Research Advisory Committee on Gulf War Veterans' Illnesses (RACGWVI) — PubMed Research Citations for July, August, September 2022

Prepared by Staff of the RACGWVI.

RACGWVI: Gulf War Illness — PubMed Citations for July, Aug, Sept 2022

The following is a list of published research projects that focus on Gulf War Illness (GWI) for the months of July, August and September 2022.

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Photobiomodulation for Gulf War Illness?

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No abstract available

[The Pain Outcomes Comparing Yoga vs. Structured Exercise (POYSE) Trial in Veterans With Fibromyalgia: Study Design and Methods](#)

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Abstract

Fibromyalgia is a common pain condition that often leads to significant disability. Unfortunately, the effectiveness of most medications for fibromyalgia is limited, and there is a need for alternative, non-pharmacological therapies. Yoga and aerobic exercise are both evidence-based non-pharmacological treatments for fibromyalgia. However, no prior studies have directly compared the effectiveness of yoga vs. exercise. This article describes the study design and recruitment outcomes of the Pain Outcomes comparing Yoga vs. Structured Exercise (POYSE) Trial, a two-arm randomized comparative effectiveness trial. Veterans with fibromyalgia, defined by the 2010 American College of Rheumatology diagnostic criteria, who also experienced at least moderate pain severity were enrolled. The participants were randomized to a 12-week yoga-based or a structured exercise program (SEP) and will undergo comprehensive outcome assessments at baseline, 1, 3, 6, and 9 months by interviewers blinded to treatment assignment. The primary outcome will be the overall severity of fibromyalgia as measured by the total Fibromyalgia Impact Questionnaire-Revised. Secondary outcomes included depression, anxiety, health-related quality of life, pain beliefs, fatigue, sleep, and self-efficacy. A total of 2,671 recruitment letters were sent to potential participants with fibromyalgia. Of the potential participants, 623 (23.3%) were able to be contacted by telephone and had their eligibility assessed. Three hundred seventy-one of those interviewed were found to be eligible (59.6%) and 256 (69.0%) agreed to participate and were randomized to the YOGA (n = 129) or the SEP (n = 127) arm of the trial. Clinicians are faced with numerous challenges in treating patients with fibromyalgia. The interventions being tested in the POYSE trial have the potential to provide primary care and other care settings with new treatment options for clinicians while simultaneously providing a much needed relief for patients suffering from fibromyalgia. Funded by VA Rehabilitation Research and Development (D1100-R); Trial registration: ClinicalTrials.gov, NCT01797263.

Comparing psychosocial functioning, suicide risk, and nonsuicidal self-injury between veterans with probable posttraumatic stress disorder and alcohol use disorder

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Abstract

Background: Posttraumatic stress disorder (PTSD) and alcohol use disorder (AUD) are each common among Unites States (U.S.) military veterans and frequently co-occur (i.e., PTSD+AUD). Although comorbid PTSD+AUD is generally associated with worse outcomes relative to either diagnosis alone, some studies suggest the added burden of comorbid PTSD+AUD is greater relative to AUD-alone than to PTSD-alone. Furthermore, nonsuicidal self-injury (NSSI) is more common among veterans than previously thought but rarely measured as a veteran psychiatric health outcome. This study sought to replicate and extend previous work by comparing psychosocial functioning, suicide risk, and NSSI among veterans screening positive for PTSD, AUD, comorbid PTSD+AUD, and neither disorder.

Methods: This study analyzed data from a national sample of N = 1046 U.S. veterans who had served during the Gulf War. Participants self-reported sociodemographic, functioning, and clinical information through a mailed survey.

Results: Veterans with probable PTSD+AUD reported worse psychosocial functioning across multiple domains compared to veterans with probable AUD, but only worse functioning related to controlling violent behavior when compared to veterans with probable PTSD. Veterans with probable PTSD+AUD reported greater suicidal ideation and NSSI than veterans with probable AUD, but fewer prior suicide attempts than veterans with probable PTSD.

Limitations: This study was cross-sectional, relied on self-report, did not verify clinical diagnoses, and may not generalize to veterans of other military conflicts.

Conclusions: Findings underscore the adverse psychiatric and functional outcomes associated with PTSD and comorbid PTSD+AUD, such as NSSI, and highlight the importance of delivering evidence-based treatment to this veteran population.

