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Cognitive Processing Therapy and Prolonged Exposure improve psychosocial functioning over extended periods of time

Key Findings: Participants in both treatment conditions (Cognitive Processing Therapy [CPT], or Prolonged Exposure [PE]) experienced significant improvements in family unit adjustment, social/leisure adjustment, economic adjustment, and overall functioning post-treatment. Lower income at baseline was associated with poorer social/leisure adjustment, overall functioning, and economic adjustment over time. Participants with poorer overall functioning post-treatment were significantly higher in level of depressive symptoms nine months later. Additionally, higher level of depressive symptoms at nine months was associated with significantly poorer level of overall functioning five to ten years post-treatment.

Study Type: Longitudinal study with self-report and clinician-rating measures

Sample: Female rape victims ($n = 154$) receiving CPT or PE assessed at pre-treatment, post-treatment, nine months, and five- to ten-years post-treatment

Implications: Results suggest that both exposure-based and cognitive treatments for PTSD improve functioning over extended periods of time. Additionally, in order to thoroughly

assess the impact of PTSD symptoms, standard evaluations should include measures of psychosocial functioning. Individuals with lower income at intake may be at increased risk for poor overall adjustment and functioning. Additionally, clinicians should note that those with poor overall functioning post-treatment may be at increased risk for depression in the future. Results suggest that psychosocial functioning should be a primary outcome in future research. While the current study measured psychosocial functioning with a self-report instrument, future research should include a clinician-administered measure of this construct, and should examine potential mediators and moderators of the relationship between PTSD and functional impairment.

Wachen, J.S., Jimenez, S., Smith, K., & Resick, P.A. (2014). Long-term functional outcomes of women receiving cognitive processing therapy and prolonged exposure. *Psychological Trauma: Theory, Research, Practice, and Policy*, 6(S1), S58-S65. doi: 10.1037/a0035741

Social support acts as less of a buffer when PTSD diagnosis exists

Key Findings: Examination of post-deployment mental

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health of OEF/OIF veterans showed that the strength of the relationship between psychological distress and social support was not significantly different between non-mental health control participants and those with one or more non-PTSD mental health diagnoses. However, the relationship between psychological distress and social support was significantly decreased by the presence of PTSD, in both those with and those without comorbid disorders.

Study Type: Secondary analysis of cross-sectional data with self-report measures and structured clinical interview

Sample: OEF/OIF veterans ($n = 1825$) were separated into four diagnostic groups including those with no mental health diagnosis ($n = 867$), mental health diagnosis other than PTSD ($n = 389$), PTSD only ($n = 172$), and PTSD plus comorbid disorder(s) ($n = 397$)

Implications: Results suggest that the buffering effect of social support on psychological distress is decreased when an individual has a diagnosis of PTSD. Additionally, the role of comorbid disorders with PTSD may not be as important as previously believed, when examining the role of social support in PTSD. Future prospective research is needed to examine whether PTSD treatments that effectively decrease symptoms lead to increased ability to benefit from social support.

Brancu, M., Thompson, N. L., Beckham, J.C., Green, K.T., Calhoun, P.S., Elbogen, E.B., Robbins, A.T., Fairbank, J.A., VA Mid-Atlantic MIRECC Registry Workgroup, & Wagner, H.R. (2014). The impact of social support on psychological distress for U.S. Afghanistan/Iraq era veterans with PTSD and other psychiatric diagnoses. *Psychiatry Research*, 217(1-2), 86-92. doi: 10.1016/j.psychres.2014.02.025

Internet-administered PTSD treatment with and without exposure elements effective in symptom reduction

Key Findings: Individuals with PTSD were randomized to one of two treatment groups: those who received internet-administered exposure therapy (EXP) plus cognitive restructuring (CR), and those who received internet-administered CR therapy with no EXP. The internet-administered therapy involved contact with a therapist via telephone for completion of clinician-rated measures, and then weekly contact via telephone or email to answer questions about the program or about symptoms. Both groups (EXP and non-EXP) significantly decreased in PTSD symptoms, with 34-44% of all participants exhibiting diagnostic remission at three-month follow-up. No significant differences were found between groups on any outcome measures at any time-point.

Study Type: Longitudinal randomized controlled trial, with self-report and clinician-administered assessments conducted

at baseline, post-treatment, and three-month follow-up

Sample: Individuals with self-reported PTSD as defined by a score greater than 32 on the Impact of Events Scale-Revised Version (IES-R) who were recruited from a research website and randomized to eight weeks of a non-exposure CR treatment ($n = 66$), or a CR treatment plus EXP components ($n = 59$)

Implications: Results suggest that trauma-focused, internet-delivered cognitive treatment for PTSD is safe and effective in decreasing symptoms, regardless of whether the treatment includes exposure components. Future research should examine the effectiveness of these two therapies while ensuring that exposure participants receive an adequate therapeutic dose of exposure.

