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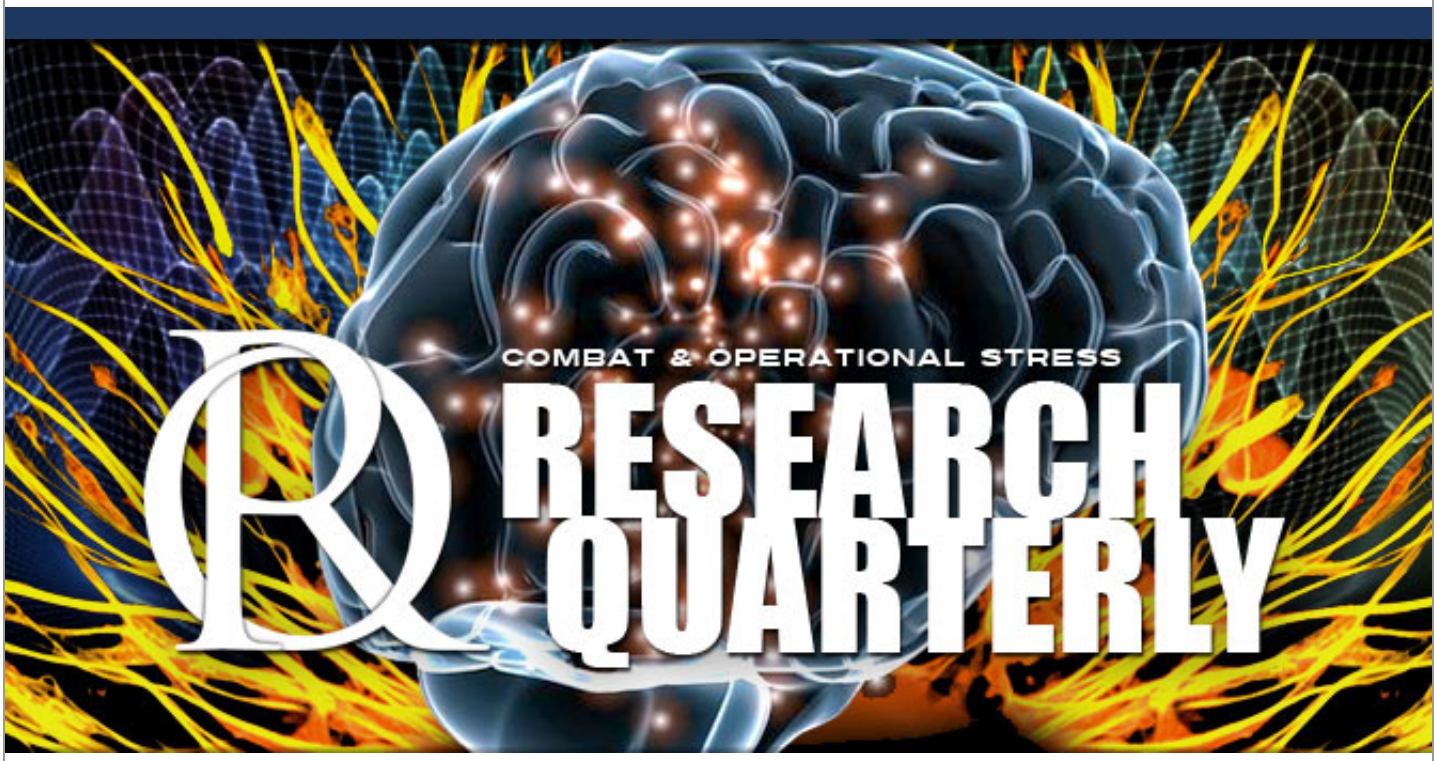

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Prospective trajectories of PTSD in deployed Marines

Key findings:

The longitudinal course of PTSD symptoms was examined in a cohort of highly combat exposed U.S Marines. Three symptom trajectories best characterized the data including a persistently low PTSD symptom trajectory (79%), a new-onset symptom trajectory (13%), and a pre-existing symptom trajectory (8%). Analysis of another cohort of the same study that experienced a lower level of combat exposure showed similar results to that of the original cohort, yet no presence of a new-onset trajectory. A recovery trajectory from more severe symptoms was not found among either sample. Notably, pre-deployment PTSD symptom levels of the original cohort were nearly equal for both the low symptom trajectory, and the new-onset trajectory. The strongest predictors of trajectory membership were peritraumatic dissociation and avoidant coping.

