Research Update -- December 1, 2022

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- A person-centered approach to identifying at-risk U.S. army soldiers-in-training based on adverse childhood experiences.
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Incidences of anxiety disorders among active duty service members between 1999 and 2018.

Russell, P. D., Judkins, J. L., Blessing, A., Moore, B., & Morissette, S. B.

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Purpose:
Anxiety disorders can impact the health, performance, and retention of military service members. To inform prevention initiatives and long-term treatment planning, incidence rates across anxiety disorders were evaluated among U.S. active-duty service members over a 20-year period.

Method:
Data were extracted from the Defense Medical Epidemiological Database to examine incidence rates of generalized anxiety disorder (GAD), panic disorder (PD), agoraphobia (AG), social anxiety disorder (SAD), obsessive compulsive disorder (OCD), agoraphobia with panic disorder (AWPD), agoraphobia without history of panic disorder (AWOPD), and unspecified anxiety disorder (UAD) among 151,844 service members between 1999 and 2018 in relation to sex, age, race, marital status, military pay grade, service branch.

Results:
Incidence rates of anxiety disorders increased significantly over the 20-year period. Anxiety disorder incidence rates ranged widely from 0.01 to 23.70 (per 1000 service members). There were significant differences in observed versus expected diagnostic rates across all demographic variables examined ($p < 0.001$).

Conclusion:
Incidence rates varied considerably across the anxiety disorders, with UAD being the highest. These data highlight the importance of health care professionals attending to anxiety disorders, in order to plan for service member needs, develop preventative interventions, address early detection, and deliver treatments to improve combat readiness.

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Network analysis of mild traumatic brain injury, persistent neurobehavioral and psychiatric symptoms, and functional disability among recent-era United States veterans.

Jennifer R. Fonda, Michael L. Crowe, Laura K. Levin, Audreyana Jagger-Rickels, Brian P. Marx, William P. Milberg, Regina E. McGlinchey, Catherine B. Fortier

Recent-era U.S. veterans are clinically complex, with a high prevalence of co-occurring mild traumatic brain injury (mTBI), psychiatric conditions, and behavioral dysfunction. The current study examined the direct and indirect associations between mTBI and persistent neurobehavioral, psychiatric, and functional disability symptoms among recent-era U.S. veterans and service members (n = 648). We evaluated the postconcussive syndrome (PCS) potential causal model with two network analysis modeling approaches. Separate analyses were conducted for military mTBI and lifetime mTBI. An exploratory factor analysis was conducted to limit topological overlap in the network analysis. The most influential symptoms (i.e., the unique variables most strongly associated with the rest of the network) in the military mTBI network were behavioral disengagement, expected influence (EI) = 1.10; cognitive difficulties, EI = 1.08; agitation/irritability, EI = 1.05; and PTSD-related reexperiencing and avoidance symptoms, EI = 0.98. After accounting for other symptoms, mTBI was only minimally informative, EI = 0.34. Additionally, military mTBI did not moderate the association between symptoms or the overall connectivity of the network. The results for lifetime mTBI were consistent with those for military mTBI. The present analyses identified a variety of behavioral, cognitive, and emotional symptoms that play an important role in understanding comorbidity and daily functioning among recent-era U.S. veterans. Associations between cumulative mTBI that occurred in civilian or military settings were indirect and relatively small in magnitude. The current results add to a growing literature raising doubts about the PCS model.

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Family-Involved Mental Health Care Among OEF/OIF Veterans With and Without PTSD Using VHA Administrative Records.

Kelly L. Harper, Johanna Thompson-Hollands,Terence M. Keane, Brian P. Marx

Highlights
- Only 8.4% of veterans received a family-involved therapy visit.
- More severe PTSD symptoms were associated with family-involved therapy visits.
- Black veterans were less likely to receive family-involved therapy.

Abstract
Prior research indicates that veterans are interested in including family members in health care and that family-inclusive mental health treatment can improve treatment outcomes. Consequently, the Veterans Health Administration's (VHA) directive requires providers to offer family-inclusive mental health services to veterans. However, the extent to which veterans engage in family-inclusive mental health services at the VHA remains unclear. Using data from a longitudinal registry of male and female veterans with and without posttraumatic stress disorder, we examined the extent to which veterans included family members in their mental health care and predictors of engagement in family-involved therapy visits using VHA administrative records over a 5-year time span. Of the 1,329 veterans who received mental health care during the study, 8.4% received a family therapy visit—the number of visits per veteran ranged from 1 to 34. Results from logistic regressions indicate that relative to White veterans, Black veterans were 61.0% less likely to receive a family-involved therapy visit. Married veterans or veterans living with a partner, and veterans with poor romantic relationship functioning, were more likely to receive a family-involved therapy visit. These findings indicate that only a small percentage of veterans received a family therapy visit across 5 years. Efforts to understand barriers to family-involved therapy visits and strategies to increase engagement in family-involved visits may improve clinical outcomes and promote patient-centered care.

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Competence in Delivering Cognitive Processing Therapy and the Therapeutic Alliance Both Predict PTSD Symptom Outcomes.