The Veterans Health Administration's integrated model of care increases accessibility and delivery of mental health services

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Abstract

Depression and posttraumatic stress disorder (PTSD) are two of the most common mental health conditions experienced by veterans. It is unclear what individual and system level factors are associated with receiving mental health treatment for these concerns. Using a national sample of Gulf War Era veterans who endorsed lifetime diagnoses of either depression or PTSD (N = 425), regression analyses were used to predict past-year treatment utilization. Predictor variables were those indicated in the behavioral model of health care utilization, including predisposing demographic variables (e.g., age, race), enabling variables (e.g., service connection, enrollment in Veterans Health Administration [VHA]), and need-based variables (e.g., current symptom severity). VHA enrollment was associated with a three- and five-times higher odds of being treated for depression or PTSD, respectively. Income and symptom severity were also positively associated with treatment utilization. Among individuals with diagnoses of depression and/or PTSD, VHA enrollment was the strongest predictor of receiving mental health treatment for these diagnoses, controlling for all other variables in the model including recent contact with the health care system, current symptom severity, and the presence of other enabling resources. Results suggest that the VHA's integrated model of care increases accessibility and delivery of effective mental health services.

Autonomic dysfunction and gastroparesis in Gulf War veterans

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Abstract

Over 25% of veterans with Gulf War illness developed chronic gastrointestinal (GI) symptoms of unknown etiology after they returned from deployment to the Persian Gulf. To determine the prevalence of delayed gastric emptying and its association with autonomic dysfunction in returning Gulf War (GW) veterans with chronic GI symptoms, we prospectively studied 35 veterans who were deployed to the Persian Gulf and developed chronic nausea, vomiting, postprandial abdominal pain, and bloating during their tour of duty and 15 asymptomatic controls. All veterans underwent 5 standardized cardiovascular tests to assess autonomic function. Each test was scored from 0 (normal) to 5 (severe disease) and the mean was calculated. A composite score >1.5 was considered abnormal, with 5 representing severe autonomic dysfunction. A standardized gastric emptying test with a solid phase was performed in each veteran. A gastric retention of >50% at 100 minutes was considered abnormal. The composite autonomic score was 3.7 in veterans with GI symptoms (vs 1.3 in controls) (p<0.01). The mean solid phase retention at 100 minutes was 72.6% in the symptomatic veterans versus 24.6% in controls (p<0.001). Our results suggest that autonomic dysfunction and delayed gastric emptying are common in returning GW veterans with GI symptoms. Autonomic dysfunction was positively correlated with the severity of delayed gastric emptying and may account for the GI symptoms of nausea, vomiting, postprandial abdominal pain, and bloating. These new findings are important for an increasing number of veterans who are serving in the Persian Gulf and are at a high risk of developing GI disorders while deployed.

Autonomic dysfunction and gastroparesis in Gulf War veterans

Preliminary Findings from the Gulf War Women's Cohort: Reproductive and Children's Health Outcomes among Women Veterans

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Abstract

Reproductive outcomes, such as preterm birth, miscarriage/stillbirth, and pre-eclampsia, are understudied in veterans, particularly among Gulf War veterans (GWVs). During deployment, women GWVs were exposed to toxicant and nontoxicant exposures that may be associated with adverse reproductive and developmental outcomes. The data come from a survey of 239 participants from northeastern and southern U.S. cohorts of women veterans. The questionnaire collected information about the service history, current and past general health, reproductive and family health, demographic information, and deployment exposures. Odds ratios were computed with 95% confidence intervals between exposures in theater and reproductive/children's health outcomes. GWVs experienced adverse reproductive outcomes: 25% had difficulty conceiving, and 31% had a pregnancy that ended in a miscarriage or stillbirth. Pregnancy complications were common among GWVs: 23% had a high-risk pregnancy, and 16% were diagnosed with pre-eclampsia. About a third of GWVs reported their children (38%) had a developmental disorder. Use of pesticide cream during deployment was associated with higher odds of all reproductive and developmental outcomes. The results demonstrate that GWVs experienced reproductive and children's health outcomes at potentially high rates, and exploratory analyses suggest pesticide exposure as associated with higher odds of adverse reproductive outcomes. Future longitudinal studies of women veterans should prioritize examining reproductive and children's health outcomes.

Association of N,N-diethyl-m-toluamide (DEET) with obesity among adult participants: Results from NHANES 2007-2016

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Abstract

Background: The purpose of this study was to examine the relationship between N,N-diethyl-m-toluamide (DEET) exposure and obesity-related outcomes in the general adult population using the data from the National Health and Nutrition Examination Survey (NHANES).

