatment. Menefee et al. (2016) used a comprehensive treatment for PTSD in a sample of veteran inpatients. The treatment involved coping skills training including a component targeting maladaptive coping. Although coping skills trainings have been incorporated into treatments for both depression and PTSD, the implications from this study suggest it may be important to develop coping skills trainings that specifically targets reductions in self-blame as well as reducing avoidant coping more generally. Although self-blame was most highly associated with more severe distress in our samples, and may be important to first identify with patients. Treatments involving coping skills training need to be studied further and new interventions should be developed to teach veterans how to use more adaptive and less avoidant coping strategies, but these trainings may not be effective alone without identifying an individual's specific problematic coping strategies. Additionally, teaching acceptance techniques may be especially important in relation to depression.

Conclusions

Our results add support to previous findings that avoidant coping is associated with higher levels of distress (Boden et al., 2012; Littleton et al., 2007; Romero et al., 2015). We found that composite avoidant coping, as well as specific avoidant coping strategies are associated with higher levels PTSD severity and depression severity. Like Boden and colleagues (2012) who found that active coping type is associated with diminished PTSD symptom severity, we also found an association between approach coping and lower PTSD severity and lower depression severity, but only in the VAMC sample. But, this finding was not supported by the specific strategies that contribute to PTSD severity in the VAMC sample. Overall, our findings suggest that avoidant coping is an important construct to study in relation to PTSD and depression and is a significant predictor of both.

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Appendix A

Tables

Table 1

Internal Consistencies of Coping Scales for Both Samples

Coping Scale	Sample 1	Sample 2
Active	.810	.788
Denial	.874	.781
Substance Use	.933	.952
Emotional support	.896	.870
Instrumental Support	.793	.829
Behavioral Disengagement	.648	.709
Venting	.615	.670
Positive Reframing	.653	.783
Planning	.751	.904
Humor	.671	.719
Acceptance	.722	.667
Religion	.923	.915
Self-blame	.790	.796
Self-distraction	.567	.608
Composite Avoidance	.691	.846
Composite Approach	.890	.883

Table 2

Variables	Sample 1	Sample 2	<i>t</i>	<i>p</i>	<i>Means and T-test Equality for Means of Both Samples</i>
Age	36.582	30.594	3.748	.001	
Total Months Deployed	24.198	21.642	0.862	.389	
Depression Severity	20.830	14.081	2.777	.005	
PTSD Severity	37.280	20.917	4.086	.001	
Avoidant Coping	18.987	17.052	1.965	.049	
Active Coping	44.459	40.244	2.179	.029	
Active	5.891	5.070	2.318	.020	
Denial	3.455	2.695	2.593	.010	
Substance Use	2.818	2.814	0.014	.989	
Emotional Support	4.564	4.224	0.970	.332	
Instrumental Support	4.754	4.129	1.885	.059	
Behavioral Disengagement	3.182	3.068	0.406	.684	
Venting	4.471	3.905	1.834	.067	
Positive Reframing	5.055	4.790	0.797	.425	
Humor	3.970	3.882	0.281	.779	
Planning	5.373	5.008	0.955	.340	
Acceptance	5.777	5.376	1.215	.225	
Religion	4.774	4.034	1.740	.082	
Self-blame	4.476	3.962	1.402	.161	

Table 3

Correlations of Coping Strategies and Coping Categories with PTSD and Depression for VAMC Veterans

Variables	1	2
1. PTSD Severity	----	.77**
2. Depression Severity	.77**	-----
3. Composite Avoidant Coping	.65**	.68**
4. Composite Approach Coping	.03	-.04
5. Active	-.03	-.03
6. Denial	.59**	.53**
7. Substance Use	.21	.06
8. Emotional support	.04	-.07
9. Instrumental Support	.23	.09
10. Behavioral Disengagement	.46**	.62**
11. Venting	.36**	.36**
12. Positive Reframing	-.13	-.20
13. Humor	-.06	-.12
14. Planning	.17	.12
15. Acceptance	-.21	-.27*
16. Religion	-.12	-.12
17. Self-blame	.45**	.56**
18. Self-distraction	.11	.14

