DIFFERENCES BETWEEN MALE AND FEMALE VETERANS WITH PTSD AND TBI

The Effect on Treatment

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Objectives

1. Explore the changes in the role of the female veteran over time

2. Discuss the incidence of PTSD and TBI among Veterans and literature on sex differences

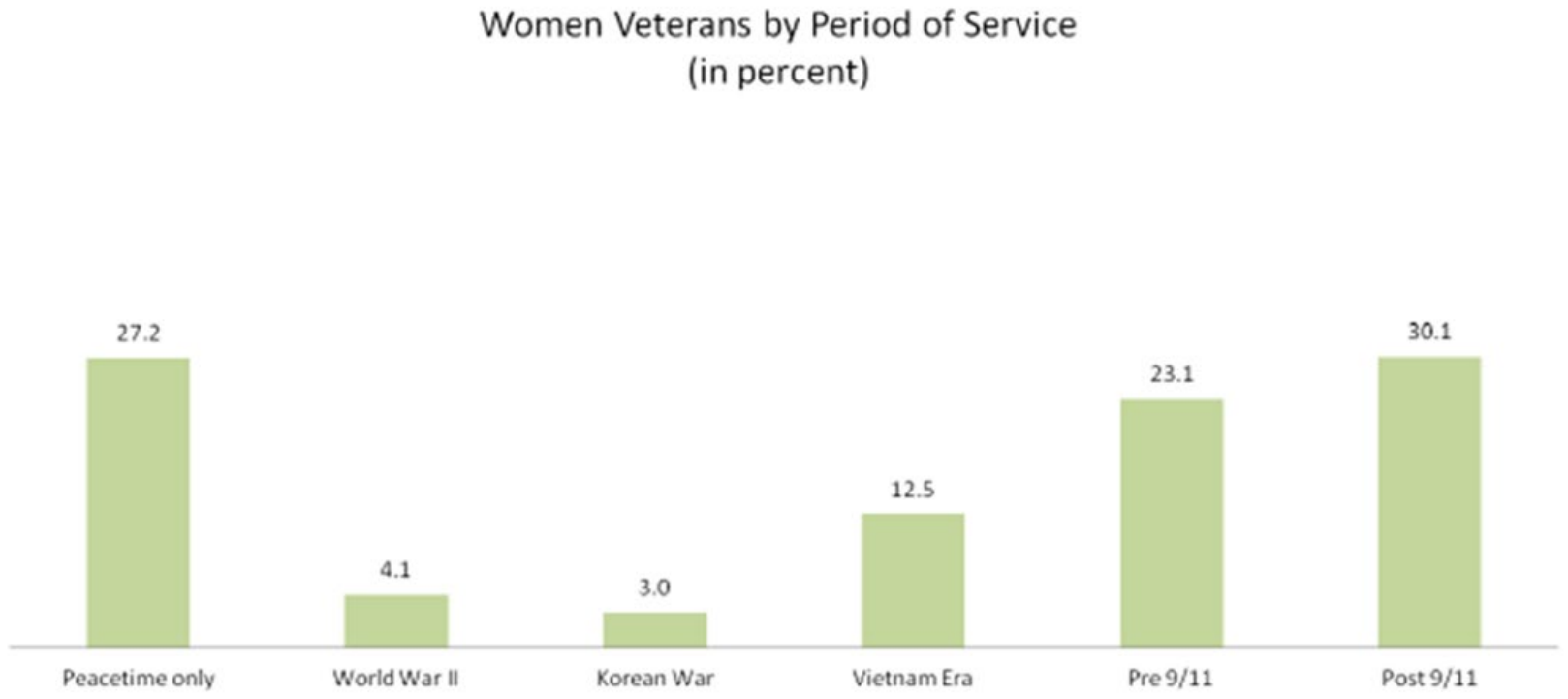
3. Discuss the findings of sex differences from this study among veterans with PTSD and TBI and how this may affect treatment

Poll Question:

In what occupational capacity do you work with veterans?

