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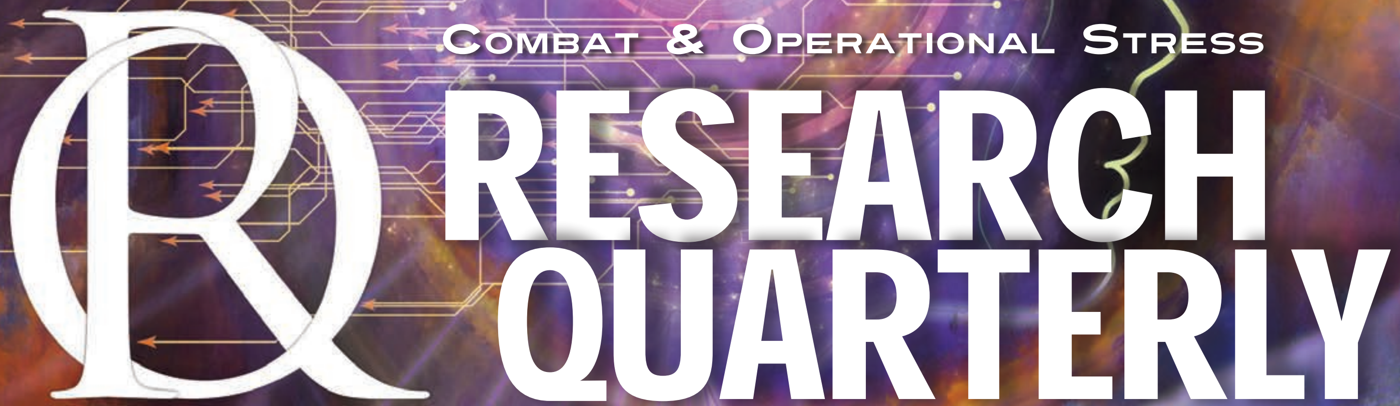

Combat & Operational Stress
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TBI during deployment may be the strongest predictor of post-deployment PTSD

Key Findings: Report of TBI pre-deployment predicted more severe PTSD symptoms post-deployment, even after accounting for previous mental health symptoms and combat intensity. A one-unit increase in pre-deployment PTSD and combat intensity scores raised the predicted post-deployment PTSD (CAPS) scores by 1.02, while deployment-related m-TBI and moderate/severe TBI raised the predicted post-deployment CAPS scores by 1.23 and 1.71 respectively. The odds of predicted post-deployment PTSD (34.4%) were highest among those with severe pre-deployment PTSD symptoms (CAPS ≥ 65), high combat intensity (CES > 19), and deployment-related TBI. Additionally, presence of TBI approximately doubled the post-deployment PTSD rates in those with minimal or no pre-deployment PTSD.

Study Type: Prospective, longitudinal Marine Resiliency Study with self-report and clinician-rating measures conducted at pre-deployment and at one week and three months post-deployment

Sample: Active duty Marine and Navy service members (SMs) (*n* = 1,648) who had completed a seven-month combat tour to Iraq and Afghanistan

Implications: Results suggest that SMs with prior deployment-related TBI have a significantly increased risk for post-deployment PTSD. The authors suggest that among individuals with prior TBI, the occurrence of a traumatic event on top of the structural and functional changes occurring in the brain post-TBI affect one's ability to process fear memories, and results in PTSD. Evidence-based therapies and techniques are needed to help SMs with prior TBI to better process combat-related trauma that may occur in the future. Alternatively, treatments focused on decreasing TBI symptoms before entering combat may reduce SMs' likelihood of developing PTSD following combat trauma.

Yurgil, K.A., Barkauskas, D.A., Vasterling, J.J., Nievergelt, C.M., Larson, G.E., Schork, N.J., Litz, B.T.,...Baker, D.G. (2014). Association between Traumatic Brain Injury and risk of posttraumatic stress disorder in active duty Marines. *Journal of American Medical Association Psychiatry, 71*(2), 149-157. doi:10.1001/jamapsychiatry.2013.3080

Veterans with PTSD who over-report psychological symptoms show an augmented modified Stroop effect

Key Findings: The current study compared the performance

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of three groups on a modified Stroop task (MST; variant of the original Stroop task using neutral words, social threat words and combat-related words). Groups included: PTSD negative/over-reporting negative (PTSD-/OR-); PTSD positive/over-reporting negative (PTSD+/OR-), and PTSD positive/over-reporting positive (PTSD+/OR+). The PTSD+/OR+ and the PTSD+/OR- groups were not found to have significantly different levels of combat exposure, and were also not significantly different in their likelihood of having filed a disability claim. However, PTSD+/OR+ participants showed a significantly larger effect (slower response time) on the MST for combat-related words compared to that of the other two groups.

Study Type: Cross-sectional study with self-report and clinician-administered measures

Sample: Treatment-seeking and non-treatment-seeking OIF/OEF veterans (*n* = 128); 44 PTSD-/OR-; 60 PTSD+/OR-; 20 PTSD+/OR+

Implications: Results suggest that increased psychological symptom endorsement is associated with larger effects on the MST for combat-related words, regardless of whether or not the individual is over-reporting. The M-FAST (measure of OR) may measure general distress rather than actual malingering. This may explain why OR+ participants showed a larger versus a smaller combat-MST effect, contrary to the authors' hypothesis. Future research is needed that includes a measure of malingering for secondary gain to examine whether individuals who over-report due to extreme emotional distress show different effects on the combat MST compared to those who over-report due to malingering for secondary gain.