Study type:

Marine Resiliency Study (MRS) – Longitudinal cohort study with self-report and clinician assessments at one month pre-deployment, and one, five, and eight months post-deployment

Sample:

Infantry Marines (n = 867) deployed to Afghanistan during a time of heavy unrest

Implications:

Results suggest that U.S. Marines most commonly experience a trajectory of persistently low PTSD symptoms across the deployment cycle, regardless of level of combat exposure. Additionally, peritraumatic dissociation and avoidant coping more strongly predict PTSD course than combat exposure, suggesting that one's style of coping with trauma is more important than level of trauma exposure (stressor dose). The similarity in pre-deployment symptom levels among the low symptom and new-onset symptom trajectories

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suggests that screening for PTSD symptoms prior to deployment may not predict the development of post-deployment PTSD. Additionally, symptom change from pre-deployment to 1-month post-deployment may best indicate PTSD symptom course over the next year. Future research using structural equation modeling trees with a growth model, recursive partitioning, and multiple group growth models is needed to examine other potential trajectories of how service members adapt to combat exposure.

Nash, W.P., Boasso, A.M., Steenkamp, M.M, Larson, J.L., Lubin, R.E. & Litz, B.T. (2015). Posttraumatic stress in deployed Marines: Prospective trajectories of early adaptation. *Journal of Abnormal Psychology, 124* (1), 155-171. doi: 10.1037/abn0000020

Positive affect associated with decreases in anxiety, depression, and PTSD

Key findings:

The current study is the first to examine the relationships between positive and negative affect, and symptoms of post-concussive syndrome (PCS), posttraumatic stress disorder (PTSD), pain, anxiety, and depression in two samples of veterans with polytrauma, (one group with mTBI, and one group without mTBI). Results found that positive and negative affect are distinct constructs. Increases in positive affect were independently related to decreases in depression, anxiety, and PTSD for both groups, while increases in negative affect were associated with increases in the same variables for both groups. The magnitude of the independent relationships of positive and negative affect with all outcome measures was not impacted by the effects of mTBI diagnosis.

Study type:

Cross-sectional study with self-report measures

Sample:

Two groups of veterans recruited from a polytrauma clinic. One group with a diagnosis of mTBI (n = 70), and one group without an mTBI diagnosis (n = 24)

Implications:

Results emphasize the importance of including measures of not only negative, but also positive affect in both research and clinical practice with veterans with polytrauma. Much clinical work and research has focused on alleviating negative affect, but has neglected the impact of positive affect, and the beneficial effects of increasing positive affect. Due to the cross-sectional nature of this study, causal relationships cannot be inferred. Future longitudinal research is needed with the addition of clinician-rated measures, and assessments of state and trait affect to examine causality.

Kraal, A.Z., Waldron-Perrine, B., Pangilinan, P.H., & Bieliauskas, L.A. (2015). Affect and psychiatric symptoms in a veteran polytrauma clinic. *Rehabilitation Psychology, 60* (1), 36-42. doi: 10.1037/rep0000017

Blood-based biomarkers associated with diagnosis of PTSD in Marines

Key findings:

Analysis of blood samples collected from Marines at four different time-points (pre-deployment, and one week, three months, and six months post-deployment) found that various genes and exons were expressed differently in peripheral blood cells of individuals with PTSD compared to those without PTSD. Specifically, dysregulation in genes whose proteins manage cellular oxidative stress, immune, and inflammatory processes appeared to function as biomarkers that distinguished between individuals with and without PTSD.

Study type:

Longitudinal study with self-report and clinician-administered measures, and examination of blood samples

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Sample:

US Marines (*n* = 50), who participated in the Marine Resiliency Study (MRS); One group with PTSD (*n* = 25), and one group of non-PTSD comparison participants (*n* = 25)

Implications:

Results provide support for use of blood-based gene-expression biomarkers in diagnosis of PTSD in trauma-exposed Marines. Use of blood-based biomarkers of PTSD would allow for early detection and treatment, and may aid in identifying service members who are fit for duty. Results are limited by the small sample size and the large number of statistical corrections used due to multiple testing. Future research is needed to validate the current findings with a larger sample, in participants exposed to a variety of trauma types.