a) Physician
b) Nurse
c) Psychologist
d) Social Worker
e) Psychiatrist
f) Other

Most Women Veterans served during the Pre and Post 9/11 Period or Peacetime Period of Military Service

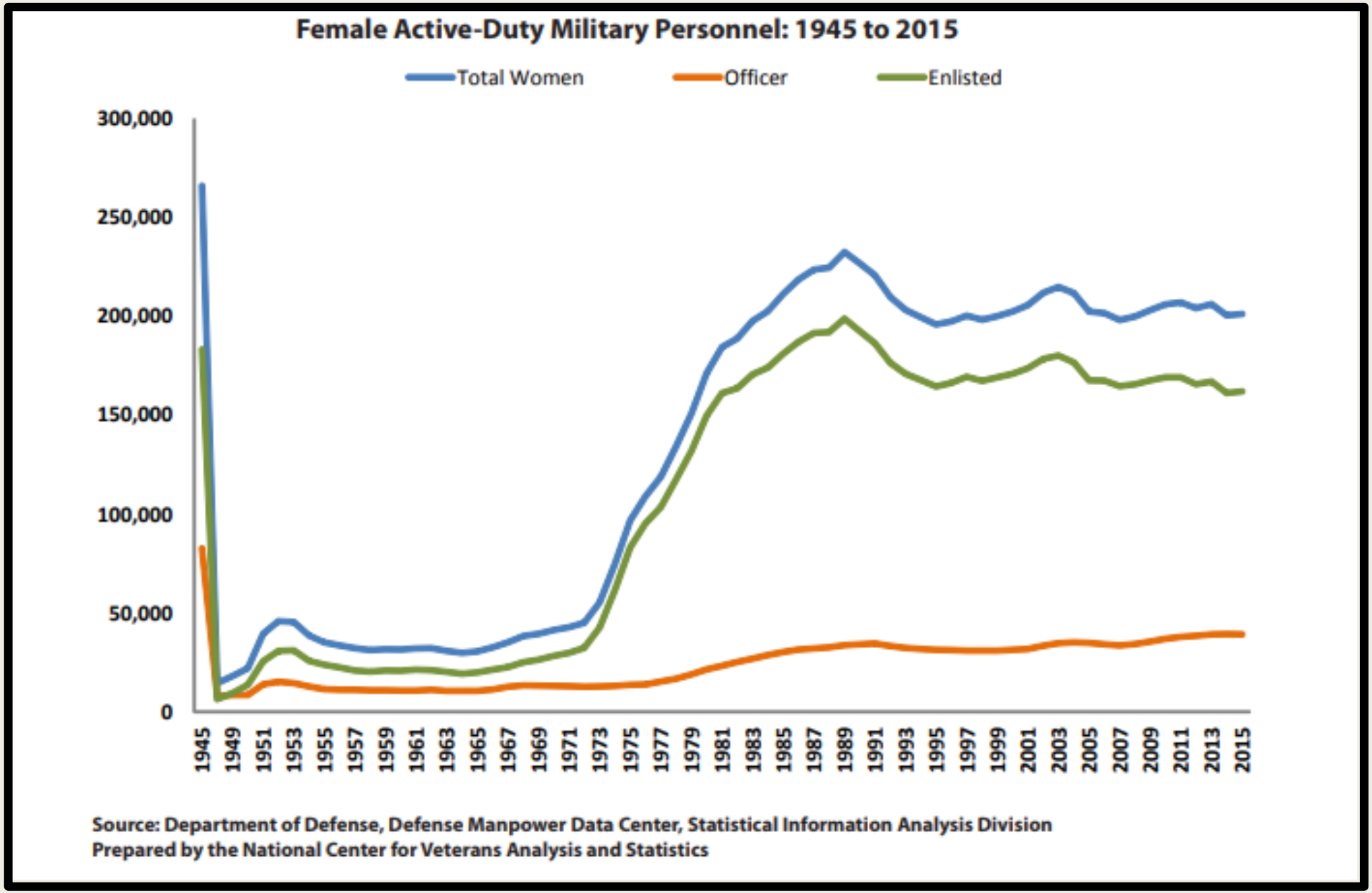


Period of Service Dates:

- **Post 911: Sept. 2001 to present;**
- **Pre 911: Aug. 1990 to Aug. 2001;**
- **Vietnam Era: Aug.1964 to April 1975;**
- **Korean War: July 1950 to Jan. 1955;**
- **World War II: Dec. 1941 to Dec, 1946;**
- **Peacetimes: Jan. 1947 to June 1950; Feb. 1955 to July 1964 and May 1975 to July 1990.**

Source: Department of Veterans Affairs, Office of Policy and Planning, Veterans Population Projection model, 2012.
Prepared by the National Center for Veterans Analysis and Statistics

Note: Periods of military service shown here are coded with women who have multiple periods of service being placed into their most recent period of service.


Female Active-Duty Military Personnel: 1945 to 2015
Total Women
Officer
Enlisted
300,000
250,000
200,000
150,000
100,000
50,000
0
1945
1949
1951
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1955
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1959
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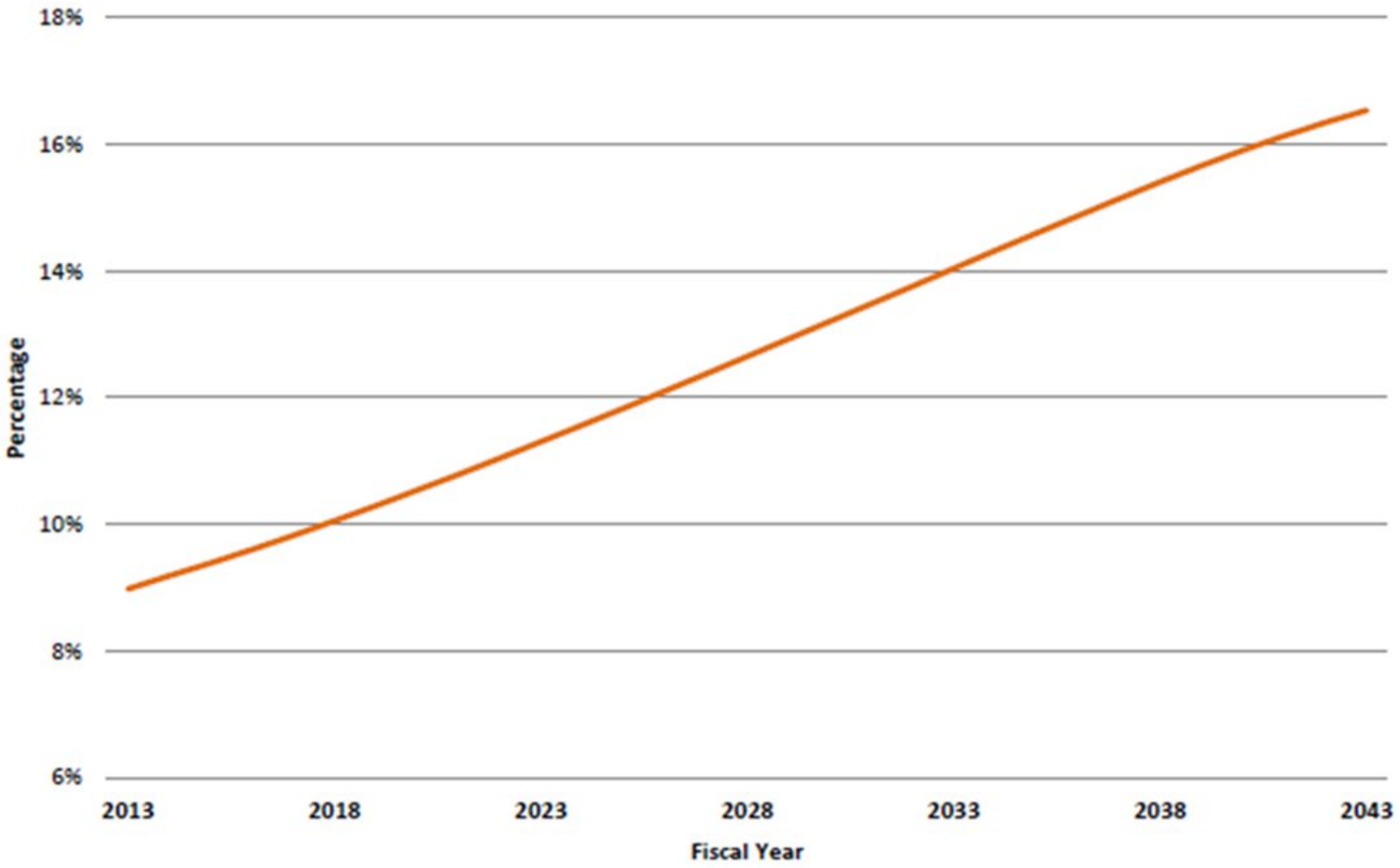
Source: Department of Defense, Defense Manpower Data Center, Statistical Information Analysis Division
Prepared by the National Center for Veterans Analysis and Statistics