Constans, J.I., Kimbrell, T.A., Nanney, J.T., Marx, B.P., Jegley, S., & Pyne, J.M. (2014). Over-reporting bias and the modified Stroop effect in Operation Enduring and Iraqi Freedom veterans with and without PTSD. *Journal of Abnormal Psychology, 123*(1), 81-90. doi: 10.1037/a0035100

Efficacy of PTSD treatment programs not necessarily attributable to specific type of evidence-based therapy, according to provider report

Key Findings: Staff from VA residential treatment programs for PTSD identified 21 different elements as essential to treatment effectiveness. The top five elements included evidence-based treatments, frequency and intensity of milieu, cohesion of staff, variety in programming, and individualization of treatment. About 25% of staff believed that evidence-based treatments were the most effective element, stating that EBTs most noticeably reduced symptoms. While 30% of those who endorsed EBTs as most effective did not specify one particular EBT, 42.4% specified Cognitive Processing Therapy (CPT), 9.1% specified Prolonged Exposure (PE), 6.1% specified Eye Movement Desensitization and Reprocessing (EMDR) and Seeking Safety, and 3% specified Acceptance Commitment Therapy (ACT) and Dialectical Behavioral Therapy (DBT). Frequency and intensity of milieu (endorsed by 22.5% of staff as the most important element) was observed to deter isolation, increase socialization and build a sense of community. Staff cohesion (endorsed by 10.9%) was found to create a family-like atmosphere where patients felt truly cared for. Incorporating a variety of treatments within one program (9%) was reported to meet not only mental health needs, but also physical, psychosocial, reintegration, family and housing needs. Individualized treatment plans (8.2%) were reported to allow for patient input, treatment flexibility, and tracks aimed at specific symptoms and experiences.

Study Type: Cross-sectional study using a structured interview and qualitative methods

Sample: Staff members (*n* = 267) who completed qualitative interviews from July 2008 through March 2011, recruited from 38 different US VA residential PTSD treatment programs

Implications: While various elements of residential PTSD treatment were identified by VA staff as essential for treatment effectiveness, few agreed on any one factor. Evidence-based treatments such as CPT and PE have been widely recommended by VA treatment centers, yet only 25% of staff reported EBTs as the most effective element of treatment. Staff and patient cohesion, and support of the milieu were also rated as highly important aspects of PTSD treatment. Additionally, variety in and individualization of programs were considered to be important for symptom reduction. Results suggest that no one specific element is key in the treatment of PTSD among veterans according to the impressions of providers and treatment center staff. Therefore, it is important that treatments include several of the identified elements in this study to ensure that their cumulative effect decreases patients' symptoms.

Cook, J.M., Dinnen, S., Simiola, V., Bernardy, N., Rosenheck, R., & Hoff, R. (2014). Residential treatment for posttraumatic stress disorder in the department of veterans affairs: A national perspective on perceived perspective ingredients. *Traumatology: An International Journal, 20*(1), 43-49. doi: 10.1037/h0099379

Shame plays a significant role in development of PTSD symptoms

Key Findings: Participants who reported higher levels of exposure to potentially traumatic events (PTEs) endorsed higher

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levels of shame, which was thereby associated with increased PTSD symptoms. After controlling for fear, participants who reported experiencing an interpersonal trauma (e.g., human-caused and purposely perpetrated, such as sexual or physical assault) versus an impersonal trauma (e.g., not involving intentional perpetration by another individual, such as a natural disaster or death due to illness) reported higher levels of trauma-related shame, which was thereby associated with increased PTSD symptoms. Additionally, after controlling for shame, participants who reported an interpersonal versus impersonal reference trauma experienced higher levels of fear, which was also then associated with increased PTSD symptoms.

Study Type: Cross-sectional online survey with self-report measures

Sample: Ninety-nine undergraduate psychology students at a midsized western university who met criteria for at least one DSM-IV A1 stressor

Implications: The authors emphasize the distinction between fear and shame, stating that fear is a reaction to threat of one's physical integrity, while shame is the reaction to threat of one's social integrity, with the latter deemed as equally important to one's evolution and individual adjustment. Results suggest that PTSD symptoms from interpersonal trauma may not solely result from a dysregulated response to fear, but also from one's response to feelings of shame. This study is one of the first to demonstrate the influence of emotions other than fear (e.g., shame) on the development and maintenance of PTSD.

La Bash, H., & Papa, A. (2014). Shame and PTSD symptoms. *Psychological Trauma: Theory, Research, Practice, and Policy, 6*(2), 159-166. doi: 10.1037/a0032637

PTSD may best be conceptualized by a five-factor model

Key Findings: Results of confirmatory factor analysis showed that a five-factor model of PTSD (re-experiencing, avoidance, numbing, dysphoric arousal and anxious arousal) was superior to three and four-factor models in characterizing dimensions of PTSD symptoms. Structural Equation Modeling revealed that each of the five factors was significantly associated with clinicians' diagnoses of substance use disorder, depression, and other anxiety disorders. Numbing was most associated with substance use disorder and depression, while dysphoric arousal was most associated with other anxiety disorder diagnoses.

Study Type: Cross-sectional retrospective analysis of PCL-M scores from electronic medical records

Sample: Veterans (n = 323,903) who received mental health treatment at a VA facility from October 2008 through September 2012

Implications: Results suggest that the anxious and dysphoric arousal symptoms are two distinct symptom clusters of PTSD which may help us to better evaluate, assess and treat PTSD symptoms. Additionally, hyperarousal symptoms were found to play an important role in maintaining PTSD, and may be better understood with the separation of anxious and dysphoric arousal symptom clusters in the five-factor model. More research is needed to examine the utility of the five-factor model in clinical practice and its associations with genetic biomarkers.