John R. Keefe, Samantha Hernandez, Camila Johanek, Meredith S.H. Landy, ... Shannon Wiltsey Stirman

Highlights
- More CPT competent delivery was associated with lower next-session PTSD symptoms.
- Stronger observer-rated alliance was associated with lower PTSD symptoms.
- CPT competence was more predictive of outcomes when alliance was also strong.
- Training in competence and alliance formation in CPT may improve outcomes.

Abstract

Cognitive Processing Therapy (CPT) is efficacious in treating PTSD, but there remains a need to improve outcomes for individuals who do not fully respond to treatment. Differences between patient-therapist dyads in the fidelity (i.e., adherence and competence) of CPT delivery and the quality of the therapeutic relationship may partly explain differential levels of symptom improvement. Sessions were sampled from a randomized trial comparing different consultation conditions in training therapists new to CPT. Among 69 patients, one session from Sessions 1–3 and one session from Sessions 4–7 were reliably rated for adherence and competence using the CPT Therapist Adherence and Competence Scale, and for therapeutic alliance using the Working Alliance Inventory-Observer scale. Mixed models, including detrending using a fixed effect of session, predicted self-reported Posttraumatic Stress Disorder Checklist (PCL-IV) scores in one session using process scores from the previous session. The statistical interaction between fidelity and alliance scores to predict outcome was also examined. Alliance had significant, positive correlations (rs = 0.18–0.21) with same-session adherence and competence. Higher competence scores and higher therapeutic alliance scores in one session were independently associated with lower PCL-IV scores in the subsequent session. Adherence scores, which tended to be very high with relatively less variability, did not significantly relate to subsequent-session PCL-IV scores. Competence significantly interacted with alliance, such that sessions high in both competence and alliance predicted especially lower subsequent-session PCL-IV

scores. A strong therapeutic alliance may have a synergistic, salutary effect with the competent delivery of CPT.

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Clinical wisdom in the age of computer apps: A systematic review of four functions that may complement clinical treatment.

Pacheco, C., & Scheeringa, M.

Mental health clinicians perform complex tasks with patients that potentially could be improved by the massive computing power available through mobile apps. This study aimed to analyse commercially available mobile and computer applications (apps) focused on treating psychiatric disorders. Apps were analysed by two independent raters for whether they took advantage of computer power to process data in a fashion that augments four main elements of clinical treatment including (1) assessment/diagnosis, (2) treatment planning, (3) treatment fidelity monitoring, and (4) outcome tracking. The evidence base for each of these apps was also explored via PsychINFO, Research Gate and Google Scholar. Searches of the Google Play Store, the Apple App Store, and the One Mind PsyberGuide found 722 apps labelled for mental health use, of which 163 apps were judged relevant to clinical work with patients with psychiatric disorders. Fifty-nine of these were determined to contain a computer-driven function for at least one of the four main elements of clinical treatment. The most common element was assessment/diagnosis (55/59 apps), followed by outcome tracking (34/59 apps). Six apps updated treatment plans using user input. Only one app tracked treatment fidelity. None of the apps contained computer-driven functions for all four elements. Twelve apps were supported in randomized clinical trials to show greater efficacy compared with either wait-list or other active treatments. Results showed that these four clinical elements can be meaningfully augmented, but the full potential of computer processing appears unreached in mental health-related apps.

Key learning aims
(1) To understand what apps are currently available to treat clinical-level psychiatric problems.

(2) To understand how many of the commercially available mental health-focused apps can be used for the treatment of clinical populations.

(3) To understand how mental health services can be complemented by utilizing computer processing power within apps.

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Who sleeps more and who works longer in the US Navy: Officers or enlisted personnel?

Shattuck, N. L., & Matsangas, P.

Objectives:
To determine whether United States Navy (USN) officers and enlisted personnel have different sleep and work patterns while underway on USN surface ships.

Methods:
Variables of interest were assessed by actigraphy, activity logs, and validated questionnaires.

Results:
The 2 groups had similar daily sleep (officers: 6.41 ± 0.95 hrs/day; enlisted: 6.57 ± 0.97 hrs/day) and work duration. Enlisted personnel, however, were more likely to report excessive daytime sleepiness-EDS (41% more likely), clinically relevant insomnia (105%), to have both EDS and elevated insomnia (121%), to be classified as poor sleepers (17%), to use nicotine products (174%), and to forego routine exercise (57%). Enlisted personnel were 487% more likely to report all 3 of these behaviors: drink caffeinated beverages, use nicotine/tobacco products, forego routine exercise.

Conclusions:
Even though the work and sleep hours do not differ significantly, the state of well-being of enlisted personnel is in general lower than officers. Our findings can provide insight to Navy leadership towards improving sailor well-being and crew endurance.

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Changes in guilt cognitions in intensive PTSD treatment among veterans who experienced military sexual trauma or combat trauma.

Meade, E. A., Smith, D. L., Montes, M., Norman, S. B., & Held, P.