Note: * $p < .05$; ** $p < .01$

Table 4

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Composite Avoidant Coping	----															
2. Composite Approach Coping	.337*	----														
3. Active	.25	.70**	----													
4. Denial	.70**	.28*	.28*	----												
5. Substance Use	.32*	-.02	-.22	.03	----											
6. Emotional Support	.06	.61**	.34*	.15	-.02	----										
7. Instrumental Support	.31*	.73**	.39**	.40**	.07	.71**	----									
8. Behavioral Disengagement	.70**	.05	-.08	.43**	.15	-.11	.17	----								
9. Venting	.53**	.51**	.35**	.48**	.17	.26	.40**	.41**	----							
10. Positive Reframing	.12	.73**	.55**	.18	-.13	.42**	.46**	-.12	.05	----						
11. Humor	.12	.40**	.16	-.07	.11	.02	.00	-.08	.11	.31*	----					
12. Planning	.40**	.67**	.59**	.34*	-.07	.21	.41**	.02	.22	.57**	.24	----				
13. Acceptance	.08	.71**	.47**	-.13	-.09	.37**	.36**	-.04	.23	.55**	.38**	.40**	----			
14. Religion	.14	.68**	.27*	.12	.01	.34*	.50**	.05	.28*	.50**	.15	.25	.41**	----		
15. Self-blame	.78**	.36**	.31*	.49**	.08	.03	.17	.45**	.45**	.16	.15	.38**	.16	.23	----	
16. Self-distraction	.29*	.20	.28*	.02	-.28*	.12	.09	.01	-.05	.20	.16	.36**	.27	-.05	.05	----

Correlations of Coping Strategies and Coping Categories for VAMC Veterans

Note: * $p < .05$; ** $p < .01$

Table 5

Regression Coefficients for Composite Coping Categories and PTSD severity in VAMC Veteran Sample

Variable	<i>B</i>	<i>SE B</i>	β	<i>p</i>
Age	-0.110	0.235	-.005	.640
Avoidant Coping	3.358	0.514	.730	.001
Approach Coping	-0.467	0.230	-.224	.042

Table 6

Regression Coefficients for Specific Coping Strategies and PTSD severity in VAMC Veteran Sample

Variable	<i>B</i>	<i>SE B</i>	β	<i>p</i>
Age	-0.220	0.258	-.009	.394
Self-Blame venting	1.418	1.477	.129	.337
Denial	-0.053	1.765	-.004	.976
Behavioral Disengagement	5.783	1.753	.460	.001
	3.620	2.032	.230	.075

Table 7

Regression Coefficients for Composite Coping Categories and Depression severity in VAMC Veteran Sample

Variable	<i>B</i>	<i>SE B</i>	β	<i>p</i>
Age	0.123	0.129	.008	.342
Avoidant Coping	2.125	0.287	.765	.001
Approach Coping	-0.372	0.129	-.295	.004

Table 8

Regression Coefficients for Specific Coping Strategies and Depression severity in VAMC Veteran Sample

Variable	<i>B</i>	<i>SE B</i>	β	<i>p</i>
Age	0.024	0.134	.002	.858
Self-Blame	2.326	0.774	.351	.003
venting	0.515	0.963	.063	.594
Denial	0.964	0.948	.127	.309
accept	-2.406	0.832	-.304	.004
Behavioral Disengagement	3.513	1.038	.370	.001

Table 9

Correlations of Coping Strategies and Coping Categories with PTSD and Depression for Student Veterans

Variables	1	2
1. PTSD Severity	----	.78**
2. Depression Severity	.78**	----
3. Composite Avoidant Coping	.68**	.72**
4. Composite Approach Coping	.17	.19
5. Active	.12	.17
6. Denial	.46**	.52**
7. Substance Use	.43**	.42**
8. Emotional support	.03	.02
9. Instrumental Support	.11	.16
10. Behavioral Disengagement	.41**	.57**
11. Venting	.24	.29*
12. Positive Reframing	.01	-.05
13. Humor	.40**	.25*
14. Planning	.07	.10
15. Acceptance	.18	.23
16. Religion	-.19	-.05
17. Self-blame	.59**	.59**
18. Self-distraction	.47**	.41**

Note: * $p < .05$; ** $p < .01$

Table 10

Correlations for Coping Categories and Strategies with Student Veteran Sample

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Composite Avoidant Coping	----															
2. Composite Approach Coping	.33**	----														
3. Active	.09	.63**	----													
4. Denial	.67**	.17	.10	----												
5. Substance Use	.62**	.12	.12	.39**	----											
6. Emotional Support	.16	.67**	.29*	.16	.07	----										
7. Instrumental Support	.22	.74**	.42**	.22	-.01	.75**	----									
8. Behavioral Disengagement	.73**	.12	-.11	.40**	.35**	0.12	.17	----								
9. Venting	.49**	.62**	.19	.21	.23	.31*	.34**	.36**	----							
10. Positive Reframing	.15	.75**	.35**	.06	.01	.42**	.41**	-.01	.37**	----						
11. Humor	.39**	.32**	.08	.10	.10	.14	.19	.23	.26*	.21	----					
12. Planning	.18	.76**	.66**	.14	.13	.27*	.44**	-.11	.44**	.58**	.07	----				
13. Acceptance	.26*	.57**	.34**	-.02	.16	.26*	.28*	.14	.44**	.43**	.18	.37**	----			
14. Religion	-.04	.30*	-.05	.00	-.14	.18	.28*	.17	.11	.21	-.26*	.14	-.01	----		
15. Self-blame	.74**	.32**	.10	.38**	.25*	.07	.19	.46**	.50**	.13	.40**	.19	.28*	-.06	----	
16. Self-distraction	.67**	.38**	.12	.29*	.26*	.19	.18	.30*	.36**	.32**	.45**	.25*	.28*	-.09	.36**	----