Projected Percent of Female Veteran Population 2013 to 2043



urce: Office of the Actuary, Veteran Population Projections Model (VetPop2014), Table 1L

Changes in the Military

- The ban against women in direct combat roles was lifted in 2013 at a conference at the pentagon
- 230,000 roles have become available to women since 2013
  - *14,500 are combat related*

Growing Concerns

- Because women are a growing military population and will now be allowed into combat roles, common conditions such as posttraumatic stress disorder (PTSD) and traumatic brain injury (TBI) will become growing concerns

PTSD – Key Facts

- PTSD is the most commonly diagnosed mental health disorder among post-deployment Iraq and Afghanistan veterans
- Experiencing at least one traumatic event per lifetime is not uncommon
- Among veterans, 56% experience combat trauma, and 22% of female veterans and 1% of male veterans experience military sexual trauma (MST)

PTSD in the Military

- Prevalence and incidence depend on the conflict
- Between 11-20% of Iraq and Afghanistan veterans meet criteria for PTSD annually
- Incidence for meeting PTSD criteria at least once in lifetime is 20-30%.
- In a clinical mental health setting, 52% of veterans screen positive for PTSD

TBI- Key Facts

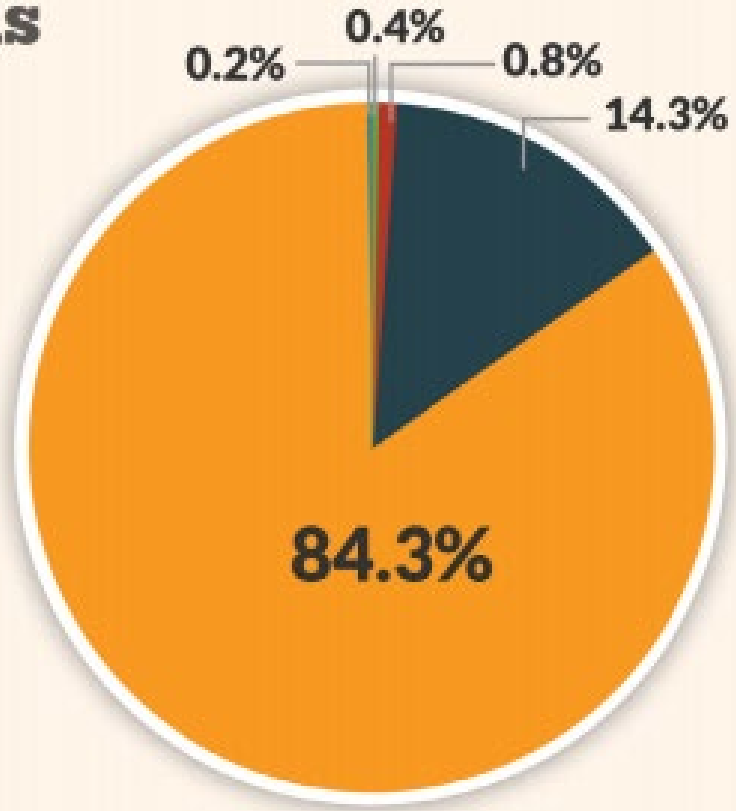
- TBI is considered to be the “signature injury” of the wars in Iraq and Afghanistan
- There are higher incidences of TBI among veterans of Operation Enduring Freedom (OEF), Operation Iraqi Freedom (OIF), and Operation New Dawn (OND) than past conflicts.
- The increased incidence of TBI is, in part, due to advancements in protective gear (injuries that were fatal in the past are much more likely to be survivable).
- Approximately 22% of OEF/OIF/OND combat veterans screened positive for a TBI by the Veteran Health Administration.