Spence, J., Titov, N., Johnston, L., Jones, M.P., Dear, B.F., & Solley, K. (2014). Internet-based trauma-focused cognitive behavioural therapy for PTSD with and without exposure components: A randomised controlled trial. *Journal of Affective Disorders*, 162, 73-80. doi: 10.1016/j.jad.2014.03.009

Typologies of PTSD related to type of trauma and resulting symptoms

Key Findings: The predominant typologies of PTSD (e.g., re-experiencing, avoidance, numbing, dysphoric arousal, and anxious arousal symptoms) were examined in a sample of adults. Results suggest that three typologies are predominant: Anxious/Re-experiencing (32.2%), Dysphoric (32.8%), and High Symptom (35%). The Anxious-Re-experiencing and High Symptom classes were more likely to report physical assault, sexual assault, and military combat as their most traumatic events, showed earlier age of onset and longer PTSD duration, and were more likely to be nicotine dependent, have borderline personality disorder, to have attempted suicide, and have poorer physical health-related quality of life than their dysphoric counterparts. The High Symptom class was at increased likelihood for all disorders, suicide attempts, and had the poorest health-related quality of life.

Study Type: Cross-sectional retrospective analysis of data from the second wave of the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC) with self-report and clinician-administered measures

Sample: Adults in the U.S. with PTSD ($n = 2463$)

Implications: Results suggest that among the general U.S. population with PTSD, symptoms are characterized by three predominant typologies which are individually linked to trauma and clinical symptoms. Results emphasize the importance of personalizing assessment and treatment of PTSD in this population. Future research is needed to examine typologies of

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PTSD using DSM-5 criteria, as the current clinician-administered measures were based on DSM-IV.

Pietrzak, R.H., el-Gabalawy, R., Tsai, J., Sareen, J., Neumeister, A., Southwick, S.M., (2014). Typologies of posttraumatic stress disorder in the U.S. adult population. *Journal of Affective Disorders*, 162, 102-106. doi: 10.1016/j.jad.2014.03.024

Sleep disturbance mediates relationship between rumination and PTSD and depression

Key Findings: Analysis of mental health symptoms in OEF/OIF veterans showed that rumination (as measured by the 12-item rumination subscale of the Rumination and Reflection Questionnaire), was associated with poorer functioning on measures of sleep disturbance, PTSD symptoms and depressive symptoms. Rumination was additionally found to predict PTSD and depressive symptoms. Rumination predicted global sleep disturbance, which in turn predicted increased depression and PTSD symptoms. Furthermore, overall sleep difficulties mediated the positive relationship between rumination and PTSD and depressive symptoms.

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

Sample: OEF/OIF veterans ($n = 89$) with deployment-related health concerns who were recruited from the VA New Jersey War Related Illness and Injury Study Center (NJWRIISC).

Implications: Results further support the negative effects of rumination on PTSD symptoms, and extend the literature by showing that global sleep disturbance mediates this relationship. Treatments focused on decreasing both rumination and sleep difficulties may be ideal for OEF/OIF veterans with PTSD and/or depression. Future prospective research should examine the specific types of rumination, and determine whether one type of rumination is more common and/or problematic for OIF/OEF veterans.

Borders, A., Rothman, D.J., & McAndrew, L.M. (2014). Sleep problems may mediate associations between rumination and PTSD and depressive symptoms among OIF/OEF veterans. *Psychological Trauma: Theory, Research, Practice, and Policy*, Advance online publication.

PCL-5 shows stable factor structure over time and supports four factor model of PTSD

Key Findings: Analysis of data on the PCL-5 at baseline, 8-week post-treatment, and 3-month follow-up showed that

while participant scores decreased due to treatment delivered online, the factor structure of the PCL-5 was stable over time. Results support the four factor model of PTSD, with all factors (e.g., intrusions, avoidance, negative alterations of cognitions and mood, and hyperarousal), showing adequate fit.

Study Type: Longitudinal study with self-report measures

Sample: Combat-exposed OEF/OIF veterans who were enrolled in an online intervention for combat stress and problem drinking ($n = 507$)

Implications: This study is the first to show the stability of the PCL-5 over time, suggesting that this measure may be useful and valid in future research. Results suggest that the PCL-5 can be used reliably in longitudinal studies of OEF/OIF/OND veterans who exhibit problem-drinking, to assess change in symptom severity. Future research should use a more diverse sample, as this sample was predominantly white males.

Keane, T.M., Rubin, A., Lachowicz, M., Brief, D., Enggasser, J.L., Roy, M., Hermos, J.,...Rosenbloom, D. Temporal stability of DSM-5 posttraumatic stress disorder criteria in a problem-drinking sample. (2014). *Psychological Assessment*. Advance online publication. doi: 10.1037/a0037133

PTSD associated with decreased brain functional connectivity in higher frequency bands

Key Findings: EEG analysis of PTSD patients and age- and gender-matched controls revealed that participants with PTSD exhibited alterations of the resting-state brain functional connectivity network. Specifically, those with PTSD and depression showed decreased functional connectivity regarding connection strength and efficiency, which was also associated with severity of PTSD symptoms. The lower functional connectivity found in PTSD participants only appeared in the higher frequency bands (gamma and beta), which are associated with higher cognitive function.