Tylee, D.S., Chandler, S.D., Nievergelt, C.M., Liu, X. Pazol, J., Woelk, C.H., Lohr, J.B....Tsuang, M.T. (2015). Blood-based gene-expression biomarkers of post-traumatic stress disorder among deployed marines: A pilot study. *Psychoneuroendocrinology, 51* , 472-494. doi: 10.1016/j.psyneuen.2014.09.024

Veterans receiving Prolonged Exposure with hydrocortisone augmentation show positive outcomes

Key findings:

Considering that results of previous research show that PTSD may be associated with glucocorticoid dysregulation, the current study examined the effectiveness of augmenting Prolonged Exposure (PE) with hydrocortisone to improve PTSD symptoms. Veterans with a Clinician-Administered PTSD Scale (CAPS) diagnosis of PTSD (CAPS scores > 49) were randomized to either PE plus 30 mg of oral hydrocortisone, or PE plus placebo. Patients received 10 manualized PE sessions, and were given either placebo or hydrocortisone 20 minutes prior to sessions three to 10 (sessions in which imaginal exposure was conducted). Significantly more participants dropped out of the placebo condition. While participants receiving hydrocortisone were more likely to benefit from PE than placebo participants, this relationship was explained by the significantly higher level of patient retention in the hydrocortisone group. Additionally, participants with higher glucocorticoid sensitivity (lowest lysozyme IC50-DEX) at baseline showed significantly greater PTSD symptom improvement with hydrocortisone augmentation. Results found that veterans with a history of more severe PTSD symptoms benefitted more from hydrocortisone augmentation than those with less severe symptoms.

Study type:

Randomized, double-blind, placebo-controlled trial with self-report and clinician-administered measures

Sample:

Veterans (*n* = 24) meeting CAPS criteria for PTSD

Implications:

Results suggest that PE augmented with hydrocortisone may decrease dropout rate for veterans. Additionally, veterans with higher glucocorticoid sensitivity at baseline, and those with a history of severe PTSD may be more likely to respond to PE with hydrocortisone augmentation. Results provide preliminary support for the use of psychopharmacological augmentation of PE. Future research should replicate the current results with a larger sample, and should examine the effects of hydrocortisone augmentation of other empirically supported PTSD treatments such as cognitive processing therapy.

Yehuda, R., Bierer, L.M., Pratchett, L.C., Lehrner, A., Koch, E.C., Van Manen, J.A., Flory, J.D....Hildebrandt.T. (2015). Cortisol augmentation of a psychological treatment for warfighters with posttraumatic stress disorder: Randomized trial showing improved treatment retention and outcome. *Psychoneuroendocrinology, 51* , 589-597. doi: 10.1016/j.psyneuen.2014.08.004

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Veterans with PTSD at higher risk for autoimmune disorders

Key findings:

Results found that the diagnosis of PTSD in veterans is associated with two-times the risk for autoimmune disorders compared to veterans with no psychiatric diagnosis, and 51% higher risk than those with psychiatric disorders other than PTSD. While PTSD-related increased risk for autoimmune disorders was similar among men and women, women were three-times more likely to be diagnosed with an autoimmune disorder overall. Additionally, history of military sexual trauma (MST) was associated with increased risk for autoimmune disorders in both men and women.

Study type:

Longitudinal retrospective database (National Patient Care Database) review with physician diagnoses

Sample:

OEF/OIF veterans (*n* = 666,269) enrolled in the VA healthcare system from October 7 2001 to March 31 2011

Implications:

Results support previous findings from smaller samples suggesting that a diagnosis of PTSD is associated with diagnosis of autoimmune disorders in veterans. The current study benefitted from a large sample size, longitudinal design, physician diagnosis rather than self-report, and assessment of gender differences. However, a causal relationship between PTSD diagnosis and autoimmune disorder diagnosis cannot be assumed. Future prospective longitudinal studies are needed to further examine causality, and to measure immune function in veterans with PTSD. Research should also examine whether early PTSD treatment decreases risk of autoimmune disorders.