Methods: This cross-sectional study examined the data from the NHANES from 2007 to 2016 and totally evaluated 8,770 individuals. DEET's primary oxidative metabolite, 3-(diethylcarbamoyl) benzoic acid (DCBA), is a sensitive and specific indicator of DEET exposure. DCBA was divided into three groups based on the interquartile range. Body mass index (BMI) and waist circumference (WC) were used to define obesity and abdominal obesity, respectively. The association among DCBA and obesity-related outcomes was evaluated using a multivariable linear and logistic regression model.

Results: Overall, median age of participants was 46.0 (IQR 31.0, 59.0) years, with 4295 (49.2%) men, while median BMI and WC were 27.8 (24.0, 32.0) and 29.6 (86.6, 108.1) kg/m2, respectively. Approximately 3,251 (35.9%) cases of obesity and 4,778 cases (54.4%) of abdominal obesity were observed. In multivariable-adjusted linear regression models, as the tertiles of DCBA increased, BMI and WC monotonically increased regardless of the adjustments (all p for trend <0.01). By referring the lowest tertile of DCBA, the highest tertile was associated with a higher BMI (β = 0.83, 95% confidence intervals [CI] [0.45, 1.21]; $p < 0.001$) and WC (β = 1.59, 95% CI [0.59, 2.60]; p = 0.002). The multivariate odds ratios (95% CI) for obesity increased monotonically as 1.18 (0.97-1.44) and 1.36 (1.15-1.61) (p for trend 0.001). Similar associations between DCBA and the prevalence of abdominal obesity were observed across increasing DCBA tertiles compared with the reference tertile (OR = 1.22, 95% CI [1.02, 1.44]; OR = 1.28, 95% CI [1.08-1.54]; p for trend = 0.002).

[At the Root of 3 "Long" Diseases: Persistent Antigens Inflicting Chronic Damage on the Brain and Other Organs in Gulf War Illness, Long-COVID-19, and Chronic Fatigue Syndrome](#)

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Abstract

Several foreign antigens such as those derived from viruses and bacteria have been linked to long-term deleterious effects on the brain and other organs; yet, health outcomes subsequent to foreign antigen exposure vary depending in large part on the host's immune system, in general, and on human leukocyte antigen (HLA) composition, in particular. Here we first provide a brief description of 3 conditions characterized by persistent long-term symptoms, namely long-COVID-19, myalgic encephalomyelitis/chronic fatigue syndrome (ME/CFS), and Gulf War Illness (GWI), followed by a brief overview of the role of HLA in the immune response to foreign antigens. We then discuss our Persistent Antigen (PA) hypothesis and highlight associations between antigen persistence due to HLA-antigen incongruence and chronic health conditions in general and the 3 "long" diseases above in particular. This review is not intended to cover the breadth and depth of symptomatology of those diseases but is specifically focused on the hypothesis that the presence of persistent antigens underlies their pathogenesis.

PTSD symptom severity mediates the impact of war zone stress exposure on postdeployment physical health: The Fort Devens Gulf War veterans cohort

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Abstract

Objective: Exposure to traumatic events is associated with increased risk for negative physical health outcomes, but more work is needed to advance understanding of the mechanisms underlying this relationship. As military deployments frequently involve trauma exposure, this issue has clear implications for veteran populations. This longitudinal study examined the role of mental health symptomatology (i.e., PTSD, depression, and anxiety) in the association between war zone stress and postdeployment physical health in Gulf War veterans.

Method: Data were collected in three waves over 7 years from a sample of 2,929 (92% male) Army personnel who were deployed to the 1990-1991 Gulf War. Structural equation modeling (SEM) was used to examine the associations linking war zone stress exposure reported at deployment return with subsequent physical health 6 to 7 years later, including the postdeployment onset of health symptoms and conditions and health functioning. The roles of PTSD, depression, and anxiety symptom severity as potential risk mechanisms linking stress exposure with later health outcomes were examined.

Results: Self-reported higher stress exposure was linked with greater severity of PTSD, depression, and anxiety symptoms. SEM analyses revealed that PTSD symptom severity was the only significant mediator of stress exposure on subsequent physical health.

Conclusion: Findings support the unique and significant role of PTSD in the development of physical health problems in the wake of war zone stress for Gulf War veterans. These results suggest that targeted PTSD interventions could reduce or prevent future physical health problems that can result from trauma exposure and mental health sequelae linked to military service. (PsycInfo Database Record (c) 2022 APA, all rights reserved).