Harpaz-Rotem, I., Tsai, J., Pietrzak, R.H., & Hoff, R. (2014). The dimensional structure of posttraumatic stress symptomatology in 323,903 U.S. veterans. Journal of *Psychiatric Research, 49,* 31-36. doi: 10.1016/j.jpsychires.2013.10.020

Levels of conscientiousness and extraversion associated with response to D-cycloserine-augmented exposure therapy

Key Findings: The aim of this study was to identify individual characteristics (based on the Five Factor model of personality) associated with outcomes of exposure therapy treatment with and without augmentation with D-cycloserine (DCS). Among participants high in conscientiousness, those receiving DCS had significantly more favorable outcomes compared to those receiving placebo. Additionally, among participants low in extraversion, those who received DCS showed significantly better outcomes than those who received placebo. Further, the higher one's level of education in this sample, the poorer their treatment outcome.

Study Type: Double-blind treatment study with random assignment to receive either exposure therapy plus DCS (n = 33), or exposure therapy plus placebo (n = 34)

Sample: Treatment-seeking individuals (n = 67) meeting CAPS criteria for PTSD who were referred to one of two outpatient clinics; three percent of participants had "warzone experiences"

Implications: Based on the results of this study, authors hypothesize that individuals low in level of extraversion and those high in level of conscientiousness may exhibit a deficit in extinction learning, and that this deficit may be reversed by augmentation with DCS. Future research should examine the relationship between extinction learning enhancement with DCS and these two personality traits to determine what specific aspects of conscientiousness and extraversion contribute to this relationship. Additionally, results suggest that individuals

with lower levels of education are able to benefit significantly from CBT for PTSD, contrary to some previous beliefs and concerns. Results should be replicated with a larger sample size.

de Kleine, R.A., Hendriks, G.J., Smits, J.A.J., Broekman, T.G., & van Minnen, A. (2014). Prescriptive variables for D-cycloserine augmentation of exposure therapy for posttraumatic stress disorder. *Journal of Psychiatric Research, 48,* 40-46. doi: 10.1016/j.psychires.2013.10.008

Trauma-focused treatments not necessarily contraindicated for veterans dually-diagnosed with an alcohol use disorder and PTSD

Key Findings: While veterans with comorbid PTSD and Alcohol Use Disorder (AUD) reported more severe PTSD symptoms before treatment than those with PTSD alone, PTSD and depression symptoms decreased significantly in both groups following treatment. Veterans with an AUD were not significantly more or less likely to attend outpatient PTSD treatment than those without an AUD. Notably, only 47% of veterans attended all 12 Cognitive Processing Therapy (CPT) sessions.

Study Type: Retrospective chart review, and analysis of scores on self-report and clinician-rating measures

Sample: Veterans with a PTSD diagnosis (n = 536) who had been treated with at least one session of CPT at a VA outpatient treatment program for PTSD

Implications: While trauma-focused treatments such as CPT or PE have previously been thought of as inappropriate for individuals with a current comorbid AUD, results of this study show no interaction between diagnosis of AUD and outcome of treatment. Results also suggest that significant decreases in symptoms can be achieved with less than perfect attendance. Further research with the addition of a control group and a long-term follow-up assessment is needed to examine the impact of CPT on AUD and relapse.

Kaysen, D., Schumm, J., Pedersen, E.R., Seim, R.W., Bedard-Gilligan, M., & Chard, K. (2014). Cognitive Processing Therapy for veterans with comorbid PTSD and alcohol use disorders. *Addictive Behaviors, 39,* 420-427. doi: 10.1016/j.addbeh.2013.08.016

Diagnostic accuracy of the Posttraumatic Stress Disorder Checklist–civilian version in a military sample

Key Findings: Among Danish International Security Assistance Force (ISAF) soldiers who were on combat de-

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Anger is associated with reduced treatment gains in CPT

Key Findings: Cognitive Processing Therapy (CPT) and treatment as usual (TAU) were compared to each other in a sample of Australian military veterans, and levels of depression, anxiety, anger and alcohol use were measured to examine predictors of treatment change. Among those who received CPT, baseline anger was the only significant predictor of change in PTSD severity, with higher levels of anger associated with fewer decreases in PTSD severity. Among those who received TAU, baseline anxiety was the only significant predictor of change in PTSD severity over time, with higher baseline anxiety associated with better treatment response.

Study Type: Secondary analysis of data generated from a randomized controlled trial with clinician-rating and self-report measures

Sample: Treatment-seeking Australian military veterans receiving either CPT (n = 30) or TAU (n = 29)

Implications: Results suggest that CPT may not be as effective in treating PTSD in patients with higher levels of comorbid anger. Therefore, CPT providers may want to consider preliminary assessment and treatment of anger in clients presenting with PTSD. More research is needed to examine the specific manner in which anger interacts with CPT to influence PTSD treatment results. A better understanding of comorbid factors associated with variability in PTSD treatment response will allow for more informed treatment planning and more effective treatment delivery.

Lloyd, D., Nixon, R.D.V., Varker, T., Elliott, P., Perry, D., Bryant, R.A., Creamer, M., & Forbes, D. (2014). Comorbidity in the prediction of cognitive processing therapy treatment outcomes for combat-related posttraumatic stress disorder. *Journal of Anxiety Disorders, 28,* 237-240. doi: 10.1016/j.janxdis.2013.12.002

Irritability and anger are key features of PTSD in female veterans regardless of internalizing or externalizing tendencies

Key Findings: Based on scores on the Minnesota Multiphasic Personality Inventory-2 (MMPI-2) and the Millon Clinical Multiaxial Inventory-III (MCMI-III), female veterans with PTSD were separated into three groups: internalizers, externalizers, and those with overall low levels of psychopathology (e.g., simple PTSD). The Buss-Durkee Hostility Inventory (BDHI) was used to measure anger and to further validate this measure. Externalizers were highest on levels of alcohol use, antisocial personality traits and aggression, while internalizers were highest on levels of anxiety, depression, and dysthymia. While externalizers were highest on the most extreme anger scales, both internalizers and externalizers were high on the cognitive behavioral anger scale. Among all three groups of participants, irritability and outbursts of anger associated with PTSD showed a significant positive correlation with six out of eight BDHI anger scales.