O'Donovan, A., Cohen, B.E., Seal, K.H., Bertenthal, D., Margaretten, M., Nishimi, K., & Neylan, T.C. (2015). Elevated risk for autoimmune disorders in Iraq and Afghanistan veterans with posttraumatic stress disorder. *Biological Psychiatry, 77* , (365-374). doi: 10.1016/j.biopsych.2014.06.015

Among veterans with PTSD, personality traits may help predict types of comorbid disorders

Key findings:

Examination of personality traits, PTSD, and comorbid diagnoses in a non-clinical sample of OEF/OIF veterans found that the relationship between PTSD and comorbid disorders was significantly moderated by personality traits. Specifically, the relationship of PTSD with anxiety (representing an internalizing disorder), was stronger when an individual was lower in extraversion. The relationship between PTSD and alcohol abuse (representing an externalizing disorder) was stronger when level of extraversion was high, and level of conscientiousness was low (typical personality profile for extraversion). Unexpectedly, the PTSD-alcohol abuse relationship was also stronger when extraversion was low and conscientiousness was high. Contrary to hypotheses, the PTSD-aggression relationship was not moderated by either conscientiousness or extraversion.

Study type:

Cross-sectional study with self-report measures

Sample:

National Guard (NG)/Reserve(R) service members (*n* = 224) recruited during voluntary post-deployment workshops for Utah NG/R members

Implications:

Results support previous research focused on individuals with PTSD, showing that an internalizing personality is associated with internalizing comorbid disorders, while an externalizing personality is more associated with externalizing comorbid disorders. The unexpected findings that

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low extraversion and high conscientiousness moderated the PTSD-alcohol abuse relationship, and that neither conscientiousness nor extraversion mediated the PTSD-aggression relationship, suggest that alcohol abuse in the current study was better represented by self-medication or avoidance versus externalizing behavior (as expected). Therefore, future research should examine the relationship between PTSD and other substance abuse to better pinpoint externalizing behavior. Results suggest that among veterans with PTSD, personality may help predict patterns of comorbid symptoms. Future prospective research is needed to examine causality. Also, results of the current study may be difficult to generalize due to the homogeneous sample (primarily members of the Mormon church), which may have limited the results regarding alcohol usage. Future research should use a more representative sample.

Campbell, S.B., Renshaw, K.D., & Righter, B. (2015). The role of personality traits and profiles in posttrauma comorbidity. *Journal of Trauma & Dissociation, 16* (2), 197-210. doi: 10.1080/15299732.2014.985864

AUDIT, PCL-C and K10 show good to excellent diagnostic validity in Australian Defence Force population

Key findings:

The current study examined the diagnostic accuracy of the Posttraumatic Checklist, Civilian version (PCL-C), the Kessler Psychological Distress Scale (K10), and the Alcohol Use Disorders Identification Test (AUDIT) in a sample of active duty Australian Defence Force (ADF) Navy, Air Force, and Army personnel. Results found all three scales to have good to excellent diagnostic validity with optimal sensitivity and good specificity. The AUDIT and the PCL-C showed the best discriminative validity regarding presence or absence of alcohol dependence and PTSD respectively. Results supported a cutoff score of eight for the AUDIT and 29 for the PCL-C. While the K10 exhibited good diagnostic accuracy for affective disorders, its ability to predict anxiety disorders was only fair. The optimal K10 cutoff found in this study was 17.

Study type:

Cross-sectional study with self-report and clinician-administered measures

Sample:

Participants were part of the 2010 ADF Mental Health Prevalence and Well-being Study (MHPWS) (n = 24,481)

Implications:

The current study identified optimal cutoff scores on the PCL-C, AUDIT, and K10 based on their ability to accurately distinguish between ADF service members with and without a disorder. Results emphasize the importance of choosing cutoff scores based on the user's needs. Lower cutoff scores may be more effective when screening a potentially under-reporting population such as military personnel. However, such a protocol may require additional follow-up procedures to identify false positives. Future cutoff scores on these measures may require adjustment, considering that participants in the current study may have over-reported due to the anonymity of the situation. Future research should replicate this study with the inclusion of a long-term follow-up assessment to examine the ability of these measures to predict psychological referrals for ADF personnel.

