



US DEPARTMENT OF DEFENSE

## BLAST INJURY RESEARCH PROGRAM COORDINATING OFFICE

# Neurocognitive and Psychological Health Outcomes Longitudinal Analyses of Posttraumatic Stress Disorder Trajectory and Healthcare Utilization in Combat-exposed Veterans

Project Veterans' After Discharge Longitudinal Registry (VALOR) is a large-scale, longitudinal (four time points over approximately 8 years) registry of posttraumatic stress disorder (PTSD) in combat-exposed Operation Iraqi Freedom (OIF), Operation Enduring Freedom (OEF), and Operation New Dawn (OND) male and female Veterans (Figures 1 and 2). The availability of comprehensive data on PTSD symptoms, related exposures, and outcomes at multiple time points in a cohort of U.S. Department of Veterans Affairs (VA) users with and without PTSD provides a unique opportunity to examine multiple hypotheses regarding longitudinal trajectories in combat-exposed Veterans.

Researchers at the VA Boston Healthcare System, (Boston, Massachusetts), Boston VA Research Institute, Inc. (BVARI) and New England Research Institutes (Watertown, Massachusetts) conducted a study to examine:

- Trajectories of PTSD symptomatology and diagnosis by chart and diagnostic interview assessments in combat-exposed men and women
- The nature and extent of military sexual trauma (MST) in combat-exposed men and women who have utilized the VA Healthcare System, including the contribution of MST to PTSD symptoms and diagnosis
- Associations of PTSD, mild traumatic brain injury (mTBI), major depressive disorder, and treatment utilization in relation to changes in suicidal ideation

Data from this study will inform planning and evaluation of PTSD screening and treatment programs for Service members, which will lead to improvements in wellness, functioning, QOL, and potential fitness for return to duty.

To this end, the researchers consented 1,649 individuals to participate in the study, which involved collecting information from electronic medical records (EMR) assessing current PTSD status, mTBI, suicidal ideation, exposure to traumatic events, comorbid symptoms of anxiety or depression, substance abuse, social and occupational status, and overall quality of life (QOL) in addition to follow-up telephone interviews and surveys.

There are several key research accomplishments related to this study:

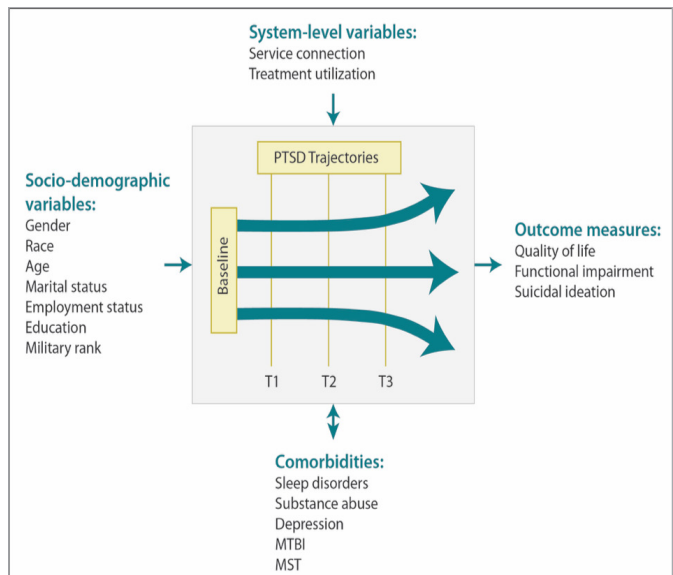
1. First study to show a longitudinal association between PTSD and metabolic syndrome severity, even when controlling for metabolic syndrome severity at Time 1 (*Wolf et al. 2016*).





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- Individuals with PTSD, as measured by the Structured Clinical Interview for DSM-IV PTSD module, reported significantly worse psychosocial functioning than those with mTBI alone or neither PTSD nor mTBI, suggesting that PTSD diagnosis may be uniquely associated with worse psychosocial functioning (*Green, Annunziata, et al. 2017*)
- The subset of symptoms outlined in the 11th edition of the International Classification of Diseases (ICD-11) performed no better in diagnostic specificity nor in rate of comorbidity than the DSM-5 criteria suggesting that developing new diagnostic criteria may be valuable, but the alterations made in the ICD-11 are not an improvement (*Jackson et al. 2016*)
- Groundbreaking analysis that compared results from PTSD diagnostic interviews with the PTSD diagnoses contained in participants' EMRs. Researchers found that, although most participants were concordant for PTSD status, over 25 percent of EMR diagnoses differed from those obtained in the diagnostic interview, with varying proportions of false positives and false negatives. Overall, those individuals with the most and least severe symptom presentations in the diagnostic interview were more likely to be accurately classified by their medical care providers (*Holowka et al. 2014*)
- Black Veterans were significantly less likely than white Veterans to receive a PTSD diagnosis from compensation and pension examiners; however, racial disparity was no longer significant for examination where psychometric testing was used (*Marx et al. 2017*)
- Using VALOR data researchers examined whether more personally relevant (i.e., higher quality) suicide safety plans reduce future suicide-related outcomes (e.g., psychiatric hospitalization, self-harm, and suicide attempts), and determined which components of a safety plan may be most effective at reducing these outcomes. They found that more personally relevant safety plans may reduce future suicide-related outcomes among veterans. Higher scores on Step 3 (i.e., people and places that serve as distractions) predicted a decreased likelihood of future suicide behavior reports among participants (*Green, Kearns, et al. 2017*).



**FIGURE 1:** Project VALOR Study Conceptualization. The figure shows anticipated predictors of PTSD symptom trajectories and related outcomes of interest (QOL, suicidal ideation). (Figure used with permission from the authors)

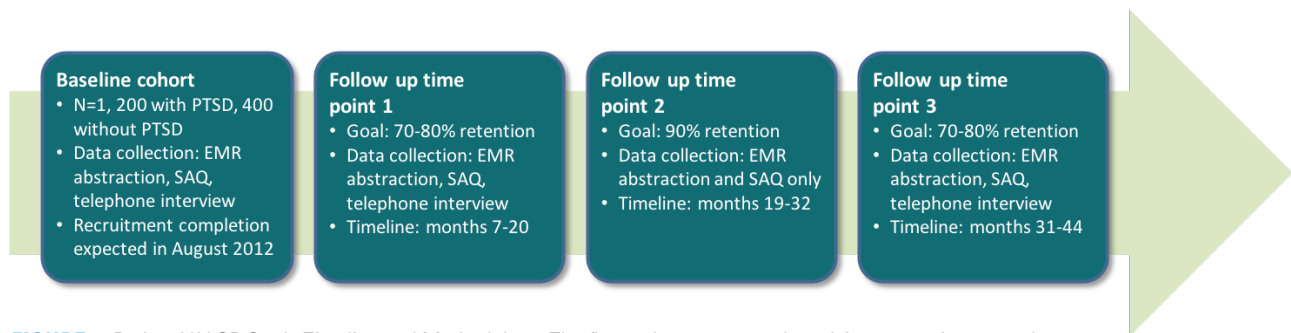
Thus, the researchers have taken great strides to reach their goal of providing researchers, military leaders, and treatment providers with information regarding the course of disease, suicidal ideation, and MST.





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**FIGURE 2:** Project VALOR Study Timeline and Methodology. The figure shows expected participant recruitment and retention as well as the data to be collected at each study timepoint. (Figure used with permission from the authors)

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