Study Type: Cross-sectional study with self-report assessments and 62-channel EEG measurements

Sample: PTSD patients recruited from the Psychiatry Department of Inje University Ilsan Paik Hospital ($n = 33$) and age- and gender-matched healthy controls ($n = 30$)

Implications: Results suggest that resting-state functional connectivity may act as a useful biomarker for PTSD. Additionally, individuals with PTSD may exhibit difficulties with cognitive function due to their decreased brain functional connectivity in the higher frequency bands. Results lend support to the hypothesis that while PTSD patients experience hyper-excitability of the frontal lobe, they are unable to control the subcortical limbic areas due to low functional connectivity, and therefore experience PTSD symptoms. Future research

should control for the effect of medications such as antidepressants, and should examine functional connectivity at the sub-cortical level.

Lee, S.H., Yoon, S., Kim, J.I., Jin, S.H., & Chung, C.K. (2014). Functional connectivity of resting state EEG and symptom severity in patients with posttraumatic stress disorder. *Progress in Neuro-Psychopharmacology & Biological Psychiatry*, 51, 51-57. doi: 10.1016/j.pnpbp.2014.01.008

Atypical antipsychotics effective in decreasing PTSD symptoms without significant side-effects

Key Findings: Meta-analysis of Clinician-Administered PTSD Scale (CAPS) scores from randomized clinical trials (RCTs) of atypical antipsychotics (AAs; risperidone and olanzapine) found that AAs were more effective in treating PTSD than placebo. AAs were found to be effective for general PTSD symptoms as well as PTSD symptom clusters, especially on CAPS intrusion and hyperarousal scores. No significant difference was found between AA and placebo groups on acceptability (e.g., side-effects).

Study Type: Meta-analysis of CAPS scores from placebo-controlled, double-blind, RCTs of AAs for the treatment of PTSD in both civilian and military samples

Sample: Research studies that measured PTSD via CAPS scores, and conducted placebo-controlled, double-blind, RCTs of AAs to treat PTSD ($n = 8$ RCTs)

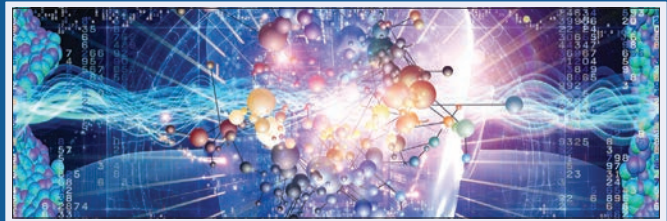
Implications: Results suggest that the use of AAs in the treatment of PTSD may be efficacious, and that side-effects may not be a significant issue when small doses of AAs are used. Caution should be taken with regard to generalization of these results due to the small number of trials included in the meta-analysis. Future RCTs are needed to clarify the value of AAs in the treatment of PTSD, and should include a larger variety of AAs.

Liu, X.H., Xie, X.H., Wang, K.Y., & Cui, H. Efficacy and acceptability of atypical antipsychotics for the treatment of posttraumatic stress disorder: A meta-analysis of randomized, double-blind, placebo-controlled clinical trials. (2014). *Psychiatry Research*, 219, 543-549. doi: 10.1016/j.psychres.2014.05.027

Patients with comorbid PTSD and Major Depressive Disorder exhibit verbal learning deficits

Key Findings: Analysis of scores on tests of verbal learning, memory, and executive function found that patients with

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D-cycloserine augmentation of exposure therapy effective for PTSD biomarkers

Key Findings: PTSD symptoms improved significantly among all conditions (six sessions of virtual reality exposure therapy augmented by either D-cycloserine, alprazolam, or placebo). Additionally, treatment gains were maintained at three-, six-, and twelve-month follow-up. No differences in symptoms were found between the D-cycloserine and placebo groups at any time-point. The alprazolam group differed significantly from the placebo group on the Clinician-Administered PTSD Scale (CAPS) at post-treatment and PTSD diagnosis at the three-month follow-up. Specifically, the alprazolam group showed a higher rate of PTSD than the placebo group at both time-points. At post-treatment, the D-cycloserine group showed the lowest reactivity of cortisol and the lowest startle response during virtual reality scenes.

Study Type: Double-blind, placebo-controlled randomized clinical trial of virtual reality exposure treatment augmented by either D-cycloserine (50mg), alprazolam (0.25 mg), or placebo

Sample: Iraq and Afghanistan war veterans ($n = 156$)

Implications: Results suggest that alprazolam impairs recovery from PTSD while D-cycloserine augmentation enhances virtual reality treatment outcome in patients who demonstrate within-session learning. Results support the efficacy of virtual reality therapy for PTSD with only six sessions, and the efficacy of D-cycloserine augmentation on improvements in salivary cortisol level and startle response. Providers should be cautious when prescribing benzodiazepines such as alprazolam for PTSD patients undergoing exposure therapy, as these medications may reduce treatment efficacy. While D-cycloserine augmentation affects biological markers associated with PTSD, results do not suggest that this medication improves symptom response above and beyond placebo. Future research is needed to replicate these results.

Rothbaum, B.O., Price, M., Jovanovic, T., Norrholm, S.D., Gerardi, M., Dunlop, B., Davis, M., ...Ressler, K.J. (2014). A randomized, double-blind evaluation of D-Cycloserine or alprazolam combined with virtual reality exposure therapy for posttraumatic stress disorder in Iraq and Afghanistan war veterans. *The American Journal of Psychiatry*, 171(6), 640-648.