Searle, A.K., Van Hooff, M., McFarlane, A.C., Davies, C.E., Fairweather-Schmidt, A.K., Hodson, S.E., Benassi, H., & Steele, N. (2015). The validity of military screening for mental health problems: Diagnostic accuracy of the PCL, K10 and AUDIT scales in an entire military population. *International Journal of Methods in Psychiatric Research, 24* (1), 32-45. doi: 10.1002/mpr.1460

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Resistance Training benefits service members, yet is associated with post-training psychological symptoms

Key findings:

Military personnel who are at high risk of capture are trained for such situations through a program called Survival, Evasion, Resistance and Escape (SERE). This program is referred to as "Resistance Training" (RT), and the individuals who lead these trainings are called "Resistance Instructors" (RI's). Considering the large amount of stress involved in SERE training, two studies were conducted to examine mental health outcomes in both RIs, and RT's. Results found that RIs exhibit overall poorer mental health compared to the general Air Force (AF) population. RIs (examined cross-sectionally) showed higher levels of anxiety, depression, alcohol misuse, and PTSD than the general AF population. However, RIs did not exhibit significant levels of burnout . While RT students (assessed one month pre-training, first and last days of training, and one month post-training) reported feeling better prepared for hostage situations after the course, they showed significant increases in PTSD symptoms shortly before the end of training, with intrusive symptoms of PTSD remaining at one-month follow-up.

Study type:

One cross-sectional study of RIs, and one longitudinal study of RT students, both with self-report measures

Sample:

RIs (n = 40) and RT students (n = 42) from the British Military

Implications:

Results suggest that RT benefits students, yet may induce PTSD symptoms. RI personnel however, appear to exhibit poorer overall psychological functioning when compared to the general AF population. Future research with a larger sample is needed to determine whether the psychological symptoms found in RIs are job-related and long lasting. Results suggest that more support may be needed for the RI population, while future longitudinal research is needed to examine whether lingering PTSD symptoms remit for RT students.

Matthew, G., Meek, D., Gibbs, T.Lt., Sawford, H., Wessely, S., & Greenberg, Surg Capt N. (2015). What are the psychological effects of delivering and receiving "high-risk" survival resistance training? *Military Medicine, 180* (2), 168-177. doi: 10.7205/MILMED-D-14-00285

Low level of testosterone associated with PTSD symptoms one year post-deployment

Key findings:

Analysis of testosterone levels in Dutch service members before and after a four-month combat deployment to Afghanistan found that plasma testosterone levels were significantly higher post-deployment compared to pre-deployment. Changes in testosterone pre-to-post-deployment were not related to self-reported PTSD symptoms post-deployment. However, pre-deployment levels of testosterone were significantly associated with PTSD symptoms one-to-two years post-deployment. Specifically, low level of testosterone pre-deployment was associated with increased risk of PTSD symptoms one-year post-deployment. Contrary to hypotheses, cortisol level was not found to moderate the testosterone-PTSD relationship.

Study type:

Longitudinal study with self-report measures and plasma samples

Sample:

Dutch military service members (n = 918) on a four-month combat-deployment to Afghanistan

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Implications:

The current results support previous research showing that increased level of testosterone is associated with exposure to challenging situations, and that elevated levels of testosterone increase approach motivation and decrease fear. Considering that pre-deployment levels of testosterone were associated with increased risk for PTSD one-year post-deployment, assessment of testosterone levels may help identify those at risk for PTSD symptoms following deployment. Future research should examine testosterone levels in patients with PTSD exposed to differing trauma types. Additionally, future research should examine the influence of mediating factors such as temperament in the relationship between testosterone and PTSD symptoms.

Reijnen, A., Geuze, E., & Vermetten, E. (2015). The effect of deployment to a combat zone on testosterone levels and the association with the development of posttraumatic stress symptoms: A longitudinal prospective Dutch military cohort study. *Psychoneuroendocrinology, 51* , 525-533. doi: 10.1016/j.psyneuen.2014.07.017

Evidence of validity of the Moral Injury Questionnaire-Military Version in two samples of veterans

Key findings:

The psychometric properties of the Moral Injury Questionnaire- Military version (MIQ-M; 20-item self-report measure) were examined among two different samples of OEF/OIF veterans; one community sample, and one clinical sample. Results found that participants in the clinical sample reported higher MIQ-M scores than the community sample. Analysis of convergent validity found that the MIQ-M was associated with life exposure to combat-related trauma, poor work performance and social adjustment, and higher levels of PTSD and depressive symptoms. Factor analysis yielded a unidimensional structure in both samples, and after controlling for deployment-related factors, demographics, and combat-exposure, MIQ-M scores were uniquely associated with all mental health outcomes.