DoD Numbers for Traumatic Brain Injury

Worldwide – Totals

2017

Penetrating	73
Severe	134
Moderate	2,559
Mild	15,042
Not Classifiable	33
Total - All Severities	**17,841**



Source: Defense Medical Surveillance System (DMSS), Theater Medical Data Store (TMDS) provided by the Armed Forces Health Surveillance Center (AFHSB)

Prepared by the Defense and Veterans Brain Injury Center (DVBIC)

*Percentages do not add up to 100% due to rounding

2017, as of June 21, 2018

TBI Classifications from the VA/DoD Clinical Practice Guideline (2016)

Sidebar 2: Classification of TBI Severity
(If a patient meets criteria in more than one category of severity, the higher severity level is assigned)

Criteria	Mild	Moderate	Severe
Structural imaging, see Recommendation 3	Normal	Normal or abnormal	Normal or abnormal
Loss of Consciousness (LOC)	0-30 min	>30 min and <24 hours	>24 hours
Alteration of consciousness/ mental state (AOC)*	up to 24 hours	>24 hours; severity based on other criteria	
Posttraumatic amnesia (PTA)	0-1 day	>1 and <7 days	>7 days
Glasgow Coma Scale (GCS) (best available score in first 24 hours)**	13-15	9-12	<9

Sidebar 3: Possible Post-mTBI Related Symptoms***

Physical Symptoms:	Cognitive Symptoms:	Behavior/Emotional Symptoms:
Headache, dizziness, balance disorders, nausea, fatigue, sleep disturbance, blurred vision, sensitivity to light, hearing difficulties/loss, tinnitus, sensitivity to noise, seizure, transient neurological abnormalities, numbness, tingling	Problems with attention, concentration, memory, speed of processing, judgment, executive control	Depression, anxiety, agitation, irritability, impulsivity, aggression

Poll Question:

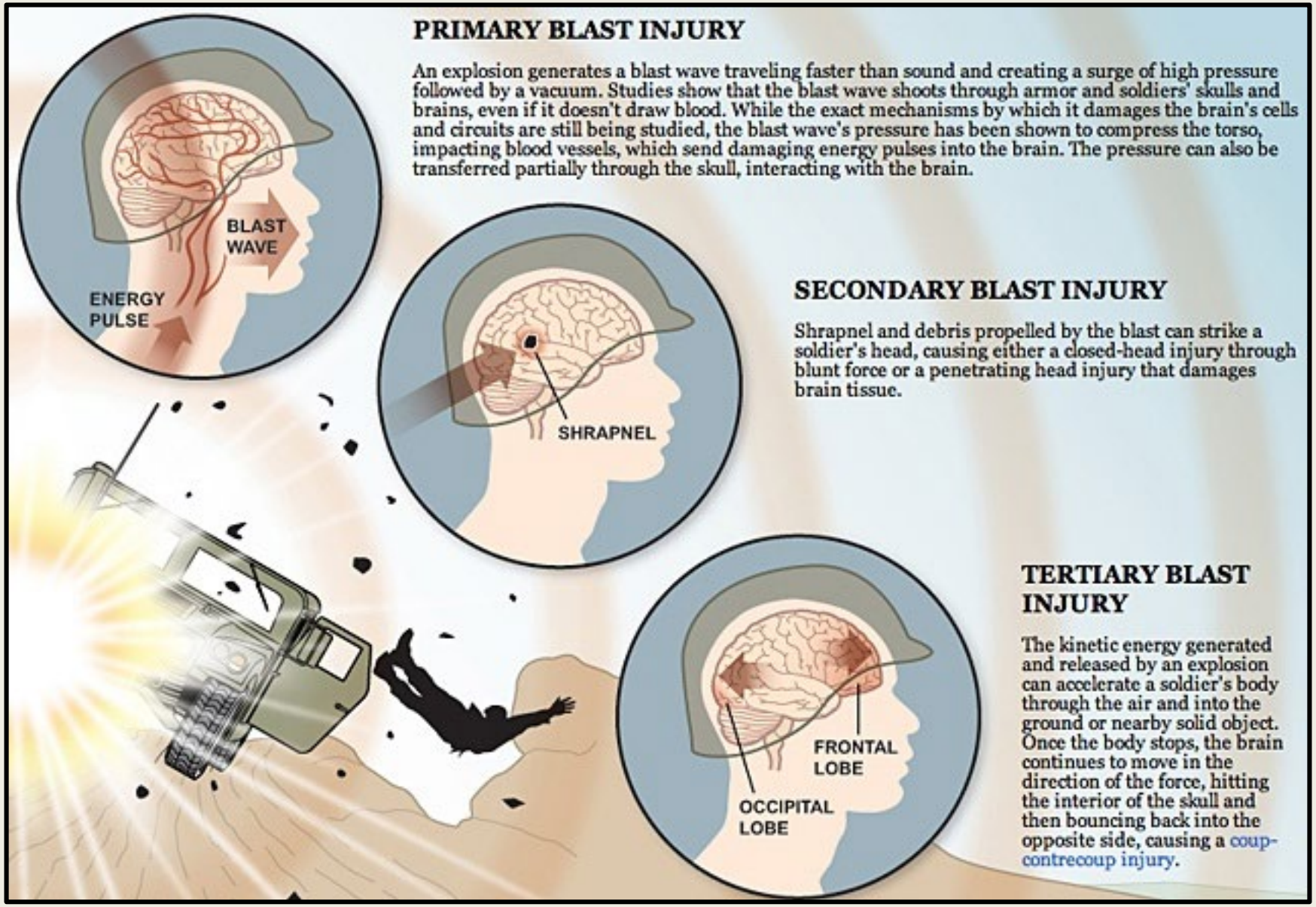
What do you think is the main cause of TBI in the military?

a) Being struck by/against an object
b) Blasts/explosions
c) Motor vehicle accident
d) Assault
e) Falls

Causes of TBI

- The main cause of TBI in the military is falling, followed by motor vehicle accidents, being struck by/against an object, assault, and other.
- In deployment, the leading cause of combat injury is blast exposure, which accounts for 68-78% of injuries.
- Blasts are the leading cause of TBI in combat.