Soldiers diagnosed with PTSD and comorbid Major Depressive Disorder three times more likely to report suicidal ideation

Key Findings: Analysis of data from the Department of Defense Survey of Health Related Behaviors (DoD HRB) revealed that six percent of Army soldiers reported having seriously considered and/or attempted suicide within the past year. Both Major Depressive Disorder (MDD) and PTSD were independently associated with past-year suicidality. Additionally, soldiers diagnosed with both MDD and PTSD were three times more likely to experience suicidality during the past year compared to those with only one of these diagnoses.

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

Sample: Active duty Army soldiers who completed the DoD HRB ($n = 5927$)

Implications: Considering the results of the current study, outreach and screening efforts are needed to identify and treat active-duty service members with MDD, PTSD, and especially those with both. Such efforts may help with early detection of suicidal ideation. Future research should include clinician-rating measures and a longitudinal design to examine the long-term trajectory of active-duty soldiers with MDD, PTSD, and suicidal ideation.

Ramsawh, H.J., Fullerton, C.S., Herberman Mash, Holly B., Ng, T.H.H., Kessler, R.C. Stein, M.B., & Ursano, R.J. (2014). Risk for suicidal behaviors associated with PTSD, depression, and their comorbidity in the U.S. Army. *Journal of Affective Disorders*, 161, 116-122. doi: 10.1016/j.jad.2014.03.016

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comorbid Major Depressive disorder (MDD) and PTSD showed the largest deficit in verbal learning when compared to non-patients and patients with MDD only. However, all three groups (PTSD + MDD; MDD only; Non-patients) performed equally well on measures of working memory, executive function, and attention, with scores in the normal range.

Study Type: Cross-sectional study with clinician-administered tests of verbal learning, memory, and executive function

Sample: Medication-free patients with PTSD and MDD ($n = 25$), medication-free patients with MDD only (equally severe) ($n = 148$) and a group of non-patients ($n = 96$)

Implications: Results suggest that PTSD contributes to deficits in verbal learning above and beyond the effect of depression alone. The normal-range scores on measures of working memory, executive function, and attention were unexpected with regard to previous literature, and may be attributable to the estimated high intelligence of the participants (scores greater than one standard deviation above the population norm). Additionally, group size in the current study was unbalanced, and future research would benefit from equal-sized groups with an overall larger sample. Future research should examine the relationship between different types of trauma and cognitive deficits.

Scheiner, D.L., Keilp, J.M., Rivera, M., Burke, A.K., Oquendo, M.A., & Mann, J.J. (2014). Verbal learning deficits in posttraumatic stress disorder and depression. *Journal of Traumatic Stress*, 27(3), 291-298. doi: 10.1002/jts.21921

PTSD treatments simultaneously improve physical health

Key Findings: Analysis of treatment gains in an intent-to-treat (ITT) sample of female participants revealed a significant relationship between changes in PTSD symptoms and changes in physical health. Specifically, changes in PTSD symptoms accounted for 34% of the variance in physical health symptom frequency. This relationship persisted throughout six weeks of PTSD treatment (CPT and constituents), and through six-month follow-up. There was no evidence to suggest that changes in health behaviors (e.g., smoking, exercise, etc.) accounted for this relationship.

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

Sample: Women from the St. Louis metropolitan area with a history of childhood sexual or physical abuse who met full diagnostic criteria for PTSD and were seeking treatment ($n = 150$)

Implications: Similar to previous research findings, the current results suggest that PTSD treatments have broader

benefits than just the reduction of PTSD symptoms. PTSD treatments may improve one's physical health symptoms even when treatment does not directly focus on physical health. Results lend support for the allostatic load theory, suggesting that accumulation of psychobiological stressors leads to dysregulation of various physiological systems. Future research should assess for severity of physical health distress rather than the frequency of physical symptoms.

Shipherd, J.C., Clum, G., Suvak, M., & Resick, P.A. (2014). Treatment-related reductions in PTSD and changes in physical health symptoms in women. *Journal of Behavioral Medicine, 37*(3), 423-433. doi: 10.1007/s10865-013-9500-2

Prevalence of PTSD in drone operators lower than that of service members returning from deployment

Key Findings: This study was a preliminary analysis of rates and severity of PTSD symptoms in drone (remotely piloted aircraft) operators. Results showed that 4.3% of drone operators exhibited clinically significant PTSD symptoms (DSM-IV), while less than 2% scored 50 or above on the PCL-M. This rate of prevalence is significantly lower than that of service members returning from deployment (10-18%). However, the prevalence of PTSD symptoms found in the current sample was still higher than that found in U.S. Air Force electronic medical records. Drone operators working more than 25 months at one station, or working greater than 50 hours per week, were more than twice as likely to meet DSM-IV PTSD criteria. Regardless of PTSD diagnosis, difficulty with sleep was the most commonly endorsed symptom among drone operators.

Study Type: Web-based cross-sectional survey with self-report measures

Sample: U.S. Air Force drone operators ($n = 1084$)

Implications: While lower rates of PTSD were found among drone operators compared to that of service members returning from deployment, there is still a small percentage of drone operators who are experiencing symptoms but not reporting them or receiving treatment. Anti-stigma efforts may help service members to feel comfortable reporting their symptoms in order to receive the treatment they need. Sleep disturbance is another concerning issue, as it may result in attentional, reasoning, and decision-making deficits; factors that are critical to performance in high-stress military operations. Future research is needed to replicate these findings with a larger sample, using clinician-administered measures and DSM-5 PTSD criteria.