Study type:

Cross-sectional study with retrospective self-report measures

Sample:

One community sample of OEF/OIF veterans (n =131), and one clinical sample of returning OEF/OIF veterans (n =82)

Implications:

Results provide preliminary support for the validity of the MIQ-M in both a community and clinical sample of veterans. Results suggest that the MIQ-M is measuring a unidimensional construct, and shows evidence of incremental and convergent validity with scores on measures of other mental health symptoms. Clinicians working with veterans should be aware of the significant role of MIEs and should assess for such issues at the beginning of treatment. Considering that the current study used a cross-sectional design and retrospective self-report data, future prospective research with the addition of clinician-administered measures is needed to further validate the MIQ-M in other clinical samples of veterans.

Currier, J.M., Holland, J.M., Drescher, K., & Foy, D. (2015). Initial psychometric evaluation of the moral injury questionnaire – Military version. *Clinical Psychology and Psychotherapy, 22* , 54-63. doi: 10.1002/cpp.1866

Mantram repetition improves veterans' self-efficacy for managing PTSD

Key findings:

Veterans receiving outpatient treatment at a Veteran Affairs (VA) PTSD clinic were randomized to receive either a six-week (90 minute, weekly sessions) group mantram repetition program (MRP) plus case management, or case management alone.

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The MRP group utilized mantram repetition with the intention of decreasing symptoms of rumination and hyper-arousal. Veterans receiving both case management and MRP exhibited significant increases in self-efficacy for managing PTSD symptoms from baseline to post-intervention compared to veterans receiving case management only. Self-efficacy partially mediated MRP effects on clinical outcomes, including improved overall mental health, satisfaction with physical health, and reduction in depressive symptoms. Self-efficacy fully mediated the relationship between MRP and PTSD symptoms.

Study type:

Secondary analysis from a randomized treatment outcome study with self-report assessments and clinician interviews

Sample:

Outpatient veterans (*n* = 132) diagnosed with PTSD (having had symptoms for an average of 35 years), with a history of combat or military-related traumas

Implications:

Results suggest that MRP may effectively complement other available therapeutic modalities that suffer from high dropout rates. These findings also highlight the importance of addressing self-efficacy in the treatment of PTSD. Veterans who are trained in MRP may become stronger and gain confidence in their ability to adhere to exposure therapies. Future research that utilizes validated self-efficacy scales and longer follow-up studies are needed to build on these findings.

Oman, D. & Bormann, J.E. (2015). Mantram repetition fosters self-efficacy in veterans for managing PTSD: A randomized trial. *Psychology of Religion and Spirituality, 7* (1), 34-45. doi: 10.1037/a0037994

Resilience looks different when level of combat exposure is taken into account

Key findings:

The prevalence and course of PTSD symptoms was compared in a group of deployed U.S Marines in order to examine whether the longitudinal course of resilience differed among those with varying degrees of combat exposure. Marines with higher combat exposure showed a temporary, yet significant increase in PTSD symptoms, followed by a gradual decline over the deployment cycle, while Marines with the lowest combat exposure showed consistently low PTSD symptoms over time. Among Marines presenting with high pre-deployment symptoms of PTSD, those with lower combat exposure experienced sharp decreases in PTSD symptoms over time, while those with higher levels of combat exposure decreased less sharply in PTSD symptoms.

Study type:

Marine Resiliency Study (MRS) – Longitudinal cohort study with self-report and clinician assessments at one month pre-deployment, and one, five, and eight months post-deployment

Sample:

Infantry Marines (*n* = 617) deployed to Afghanistan during a time of heavy unrest

Implications:

The current findings inform previous literature, which has suggested that most military personnel experience minimal PTSD symptoms following deployment due to high levels of resilience. However, results of this study suggest that consistently low PTSD symptoms following combat exposure does not necessarily indicate high levels of resilience, but rather low levels of combat exposure. Results suggest that after higher combat exposure, resilience may be characterized by a significant increase in symptoms that resolve over

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time rather than consistently low symptoms of PTSD, which were observed among service members with lower combat exposure in this study. Results highlight the importance of assessing combat exposure in resilience research and suggest that consistently low PTSD symptom presentation following deployment may not necessarily be indicative of resilience.