Note: * $p < .05$; ** $p < .01$

Table 11

Regression Coefficients for Composite Coping Categories and PTSD severity in Student Veteran

Sample

Variable	<i>B</i>	<i>SE B</i>	β	<i>P</i>
Gender	-0.319	4.032	-.015	.937
Age	-0.489	0.297	-.023	.101
Avoidant Coping	3.039	0.376	.814	.001
Approach Coping	-0.068	0.204	-.033	.741

Table 12

Regression Coefficients for Specific Coping Strategies and PTSD severity in Student Veteran

Sample

Variable	<i>B</i>	<i>SE B</i>	β	<i>P</i>
Age	-0.384	0.303	-.018	.205
Self -Blame	4.536	1.173	.409	.001
Self-Distraction	3.586	1.165	.311	.002
Denial	2.881	1.689	.182	.089
Substance Use	2.407	1.360	.177	.077
Behavioral Disengagement	0.918	1.512	.068	.542

Table 13

Regression Coefficients for Composite Coping Categories and Depression Severity in Student

Veteran Sample

Variable	<i>B</i>	<i>SE B</i>	β	<i>p</i>
Gender	0.833	2.317	.067	.720
Age	0.010	0.177	.001	.956
Avoidant Coping	1.764	0.229	.794	.001
Approach Coping	-0.058	0.122	-.047	.638

Table 14

Regression Coefficients for Specific Coping Strategies and Depression Severity in Student

Veteran Sample

Variable	<i>B</i>	<i>SE B</i>	β	<i>p</i>
Age	-0.003	0.182	.001	.985
Self-Blame	2.440	0.712	.371	.001
Self-Distraction	1.213	0.675	.177	.073
Denial	1.643	1.110	.174	.142
Substance Use	1.083	.813	.134	.184
Behavioral Disengagement	2.027	1.121	.250	.007

Appendix B

Complete List of Measures Used in Sample 1

1. Demographics
2. Alcohol Use Disorder Identification Test (AUDIT)
3. Difficulties in Emotion Regulation Scale (DERS)
4. The Medical Outcomes Study Short Form-36 (SF-36)
5. Clinician Administered PTSD Scale (CAPS)
6. Structured Clinical Interview for DSM-IV (SCID-I)
7. PTSD Checklist- Military Version (PCL-M)
8. PTSD Checklist for DSM-5 (PCL-5), Trauma-Related Guilt Inventory (TRGI)
9. Toronto Alexithymia Scale-20 (TAS-20)
10. Shame Inventory
11. Timeline Follow Back (TLFB)
12. Drinker Inventory of Consequences (DrInC)
13. Drug Use Disorders Identification Test (DUDIT)
14. Readiness to Change Questionnaire (RCQ)
15. Modified Drinking Motives Questionnaire-Revised (Modified DMQ-R)
16. PTSD-Alcohol Expectancies Questionnaire (P-AEQ)
17. Acceptance and Action Questionnaire-II (AAQ-II)
18. Beck Depression Inventory-II (BDI-II)
19. Beck Anxiety Inventory (BAI)
20. Personality Assessment Inventory (PAI)
21. Deployment Risk and Resilience Inventory (DRRI)

22. Brief Coping Orientations to Problems Experienced Scale (B-COPE)
23. Dyadic Adjustment Scale (DAS)
24. Distress Tolerance Scale (DTS)
25. Schedule for Nonadaptive and Adaptive Personality (SNAP)
26. Multidimensional Scale of Perceived Social Support (MSPSS)
27. Two-Item Measure of Social Support
28. Mental Health Questionnaire (MHQ)
29. Modified Anticipated Discrimination Scale (MADS)
30. New-Buss Aggression Questionnaire (New-Buss)
31. Neurobehavioral Symptom Inventory (NSI).

Appendix C

Complete List of Measures Used in Sample 2

1. Demographics
2. The Life Events Checklist (LEC)
3. PTSD Checklist: Military Version (PCL-M)
4. PTSD Checklist for DSM-5 (PCL-5)
5. Beck Depression Inventory II (BDI-II)
6. Alcohol Use Disorder Identification Test (AUDIT)
7. Drug Use Disorders Identification Test (DUDIT)
8. Fagerstrom Test for Nicotine Dependence/Smokeless Tobacco (FTND-ST)
9. Brief Coping Orientations to Problems Experienced Scale (B-COPE)
10. Mental Health Questionnaire (MHQ)
11. Academic history
12. Military history
13. Domain Specific Risk Taking (DOSPERT)
14. Reckless Behavior Questionnaire (RBQ)
15. Driving Behavior Questionnaire (DBQ)