Unresolved trauma-related guilt has been identified as a factor that can intensify posttraumatic stress disorder PTSD symptomology and is associated with many negative mental health outcomes. Evidence-based treatments, such as Cognitive Processing Therapy (CPT), have been shown to successfully reduce trauma-related guilt. However, less is known about how trauma-related guilt cognitions change over the course of PTSD treatment and, more specifically, intensive PTSD treatments. The current study examined whether guilt cognitions (i.e., hindsight bias/responsibility, insufficient justification, wrongdoing) changed over the course of a 3-week CPT-based intensive treatment program (ITP), whether guilt cognition changes predicted PTSD and depression symptom reductions over time, and whether guilt cognition changes and their association with PTSD and depression symptom changes differed based on whether they worked on combat trauma or military sexual trauma. Data were collected from 360 veterans enrolled in a 3-week ITP. Results from linear mixed effects models suggested that trauma-related guilt cognitions reduced significantly over the course of treatment (ps < .001), changes in wrongdoing (p = .032) and hindsight bias/responsibility (p = .003) were significant predictors of PTSD symptom reductions and hindsight bias/responsibility (p = .032) was the only significant predictor of depression symptom reduction. Overall differences in guilt cognitions over time based on cohort type were only significant for insufficient justification (p = .001). These findings suggest that changes in hindsight bias/responsibility demonstrated the largest effect size (d = 0.1.14), implying that hindsight bias/responsibility may be one of the most important guilt cognitions to target. This study also highlights the importance of the relationship between trauma-related guilt and PTSD and depression symptoms. Future research should examine whether changes in guilt cognitions precede changes in PTSD and depression symptoms, and if addressing certain types of guilt cognitions is more important to achieving PTSD and depression symptom reductions.

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Relationship conflict and partner violence by UK military personnel following return from deployment in Iraq and Afghanistan.

Lane, R., Short, R., Jones, M., Hull, L., Howard, L. M., Fear, N. T., & MacManus, D.

Purpose:
Risk of violence by UK military personnel, both towards non-family and family, has been found to be higher post-deployment. However, no UK research to date has attempted to examine relationship conflict and intimate partner violence (IPV) in this period. This study estimated the prevalence of and risk factors for post-deployment relationship conflict and partner violence in UK military personnel.

Methods:
We utilised data on military personnel who had deployed to Iraq and/or Afghanistan (n = 5437), drawn from a large cohort study into the health and well-being of UK military personnel.

Results:
34.7% reported relationship conflict (arguing with partner) and 3.4% reported perpetrating physical IPV post-deployment. Males were more likely than females to report relationship conflict. There were similar rates of self-reported physical IPV perpetration among males and females. Among our male sample, factors associated with both relationship conflict and physical IPV perpetration post-deployment included being in the Army compared with the Royal Air Force, higher levels of childhood adversity, higher levels of military trauma exposure and recent mental health and alcohol misuse problems. Being over 40 at time of deployment (vs being under 25) and having deployed in a combat role were also associated with relationship conflict, but not physical IPV perpetration.

Conclusions:
Deployment-related variables and mental health and alcohol misuse problems were found to be key factors associated with post-deployment relationship conflict and IPV. Services providing health or welfare support to military personnel must collaborate with mental health services and consider history of deployment, and particularly deployment-

related trauma, in their assessments to improve identification and management of intimate partner violence and abuse in military communities.

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Association Between Physical Activity and Risk of Depression: A Systematic Review and Meta-analysis.

Pearce, M., Garcia, L., Abbas, A., Strain, T., Schuch, F. B., Golubic, R., Kelly, P., Khan, S., Utukuri, M., Laird, Y., Mok, A., Smith, A., Tainio, M., Brage, S., & Woodcock, J.

Importance:
Depression is the leading cause of mental health-related disease burden and may be reduced by physical activity, but the dose-response relationship between activity and depression is uncertain.

Objective:
To systematically review and meta-analyze the dose-response association between physical activity and incident depression from published prospective studies of adults.

Data sources:
PubMed, SCOPUS, Web of Science, PsycINFO, and the reference lists of systematic reviews retrieved by a systematic search up to December 11, 2020, with no language limits. The date of the search was November 12, 2020.

Study selection:
We included prospective cohort studies reporting physical activity at 3 or more exposure levels and risk estimates for depression with 3000 or more adults and 3 years or longer of follow-up.

Data extraction and synthesis:
Data extraction was completed independently by 2 extractors and cross-checked for errors. A 2-stage random-effects dose-response meta-analysis was used to synthesize data. Study-specific associations were estimated using generalized least-squares

regression and the pooled association was estimated by combining the study-specific coefficients using restricted maximum likelihood.

Main outcomes and measures:
The outcome of interest was depression, including (1) presence of major depressive disorder indicated by self-report of physician diagnosis, registry data, or diagnostic interviews and (2) elevated depressive symptoms established using validated cutoffs for a depressive screening instrument.