Military exposures and lung cancer in United States veterans

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Abstract

Lung cancer screening begins at age 50, with yearly low dose computed tomography (LDCT) scans until age 80, for patients determined to be high risk due to tobacco smoking. Veterans serving from World War II to the Gulf War are now at the age where LDCT is recommended. This recommendation from the United States Preventative Service Task Force includes patients who have a 20-pack year tobacco history and currently smoke or quit within the last 15 years. This recommendation does not consider additional risk factors such as exposures to lung carcinogens. We discuss unique operational and occupational exposures encountered while serving in the armed forces, which may potentially increase the risk of lung cancers in the Veteran population. The additional risk of lung cancer due to military exposure history is unclear and more work is needed to identify and quantify risk at an individual level. Increasing awareness at the provider level regarding the carcinogenic exposures encountered may allow a larger population of Veterans, not meeting traditional LDCT criteria, to benefit from lung cancer screening.

Fatigue and pain severity in Gulf War Illness is associated with changes in inflammatory cytokines and positive acute phase proteins

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Abstract

Objective: To investigate relationships between inflammatory analytes and symptoms of pain and fatigue in Gulf War Illness (GWI).

Methods: In this preliminary study, 12 male Veterans meeting GWI criteria provided daily blood samples and symptom ratings over 25 days. Linear mixed models were used to analyze associations between symptoms and sera concentrations of cytokines, acute phase proteins, insulin, and brain-derived neurotropic factor.

Results: Analyses included 277 days with both blood draws and self-reports. Days with worse fatigue severity were associated with higher C-reactive protein and serum amyloid A (SAA), and lower eotaxin-1. Muscle and joint pain were associated with leptin, monocyte chemoattractant protein-1, and interferon gamma-induced protein. Joint pain was further associated with SAA and eotaxin-3.

Conclusions: GWI involves fatigue and pain associated with inflammation. Conventional and novel anti-inflammatories should be further explored for the treatment of GWI.

Examining the association between the gastrointestinal microbiota and Gulf War illness: A prospective cohort study

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Abstract

Gulf War Illness (GWI) affects 25-35% of the 1991 Gulf War Veteran (GWV) population. Patients with GWI experience pain, fatigue, cognitive impairments, gastrointestinal dysfunction, skin disorders, and respiratory issues. In longitudinal studies, many patients with GWI have shown little to no improvement in symptoms since diagnosis. The gut microbiome and diet play an important role in human health and disease, and preliminary studies suggest it may play a role in GWI. To examine the relationship between the gut microbiota, diet, and GWI, we conducted an eight-week prospective cohort study collecting stool samples, medications, health history, and dietary data. Sixty-nine participants were enrolled into the study, 36 of which met the case definition for GWI. The gut microbiota of participants, determined by 16S rRNA sequencing of stool samples, was stable over the duration of the study and showed no within person (alpha diversity) differences. Between group analyses (beta diversity) identified statistically significant different between those with and without GWI. Several taxonomic lineages were identified as differentially abundant between those with and without GWI (n = 9) including a greater abundance of Lachnospiraceae and Ruminococcaceae in those without GWI. Additionally, there were taxonomic differences between those with high and low healthy eating index (HEI) scores including a greater abundance of Ruminococcaceae in those with higher HEI scores. This longitudinal cohort study of GWVs found that participants with GWI had significantly different microbiomes from those without GWI. Further studies are needed to determine the role these differences may play in the development and treatment of GWI.

Complementary/integrative healthcare utilization in US Gulf-War era veterans: Descriptive analyses based on deployment history, combat exposure, and Gulf War Illness

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Abstract

Complementary and integrative health (CIH) approaches have gained empirical support and are increasingly being utilized among veterans to treat a myriad of conditions. A cluster of medically unexplained chronic symptoms including fatigue, headaches, joint pain, indigestion, insomnia, dizziness, respiratory disorders, and memory problems, often referred to as Gulf War Illness (GWI) prominently affect US Gulf War era (GWE) veterans, yet little is known about CIH use within this population. Using data collected as part of a larger study (n = 1153), we examined the influence of demographic characteristics, military experiences, and symptom severity on CIH utilization, and utilization differences between GWE veterans with and without GWI. Over half of the sample (58.5%) used at least one CIH modality in the past six months. Women veterans, white veterans, and veterans with higher levels of education were more likely to use CIH. GWE veterans with a GWI diagnosis and higher GWI symptom severity were more likely to use at least one CIH treatment in the past six months. Over three quarters (82.7%) of veterans who endorsed using CIH to treat GWI symptoms reported that it was helpful for their symptoms. Almost three quarters (71.5%) of veterans indicated that they would use at least one CIH approach if it was available at VA. Results provide a deeper understanding of the likelihood and characteristics of veterans utilizing CIH to treat health and GWI symptoms and may inform expansion of CIH modalities for GWE veterans, particularly those with GWI.