Study Type: Cross-sectional study with self-report assessments and clinician-administered interviews

Sample: Female veterans with PTSD (*n* = 254) recruited from a VA outpatient clinic

Implications: Results suggest that among female veterans with PTSD, irritability, and outbursts of anger are key clinical features, regardless of internalizing or externalizing tendencies or level of psychopathology. Results were consistent with previous research on male veterans with PTSD regarding correlations between externalizing and alcohol use, aggression and antisocial personality traits, and between internalizing and anxiety and depression. Results provide further validation for the BDHI as a measure of anger and hostility in a sample of female veterans. Results also provide direction for future categorization of PTSD subtypes as well as the importance of assessment and treatment of anger among veterans with PTSD.

Castillo, D.T., Joseph, J.S., Tharp, A.T., C'de Baca, J., Torres-Sena, L.M., Qualls, C., & Miller, M.W. (2014). Externalizing and internalizing subtypes of posttraumatic psychopathology and anger expression. *Journal of Traumatic Stress, 27,* 108-111. doi: 10.1002/jts.21886

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ployment in Afghanistan, PTSD prevalence (Structured Clinical Interview for DSM-IV; SCID) was 7%, while the PTSD Checklist-civilian version (PCL-C) showed a prevalence ranging from 6.5% (cutoff 50) to 18.8% (cutoff 34). The PCL-C combined cutoff ranged from 6% (cutoff 50 and DSM-IV) to 9.4% (cutoff 34 and DSM-IV). Number of true positives ranged from 19 (cutoff 50 and DSM-IV) to 25 (cutoff 34). Number of false positives ranged from 6 (cutoff 50 and DSM-IV) to 53 (cutoff 34). Number of true negatives ranged from 333 (cutoff 34) to 380 (cutoff 50 and DSM-IV), while number of false negatives ranged from 4 (cutoff 34) to 10 (cutoff 50 and DSM-IV). The PCL-C showed sensitivity greater than .70 and specificity greater than or equal to .90 for cutoff values of 37 to 44, with sensitivity highest at a cutoff of 37, and specificity highest at a cutoff of 44.

Study Type: Longitudinal study with self-report measures and structured clinical interview conducted within a few weeks of return from deployment, and again three years post-deployment

Sample: Participants (*n* = 415) from a study of ISAF soldiers on combat deployment to Afghanistan

Implications: The PCL-C demonstrated high accuracy overall and performed well for a wide range of cutoff scores. Cutoff score on the PCL-C should be based on the purpose of the study, as different cutoff scores show a large amount of variance in PTSD prevalence. When measuring PTSD prevalence, the PCL-C may underestimate, yet a cutoff score of 44 optimizes sensitivity and specificity. When used for screening purposes, a lower cutoff score may be appropriate (e.g., 30-38). A structured clinical interview is still a better alternative for identifying PTSD considering that the most appropriate cutoff score on the PCL-C cannot be determined without prior knowledge of the prevalence rate in the sample at hand.

Karstoft, K.I., Andersen, B., Bertelsen, M., & Madsen, T. (2014). Diagnostic accuracy of the Posttraumatic Stress Disorder Checklist–civilian version in a representative military sample. *Psychological Assessment, 26*(1), 321-325. doi: 10.1037/a0034889

Treatments aimed at altering attention bias may decrease PTSD symptoms

Key Findings: Among participants exposed to high levels of combat, those who displayed an attention bias away from threatening stimuli (e.g., faster reaction time to neutral pictures than to threat pictures) experienced more PTSD and generalized anxiety disorder symptoms than other soldiers. Among soldiers low in combat-exposure, neither attentional biases nor reaction times were associated with PTSD symptoms.

Study Type: Cross-sectional study with self-report measures and dot-probe task to assess threat-related attention bias

Sample: U.S. soldiers (*n* = 61) assessed four months after returning from combat deployment to Iraq

Implications: Service members who display threat-related attentional bias may be at increased risk for PTSD symptoms following combat deployment. These results are the first to find an interaction between attentional threat avoidance, combat exposure, and mental health symptoms in a post-deployment military sample. While attention bias toward threat is considered to be pathological in civilian samples, soldiers in this sample who avoided paying attention to threatening stimuli were more pathological with regard to mental health symptoms. Results may be due to differences between samples, with military service members being trained to attend to rather than avoid threat. Treatments that alter attention bias may be helpful in decreasing anxiety and PTSD symptoms.