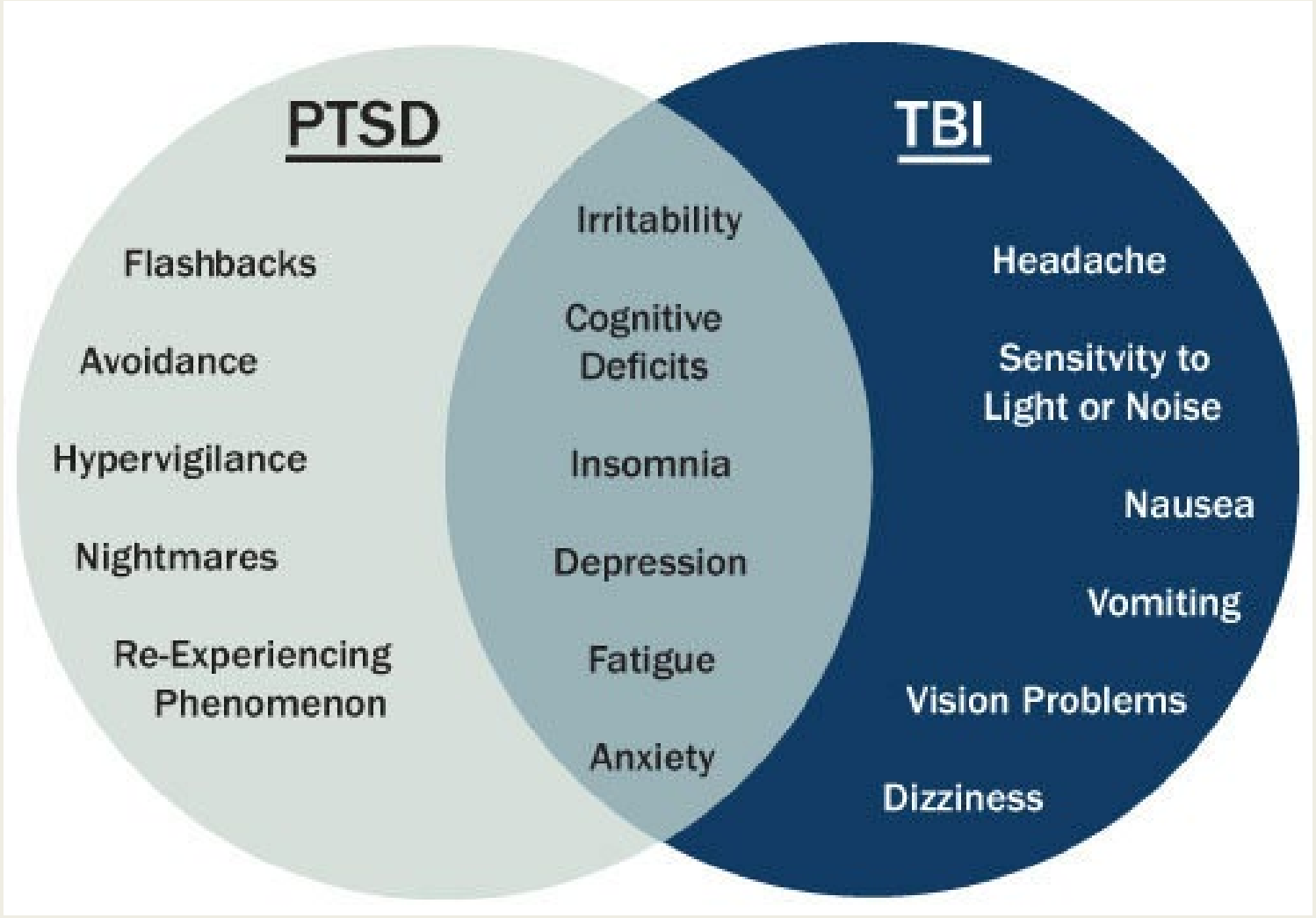
Military-Related TBI



Co-occurring TBI and PTSD

- It is common to see Veterans with both PTSD and TBI
- 33-39% of Iraq and Afghanistan Veterans with mild TBI also meet criteria for PTSD
- TBI during deployment has shown to be a strong predictor of developing PTSD

Overlap in Symptoms



Common Co-occurrences/Co-morbidities with PTSD and TBI

- Depression and anxiety disorders
- Substance and alcohol use disorders
- Suicidality
- Sleep problems
- Pain disorders

Gender/Sex Differences in PTSD

- In the civilian population, women are more likely to meet criteria for PTSD than men. However, currently male veterans are more likely to meet criteria for PTSD than female veterans.
- PTSD differences between women in the civilian population and military could be due to:
  1. underdiagnosis
  2. limited combat exposure
  3. differences between civilian women and military women
- With the opening of combat roles for women, we may expect these differences to change.