Results:
Fifteen studies comprising 191 130 participants and 2 110 588 person-years were included. An inverse curvilinear dose-response association between physical activity and depression was observed, with steeper association gradients at lower activity volumes; heterogeneity was large and significant (I2 = 74%; P < .001). Relative to adults not reporting any activity, those accumulating half the recommended volume of physical activity (4.4 marginal metabolic equivalent task hours per week [mMET-h/wk]) had 18% (95% CI, 13%-23%) lower risk of depression. Adults accumulating the recommended volume of 8.8 mMET hours per week had 25% (95% CI, 18%-32%) lower risk with diminishing potential benefits and higher uncertainty observed beyond that exposure level. There were diminishing additional potential benefits and greater uncertainty at higher volumes of physical activity. Based on an estimate of exposure prevalences among included cohorts, if less active adults had achieved the current physical activity recommendations, 11.5% (95% CI, 7.7%-15.4%) of depression cases could have been prevented.

Conclusions and relevance:
This systematic review and meta-analysis of associations between physical activity and depression suggests significant mental health benefits from being physically active, even at levels below the public health recommendations. Health practitioners should therefore encourage any increase in physical activity to improve mental health.

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Ethical Responsibilities of a Military to the Social Determinants of Health of its Service Members.

Hunter Jackson Smith, MC, USA

A military exists in a unique position. It is an organization in which active duty members knowingly join or are conscripted into service with the understanding that there is an increased risk of mental and/or bodily harm as compared to many other occupations. However, while the nature of the profession can inherently be dangerous, it does not follow that its members be placed at undue excess risk if that risk can be reasonably avoided or reduced. Social determinants of health are one example of influences under a military's purview that impact health outcomes and well-being. Although the U.S. Military performs well across many health equity measures, disparities persist and require attention and redress. Military policies and practices deeply impact members' lives during and after service, and the durability and profundity of these effects establish the ethical grounds upon which any military policy should be structured. The ethical obligation is fortified by the extent of control a military exercises over its personnel. Taken together, these factors necessitate a concerted effort by militaries to remain cognizant of the ethical impacts of their policies and practices and to ensure focus remains on the well-being and readiness of its personnel. As such, militaries have ethical responsibilities to promote healthy social determinants of health among their service members via policies and public health measures.

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Comparison of Musculoskeletal Injury and Behavioral Health Diagnoses Among U.S. Army Active Duty Servicewomen in Ground Combat and Non-Ground Combat Military Occupational Specialties.

Kimberley J Phillips, MD, MPH, MC, USA, Amanda Banaag, MPH, LeeAnne C Lynch, MPH, Hongyan Wu, MD, MPH, Miranda Janvrin, MPH, Tracey Perez Koehlmoos, PhD, MHA

Introduction
The U.S. Army's Soldier 2020 program, which started in January 2016, was designed to achieve full integration of women in all military occupational specialties. This study was undertaken to determine differences in risk of musculoskeletal injury and behavioral

health (BH) disorders among U.S. Army Active Duty Servicewomen (ADSW) in ground combat military occupational specialties (MOS) versus those in non-ground combat MOS since the start of the program until January 2019.

Materials and Methods

Using healthcare claims data from the Military Health System's Data Repository we conducted a cross-sectional study on ADSW from January 1, 2016 to January 1, 2019 and categorized them as either ground combat specialists (GCSs) or non-ground combat specialists (NGCSs). We identified all female soldiers in our cohort with a musculoskeletal injury (MSKI) and/or BH diagnosis during the study period. A multivariable logistic regression, adjusted by pregnancy or delivery status, was used to assess risk factors associated with GCS and included soldier age, race, body mass index (BMI), tobacco use, alcohol/substance use, and MSKI and BH status as predictor variables.

Results

A total of 92,443 U.S. Army ADSW were identified, of whom 3,234 (3.5%) were GCS (infantry, field artillery, cavalry/armor, and air defense) and 89,209 (96.5%) were in non-ground combat billets. A large difference was observed when comparing the age of the population by occupation; GCS women were predominantly between the ages of 18-23 years (71.9%), compared to NGCS women aged 18-23 (41.0%). Top MSKI and BH diagnoses for both occupations were joint pain (44.9% GCS, 50.2% NGCS) and adjustment disorders (26.2% GCS, 28.0% NGCS). GCS women had lower odds for musculoskeletal injury (0.86 AOR, 0.79-0.93 CI, P = 0.0002), obesity per BMI classification (0.82 AOR, 0.70-0.97 CI, P = 0.0214), and BH disorders (0.87 AOR, 0.80-0.95 CI, P = 0.0019); and higher odds for tobacco use (1.44 AOR, 1.27-1.63 CI, P < 0.0001), substance use (1.36 AOR, 1.04-1.79 CI, P = 0.0257), and alcohol use (1.18 AOR, 1.02-1.38 CI, P = 0.0308) when compared to NGCS women.

Conclusions

With the increasing focus on soldier medical readiness in today's U.S. Army, the health of all soldiers is of paramount concern to command groups, unit leaders, and individual soldiers. The integration of women into ground combat military occupational specialties is a relatively new program; further longitudinal research of these groups should follow, focusing on their progression and improvement in soldier readiness, overall health, and the well-being of all servicewomen.

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Associations Between Sociodemographic, Mental Health, and Mild Traumatic Brain Injury Characteristics With Lifetime History of Criminal Justice Involvement in Combat Veterans and Service Members.