Sipos, M.L., Bar-Haim, Y., Abend, R., Adler, A.B., & Bliese, P.D. (2014). Post-deployment threat-related attention bias interacts with combat exposure to account for PTSD and anxiety symptoms in soldiers. *Depression and Anxiety, 31,* 124-129. doi: 10.1002/da.22157

Comorbidity of depression and PTSD in a military sample

Key Findings: The authors of the current literature review aimed to examine the relationships among depression, combat trauma, and PTSD. Eight hypotheses grouped into three overarching categories were proposed to explain the etiology of comorbid depression and combat-related PTSD. The three main categories included causal hypotheses, common factors hypotheses and potential confounds hypotheses. Causal hypotheses were tested first, and results showed no evidence that depression increased one's risk of combat exposure, yet partially supported that pre-existing depression acts as a risk factor for PTSD following trauma, and that PTSD leads to depression. Next, common factors hypotheses were tested. Review of the literature showed that common factors such as combat exposure increased one's risk of developing PTSD, but not necessarily one's risk of developing depression. While research was inconsistent, the literature partially supported the idea that common factors predisposed individuals to develop comorbid disorders following a precipitating event. Finally, potential confound hypotheses were examined. The majority of the literature found that confounding factors created the illusion that psychiatric diagnoses were highly related to each other. However, no research was found to support the idea that comorbidity was inherently due to how mental disorders are defined in the DSM. Additionally, research did not confirm that PTSD and depression were part of the same disorder at different ends of one spectrum.

Study Type: Review article

Sample: Research literature focused on PTSD and comorbid depression in combat veterans

Implications: The new DSM-5 criteria for "Trauma- and Stressor-Related Disorders" seem to have made it more difficult to distinguish between depression and PTSD. Therefore, more research focused on the comorbidity of PTSD and depression in military samples is needed. Twin studies are needed as well, to examine the genetic vulnerabilities that lead to the development of comorbid psychiatric disorders. Treatment efficacy research is needed to examine the utility of current treatments on comorbid PTSD and depression.

Stander, V.A., Thomsen, C.J., & Highfill-McRoy, R.M. (2014). Etiology of depression comorbidity in combat-related PTSD: A review of the literature. *Clinical Psychology Review, 34,* 87-98. doi: 10.1016/j.cpr.2013.12.002

Comparison of US and UK military personnel shows that differences in combat exposure are associated with severity of PTSD symptoms

Key Findings: Levels of combat exposure, PTSD symptoms, alcohol use, and aggressive behavior were compared between a group of UK military personnel and a group of US military personnel. Discrepancies in combat exposure mostly explained differences found in self-reported prevalence of PTSD. However, US military personnel reported significantly higher PCL scores than the UK sample, a result that was independent of the effects of combat exposure. While alcohol misuse and aggression were high in both the US and UK samples, alcohol misuse was significantly higher in the UK sample, even after controlling for demographic variables and combat exposure. Aggressive behavior was only significantly higher in the UK military sample than in the US military sample when combat exposure was low.

Study Type: Retrospective data analysis with self-report measures

Sample: US Army soldiers (*n* = 1,560) and UK service members (*n* = 313) participating in one of two different studies focused on the health of military personnel post-deployment to Iraq from 2007 to 2008

Implications: This was the first study to date that compared prevalence rates of PTSD, hazardous alcohol use, and aggressive behavior between a UK and a US military sample. Higher prevalence of hazardous alcohol use in the UK military personnel may be due to differences in each military's approach

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to managing alcohol misuse, with the UK military lacking a formal treatment program that is directed by one's command. Additionally, the lack of differences found between the UK and the US groups on aggressive behavior among those with high combat exposure may, according to the authors, reflect the relationship between high combat exposure and aggression following deployment. Results should be replicated with the addition of clinician-rating measures and information regarding childhood adversity, length of time between return from deployment and assessment, and severity and frequency of combat exposures.

Sundin, J., Herrell, R.K., Hoge, C.W., Fear, N.T., Adler, A.B., Greenberg, N., Riviere, L.A., ...Bliese, P.D. (2014). Mental health outcomes in US and UK military personnel returning from Iraq. *The British Journal of Psychiatry, 204,* 200-207. doi: 10.1192/bjp.bp.113.129569

Veterans with PTSD show lower levels of spirituality than control participants without PTSD

Key Findings: Vietnam and OEF/OIF veterans with PTSD reported significantly lower levels of spirituality than demographically matched control participants in the following dimensions: organizational religiousness, religious coping, values, forgiveness, daily spiritual experiences, and private practices. Vietnam veterans were lower in level of spirituality than their demographically-matched control participants except in the following dimensions of spirituality: viewing oneself as a religious person, engagement in prayer or meditation, and spiritual values. OEF/OIF veterans were lower in levels of spirituality than their demographically matched control participants with the exception of labeling themselves as a spiritual person. While Vietnam veterans were more likely than OEF/OIF veterans to endorse negative religious coping, no other significant differences in spirituality between Vietnam and OEF/OIF veterans were found. More difficulty with forgiveness (a dimension of spirituality) was associated with more psychological symptoms for both eras of veterans. Additionally, spiritual functioning was associated with level of combat-related distress.

Study Type: Cross-sectional study with self-report measures

Sample: Vietnam veterans in a VA residential PTSD treatment center (*n* = 194) compared to men from the 1998 General Social Survey (GSS; non-clinical control group) who were matched demographically (*n* = 194); OEF/OIF veterans in a non-VA residential PTSD treatment center (*n* = 200), compared to GSS non-clinical control participants who were matched demographically (*n* = 200).

Implications: Results suggest that adaptation of evidence-based therapies for PTSD to address issues of spirituality may be therapeutic for both Vietnam and OEF/OIF veterans. Clinicians should assess for changes in levels of spirituality associated with combat trauma, and may find that incorporation of spiritual practices such as meditation may be effective in treating PTSD in veterans. More research is needed to examine changes in spirituality over time and its associations with combat trauma.

