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FY25 Traumatic Brain Injury and Psychological Health Research Program (TBIPHRP)

Emerging Topics Research Award Topic Areas

Inclusion of classified research data within the application and/or proposing research of which the anticipated outcomes may be classified or deemed sensitive to national security concerns may result in application withdrawal. This includes, but is not limited to, research involving directed energy (e.g., photonic, radio frequency, acoustic energy, other non-kinetic sources), Anomalous Health Incidents, Havana Syndrome, and associated neurological syndromes/injuries.

- 1. Blast/Impulse Exposure and Psychological/Cognitive Health:** Emphasis has been placed recently on the unseen wounds of war and brain health deficits seen in Warfighters returning from combat zones, but with no diagnosable conditions.^{1,2} These Service Members are not experiencing the classical symptoms of TBI or the symptoms necessary for a posttraumatic stress disorder (PTSD) diagnosis. If clinical providers probe further, there are clear deficiencies that coincide with chronic impulse exposure and insults to the head; however, without a named disorder, it is very difficult to build an effective treatment regimen. There is a need to increase research to understand the mechanisms of how these exposures are affecting the brain physically, as well as etiological considerations for how the physical blows manifest to cognitive deficits and psychiatric episodes outside of the International Classification of Diseases paradigm. **Topic areas are:**
 - Understand the physiological and molecular mechanisms of hazardous impulse or blast exposures that result in adverse effects on the brain.
 - Understand changes in cognitive performance and psychological status associated with brain exposure(s).
 - Develop and/or validate safe and effective countermeasures to protect or restore brain health (e.g., cognition or psychological health) in the event of exposure(s).
- 2. Diagnosis and Treatment of Anger:** Large survey studies of the U.S. Army Study to Assess Risk and Resilience in Servicemembers — Longitudinal Study (STARRS – LS),³

¹ <https://www.nytimes.com/2023/11/26/us/military-brain-injury-rocket-launcher.html>

² <https://www.nytimes.com/2023/11/05/us/us-army-marines-artillery-isis-pentagon.html>

³ <https://starrs-ls.org/>

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Millennium Cohort Study,⁴ and Australian military personnel have found that problematic anger is prevalent among Service Members and Veterans.^{5,6} Anger is frequently comorbid with PTSD, and a history of anger attacks is predictive of persistent PTSD and new onset depression, anxiety, substance use and suicidality.⁷ While anger is listed as a factor to consider in the VA/Department of Defense (DOD) Clinical Practice Guidelines for the Assessment and Management of Patients at Risk of Suicide, there are no known guidelines for treating anger and aggression in Service Members and Veterans.⁸ A current systematic review of treatments for anger in military populations with PTSD found that PTSD-focused and mind-body treatments were largely ineffective in addressing anger.⁹ Given the prevalence and negative impact of problematic anger among military personnel, as well as its association with new onset psychological health issues, more research is needed. **Topic areas are:**

- Develop and evaluate screening and early intervention strategies.
- Standardize the measurement and assessment of anger symptoms.
- Treatment approaches that directly address anger, especially in individuals who have sustained a TBI where the experience/expression of anger or aggression/impulsivity may be related, in part, to the biological dysregulation secondary to brain injury.

- 3. Define risk and protective factors for harmful behaviors at the interpersonal and organizational levels:** Risk and protective factors for harmful behaviors¹⁰ at the interpersonal and organizational level of the social-ecological model¹¹ need to be further understood in a military context; most research to date has been contextualized at the individual level. There is a need to better understand protective factors and risk factors that are shared across multiple forms of harmful behaviors. Defining these factors beyond the individual level that aligns with a military setting and with recommendation 2.3a (implementation of prevention strategies at organizational and community levels) of the Independent Review Commission on Sexual Assault in the Military¹² will set the stage for future studies to identify change over time and enhance program evaluation efforts (focused on modifying those factors) to decrease harmful behaviors. **Topic areas are:**

⁴ <https://www.millenniumcohort.org/>

⁵ Adler AB, LeardMann CA, Roenfeldt KA, et al., and Millennium Cohort Study Team. 2020. Magnitude of Problematic Anger and Its Predictors in the Millennium Cohort. *BMC Public Health* 20:1-11.

⁶ Varker T, Cowlshaw S, Baur J, et al. 2022. Problem Anger in Veterans and Military Personnel: Prevalence, Predictors and Associated Harms of Suicide and Violence. *Journal of Psychiatric Research* 151:57-64.

⁷ Metcalf O, Finlayson-Short L, Forbes D, et al. 2023. A Systematic Review of Treatments for Problem Anger in Veteran and Military Populations with PTSD. *Aggression and Violent Behavior* 101837.