Gius, B. K., Fournier, L. F., Reljic, T., Pogoda, T. K., Corrigan, J. D., Garcia, A., Troyanskaya, M., Hodges, C. B., & Miles, S. R.

Introduction:
Veterans and service members (V/SM) may have more risk factors for arrest and felony incarceration (e.g., posttraumatic stress disorder and at-risk substance use) but also more protective factors (e.g., access to health care) to mitigate behaviors that may lead to arrest. As such, understanding which factors are associated with criminal justice involvement among V/SM could inform prevention and treatment efforts. The current study examined relationships between lifetime history of arrests and felony incarceration and sociodemographic, psychological, and brain injury characteristics factors among combat V/SM.

Materials and methods:
The current study was a secondary data analysis from the Chronic Effects of Neurotrauma Consortium multicenter cohort study, approved by local institutional review boards at each study site. Participants were V/SM (N = 1,540) with combat exposure (19% active duty at time of enrollment) who were recruited from eight Department of Veterans Affairs and DoD medical centers and completed a baseline assessment. Participants were predominantly male (87%) and white (72%), with a mean age of 40 years (SD = 9.7). Most (81%) reported a history of at least one mild traumatic brain injury, with one-third of those experiencing three or more mild traumatic brain injuries (33%). Participants completed a self-report measure of lifetime arrest and felony incarceration history, a structured interview for all potential concussive events, the post-traumatic stress disorder checklist for Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5), and the Alcohol Use Disorders Identification Test-Consumption. Three groups were compared on self-reported level of lifetime history of criminal justice system involvement: (1) no history of arrest or incarceration (65%); (2) history of arrest but no felony incarceration (32%); and (3) history of felony incarceration (3%).

Results:
Ordinal regression analyses revealed that hazardous alcohol consumption (β = .44, P < .001; odds ratio = 1.56) was positively associated with increased criminal justice involvement after adjusting for all other variables. Being married or partnered (β = -.44, P < .001; odds ratio = 0.64) was negatively associated with decreased criminal justice involvement.

Conclusions:
The rate of lifetime arrest (35%) in this V/SM sample was consistent with rates of arrests in the U.S. general population. One modifiable characteristic associated with lifetime arrest and felony incarceration was hazardous alcohol consumption. Alcohol use should be a top treatment target for V/SM at risk for arrest and those with history of criminal justice involvement.

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Psilocybin for Trauma-Related Disorders.

Khan, A. J., Bradley, E., O'Donovan, A., & Woolley, J.

Posttraumatic stress disorder (PTSD) is a debilitating, chronic disorder and efficacy rates of current PTSD treatments are underwhelming. There is a critical need for innovative approaches. We provide an overview of trauma and PTSD and cite literature providing converging evidence of the therapeutic potential of psilocybin for PTSD. No study to date has investigated psilocybin or psilocybin-assisted psychotherapy (PAP) as treatments for PTSD. An open-label study in traumatized AIDS survivors found that PAP reduced PTSD symptoms, attachment anxiety, and demoralization. Several PAP trials show preliminary efficacy in facilitating confronting traumatic memories, decreasing emotional avoidance, depression, anxiety, pessimism, and disconnection from others, and increasing acceptance, self-compassion, and forgiveness of abusers, all of which are relevant to PTSD recovery. There is also early evidence that other classic psychedelics may produce large reductions in PTSD symptoms in combat veterans. However, this body of literature is small, mechanisms are not yet well understood, and the risks of using psychedelic compounds for trauma-related disorders need further

study. In sum, evidence supports further investigation of PAP as a radically new approach for treating PTSD.

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General Perspective on the U.S. Military Conflicts in Iraq and Afghanistan After 20 Years.

Alan L Peterson

It has been 20 years since the September 11, 2001 terrorist attacks on America. The ongoing military conflicts in this region are the longest sustained conflicts in U.S. history. Almost 3 million military personnel have deployed, with over 7,000 fatalities and more than 53,000 wounded in action. The most common psychological health condition associated with combat deployments is PTSD. No data exist to compare the prevalence of PTSD across war eras. Therefore, a potential proxy for PTSD risk is the number of combat-related deaths, because this figure has been consistently tracked across U.S. military conflicts. This commentary includes a table of death statistics from major military conflicts, which shows that fewer military personnel have deployed, been killed, sustained wounds, and, one might conclude, suffered from PTSD than any other major U.S. military conflict in history. Advances in the military equipment, tactics, and healthcare programs perhaps mitigated casualties and suffering among Iraq/Afghanistan veterans compared to previous wars. The estimated causality differences across various military conflicts are not meant to minimize the significant contributions and sacrifices made by this new generation of military warriors but to help us gain perspective on military conflicts over the past century as we recognize the 20th anniversary of 9/11.

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The Influence of Service Era: Comparing Personality Assessment Inventory (PAI) Scale Scores Within a Posttraumatic Stress Disorder Treatment Clinic (PCT).

Ingram, P. B., Morris, N. M., Golden, B., Youngren, W. A., Fulton, J. A., & Sharpnack, J.