Currier, J.M., Drescher, K.D., & Harris, J.I. (2014). Spiritual functioning among veterans seeking residential treatment for PTSD: A matched control group study. *Spirituality in Clinical Practice, 1*(1), 3-15. doi: 10.1037/scp0000004

Substance use and substance use disorders in recently deployed and never deployed soldiers

Key Findings: Results suggest that among recently deployed soldiers, the most common substance use patterns involved binge drinking (BD) and regular smoking (RS), while rates of illegal drug use (ILDU), heavy drinking (HD) and Substance Use Disorder (SUD) were lower than those reported in previous research. No significant differences were found regarding substance use (SU) and SUD between those who were recently deployed, and those who were never deployed. Among those who were recently deployed, HD and RS were related to several mental disorders, a finding that was not significant among the non-deployers.

Study Type: Cross-sectional study with standardized diagnostic interview

Sample: German soldiers (*n* = 1,483) who had been recently deployed to Afghanistan (2009/2010 ISAF mission) and German soldiers (*n* = 889) who had never deployed, and were randomly selected and stratified using age, gender and unit

Implications: Programs that focus on the prevention of BD and RS among recently deployed soldiers are needed. Additionally, future research should focus on identifying moderators and mediators of the relationship between deployment and SU to determine whether or not deployment status makes a significant impact. Screening for SU among soldiers who have recently deployed may support prevention and early recognition of mental health problems inherent in this population.

Trautmann, S., Schönfeld, T.S., Behrendt, S., Höfler, M., Zimmermann, P., & Wittchen, H.U. (2014). Substance use and substance use disorders in recently deployed and never deployed soldiers. *Drug and Alcohol Dependence, 134,* 128-135. doi: 10.1016/j.drugalcdep.2013.09.024

PTSD and depression mediate the relationship between childhood maltreatment and health-related quality of life

Key Findings: Both PTSD and depression mediated the relationship between childhood maltreatment (CM) and overall physical health-related quality of life (HRQoL) in a sample of service members who returned from a combat deployment at least six months prior to study assessment and denied having a pre-deployment Axis I diagnosis. PTSD and depression also mediated the relationship between CM and physical HRQoL subscales including bodily pain, social functioning and role limitations. Additionally, depression was stronger than CM and PTSD as a predictor variable of HRQoL, accounting for 10% of unique variance.

Study Type: Cross-sectional and retrospective study with self-report assessments

Sample: Male OEF/OIF active duty service members and combat veterans (n = 249)

Implications: Results lend support to neurobiological research showing that traumatic childhood experiences may sensitize the central nervous system, thereby increasing one's risk of developing physical and mental health problems. The relationship between CM and subsequent physical and psychological health in adulthood is important to consider when working with service members who have combat traumas and/or history of prior trauma. A better understanding of the relationships among CM, PTSD and depression may help inform readiness programs as well as post-deployment physical and mental health care.

Aversa, L.H., Lemmer, J., Nunnink, S., Mclay, R.N., & Baker, D.G. (2014). Impact of childhood maltreatment on physical health-related quality of life in U.S. active duty military personnel and combat veterans. *Child Abuse & Neglect, 38,* 1382-1388. doi: 10.1016/j.chiabu.2014.03.004

Filing formal report of sexual harassment in reservists not associated with emotional well-being unless reporting process is perceived as satisfactory

Key Findings: An examination of the relationships among reporting sexual harassment, satisfaction with the reporting process, perceived responsiveness to the report and post-harassment functioning showed that making a formal report was not associated with well-being in military reservists. However, among victims who did report, perceiving that the accusations were addressed by authorities was associated with better post-harassment functioning (emotional well-being, physical

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Burnout among mental health clinicians using evidence-based treatments for PTSD

Key Findings: Analysis of clinicians providing evidence-based care for PTSD showed that about half of the sample reported high levels of exhaustion and cynicism, while only 12% reported low professional efficacy. Workplace characteristics that were most associated with exhaustion and cynicism were being overwhelmed with the amount of clinical work to be done, and a lack of feeling in control over how and when clinical work was conducted. The higher clinicians rated their level of emotional support by co-workers, the fewer mental health days they required. As a result of levels of professional efficacy, exhaustion, and cynicism, 32% of providers indicated that they were somewhat likely to very likely to leave their current position within the next two years.

Study Type: Cross-sectional study with self-report electronic assessments

Sample: Veterans Health Administration mental health clinicians (*n* = 138) practicing evidence-based treatments for PTSD

Implications: Burnout is a pressing issue that needs to be addressed among clinicians to improve staff retention and quality of care. Improving workplace factors such as workload, adequate staffing, minimizing administrative work, improving organizational politics, fair treatment by supervisors, and increased emotional support from co-workers should foster a sense of accomplishment, alleviate burnout, and increase staff retention. Future research should focus on comparing mental health providers across institutions to identify other organizational factors that may contribute to burnout such as working with trauma patients, or using specific treatments (PE, CPT, etc.).

Garcia, H.A., McGeary, C.A., McGeary, D.D., Finley, E.P., & Peterson, A.L. (2014). Burnout in Veterans Health Administration Mental Health Providers in Posttraumatic Stress Clinics. *Psychological Services, 11*(1), 50-59. doi: 10.1037/a0035643

Resilience acts as a protective factor against alcohol misuse

Key Findings: Analysis of data from the National Post-Deployment Adjustment Study revealed that lower baseline resilience, younger age, male gender, and self-reported alcohol abuse (Alcohol Use Disorders Identification Test; AUDIT) were related to higher alcohol misuse (AUDIT) at one-year follow-up even after controlling for combat exposure, probable PTSD, and history of alcohol abuse (based on self-report question asked at baseline). Additionally, change in resilience from baseline to one-year follow-up significantly predicted alcohol abuse (AUDIT) at follow-up.