Boasso, A.M., Steenkamp, M.M, Nash, W.P., Larson, J.L., & Litz, B.T. (2015). The relationship between course of PTSD symptoms in deployed U.S Marines and degree of combat exposure. *Journal of Traumatic Stress, 28* , 73-78. doi: 10.1002/jts.21988

Evidence-based treatments delivered via interactive video cause greater reduction in PTSD symptoms than usual care among rural veterans

Key findings:

Comprehensive telemedicine PTSD treatment was compared to evidence-based treatment as usual (TAU; in-person treatment only). While both the TAU group and the telemedicine group received in-person medication and evidence-based treatments such as Cognitive Processing Therapy (CPT) and Prolonged Exposure (PE), the telemedicine group received supplemental support including symptom monitoring, education, barrier assessment and resolution, and medication adherence monitoring via teleconference. Results found that telemedicine participants were 18 times more likely to receive CPT and eight times more likely to complete eight or more sessions (minimum therapeutic dose) of CPT, than those receiving treatment as usual. The telemedicine group experienced a significantly larger reduction in PTSD and depression than treatment as usual participants. Additionally, telemedicine participants who received at least eight sessions of CPT significantly decreased in PTSD symptoms, which in turn, fully mediated the effect of the intervention. No significant difference was found between the two groups regarding number of medications prescribed or medication adherence.

Study type:

Randomized-controlled treatment study with self-report and clinician-administered measures

Sample:

Rural veterans (n = 265) receiving care for PTSD at 11 Veterans Affairs community clinics

Implications:

Results suggest that telemedicine may be an option for delivering evidence-based treatments, especially for rural patients who have limited access to care. The telemedicine collaborative care model used in this study may enhance patient engagement and promote adherence to evidence-based treatments. Future research should include more thorough measures of quality of care and CPT fidelity. Additionally, further research is needed to replicate the current results with another sample of veterans in order to improve generalizability.

Fortney J.C., Pyne, J.M., Kimbrell, T.A., Hudson, T.J., Robinson, D.E., Schneider, R., Moore, W.M.,...Schnurr, P.P. (2015). Telemedicine-based collaborative care for posttraumatic stress disorder: A randomized clinical trial. *JAMA Psychiatry,* 72(1), 59-67. doi: 10.1001/jamapsychiatry.2014.1575

Gender differences for PTSD symptoms may be dependent on the type of trauma and combat exposure

Key findings:

Gender differences in mental health symptoms were examined among a sample of active duty service members (SMs) who had experienced combat and sexual assault since and prior to joining the military. Results found that overall, women were more likely to screen positive for depression, anxiety, prescription drug misuse, and sexual abuse, while men were more likely to report

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smoking cigarettes, abusing alcohol and illicit drugs, and to report high exposure to combat. Women reported higher levels of distress across all PTSD symptoms except hypervigilance. However, among men and women with a history of sexual abuse, men reported more severe PTSD symptoms than women, whether they had been abused before or after they joined the military. Additionally, symptom severity was higher among SMs who had been abused since joining the military, compared to those who had been abused prior. Notably, once trauma type was controlled for, men and women showed similar rates of PTSD, with women only showing more distress in response to the most violent aspects of war such as severe injury and death.

Study type:

Cross-sectional study with anonymous self-report measures

Sample:

Active duty men (*n* = 17,939) and active duty women (*n* = 6,751) from the 2008 Department of Defense Survey of Health Related Behaviors

Implications:

Results suggest that the gender differences in PTSD symptoms among SMs depend not only on the type of trauma, but on the type of combat exposure and timing of sexual abuse. The finding that males reported higher levels of hypervigilance is consistent with previous research showing that males exhibit more externalizing symptoms than females. Higher level of distress in women in response to injury and death may be attributable to gender-related hormonal differences, considering previous research on the link between estrogen level and cardiac stress responses. Future research should investigate the biological mechanisms that differentiate men from women in regard to level of distress during trauma. Additionally, Future research should use a longitudinal design with the addition of clinician-administered measures.

Hourani, L., Williams, J., Bray, R., Kandel, D. (2015). Gender differences in the expression of PTSD symptoms among active duty military personnel. *Journal of Anxiety Disorders. 29* , 101–108. doi: 10.1016/j.janxdis.2014.11.007

Burnout among mental health providers practicing evidence-based treatments for PTSD

Key findings:

Analysis of mental health professionals who regularly administered evidence-based treatments (EBTs) such as Cognitive Processing Therapy (CPT) and Prolonged Exposure (PE) showed that a provider's amount of time using these treatments was not related to burnout. While about 45% of clinicians reported high levels of exhaustion and cynicism, they believed that PE and CPT were effective treatments, and they did not attribute their burnout to use of these specific therapies. Adherence to the PE manual, and older age were associated with increased sense of professional efficacy.