Gender/Sex Differences in PTSD

- Hypotheses for the greater prevalence of PTSD among women include differences in type of trauma as women may be more likely to experience rape, interpersonal violence, and history of chronic trauma
- Manifestation of PTSD symptoms is dependent on the nature of the traumatic experience and whether the trauma was acute (a single trauma) or chronic (multiple/continuing traumas)
- In the military, PTSD involving blast, TBI, or MST are often associated with higher reported severity of PTSD symptoms

Gender/Sex Differences in Co-occurring PTSD and TBI

- McGlade and colleagues (2015) demonstrated that there were no sex differences in rates of co-occurring PTSD in a small sample of veterans with TBI.
- Most research on co-occurring PTSD and TBI among veterans is limited by small samples of female veterans, which is congruent with the current ratio of male to female veterans in the US military.
- Due to the change in the female veteran's role, it is likely that the number of female veterans with PTSD/TBI will increase.

PTSD and TBI: Sex Differences

- Post-Deployment Mental Health Study (PDMH) study - ongoing multi-site study conducted across four Veterans Affairs Medical Centers.
- Iraq and Afghanistan Veterans
- Participants = 1577
- Male = 1248, Female = 329
- 4 groups:
  - *1) No PTSD/TBI (male = 398, female = 133)*
  - *2) PTSD Only (male = 175, female = 95)*
  - *3) TBI Only (male = 337, female = 46)*
  - *4) PTSD/TBI (male = 338, female = 55)*

Sex Differences Evaluated Across Groups

- **PTSD** (lifetime and current)
- **TBI** (mild, moderate, and severe)
- **Major Depressive Disorder** (MDD)
- **Alcohol Use Disorder** (AUD)
- **Substance Use disorder** (SUD)
- **Depressive/distress symptoms**
- **Trauma symptoms**
- **Pain**
- **Sleep**
- **Combat exposure**
- **Drinking behavior**
- **Substance use behavior**

PTSD and TBI in the total sample

- PTSD (not statistically different):
  - *Male Veterans – 41% at least once in life (31% current PTSD)*
  - *Female Veterans – 45% at least once in life (27% current PTSD)*

- TBI (statistically different):
  - *Male Veterans – 54% (43% mild)*
  - *Female Veterans - 30% (22% mild)*

Results

- Overall, male and female veterans did not differ in PTSD diagnosis
- This is different from findings in the general population, which has found women to be more likely than men to have a PTSD diagnosis
- This difference from the civilian population and veteran population may indicate that women in the military are not comparable to women in the general population
- Or this difference could be related to a differences in experiences between civilians and veterans in general

Results

- Across samples men were more likely to have a history of **alcohol use disorder** and **substance use** in comparison to female Veterans
- In the groups without PTSD, female veterans were more likely to have **major depressive disorder**
- These results could be due to differences in coping. Previous research has found men more likely to *externalize* dysfunction and women more likely to *internalize* dysfunction and distress

Results

- In the sample of veterans with lifetime of PTSD, male veterans were more likely to have **current PTSD**
- Among veterans with PTSD, there were no significant sex differences in major depressive disorder, but major depressive disorder was common
  - *61% of male Veterans with PTSD had major depressive disorder*
  - *64% of female Veterans with PTSD had major depressive disorder*
- This highlights the importance of treating depressive symptoms among Veterans with PTSD

Results

- In the sample with PTSD and TBI, men were more likely to meet criteria for a **mild TBI** and women were more likely to meet criteria for a **moderate/severe TBI**
- This may be due to a difference in experiences between men and women, and it can be speculated that women in this sample may have been more likely to experience non-combat related trauma that involved a greater risk of more severe TBI, such as interpersonal violence

Overall

- PTSD and TBI are growing concerns that we need to be aware of when treating Veterans
- Findings indicate differences between male and female veterans that could effect clinical treatment
  - *Diagnoses (alcohol use, substance use, depression)*
  - *Coping (internalizing vs. externalizing)*
  - *Risk for TBI*
  - *Combat Exposure*
- Differences in alcohol use, substance use, and depression were among the most robust findings
- There were consistently no differences found between pain, sleep, reported levels of distress, or reported trauma symptoms

Questions?

Comments?