Study Type: Longitudinal web-based study with self-report assessments

Sample: US military veterans (*n* = 1,090) who served on or after September 11, 2001 and were separated from active duty, National Guard or Reserves

Implications: Results suggest that resilience serves as a protective factor against alcohol misuse over time in OEF/OIF veterans. Clinicians may find it useful to assess patients' level of resilience, and to consider using techniques that enhance resilience when treating individuals with alcohol-related problems. The military should also consider providing resilience skills training to service members in order to reduce the risk for alcohol misuse. Ongoing efforts are needed to identify factors and programs that protect against high-risk drinking in the military to improve organizational readiness and total force fitness.

Green, K.T., Beckham, J.C., Youssef N., & Elbogen E.B. (2014) Alcohol misuse and psychological resilience among U.S. Iraq and Afghanistan era veterans. *Addictive Behaviors, 39,* 406-413. doi: 10.1016/j.addbeh.2013.08.024

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health, relationship with intimate partners, relationship with friends, and job performance) as well as fewer symptoms of PTSD. Additionally, level of satisfaction with the reporting process mediated the relationship between victims' perceived responsiveness to report and post-harassment well-being. Results also found that experience with the reporting process accounted for more variance in the well-being of men versus women.

Study Type: Cross-sectional study with self-report assessments

Sample: A national sample of 1,562 former military reservists who experienced sexual harassment during their service

Implications: Results suggest that a reservist's overall satisfaction with the sexual harassment reporting process is significantly more influential on post-harassment functioning and PTSD symptoms than whether or not a report is filed. Results also suggest that men may be more strongly impacted by their experiences with the reporting process than women. Efforts should be made to train staff on effective ways to respond to reports of sexual harassment and ways to increase satisfaction with the reporting process.

Bell, M.E., Street, A.E., & Stafford J. (2014). Victims' psychosocial well-being after reporting sexual harassment in the military. *Journal of Trauma & Dissociation, 15*(2), 133-152. doi: 10.1080/15299732.2014.867563

Seven-day intensive cognitive therapy effective in reducing PTSD symptoms

Key Findings: A novel seven-day intensive version of cognitive therapy (ICT) for PTSD was well-tolerated and shown to be as effective in the reduction of symptoms as standard cognitive therapy (SCT) delivered weekly over a period of three months. ICT resulted in more rapid symptom reduction and overall outcomes that were comparable to that of SCT. ICT and SCT were significantly better in effecting change in PTSD symptoms and diagnosis, disability and general anxiety, when compared to three months of emotion-focused supportive therapy (EFST). While all three treatments were found to be better than no treatment (e.g., waitlist control) on nearly all outcome measures, ICT and SCT decreased PTSD symptoms to the non-clinical range, while EFST did not.

Study Type: Randomized controlled trial comparing seven-day ICT for PTSD, three months of weekly SCT, three months of EFST, and a 14-week waitlist condition with independent assessor ratings and self-report measures

Sample: Patients with chronic PTSD and intrusive memories linked to traumatic events in adulthood (*n* = 121)

Implications: Results support the feasibility, safety and

efficacy of ICT as a promising alternative to SCT. Utilization of ICT may be particularly useful in residential settings where treatments are generally provided over shorter time periods. ICT should also be considered when treating patients who are experiencing significant problems with concentration and memory. Additionally, these results have important implications for utilizing ICT versus SCT in terms of cost-effectiveness for organizations. More research is needed with longer follow-up assessment periods in order to determine appropriate uses and cost-effectiveness of ICT versus SCT.

Ehlers, A., Hackmann, A., Grey, N., Wild, J., Liness, S., Albert, I., Deale, A.,… Clark, D.M. (2014). A randomized controlled trial of 7-day intensive and standard weekly cognitive therapy for PTSD and emotion-focused supportive therapy. *American Journal of Psychiatry, 171,* 294-304.

Holographic reprocessing reduces psychological distress in female veterans with a low drop-out rate

Key Findings: Female veterans with psychological distress due to sexual trauma were randomized to one of three different therapies: Holographic Reprocessing (HR), Prolonged Exposure (PE) or control group (Person-Centered Supportive Therapy). HR focuses on healing one's internal working model or attachment style that may develop as a result of trauma. HR includes reprocessing the event and narrating the event in third person to bring a sense of relief and closure. Psychological outcome measures (e.g., depression, anxiety, PTSD symptoms, and posttraumatic cognitions) were compared among groups. Significant reductions in trauma-related negative thoughts and beliefs and psychological distress were found in both the HR and the PE groups compared to supportive therapy. Additionally, HR had a significantly lower drop-out rate (6%), than PE (41%) and control (35%).

Study Type: Randomized controlled treatment study

Sample: Treatment-seeking female veterans (*n* = 17) with a history of sexual trauma

Implications: Both HR and PE are experiential treatments that require activation of an unresolved issue and use imagery and conversational processing to consolidate learning. However, HR, unlike PE, does not require re-living the traumatic event in therapy. This difference between therapies may have contributed to the significantly lower drop-out rate and a higher completion rate found in HR. Future research is warranted with a larger sample size and use of clinician-administered measures to evaluate the long-term effectiveness of HR.

Katz, L.S., Douglas, S., Zaleski, K., Williams, J., Huffman, C., & Cojucar, G. (2014). Comparing holographic reprocessing and prolonged exposure for women veterans with sexual trauma: A pilot randomized trial. *Journal of Contemporary Psychotherapy, 44,* 9-19. doi: 10.1007/s10879-013-9248-6

Perceived stigma and barriers to care higher in those with a mental health diagnosis

Key Findings: Combat medics assessed 12 months after a year-long deployment were approximately twice as likely to seek mental health services and 2.62 times more likely to screen positive for depression than their non-deployed peers. Notably, no significant difference was found between the two groups on a measure of PTSD, even after controlling for demographic factors (e.g., gender, age, marital status, and rank). Additionally, those screening positive for a mental health diagnosis (depression or PTSD) were more likely to have reported barriers to care such as scheduling appointments, getting time off from work, and having non-supportive leaders.