Chappelle, W., Goodman, T., Reardon, L., Thompson, W. (2014). An analysis of posttraumatic stress symptoms in United States Air Force drone operators. *Journal of Anxiety Disorders, 28*(5), 480-487. doi: 10.1016/j.janxdis.2014.05.003

Higher post-deployment social support associated with lower post-deployment PTSD severity in OIF soldiers

Key Findings: Analysis of unit support and social support among Army and National Guard soldiers revealed that pre-deployment unit support was not significantly related to post-deployment PTSD severity in either group of soldiers. However, higher unit support during deployment was significantly associated with lower post-deployment PTSD severity among active-duty soldiers, but not among National Guard soldiers. Higher post-deployment social support was associated with lower post-deployment PTSD severity among both groups of soldiers.

Study Type: Longitudinal study with self-report measures

Sample: U.S. Army ($n = 835$) and National Guard ($n = 173$) soldiers who were deployed to Iraq in support of OIF

Implications: Results suggest that post-deployment social support acts as a significant buffer against post-deployment PTSD symptoms in both active-duty and reserve soldiers, while unit support has limited effects. Results suggest that unit support may be less impactful on PTSD to National Guard soldiers than to active-duty soldiers. The current findings lend support to the growing literature on the importance of perceived social support in the primary prevention of PTSD symptoms. Future efforts should be aimed at improving levels of perceived social support for all service members.

Han, S.C., Castro, F., Lee, L.O., Charney, M.E., Marx, B.P., Brailey, K., Proctor, S.P., & Vasterling, J.J. (2014). Military unit support, postdeployment social support, and PTSD symptoms among active duty and National Guard soldiers deployed to Iraq. *Journal of Anxiety Disorders, 28*(5), 446-453. doi: 10.1016/j.janxdis.2014.04.004

Intermittent Explosive Disorder may be more prevalent in trauma-exposed veterans than previously believed

Key Findings: Twenty-four percent of trauma-exposed veterans met criteria for a lifetime Intermittent Explosive Disorder (IED) diagnosis. Additionally, those with an IED diagnosis were more likely to meet lifetime criteria for PTSD compared to those without IED. Lifetime severity of PTSD was also found to significantly predict IED severity after controlling for trauma exposure, age, and combat. Notably, the prevalence of IED in the current sample was higher than that found in DSM-IV epidemiological surveys (1.2-9%).

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

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Sample: Trauma-exposed male veterans ($n = 232$) who were part of a larger couples study at a VA medical center and were previously exposed to a trauma, meeting DSM-IV criterion A

Implications: Results suggest that IED may be more prevalent in trauma-exposed male veterans than was previously believed. The relationship between IED and PTSD may signify underlying shared tendencies toward externalizing disorders and emotional distress. Future research is needed to examine whether the current results can be replicated in independent samples. Additionally, it is important to assess service members with trauma exposure for IED in order to ensure early treatment.

Reardon, A.F., Hein, C.L., Wolf, E.J., Prince, L.B., Ryabchenko, K., & Miller, M.W. (2014). Intermittent explosive disorder: Associations with PTSD and other Axis I disorders in a US military veteran sample. *Journal of Anxiety Disorders, 28*(5), 488-494. doi: 10.1016/j.janxdis.2014.05.001

Ketamine infusion rapidly reduces symptom severity in patients with chronic PTSD

Key Findings: Patients with chronic PTSD were randomized into two different groups. One group was given an infusion of ketamine, while the other group was administered midazolam. Participants who received an infusion of ketamine were found to have a significantly more rapid reduction of PTSD symptom severity compared to participants who received midazolam, 24 hours post-infusion. Participants who received ketamine were also more likely to experience reduction in comorbid depression and show overall clinical improvement. Reductions in PTSD symptoms were frequently maintained past 24 hours. Specifically, seven patients who received ketamine, compared to one patient who received midazolam, maintained significantly reduced symptoms two weeks post-treatment. Ketamine infusions were generally well tolerated.

Study Type: Randomized clinical trial with intravenous infusion of ketamine hydrochloride (0.5mg/kg) or midazolam (0.045 mg/kg)

Sample: Patients with chronic PTSD due to various types of trauma ($n = 41$)

Implications: Results lend support for the use of ketamine in rapidly reducing PTSD and depression symptoms in patients with chronic PTSD. Additionally, administration of ketamine anesthesia to those with a history of trauma who are undergoing surgery may decrease their risk of developing PTSD. Future research is needed to replicate these results, and to examine the long-term safety and efficacy of ketamine administration.

Feder, A., Parides, M.K., Murrrough, J.W., Perez, A.M., Morgan, J.E., Saxena,

S., Kirkwood, K.,...Charney, D.S. (2014). Efficacy of intravenous ketamine for treatment of chronic posttraumatic stress disorder. *JAMA Psychiatry, 71*(6), 681-688. doi: 10.1001/jamapsychiatry.2014.62

Social support acts as a protective factor against suicidal ideation in veterans with comorbid PTSD and depression

Key Findings: In a sample of OEF/OIF veterans, 42% met full criteria for current military-related PTSD, while 30% met full criteria for current Major Depressive Disorder (MDD). Among those meeting criteria for PTSD, 57% exhibited comorbid MDD, while 80% of those with MDD also met criteria for PTSD. PTSD-depression symptoms were not associated with suicidal ideation (SI) when post-deployment level of social support was high. However, when post-deployment social support was low, higher PTSD-depression symptoms were associated with higher rates of SI.