Study type:

Cross-sectional study with self-report electronic assessments

Sample:

Veterans Health Administration mental health providers (*n* = 138) practicing evidence-based treat¬ments for PTSD

Implications:

Burnout is a pressing issue among mental health providers. While almost half of the VA mental health clinicians were found to report high levels of exhaustion and cynicism, these symptoms of burnout do not appear to be attributable to length of time spent using EBTs. Additionally, older clinicians may experience greater professional efficacy and lower levels of cynicism due to better stress management and coping strategies that have developed with age. Future prospective research

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with the addition of clinician-administered measures is needed to evaluate whether and how provider burnout may affect treatment adherence and outcome. Additionally, future research should examine the differential effects of using EBTs, versus working with a trauma population on provider burnout.

Garcia, H.A., McGeary, C.A., Finley, E.P., Ketchum, N.S., McGeary, D.D., Peterson, A.L. (2015). Evidence-based treatments for PTSD and VHA provider burnout: The impact of Cognitive Processing and Prolonged Exposure therapies. *Traumatology, 21* (1), 7-13. doi: 10.1037/trm0000014

Self-forgiveness differentiates between suicidal ideation and suicide attempts

Key findings:

An examination of self-forgiveness, PTSD, suicidal ideation, and suicide attempts among military personnel and veterans revealed that greater self-forgiveness was associated with lower PTSD regardless of level of trauma exposure. Self-forgiveness was lower among those with a history of suicidal ideation and suicide attempts. Additionally, self-forgiveness differentiated participants who had thought about suicide from those who had attempted suicide. However, self-forgiveness did not moderate the relationship of PTSD with suicidal ideation and suicide attempts.

Study type:

Cross-sectional study utilizing an anonymous, web-based survey with self-report measures.

Sample:

Military personnel and veterans (n = 474) who were enrolled in college classes

Implications:

Results are preliminary and suggest that self-forgiveness may be useful for understanding which individuals are at heightened risk for transitioning from suicidal ideation to suicide attempts. Resiliency and suicide prevention efforts may benefit from incorporating exercises that teach self-forgiveness. Additionally, clinicians who are working with PTSD patients and patients at risk for suicide should consider utilizing treatments and interventions that facilitate self-forgiveness.

Bryan, A.O., Theriault, J.L., & Bryan, C.J. (2015). Self-forgiveness, posttraumatic stress, and suicide attempts among military personnel and veterans. *Traumatology, 21* (1), 40-46. doi: 10.1037/trm0000017

Abnormal brain diffusivity of the white matter differentiates PTSD from mTBI

Key findings:

Post-concussive symptoms (PCS) are associated with both mild Traumatic brain injury (mTBI) and Posttraumatic disorder (PTSD), complicating diagnoses. The current study used diffuse tensor imaging to examine biomarkers such as white matter integrity (WMI) in order to differentiate mTBI from PTSD. Abnormal white matter mean diffusivity (MD) was associated with mTBI, PCS, and number of deployments. PCS was related to mTBI as well as personality traits such as high stress reaction, high level of traditionalism, and low level of control. Veterans with abnormal MD were at almost four-times greater risk for PTSD, PCS, alcohol dependence, and low level of social closeness. Although both mTBI and PTSD contributed independently to PCS, the contribution of PTSD was secondary to personality traits.

Study type:

Cross-sectional study with self-report, clinician-rated assessments, and MRI

Sample:

OEF/OIF veterans (n = 125) with a history of combat and traumatic experiences

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Implications:

Results suggest that both mTBI and PTSD share overlapping chronic PCS symptoms, and that personality and neuroimaging measures (WMI) help differentiate mTBI from PTSD. Considering that this study utilized a non-treatment seeking sample of veterans with a variety of traumatic experiences, results are likely generalizable to the larger veteran population. Future research with a larger sample is needed to better understand the complex nature of the relationships among symptoms of PCS, mTBI, and PTSD.

Davenport, N.D., Lim, K.O., & Sponheim, S.R. (2015). Personality and neuroimaging measures differentiate PTSD from m-TBI in veterans. *Brain Imaging and Behavior.* Advance online publication. doi: 10.1007/s11682-015-9371-y

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