Research is mixed on the role of service era in symptom endorsement among Veterans, with differences emerging depending on the instrument evaluated. This study compares Personality Assessment Inventory (PAI) scale scores of VA test-takers who served during the Vietnam, Desert Storm, or Post-9/11 service eras. The sample was collected at a VA Posttraumatic Stress Disorder Clinical Team. Associations between gender and combat exposure were also examined as covariates. Results suggest that Veterans' self-report on the PAI is influenced by service era, even after accounting for gender and combat exposure during deployment. The largest differences were between Vietnam or Post-9/11 Veterans and those from the Gulf War era. Symptom differences typically varied across scales commonly associated with symptoms of trauma exposure/posttraumatic stress disorder. Implications for the clinical use of, and research with, the PAI and other broadband personality assessments within the VA healthcare system and trauma treatment settings are discussed.

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The Impact of Deployment and Combat Exposure on Physical Health Among Military Personnel: A Systematic Review of Incidence, Prevalence, and Risks.

Teplova, A. E., Bakker, H., Perry, S., van Etten-Jamaludin, F. S., Plat, M. J., & Bekkers, M.

Objectives:
The impact of deployment and combat on mental health of military personnel is well described. Less evidence is available to demonstrate and summarize the incidence, prevalence, and risks of these exposures on physical health. This study aims to (1) systematically review the available literature to determine the incidence and prevalence of physical health conditions among military personnel during and after deployment and (2) investigate the risks of deployment and combat exposure on physical health.

Methods:
A systematic review using the PubMed and EMBASE databases was performed. The literature search was limited to articles written in English, published from 2000 through 2019. The quality of studies was assessed with the Joanna Briggs Institute Appraisal Checklist. The results were grouped per system or condition of physical health and presented by forest plots without a combined effect size estimate.

Results:
Thirty-two studies were found eligible for this review. We identified a wide variety of incidence and prevalence rates of numerous physical health conditions and a high heterogeneity across the included studies. Acute respiratory symptoms, diarrhea, musculoskeletal injuries, pain, and tinnitus were found to be the most incident or prevalent conditions. Except for hearing loss, no associations with deployment and physical health problems were observed. An increased risk for asthma, headache, hearing loss, and pain was reported in relation to the combat exposure.

Conclusion:
Given the characteristics of included studies and extracted data, the magnitude of the found differences in incidence and prevalence rates is most likely to be due to methodological heterogeneity. The specific exposures (e.g., infrastructure, environmental conditions, and activities during deployment) are suggested to be the determinants of (post) deployment physical health problems and need to be addressed to decrease the impact of deployment. Findings from this systematic review highlight which conditions should be addressed in response to service members' health and wellness needs in the (post)deployment phase and may be used by clinicians, researchers, and policy-makers. However, knowledge gaps regarding the potential risk factors during deployment and combat still exist. Studies using consistent methods to define and measure the physical health conditions and specific exposures are needed.

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Suicide Ideation and Social Support Trajectories in National Guard and Reserve Servicemembers.

Wang, J., Ursano, R. J., Gifford, R. K., Dinh, H., Weinberg, A., Cohen, G. H., Sampson, L., Galea, S., & Fullerton, C. S.

Objective:
Since 2004 increased rates of suicide have been noted in the US Armed Forces. We examined the association of social support (SS) trajectories and suicide ideation (SI) over a four-year period in Reserve Component (RC) servicemembers (National Guard and Reserve). We also examined baseline mental health measures, as predictors of the identified trajectories.

Methods:
Structured interviews were conducted with a nationally representative sample of 1,582 RC servicemembers at baseline and three follow-up waves. Latent growth mixture modeling identified SS trajectories and the association with follow-up SI. Multinomial logistic regression analyses were used to predict SS trajectories using baseline measures of demographics and mental health.

Results:
We identified four trajectories of SS and their associated prevalence of follow-up SI: low (n = 60, 3.8%; SI = 30.5%), medium (n = 229, 14.5%; SI = 14.1%), high-low (n = 66, 4.2%; SI = 13.6%), and high-high (n = 1,227, 77.5%; SI = 4.2%). There were significant differences in follow-up SI prevalence between each pair of SS trajectories except between the medium-SS and high-low-SS trajectories. Baseline SI, post-traumatic stress disorder (PTSD), depression, binge drinking, and mental health diagnosis were associated with increased likelihood of being on a low-SS or medium-SS trajectory. Baseline PTSD discriminated being on the high-high-SS and high-low-SS trajectories.

Conclusion:
Results support four trajectories of social support and that individuals with low or decreasing SS are likely to have greater follow-up SI. Baseline mental health assessments can identify these risk trajectories.

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A Systematic Review of Suicide Prevention Interventions in Military Personnel.

Rostami, M., Rahmati-Najarkolaei, F., Salesi, M., & Azad, E.

Objective:
In response to the increasing rates of suicide in military personnel throughout the world, there is an increasing focus on the development and implement of interventions aimed at preventing suicide among this group. Therefore, the goal of the present systematic review was to examine the effectiveness of interventions focused on preventing suicidal ideation and behavior in military personnel.

