



PERU

Program Evaluation and Research Unit

Traumatic Brain Injuries and their relationship to Suicide in Veterans



University of
Pittsburgh

School of
Pharmacy

Presenter Info



Lee Wagner

**Senior Program Implementation
Specialist**



University of
Pittsburgh

School of
Pharmacy

PER_XU

Learning Objectives

By the end of this module, you will be able to do the following:

- Define what is a Traumatic Brain Injury (TBI)
- Share facts about TBI and their connections to SI
- Discuss the occurrence of TBI's within specific eras of service
- Share best practices and future studies regarding Traumatic Brain Injury and Suicidal Ideation in Veterans



University of
Pittsburgh

School of
Pharmacy

PERXU

What Defines a TBI

- TBIs result from a bump, blow, or jolt to the head, or from a penetrating head injury.
- Any external force that causes the brain to move within the head can disrupt normal brain function, leading to loss of consciousness, or being dazed and confused.
- **Symptoms:** Cognitive impairment is the hallmark of TBI; however, physical, sensory, and cognitive symptoms emerge in even mild TBI, and are progressively worse in moderate to severe



University of
Pittsburgh

School of
Pharmacy

PERXU

What Defines a TBI

Mild TBI

- The majority of TBI survivors (75%) have mild brain injury that involves a brief change in mental status or consciousness, with no structural damage to the brain observed.
- Symptoms may be subtle, ranging from no apparent deficit (full recovery) to temporary personality changes; however, *individuals may experience lifelong cognitive or psychological challenges.*

Severe TBI

- For severe TBI, an extended period of unconsciousness or amnesia typically occurs after the injury, with measurable brain damage as observed by brain imaging.
- Patients require acute and intensive medical intervention to survive and can face a long road of recovery with potential lifelong disability.



Clinical Signs of Altered Brain Function

- Any period of loss or decreased consciousness
- Any loss of memory for events immediately before or after the injury
- Neurologic deficits such as muscle weakness, loss of balance and coordination, disruption of vision, change in speech and language, or sensory loss
- Any alteration in mental state at the time of the injury such as confusion, disorientation, slowed thinking, or difficulty with concentration

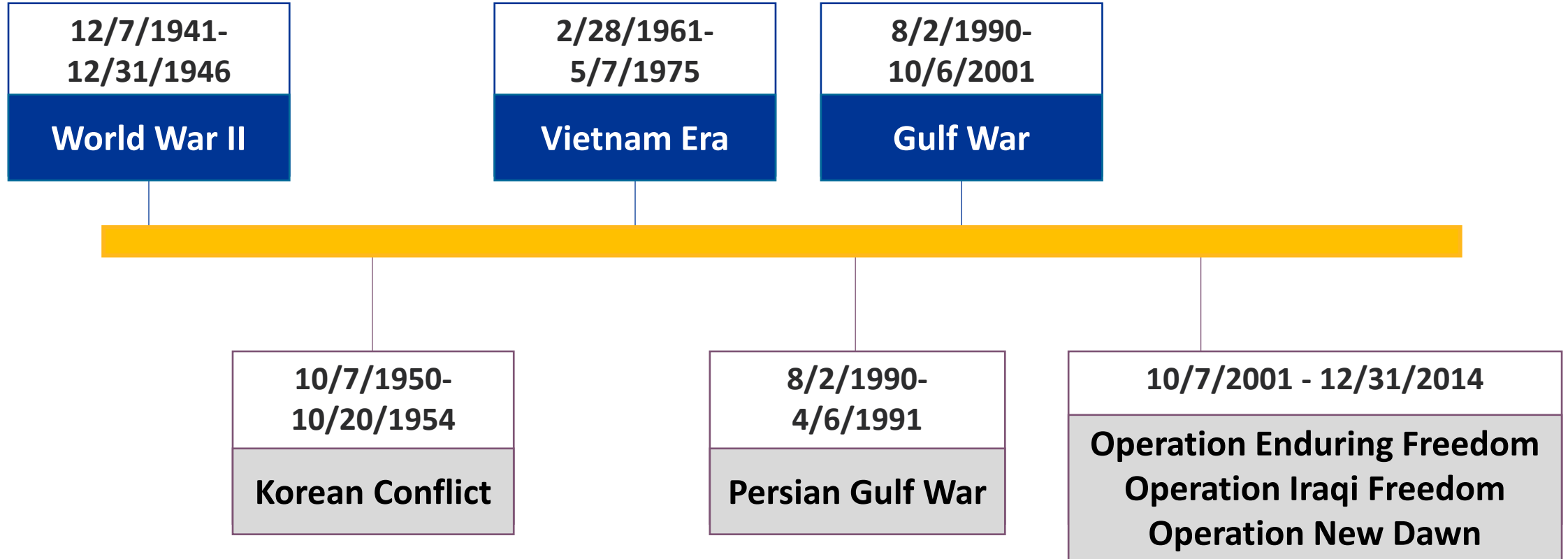


University of
Pittsburgh

School of
Pharmacy

PERXU

Eras of Service



University of
Pittsburgh

School of
Pharmacy

PERXU

Impact on OEF/OIF/OND Veterans Community

- From 2000-2019, 413,858 United States military personnel worldwide experienced a TBI; 82.8% were considered mild, 9.8% moderate, and 2.3% penetrating or severe.
- Approximately 80% of new TBI cases occur in non-deployed settings, with military members also sustaining TBIs during training activities.
 - For the military community, explosive blasts are a common way one can experience a TBI
- Out of 770,000 veterans of Operations Enduring Freedom and Iraqi Freedom who sought care from a VA Medical Center, nearly 60,000 were evaluated or treated for a TBI-related condition.