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

Sample: Operations Enduring and Iraqi Freedom (OEF/OIF) veterans ($n = 145$)

Implications: Results suggest that high rates of PTSD, MDD, and SI exist in the OEF/OIF veteran population, with many exhibiting comorbid PTSD and MDD. Results also emphasize the importance of social support as a protective factor against SI in veterans with PTSD-depression symptoms, and should be regularly assessed in this population. Future prospective research is needed to examine the effects of PTSD, depression, and social support on suicidal risk, and whether interventions focused on increasing social support actually decrease one's risk for suicide.

DeBeer, B.B., Kimbrel, N.A., Meyer, E.C., Gulliver, S.B., & Morissette, S.B., (2014). Combined PTSD and depressive symptoms interact with post-deployment social support to predict suicidal ideation in Operation Enduring Freedom and Operation Iraqi Freedom veterans. *Psychiatry Research, 216*(3), 357-362. doi: 10.1016/j.psychres.2014.02.010

Forgiveness decreases feelings of anger and negative affect and improves symptoms of PTSD in veterans

Key Findings: Path analysis revealed that both negative affect and anger fully mediated the relationship between forgiveness and PTSD with comorbid depression. Specifically, there was a significant negative correlation between forgiveness and anger, which in turn was associated with levels of PTSD and comorbid depression. Additionally, a significant negative

correlation was found between forgiveness and negative affect, which in turn was associated with levels of PTSD and comorbid depression.

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

Sample: Turkish veterans who had been exposed to and injured in combat due to terrorism, during their mandatory military service ($n = 247$)

Implications: Results suggest that finding a way to decrease anger and negative affect, such as with forgiveness, may help decrease PTSD and comorbid depression symptoms in veterans. Future research is needed to examine how PTSD, anger, negative affect, and forgiveness act together as constructs among traumatized individuals. Considering that the current study assessed veterans two years post-combat, future research should examine these variables in veterans with more recent trauma to determine whether the same mediational relationships exist immediately post-trauma.

Karairmak, Ö., & Güloğlu, B. (2014). Forgiveness and PTSD among veterans: The mediating role of anger and negative affect. *Psychiatry Research, 219*, 536-542. doi: 10.1016/j.psychres.2014.05.024

ICD-11 classification of complex PTSD empirically supported

Key Findings: The International Classification of Diseases, 11th version (ICD-11) proposes two related disorders that result from trauma exposure; PTSD, and complex PTSD (CPTSD). A diagnosis of CPTSD is indicated when in addition to PTSD symptoms, the individual also reports symptoms in three domains including affective dysregulation, negative self-concept, and interpersonal problems. Latent class analysis was used to examine the ICD-11 conceptualization of PTSD and CPTSD, and results indicated that three different classes of PTSD were the best fit. Classes included PTSD only, CPTSD, and low PTSD/CPTSD. The three classes differed from each other on measures of anxiety, depression, sleep disturbance, dissociation, interpersonal sensitivity, somatization, and aggression. Among the three groups, the CPTSD group consistently scored the highest on all measures, with the PTSD only group scoring in the middle, and the low PTSD/CPTSD group scoring the lowest.

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

Sample: Individuals from Denmark with exposure to various types of trauma ($n = 1251$)

Implications: Results support the ICD-11 diagnostic classification of CPTSD, and show that it is related to various other psychological problems. Results suggest that trauma exposure

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Lower resilience and higher perceived stress associated with development of PTSD symptoms

Key Findings: Analysis of traumatic stress and PTSD symptoms in Korean firefighters revealed that perceived stress mediated the relationship between traumatic stress and development of PTSD. The number of traumatic events a firefighter experienced was positively associated with level of perceived stress. Perceived stress was then positively associated with PTSD symptoms. When level of traumatic stress was held constant, firefighters with high resilience were more protected from the impact of traumatic stress and from PTSD symptoms compared to those who were lower in level of resilience.

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

Sample: Korean firefighters from four different cities ($n = 552$)

Implications: Results suggest that it is perceived stress rather than objective level of traumatic stress that leads to development of PTSD symptoms. Additionally, results provide support for the buffering effect of resilience against the development of PTSD symptoms. Treatment and prevention efforts should focus on identifying those low in resilience and high in perceived stress, as these individuals appear to be at higher risk for developing PTSD symptoms following trauma. Future research should examine other potential mediators of the relationship between traumatic events and PTSD symptoms to better understand the mechanisms associated with symptom development.