Diagnosis of Gulf War Illness Using Laser-Induced Spectra Acquired from Blood Samples

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Abstract

Gulf War illness (GWI) is a chronic illness with no known validated biomarkers that affects the lives of hundreds of thousands of people. As a result, there is an urgent need for the development of an untargeted and unbiased method to distinguish GWI patients from non-GWI patients. We report on the application of laser-induced breakdown spectroscopy (LIBS) to distinguish blood plasma samples from a group of subjects with GWI and from subjects with chronic low back pain as controls. We initially obtained LIBS data from blood plasma samples of four GWI patients and four non-GWI patients. We used an analytical method based on taking the difference between a mean LIBS spectrum obtained with those of GWI patients from the mean LIBS spectrum of those of the control group, to generate a "difference" spectrum for our classification model. This model was cross-validated using different numbers of differential LIBS emission peaks. A subset of 17 of the 82 atomic and ionic transitions that provided 70% of correct diagnosis was selected test in a blinded fashion using 10 additional samples and was found to yield 90% classification accuracy, 100% sensitivity, and 83.3% specificity. Of the 17 atomic and ionic transitions, eight could be assigned unambiguously to species of Na, K, and Fe.

Correlates and clinical associations of military sexual assault in Gulf War era U.S. veterans: Findings from a national sample

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Abstract

Military sexual assault (MSA) is a prevalent issue among military personnel that can have direct implications on postmilitary mental health. Gulf War era U.S. veterans represent the first cohort in which women veterans were integrated into most aspects of military service except for combat. The present study sought to build on prior studies by identifying characteristics associated with the occurrence of MSA and clinical correlates of MSA and examining how these differ between men and women. This study analyzed cross-sectional survey data from a national sample of treatment-seeking Gulf War era veterans. Participants (N = 1,153) reported demographic information, clinical outcomes, military background, and history of MSA. MSA was more common among female veterans (n = 100, 41.3%) than male veterans (n = 32, 3.6%). The odds of experiencing MSA were approximately 19 times higher for female veterans relative to their male peers, OR = 18.92, p < .001. Moreover, as expected, MSA was robustly associated with probable current posttraumatic stress disorder, probable current depression, and past-year suicidal ideation in female veterans, whereas combat exposure was robustly associated with these sequelae in male veterans. The present findings confirm that a large proportion of female veterans from the Gulf War era experienced MSA and highlight the deleterious correlates of MSA on veterans' mental health. Sex differences of correlates of MSA and subsequent clinical associations are highlighted.

Veteran community engagement and social connection needs following inpatient psychiatric hospitalization

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Abstract

Objective: To understand barriers and facilitators to engaging in community activities for increasing social connectedness among recently psychiatrically hospitalized veterans, a population at elevated risk for suicide.

Method: We completed 30 semistructured qualitative interviews with veterans within 1 week of discharge from inpatient psychiatric hospitalization. Our interviews focused on understanding past and current barriers, facilitators, and needs for engaging in community activities after psychiatric hospitalization. Data were analyzed using a modified grounded theory approach.

Results: Veterans shared feeling a lack of belonging and discussed several barriers to community engagement including lack of self-confidence, limited knowledge of opportunities, and negative expectations. Veterans identified several ways to facilitate engagement in community activities such as centralizing information on community activities and providing active support posthospitalization.

Conclusions and implications for practice: Veterans by and large valued community and the role of community activities for increasing social connectedness. However, more active intervention for supporting engagement in community activities appears necessary to facilitate connection posthospitalization. (PsycInfo Database Record (c) 2022 APA, all rights reserved).

Cannabis use and suicide risk among Gulf War veterans

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Abstract

Cannabis use has been indicated as a risk factor for suicide in veterans. This study of Gulf War veterans tested the relationship between self-report past year cannabis use and (a) past year suicidal ideation and (b) risk for suicidal behavior. Data were from a national sample (N = 1126) of Gulf War veterans. Logistic regression models indicated cannabis use was associated with past year suicidal ideation and elevated risk for suicidal behavior, independent of key covariates. In corroboration with research on other military populations, this study indicates a potentially concerning association between cannabis use and suicide risk in Gulf War veterans.