Study Type: Longitudinal study with self-report measures

Sample: Army combat medics (*n* = 126) who completed a year-long deployment in Iraq and Army combat medics (recruits in training) who had never deployed (*n* = 265)

Implications: Combat medics play a dual role when deployed; that of a war fighter, and as first responders in the battlefield. While combat medics have the necessary health care resources and are more likely to seek treatment, stigma may prevent them from utilizing mental health services. In fact, the self-report measures used in this study may have influenced SMs' likelihood of endorsing mental health symptoms for fear of potential consequences to their careers. Therefore, improvements are needed regarding how mental health care is perceived by leadership, and in development of new treatment modalities such as telemedicine, which may reduce stigma. Future longitudinal research is warranted using clinician-administered measures.

Chapman, P.L., Elnitsky, C., Thurman, R.M., Pitts, B., Figley, C., & Unwin, B. (2014). Posttraumatic stress, depression, stigma, and barriers to care among U.S. Army healthcare providers. *Traumatology: An International Journal, 20*(1), 19-23. doi: 10.1037/h0099376

Trauma informed guilt reduction therapy improves posttraumatic symptoms

Key Findings: Combat veterans who received between four and seven sessions of a newly-developed cognitive behavioral psychotherapy called Trauma Informed Guilt Reduction (TrIGR) showed clinically noticeable reductions in guilt, PTSD symptoms, depression symptoms and guilt-related distress over the course of treatment. Additionally, changes in scores of PTSD and depression were significantly correlated with changes in trauma-related guilt severity and distress. Overall, satisfaction with TrIGR therapy was high.

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Study Type: Pilot treatment-intervention study with clinician-administered and self-report measures conducted both before and after the intervention

Sample: Post-9/11 combat veterans (*n* = 10) with guilt and distress related to a combat trauma that occurred while serving in OEF/OIF

Implications: Results suggest that interventions designed to address trauma-related guilt such as TrIGR therapy may help reduce posttraumatic psychopathology including symptoms of PTSD and depression. TrIGR therapy may be particularly useful for patients who present to treatment with higher levels of guilt-related distress. This therapy may also be appropriate for use in settings that require brief protocols. Further research is needed to replicate these results with a larger sample size and the addition of follow-up data.

Norman, S.B., Wilkens, K.C., Meyers, U.S., & Allard, C.B. (2014). Trauma informed guilt reduction therapy with combat veterans. *Cognitive and Behavioral Practice, 21,* 78-88.

Combat deployment associated with deterioration in social and emotional functioning

Key Findings: U.S. Air Force service members (SMs) completed self-report measures of mental health both at baseline (pre-deployment), and again six to nine months post-deployment (follow-up). Analysis of this data revealed significant deterioration from baseline to follow-up in SMs interpersonal adjustment and individual adjustment. When comparing baseline outcome measures to follow-up outcome measures, significant increases were found in PTSD symptoms, depression, alcohol misuse and relationship distress, independent of marital status or being in a committed relationship. At follow-up, SMs were also more likely to report deterioration of their marriage or relationship, and were more likely to report having suicidal thoughts. The negative effects of deployment on SMs were not found to remit during the first six to nine months after returning from deployment, especially when SMs reported having low levels of social support at follow-up. SMs who were found to be resilient reported more social support from family, friends, and significant others at follow-up. Additionally, specific combat events such as being ambushed, being involved in an accident and witnessing physical devastation contributed to SMs' psychological deterioration.

Study Type: Longitudinal study with self-report measures at pre-deployment and six to nine months post-deployment

Sample: U.S. Air Force SMs (*n* = 164) who completed a voluntary, year-long, high-risk mission in Iraq

Implications: Results suggest that the negative effects of combat deployment on SMs' mental health are highly correlated with the level of trauma experienced during the deployment. Results also emphasize the importance of social support in the emotional well-being of SMs, especially during the difficult readjustment period when they return from deployment. Considering that resilience was associated with increased reports of social support post-deployment, preventative efforts that increase SMs' levels of resilience are needed. Programs are also needed to lessen the impact of work-related emotional challenges during and after deployment. Such programs may include teaching coping strategies, providing support networks, and educating SMs regarding early recognition of mental health symptoms and relationship issues.

Cigrang, J.A.,Talcott, G.W., Tatum, J., Baker, M., Cassidy, D., Sonnek, S., Snyder, D.K., ... Smith Slep, A.M. (2014). Impact of combat deployment on psychological and relationship health: A longitudinal study. *Journal of Traumatic Stress. 27,* 58-65. doi: 10.1002/jts.21890

TEST YOUR KNOWLEDGE

In the article "Treatments aimed at altering attention bias may decrease PTSD symptoms," soldiers who avoided paying attention to threatening stimuli were:

A. suffering from avoidant personality disorder.

B. better adjusted than those who did not.

C. more pathological regarding physical health.

D. more pathological regarding mental health symptoms.

The answer is "D."

The Combat & Operational Stress Research Quarterly is a compilation of recent research that includes relevant findings on the etiology, course and treatment of Posttraumatic Stress Disorder (PTSD). The intent of this publication is to facilitate translational research by providing busy clinicians with up-to-date findings, with the potential to guide and inform evidence-based treatment.

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