Method:
Search for articles was conducted in PsycINFO, PubMed, Web of Science, EMBASE, Google Scholar, Cochrane Central Register of Controlled Trials (CENTRAL), IranMedex, Scientific Information Database (SID), and MagIran. International databases were searched from June 2008 to May 2019, and Iranian databases were searched from their inception to May 2019. RCT and non-RCT studies focused on the effectiveness of preventive interventions for suicide in military personnel were included in the analysis. Narrative synthesis of results was the main strategy for data analysis.

Results:
According to the inclusion and exclusion criteria, 18 articles were selected. Interventions were divided into four categories according to their nature: interventions based on psychotherapy, interventions based on crisis management, interventions based on pharmacotherapy, and community-based interventions. In addition, most studies had moderate methodological quality.

Conclusion:
Most of the preventive interventions were effective in reducing suicidal ideation and behavior in military personnel; however, in some cases, there were serious challenges in terms of effectiveness. Interventions based on cognitive-behavioral approaches constitute a significant portion of the interventions. Overall, RCTs and non-RCTs, especially community-based studies, need to use more rigorous examinations in order to gain research and clinical support. HIGHLIGHTSInterventions based on psychotherapy and community-based interventions were the most commonly used interventions, respectively.The majority of interventions based on psychotherapy came from cognitive-behavioral approaches.There are few evidence-based studies on prevention of suicide in military personnel.

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Effects of Social Network Characteristics on Mental Health Outcomes Among United States Army Reserve and National Guard Soldiers.

Vest, B. M., Goodell, E., Homish, D. L., & Homish, G. G.

We sought to examine the relative salience of multiple social network structural characteristics (e.g., size, composition, quality, substance use) for understanding soldiers' mental health symptoms (anger, anxiety, depression, PTSD). Data are drawn from soldiers (N = 421) participating in the Operation: SAFETY study. Negative binomial regression models examined the relationship between ten social network characteristics and mental health outcomes, controlling for age, sex, years of military service, and deployment history. Greater number of close network ties was associated with fewer symptoms of anger, anxiety, and depression (ps < 0.05), but not PTSD. Having more illicit drug-using network ties was associated with greater severity of anxiety symptoms (p < 0.05). Finally, more days spent drinking with network members was related to higher levels of anger (p < 0.05). Interpersonal relationships that entail substance use are associated with greater anxiety and anger while a greater number of close ties is associated with fewer anger, anxiety, and depression symptoms.

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Active Duty Service Members, Primary Managers, and Administrators' Perspectives on a Novel Sleep Telehealth Management Platform in the U.S. Military Healthcare System.

Wickwire, E. M., Abdelwadoud, M., Collen, J., Edwards, H., Labra, C., Capaldi, V. F., Williams, S. G., Manber, R., Assefa, S. Z., Drake, C. L., Albrecht, J. S., Bevan, J., Mahoney, A., Tatum, E. D., Pierre, E., Mantua, J., Grandner, M. A., & Mullins, C. D.

Introduction:
Sleep disorders are common in the military, and there is a gross shortage of sleep specialists in the military health system. The purposes of the present study were to (1) understand perceptions and expectations surrounding sleep telehealth approaches and (2) solicit feedback to optimize and refine a proposed novel sleep telehealth management platform. To accomplish these objectives, we investigated the perceptions, expectations, and preferences of active duty service members (ADSMs) with sleep disorders, primary care managers (PCMs), and administrative stakeholders regarding sleep telehealth management.

Materials and methods:
Using convenience sampling, we conducted five focus groups with 26 ADSMs and 11 individual interviews with PCMs from two military treatment facilities in the U.S National Capital Region and 11 individual interviews with administrative sleep stakeholders (9 military and 2 civilian).

Results:
Active duty service members, PCMs, and administrative stakeholders provided insight regarding expectations for sleep telehealth as well as suggestions to optimize the novel sleep telehealth platform. In terms of outcomes, ADSMs expected sleep telehealth to improve sleep and convenience. Primary care managers expected improved sleep and other comorbidities, enhanced operational readiness, and reduced mortalities among their patients. Administrators expected increased access to care, optimized utilization of health services, realized cost savings, reduced accidents and errors, and improved military performance. In terms of the platform, for ADSMs, desired characteristics included delivery of timely clinical reports, improved patient-provider communication, and enhanced continuity of care. For PCMs and administrators,an ideal sleep telehealth solution will improve the diagnosis and triage of sleep patients, save PCM time, be easy to use, and integrate with the electronic health record system.

Conclusion:
The proposed sleep telehealth platform appealed to nearly all participants as a significant force multiplier to enhance sleep disorder management in the military. Stakeholders offered valuable recommendations to optimize the platform to ensure its successful real-world implementation.

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Transgenerational Factors Associated With Military Service: Comparison of Children of Veterans and Nonveterans in a Nationally Representative Sample.

Bommersbach, T. J., Rosenheck, R., & Rhee, T. G.