The Prevalence, Humanistic Burden, and Healthcare Impact of Irritable Bowel Syndrome (IBS) Among United States Veterans

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Abstract

Background & aims: Irritable bowel syndrome (IBS) in Veterans is understudied. We aimed to investigate (1) prevalence of IBS; (2) phenotypic, environmental, and psychosocial factors associated with IBS; and (3) associations of IBS with health-related quality of life (QOL) and healthcare utilization.

Methods: From June 2018 to April 2020, we invited Veterans to complete the Rome IV IBS questionnaire, Short Form-12, Post-Traumatic Stress Disorder (PTSD) checklist, Hospital Anxiety and Depression Scale, and questionnaires on general health, antibiotic-use, infective enteritis (IE), and healthcare utilization.

Results: Among 858 Veteran respondents, 244 (28.4%) met Rome IV IBS criteria (47.5% IBS with diarrhea [IBS-D], 16.8% IBS with constipation [IBS-C], 33.6% mixed-IBS [IBS-M]). IBS was associated with greater anxiety and depression and lower QOL (all $p<0.001$). Provisional PTSD, IE, and bowel problems after antibiotics were more common in IBS (all $p<0.001$) as were multiple doctor visits ($p<0.01$) and hospitalizations ($p=0.04$). Comparisons across non-IBS and IBS subgroups revealed overall associations of psychological comorbidities ($p<0.01$), multiple doctor visits ($p<0.01$), hospitalizations ($p=0.03$), IE ($p<0.01$) and bowel problems after IE ($p=0.03$) or antibiotics ($p<0.01$) with subgroup. Highest anxiety and depression scores, PTSD, multiple doctor visits, hospitalizations, and bowel problems after IE were observed in IBS-C. In adjusted analyses, IBS was associated (all $p<0.001$) with anxiety (odds ratio [OR]=3.47), depression (OR=2.88), lower QOL, PTSD (OR=3.09), IE (OR=4.44), bowel problems after antibiotics (OR=1.84), multiple doctor visits (OR=2.08), and hospitalizations (OR=1.78).

Conclusion: IBS is prevalent among Veterans and has a measurable impact on individuals and healthcare resources. Veterans with IBS may experience significant psychological impairment.

Whole-body inhalation of nano-sized carbon black: a surrogate model of military burn pit exposure

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Abstract

Objective: Chronic multisymptom illness (CMI) is an idiopathic disease affecting thousands of U.S. Veterans exposed to open-air burn pits emitting aerosolized particulate matter (PM) while serving in Central and Southwest Asia and Africa. Exposure to burn pit PM can result in profound biologic consequences including chronic fatigue, impaired cognition, and respiratory diseases. Dysregulated or unresolved inflammation is a possible underlying mechanism for CMI onset. We describe a rat model of whole-body inhalation exposure using carbon black nanoparticles (CB) as a surrogate for military burn pit-related exposure. Using this model, we measured biomarkers of inflammation in multiple tissues.

Results: Male Sprague Dawley rats were exposed to CB aerosols by whole body inhalation (6 ± 0.83 mg/m3). Proinflammatory biomarkers were measured in multiple tissues including arteries, brain, lung, and plasma. Biomarkers of cardiovascular injury were also assayed in plasma. CB inhalation exposure increased CMI-related proinflammatory biomarkers such as IFN-γ and TNFα in multiple tissue samples. CB exposure also induced cardiovascular injury markers (adiponectin, MCP1, sE-Selectin, sICam-1 and TIMP1) in plasma. These findings support the validity of our animal exposure model for studies of burn pit-induced CMI. Future studies will model more complex toxicant mixtures as documented at multiple burn pit sites.

Advancing the Role of Neuroimmunity and Genetic Susceptibility in Gulf War Illness

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Abstract

Gulf War Illness (GWI) is a chronic multi-symptom disorder affecting as many as 30% of veterans of the 1991 Gulf War [...].

Nonsuicidal self-injury in veterans: Prevalence, clinical characteristics, and gender differences from a national cohort

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Abstract

Nonsuicidal self-injury (NSSI) is a robust predictor of suicidal thoughts and behaviors; however, while there are typically only small differences observed in the prevalence of NSSI between men and women, this condition has been largely overlooked and underestimated among men. Assessing NSSI methods more common in men may address misidentification as well as allow for more precise NSSI prevalence estimates. Survey data from a national sample of Gulf War I-Era veterans (N = 1063) was used to estimate the prevalence of NSSI and compare prevalence of NSSI methods between men and women veterans. Demographic and clinical correlates of NSSI engagement were also examined. The national lifetime prevalence rate of NSSI among Gulf War I-Era veterans was 22.40%, whereas the past year prevalence rate was 8.10%. In both men and women, wall/object punching was the most common NSSI method endorsed across the lifetime. Men had slightly higher overall NSSI prevalence rates compared with women. This study highlights the need to systematically assess NSSI, particularly among veterans, to better identify, and consequently treat, NSSI in men. This is the first available prevalence estimate of NSSI to include the assessment of wall/object punching in a national sample of adult veterans.