⁸ Department of Veterans Affairs/Department of Defense. 2019. VA/DOD Clinical Practice Guidelines for the Assessment and Management of Patients at Risk of Suicide.

<https://www.healthquality.va.gov/guidelines/MH/srb/VADoDSuicideRiskFullCPGFinal5088212019.pdf>

⁹ Smith DM, Meruelo A, Campbell-Sills L, et al. 2021. Pre-Enlistment Anger Attacks and Postenlistment Mental Disorders and Suicidality Among US Army Soldiers. *JAMA Network Open* 4(9), e2126626-e2126626.

<https://pmc.ncbi.nlm.nih.gov/articles/PMC8477262/>

¹⁰ Harmful behaviors include adverse outcomes such as sexual assault, suicide and interpersonal violence (including intimate partner and family violence). <https://www.armyresilience.army.mil/ard/images/pdf/Policy/PPOA%202.O.pdf>.

¹¹ <https://www.cdc.gov/violence-prevention/about/index.html>

¹² Independent Review Commission on Sexual Assault in the Military. 2021. Hard Truths and the Duty to Change: Recommendations from the Independent Review Commission on Sexual Assault in the Military.

<https://media.defense.gov/2021/Jul/02/2002755437/-1/-1/0/IRC-FULLREPORT-FINAL-1923-7-1-21.PDF>

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- Understanding risk, protective and biological factors beyond the individual level that are shared across multiple forms of harmful behaviors.¹⁴
- Research involving collective efficacy is of interest. Community collective efficacy, in which a group perceives an ability to work together to agree on mutually valued goals, is associated with reduced rates of child maltreatment and intimate partner violence.^{13, 14, 15}
- Research involving alcohol outlet density, neighborhood disorder, firearm availability/accessibility, and other community- and societal-level risk factors is of interest.¹⁵

4. Relationship Between Social Media and Mental Health: Growing concerns about the relationship between problematic social media use (PSMU) and negative mental health outcomes is gaining public awareness. Calls for action for more research on social media's harms and potential benefits on mental health have been issued by the White House¹⁶ and the U.S. Surgeon General's Office.¹⁷ In a recently conducted systematic review, the Psychological Health Center of Excellence (PHCoE) found a longitudinal association between PSMU and depression, sleep disturbances and other mental health outcomes in predominantly healthy populations; however, the PHCoE found no research on social media use or social media addiction in Service Members. The DOD has similarly prioritized understanding Service Members' activities and prevention needs within the cyber environment to include use of social media platforms and online "information cocoons" (i.e., when a person's cyber experience is shaped by a reflection of the person's own views).¹⁸

Topic areas are:

- Understanding how social media use impacts harmful behaviors and adverse mental health outcomes among Service Members.
- Examining the role of risk factors and modifiable targets in social media addiction to develop preventive interventions and identifying interventions to treat social media addiction.

¹³ Capaldi DM, Knoble NB, Shortt JW, et al. 2012. A Systematic Review of Risk Factors for Intimate Partner Violence. *Partner Abuse* 3(2):231-280. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3384540/pdf/nihms385813.pdf>

¹⁴ Armstead TL, Wilkins N, and Doreson A. 2018. Indicators for Evaluating Community- and Societal-Level Risk and Protective Factors for Violence Prevention: Findings from a Review of the Literature. *Journal of Public Health Management Practice* 24:S42-S50. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5886365/>

¹⁵ Sanchez C, Jaguan D, Shaikh S, et al. 2020. A Systematic Review of the Causes and Prevention Strategies in Reducing Gun Violence in the United States. *American Journal of Emergency Medicine* 38(10), 2169-2178. <https://pubmed.ncbi.nlm.nih.gov/33071102/>

¹⁶ The White House. 2023. White House Report on Mental Health Research Priorities. <https://bidenwhitehouse.archives.gov/wp-content/uploads/2023/02/White-House-Report-on-Mental-Health-Research-Priorities.pdf>

¹⁷ U.S. Department of Health and Human Services. 2023. Surgeon General Issues New Advisory About Effects Social Media Use Has on Youth Mental Health. <https://www.hhs.gov/sites/default/files/sg-youth-mental-health-social-media-advisory.pdf>

¹⁸ Office of the Under Secretary of Defense (Personnel and Readiness). 2022. FY23 Integrated Prevention Research Agenda. <https://www.prevention.mil/Portals/130/Documents/2023%20Integrated%20Prevention%20Research%20Agenda.pdf?ver=5nWUoNuEEzzlw9Y0GczGA%3D%3D>

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