University of
Pittsburgh

School of
Pharmacy

PERXU

Article Overview and Research

Relationship Between Traumatic Brain Injury History and Recent Suicidal Ideation in Iraq/Afghanistan-Era Veterans

"The aim of this study was to investigate the relationship between lifetime TBI and recent SI after adjusting for demographics, sleep quality, PTSD, and depression."



University of
Pittsburgh

School of
Pharmacy

PERXU

Article Overview and Research

- The authors researched the effects of TBI on recent SI on OIF/OEF/OND Veterans
- Looked at lifetime TBIs as well as deployment TBI, compared the impact of both scenarios
- Compared multiple lifetime TBI with no TBI and single lifetime TBI
- Authors looked beyond deployment TBI occurrences and screened for multiple factors.



University of
Pittsburgh

School of
Pharmacy

PERXU

Research Study Group and Findings

- Participants were screened with the following
 - Positive TBI history- TBI questionnaire
 - Demographic variables
 - Post-Traumatic Stress Disorder (PTSD) and depression- DSM-5 definitions
 - Poor sleep quality- Pittsburgh Sleep Quality Index (PSQI) standards



University of
Pittsburgh

School of
Pharmacy

PER_XU

Research Study Group and Findings (Cont'd)

Study group- Lifetime history of **multiple TBI and recent SI**

- 215 reported **single** lifetime TBI
 - Recent SI- 23
- 206 reported **multiple** lifetime TBI
 - Recent SI-40

Study group- Lifetime history of **any TBI and recent SI**

- 838 recruited through the VA nationally
 - 421 had a lifetime history of at least one TBI
 - History of TBI and SI – 63
 - Without history of TBI and still recent SI – 38



University of
Pittsburgh

School of
Pharmacy

PERXU

Findings on TBI and Recent SI

- Lifetime history of TBI **was not found to be a significant predictor** for recent SI after adjusting for depression, demographics, sleep quality and PTSD
- A history of multiple TBI **was associated with recent SI** when compared to those with no history of TBI



TBI and SI

- Findings showed that TBI may not have a direct impact on SI, but rather ailments that stem from a TBI and lifelong stressors do.
 - TBI can lead to poor sleep habits
 - TBI can be part of Major Depressive Disorder (MDD)
 - Both poor sleep and MDD have been shown to be risk factors for SI



TBI and SI

"Within the context of the broader literature, results suggest that a history of multiple TBIs may pose increased risk for presence of recent SI in veterans who have served in the OEF/OIF/OND eras. However, this relationship **was only significant when considering TBI history across the life span**, and was not significant when considering TBI sustained during deployment or more severe TBI Injuries."



University of
Pittsburgh

School of
Pharmacy

PERXU

Treatment and Next Steps

- Addressing MDD and poor sleep habits in those veterans with a TBI can help more than just addressing the TBI experience.
- Screening for lifetime TBI and deployment TBI can help provider best supply treatment options



Research Limitations

- TBI history was self-reported by respondents
- Substance misuse and complex interpersonal relationships were not factored into findings
- Small group of participants that was made up of mostly white males



University of
Pittsburgh

School of
Pharmacy

PERXU

Discussion

- How can frontline screeners use this information when working with Veterans?
- Are there ways to heal from a TBI?



University of
Pittsburgh

School of
Pharmacy

PERXU

References

- *Traumatic brain injury*. Cohen Veterans Bioscience. (n.d.). Retrieved May 23, 2022, from <https://www.cohenveteransbioscience.org/traumatic-brain-injury/>
- Shura, R. D., Nazem, S., Miskey, H. M., Hostetter, T. A., Rowland, J. A., Brenner, L. A., VA Mid-Atlantic MIRECC Workgroup, & Taber, K. H. (2019). Relationship between traumatic brain injury history and recent suicidal ideation in Iraq/Afghanistan-era veterans. *Psychological Services, 16*(2), 312–320. <https://doi.org/10.1037/ser0000208>
- US Department of Veterans Affairs. (2017). Timeline of U.S. Period of Service Eras (1900-Present) (Department of Veterans Affairs, Ed.) Retrieved from https://www.va.gov/HEALTHEQUITY/docs/Period_of_Service_Timeline_OHE02102017.pdf.





The University of Pittsburgh School of Pharmacy, Program Evaluation and Research Unit (PERU) is dedicated to meaningful work that facilitates each patient or community member's ability to achieve optimal health, well-being, recovery and choice.