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

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Abstract

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.

Mind-body skills groups for treatment of war-traumatized veterans: A randomized controlled study

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Abstract

Objective: This study evaluated the effects of a mind-body skills group (MBSG) intervention on posttraumatic stress disorder (PTSD) symptoms.

Method: Veterans (n = 108; mean age = 55.97 [SD = 11.72]; 96% male) at a PTSD specialty clinic in the Veterans Affairs Health Care System were randomized to a 10-week MBSG program or standard treatment. PTSD was the primary outcome measure. Secondary outcomes included anger, sleep, depression, anxiety, posttraumatic growth, and health-related quality of life.

Results: MBSG participants had significantly greater improvement in the total PTSD score after 10 weeks compared to the standard treatment group. Hyperarousal and avoidance scores significantly improved at 10 weeks and improvements in the hyperarousal symptoms were maintained at 2-month follow-up. MBSG participants also had significant decreases in anger and sleep disturbance. There were no significant differences in the other secondary outcomes.

Conclusions: This MBSG intervention offers promise in helping Veterans with PTSD and its related symptoms. (PsycInfo Database Record (c) 2022 APA, all rights reserved).

Pain Symptoms And Sensitivity In Gulf War Illness: Relevance To Exercise Prescription.

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Abstract

Gulf War Illness (GWI), a prevalent chronic illness among Gulf War Veterans (GWV), is associated with higher risk of other chronic conditions. Prescribing exercise to GWV with GWI may help lower this risk; however, there is limited knowledge of GWI-specific factors that should be integrated into exercise prescriptions. Pain symptoms are a primary feature of GWI, and previous research has shown that GWVs with chronic pain experience greater pain during exercise and are more sensitive to experimental pain stimuli. However, the associations between pain symptoms, experimental pain sensitivity, and physical activity in GWI are unknown.

PURPOSE: Determine whether pain symptoms or sensitivity predict physical activity in Veterans with GWI.

METHODS: Pain symptoms (Veterans Rand-36 Bodily Pain Subscale 0-100) and sensitivity (0-20 Gracely pain intensity scale ratings of a 49 °C thermal stimulus) were measured in 23 GWV with GWI (age = 52.1 ± 4.31; % female = 8.6). Physical activity was measured for 10 days via accelerometry (Actigraph GT3X). Six separate regression models were used to explore whether pain symptoms or sensitivity predicted percentage of wear time spent in sedentary, light, and moderate-vigorous physical activity (MVPA). Models controlled for body mass index (BMI; 32.8 ± 5.5) which is also associated with these behaviors.

RESULTS: Mean $\pm$ SD bodily pain scores and pain sensitivity were 53.04 ± 21.06 and 12.33 ± 3.99, respectively. Mean $\pm$ SD sedentary activity, light activity, and MVPA was $73 \pm 9\%$, $17 \pm 6\%$, and $10 \pm 5\%$, respectively. Pain symptom and sensitivity models significantly predicted sedentary and light activity ($p < 0.05$), but not MVPA. For pain symptom models, BMI was the only significant predictor of sedentary ($\beta = 0.49$, $p = 0.028$, $R^2 = 0.26$) and light activity ($\beta = -0.59$, $p = 0.008$, $R^2 = 0.31$). Similarly, for pain sensitivity models, BMI significantly predicted sedentary ($\beta = 0.45$, $p = 0.035$, $R^2 = 0.29$) and light activity ($\beta = -0.48$, $p = 0.028$, $R^2 = 0.28$).

CONCLUSIONS: In Veterans with GWI, higher time spent engaging in sedentary behavior and lower time spent engaging in light activity is associated with higher BMI but not bodily pain or pain sensitivity. BMI rather than pain may be a more important consideration when prescribing exercise to Veterans with GWI.