Objective
While the psychological effects of military service on the children of active-duty personnel have been studied extensively, little is known about the potential effects of military service for children of veterans after service has ended.

Method
Using nationally representative data from the 2018-2019 National Survey of Children's Health, school-age children of veteran families (n = 4,028) were compared with children of nonveteran families (n = 38,228). Owing to large sample sizes, effect sizes (relative risk and Cohen's d), rather than p values, were used to identify substantial differences in caregiver-reported sociodemographic, clinical, and school performance factors between children and caregivers in families with and without a veteran caregiver. Multivariate analyses were used to adjust for socioeconomic factors that could increase health service use.

Results
Children of veteran families were more likely to have higher family incomes, health insurance, and married caregivers, but were also reported to have higher rates of clinically recognized externalizing behavioral conditions (attention-deficit disorder/attention-deficit/hyperactivity disorder or conduct disorder) (17.6% vs 12.7%; relative risk 1.42; 95% CI 1.21-1.66) and adverse childhood experiences; no substantial differences were reported in clinically recognized anxiety or depression. After adjustment for potentially confounding factors, children in veteran families were still more likely to be reported to have externalizing problems (odds ratio 1.34; 95% CI 1.02-1.77).

Conclusion
After adjustment for socioeconomic advantages that may increase health service use, children of veteran families demonstrate substantially higher rates of clinically recognized externalizing problems. While explanations for this require further study,

service systems working with veterans may consider integrating child-focused screening/services.

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A person-centered approach to identifying at-risk U.S. army soldiers-in-training based on adverse childhood experiences.

Reed-Fitzke, K., Duncan, J. M., Wojciak, A. S., Ferraro, A. J., Sánchez, J., & Smith, K. M.

Military service members are confronted with numerous stressors as they progress through their career. Given the military's desire to maintain mission readiness, it is imperative to identify areas of early intervention to promote optimal functioning and health. This study used the stress process framework and a person-centered approach to identify subgroups of soldiers-in-training based on adverse childhood experiences (ACEs). Specifically, two questions were addressed: (a) Are there distinct profiles of ACEs among soldiers-in-training, and (b) who are the most at-risk soldiers-in-training? The sample consisted of 30,836 soldiers-in-training from the Army study to Assess Risk and Resilience in Servicemembers. Five subgroups were identified using latent profile analysis: low adversity, moderate emotional adversity, elevated emotional adversity, moderate structural adversity, and high cumulative adversity. Results from a multivariate and univariate analyses of variance indicated significant small main effects of profile membership in anxiety, depression, posttraumatic stress disorder, and resilient mindset. Those with high cumulative adversity and elevated emotional adversity appeared to be the most at-risk regarding mental health, yet those with high cumulative adversity had similar levels of resilient mindset as the lower adversity groups. Those with elevated emotional adversity had the lowest levels of resilient mindset. Findings provide a more holistic understanding of unique combinations of ACEs among individuals' as they enter military service. ACEs profiles may help providers identify those who may benefit from targeted supports (e.g., trauma-informed mental health providers) prior to or during service for those who may be most vulnerable to poor outcomes. (PsycInfo Database Record (c) 2022 APA, all rights reserved)

Links of Interest:

Commission will study why veterans are more likely than nonveterans to get in trouble with the law
https://www.nbcnews.com/news/crime-courts/commission-will-study-veterans-are-likely-non-veterans-get-trouble-law-rcna44326

One Native veteran's new mission: Fill in the gaps of VA care on his reservation
https://www.npr.org/2022/08/24/1118761468/native-american-veterans-health-care-military-service

Keeping Meta-analyses Fresh
https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2795604

Pentagon plan aims to treat, prevent TBIs for the long haul
https://www.militarytimes.com/news/your-military/2022/08/26/pentagon-plan-aims-to-treat-prevent-tbis-for-the-long-haul/

Resource of the Week: Clinical Support Tools

From the Psychological Health Center of Excellence (PHCoE)

> The Department of Veterans Affairs (VA) and the Department of Defense (DOD) develop clinical practice guidelines (CPGs) for several psychological health conditions, substance use disorders, suicide risk, and other conditions. Guidelines improve patient care by reducing variation in practice and systematizing best practices. CPGs are intended for use as a tool to assist a health care providers and should not be used to replace clinical judgment.

> The latest versions of the full guidelines, along with related materials such as provider and patient summaries and provider pocket cards, are available for download from the Department of Veterans Affairs Clinical Practice Guidelines WebsiteVA/DOD Clinical Practice Guidelines website.

> PHCoE has created resources that complement psychological health CPGs. These resources, called clinical support tools (CSTs), condense CPG material, highlight critical information, and present it in a digestible manner. CSTs are not

intended to replace or supersede CPGs; rather, they address a particular aspect of a CPG or help to disseminate knowledge about the evidence-based treatments to patients, families, and military leaders.

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Clinical Support Tools

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PHCoE currently offers CSTs addressing the following psychological health conditions:

Insomnia ⊙

Major Depressive Disorder ⊙

Opioid Therapy for Chronic Pain ⊙

Pregnancy ⊙

PTSD ⊙

PHCoE Links

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