Lee, J.S., Ahn, Y.S., Jeong, K.S., Chae, J.H., & Choi, K.S. (2014). Resilience buffers the impact of traumatic events on the development of PTSD symptoms in firefighters. *Journal of Affective Disorders, 162*, 128-133. doi: 10.1016/j.jad.2014.02.031



Sleep difficulties present in majority of OEF/OIF service members and veterans with and without psychological disorders

Key Findings: Among OEF/OIF service members and veterans, sleep difficulties were common, with 89% of participants classified as “poor sleepers.” Participants reported that difficulties with sleep were due to symptoms of hypervigilance, hyperarousal, nightmares, pain, frequent awakenings, and excessive movements during sleep. Sleep difficulties were most commonly found among those with lower levels of education, lower rank, higher level of combat exposure, and higher levels of anxiety, depression, and PTSD symptoms.

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

Sample: OEF/OIF service members and veterans (*n* = 375)

Implications: Results suggest that a majority of service members and veterans experience sleep difficulties, whether or not they are experiencing symptoms of psychiatric illness. Therefore, routine screening and increased training in sleep interventions are needed in this population to improve overall well-being. For those experiencing sleep difficulties and psychiatric symptoms, addressing sleep concerns first may be a way to destigmatize mental health treatment.

Plumb, T.R., Peachey, J.T., & Zelman, D.C. (2014). Sleep disturbance is common among service members and veterans of Operations Enduring Freedom and Iraqi Freedom. *Psychological Services, 11*(2), 209-219. doi: 10.1037/a0034958

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may put individuals at risk for a traumatic stress response, but does not indicate the specific type of response they will have. Additionally, results show that those who develop CPTSD report significantly greater functional and psychological impairment than those with PTSD. Future prospective research with the addition of clinician-administered measures is needed to replicate and extend the current results.

Elklit, A., Hyland, P., & Shevlin, M. (2014). Evidence of symptom profiles consistent with posttraumatic stress disorder and complex posttraumatic stress disorder in different trauma samples. *European Journal of Psychotraumatology, 5*, 24221. doi: 10.3402/ejpt.v5.24221

Improving socioeconomic, psychosocial, and physical factors decreases likelihood of violence in veterans

Key Findings: Post-deployment protective mechanisms that may help prevent violence and aggression were examined in a sample of service members. Protective mechanisms in three different domains were assessed including socioeconomic, psychosocial, and physical. Levels of violence and aggression were measured by the Conflict Tactics Scale and the MacArthur Community Violence Scale. If a participant endorsed making threats with a lethal weapon, or committed any physically aggressive act toward others, he/she was considered to display violence. Results showed that these mechanisms predicted lower levels of violence and aggression at follow-up, especially among veterans considered to be at high-risk. Protective mechanisms were found to decrease violence through their interaction with risk factors.

Study Type: Longitudinal study with one-year follow-up using self-report measures

Sample: Participants were randomly selected from the National Post-Deployment Adjustment Survey if they had served after September 11, 2001 in OEF/OIF, and had separated from active duty or were in the Reserves (*n* = 1090). Sample was representative of all military branches and all 50 states.

Implications: Results suggest that protective mechanisms post-deployment are associated with lower levels of violence, and that treatments aimed at improving socioeconomic, psychosocial, and physical factors may additionally decrease potential for violence and aggression in veterans. Enacting policies that work to decrease rates of homelessness, enhance financial knowledge, train veterans for work in civilian settings, and/or increase social support would all decrease veterans’ potential for violence and aggression.

Elbogen, E.B., Johnson, S.C., Newton, V.M., Timko, C., Vasterling, J.J., Van Male, L.M., Wagner, H.R., & Beckham, J.C. (2014). Protective mechanisms

and prevention of violence and aggression in veterans. *Psychological Services*, 11(2), 220-228. doi: 10.1037/a0035088

PTSD and depression associated with neuropsychological deficits while mTBI is not

Key Findings: Neuropsychological outcomes (executive function, motor function, and memory) were examined among veterans with no history of TBI, mTBI without loss of consciousness (LOC), or mTBI with LOC. Results showed no significant differences among the three groups. Distance from the blast and blast load were also not found to affect neuropsychological test performance. However, neuropsychological outcomes were significantly associated with depression and PTSD symptoms.

Study Type: Cross-sectional study with tests of memory, executive function, and motor function

Sample: OEF/OIF veterans who had been exposed to blast, and were assigned to the no-TBI group ($n = 39$), the mTBI without LOC ($n = 53$), or the mTBI with LOC ($n = 35$) group.

Implications: Results suggest that while PTSD and depression symptoms are significantly associated with one's performance on neuropsychological tests, history of mTBI (with or without LOC) is not. Results suggest that earlier intervention is needed for veterans to decrease mental health symptoms, and prevent associated neuropsychological deficits. The current study was limited by the use of retrospective self-report measures of mTBI taken a significant amount of time post-trauma. Future research is needed to examine the effects of mental health treatments on neuropsychological symptoms.