Cytokines Do Not Mediate Symptom Responses Following Exercise In Veterans With Gulf War Illness

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Abstract

BACKGROUND: Exercise challenges are frequently used as stressors to study Gulf War Illness (GWI), a condition characterized by chronic and heterogenous symptoms, and thought to involve immune dysregulation. We have previously demonstrated that Veterans with GWI experience symptom worsening following acute exercise. The role of inflammatory cytokines in GWI post-exercise symptom exacerbation has not been systematically investigated. Exploring connections between cytokines and GWI symptom exacerbation may provide insight into GWI pathophysiology.

PURPOSE: To determine if cytokines mediate symptom exacerbation 24 hours after exercise in GWI Veterans.

METHODS: Gulf War Veterans (n = 68) completed 30 minutes of submaximal cycling exercise at 70% ± 5% of heart rate reserve. Symptom measurement (Centers for Disease Control Visual Analog Scales) and blood draws for measuring cytokines including interleukin (IL)-6, IL-8, and IL-10, Tumor Necrosis Factor-α (TNF-), and C-Reactive Protein (CRP) were conducted immediately before, 0.5 hours and 24 hours after exercise. Group differences were examined via one-way analysis of variance (ANOVA), Hedge's g effect sizes, Mann-Whitney U Test, and Wilcoxon effect sizes. Mediation analyses were used to determine the effect of cytokine levels on exercise-induced symptom changes.

RESULTS: GWI Veterans (n = 42) and healthy control (HC) Veterans (n = 26) did not differ on age (GWI = 52.1 ± 4.1 years, HC = 51.8 ± 4.9 years), BMI (GWI = 30.0 ± 5.5 kg/m2, HC = 29.4 ± 5.0 kg/m2), or Male/Female ratio (GWI = 39/3, HC = 24/2). GWI and HC Veterans performed similar cumulative work (F(1, 66) = 0.37, p = 0.54, g = -0.15). Pre-exercise cytokines (IL-6, IL-8, IL-10, TNF-) were similar between groups, but CRP was greater in GWI Veterans (median: GWI = 1.71 ng/mL, CON = 0.92 ng/mL, p < 0.05). GWI Veterans had greater post-exercise levels of IL-8 (median: GWI = 4.62 ng/mL, CON = 0.84 ng/mL p < 0.05) and CRP (median: GWI = 2.25 ng/mL, CON = 0.84 ng/mL, p < 0.05). After including covariates age, BMI, and pre-exercise symptom scores, cytokines did not significantly mediate the effect of exercise on symptoms (p > 0.05).

CONCLUSIONS: Exercise worsens symptoms in Veterans with GWI, but this does not appear to be caused by inflammatory cytokines or CRP levels.

Meeting the complex healthcare needs of veterans

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Abstract

More than half of US veterans seek care outside of the Veterans Health Administration. Physical and mental healthcare needs can be complicated by experiences during military service. Community clinicians can deliver more holistic and comprehensive care to veterans through understanding the unique needs of the veteran population.

Women of the Gulf War: Understanding Their Military and Health Experiences Over 30 Years

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Abstract

Introduction: Women Veterans of the Persian Gulf War (GW) expanded the military roles they had filled in previous military eras, with some women engaging in direct combat for the first time. Many GW service members, including women, had unique combat exposures to hazardous agents during deployment, which might have contributed to the development of chronic health problems. This study aims to understand the experiences of women GW Veterans (GWVs) as it is related to their military service and subsequent health in order to better inform and improve their clinical care.

Materials and methods: We conducted in-depth interviews with 10 women GWVs to understand their experiences and perspectives about how their military service in the Gulf has impacted their lives and health. We used an integrated approach of content analysis and inductive thematic analysis to interpret interview data.

Results: Besides having many of the same war-related exposures as men, women faced additional challenges in a military that was inadequately prepared to accommodate them, and they felt disadvantaged as women within the military and local culture. After service, participants had emergent physical and mental health concerns, which they described as developing into chronic and complex conditions, affecting their relationships and careers. While seeking care and service connection at Veterans Health Administration (VA), women voiced frustration over claim denials and feeling dismissed. They provided suggestions of how VA services could be improved for women and GWVs. Participants found some nonpharmacological approaches for symptom management and coping strategies to be helpful.

Conclusions: Women in the GW encountered challenges in military and healthcare systems that were inadequately prepared to address their needs. Women faced chronic health conditions common to GWV and voiced the desire to be understood as a cohort with unique needs. There is an ongoing need to expand services within the VA for women GWVs, particularly involving psychosocial support and management of chronic illness. While the small sample size can limit generalizability, the nature of these in-depth, minimally guided interviews provides a rich narrative of the women GWVs in this geographically diverse sample.