Verfaellie, M., Lafleche, G., Spiro, A., III, & Bousquet, K. (2014). Neuropsychological outcomes in OEF/OIF veterans with self-report of blast exposure: Associations with mental health, but not mTBI. *Neuropsychology*, 28(3), 337-346. doi: 10.1037/neu0000027

PTSD alone not necessarily associated with violence

Key Findings: Among US veterans serving in the military after Sept. 11, 2001, 26% reported engaging in physical aggression, while 9% reported engaging in severe violence within the past year. Severe violence was defined as endorsement of certain items on the Conflict Tactics Scale and the MacArthur Community Violence Scale. Severely violent items included use of, or threatening others with a knife or gun, beating up others, self-reported rape, and several other aggressive acts. Severe violence and physical aggression were significantly

associated with having a history of violence prior to military service, younger age, financial problems, higher levels of combat exposure, PTSD, and alcohol misuse. When PTSD alone (without the effects of alcohol misuse) was examined, PTSD came close to significance, but was not statistically significantly associated with increased aggression. However, compared to veterans without PTSD, individuals with PTSD alone were found to have less irritability and anger, and were not more likely to exhibit severe violence. Additionally, those with PTSD alone were 72% less likely to exhibit severe violence within the next year when compared to those with both PTSD and alcohol misuse.

Study Type: Longitudinal study with self-report measures at baseline and one-year follow-up

Sample: U.S. veterans who served after Sept. 11, 2001 ($n = 1090$)

Implications: Results suggest that veterans with PTSD are not necessarily more likely to be violent. Rather, it seems that the combination of multiple stressors and alcohol misuse in addition to PTSD symptoms predicts aggression and violent behavior. When assessing veterans for mental health issues, screening for stressors and other variables such as history of violence, financial problems, and combat exposure is imperative for predicting their risk for violent behavior. Future research is needed to examine other potential risk factors to violence in veterans such as illegal drug use, negative affect, and state versus trait anger. Additionally, more research is needed to gain a better understanding of the relationship between violence and PTSD with consideration of co-occurring conditions, violence severity, and specific symptoms of PTSD.

Elbogen, E.B., Johnson, S.C., Wagner, H.R., Sullivan, C., Taft, C.T., & Beckham, J.C. (2014). Violent behaviour and post-traumatic stress disorder in US Iraq and Afghanistan veterans. *The British Journal of Psychiatry*, 204(5), 368-375. doi: 10.1192/bjp.bp.113.134627

Partner accommodation to patient's PTSD symptoms negatively impacts relationship

Key Findings: This study involved the development of the Significant Others' Responses to Trauma Scale (SORTS) which was designed to measure ways in which partners alter their own behavior in response to the patient's PTSD symptoms. The SORTS demonstrated strong associations with relationship distress, individual distress, and strong internal consistency. Partner accommodation was positively associated with their ratings of patient PTSD symptoms, patient depression and anger scores, and partner depression and anger scores. Partner accommodation was negatively associated with partner and

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patient relationship satisfaction and partners' perceived social support from the patient.

Study Type: Development and validation of a measure of partner responses to PTSD patient symptoms

Sample: Veteran and civilian treatment-seeking couples recruited from a study examining cognitive behavioral conjoint therapy for PTSD ($n = 46$)

Implications: Results suggest that accommodation may be the partner's attempt to adapt to living with a significant other who suffers from symptoms of PTSD, yet may negatively impact the well-being of the relationship. Future research should be done with a larger sample size to examine the relationships among accommodation, caregiver burden, and recovery from PTSD.

Fredman, S.J., Vorstenbosch, V., Wagner, A.C., Macdonald, A., & Monson, C.M. (2014). Partner accommodation in posttraumatic stress disorder: Initial testing of the Significant Others' Responses to Trauma Scale (SORTS). *Journal of Anxiety Disorders, 28*(4), 372-381. doi: 10.1016/j.janxdis.2014.04.001

Improvement in sleep during first night of tiagabine treatment predicts decreased PTSD symptoms and increased daytime function three weeks later

Key Findings: Decreases in wake time and increases in slow-wave sleep during the first night of tiagabine treatment accounted for 94% of variance in week three PTSD scores (Short PTSD Rating Interview; SPRINT). Additionally, increased slow-wave sleep during the first night of treatment accounted for 91% of the variance in school/work impairment and 45% of the variance in social life impairment (Sheehan Disability Scale; SDS).

Study Type: Open-label, longitudinal, polysomnographic study of tiagabine with self-report measures

Sample: Intent-to-treat (ITT) sample of adults with PTSD experiencing ≥ 30 minutes of wake time after onset of sleep ($n = 20$)

Implications: Results suggest that improved sleep during the first night of tiagabine treatment either mediates the relationship between sleep improvement and decreased PTSD symptoms three weeks later, or, alternatively, signifies that subsequent PTSD symptom response will occur. Results emphasize the importance of sleep in the treatment of PTSD and also suggest a relationship between daytime function and slow-wave sleep. Future research with a placebo-control group is needed to determine whether improvements in sleep mediate the response to PTSD treatment, whether sleep improvements

indicate one's potential to respond to treatment, or simply signify that a key healing process is occurring, without the effects of mediation.

Krystal, A.D., Zhang, W., Davidson, J.R.T., & Connor, K.M. (2014). The sleep effects of tiagabine on the first night of treatment predict posttraumatic stress disorder response at three weeks. *Journal of Psychopharmacology, 28*(5), 457-465. doi: 10.1177/0269881113509902

TEST YOUR KNOWLEDGE

Question:

According to the summary "Atypical antipsychotics effective in decreasing PTSD symptoms without significant side-effects", which CAPS scores were atypical antipsychotics especially effective in decreasing?

- A. Hyperarousal and intrusion
- B. Re-experiencing
- C. Nightmares
- D. Intrusion and re-experiencing

(The answer is A)

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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