

# Head Injury and PTSD in Veteran and Civilian Women Who Have Experienced Intimate Partner Violence: Implications for Screening and Intervention

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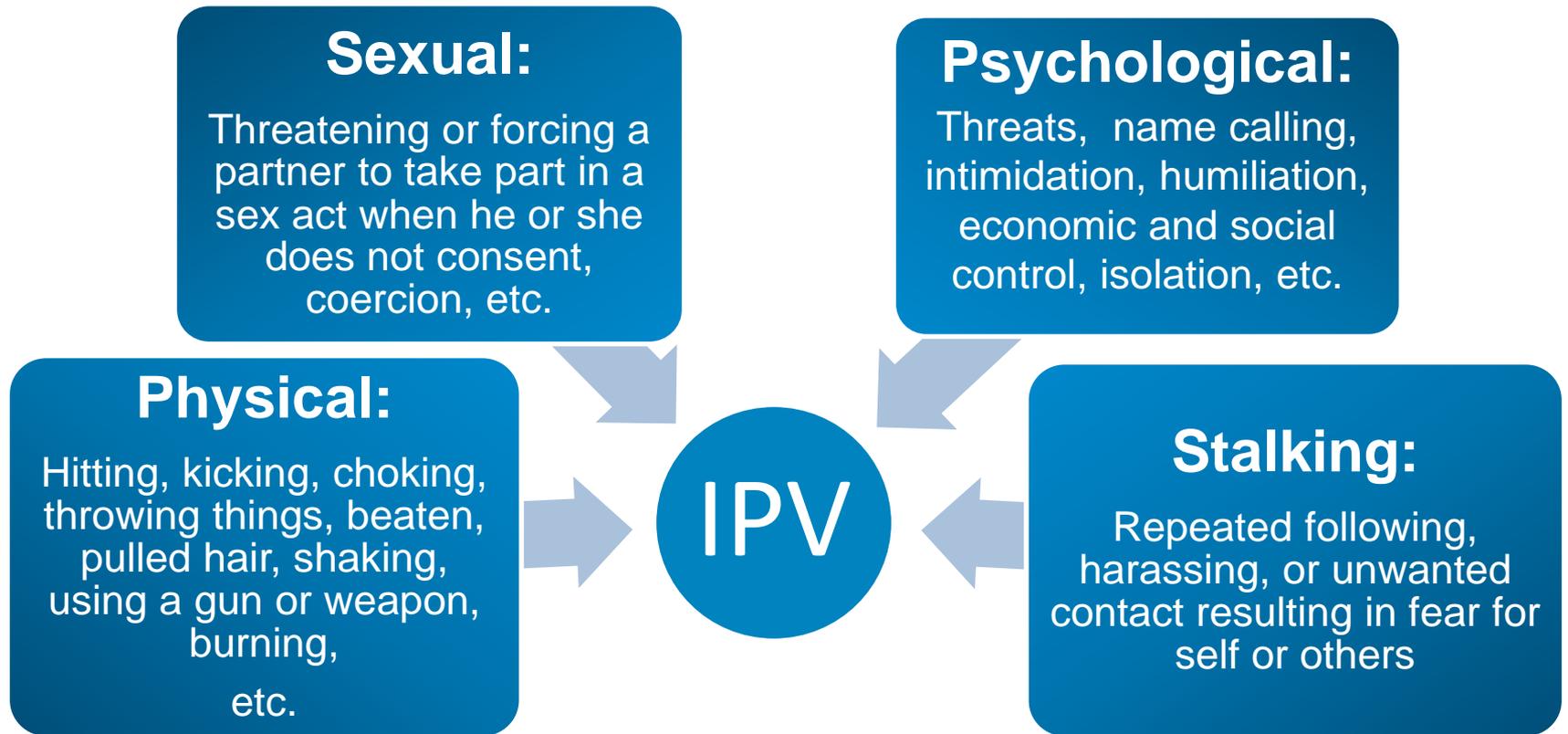
June 13, 2018

# Overview of Presentation

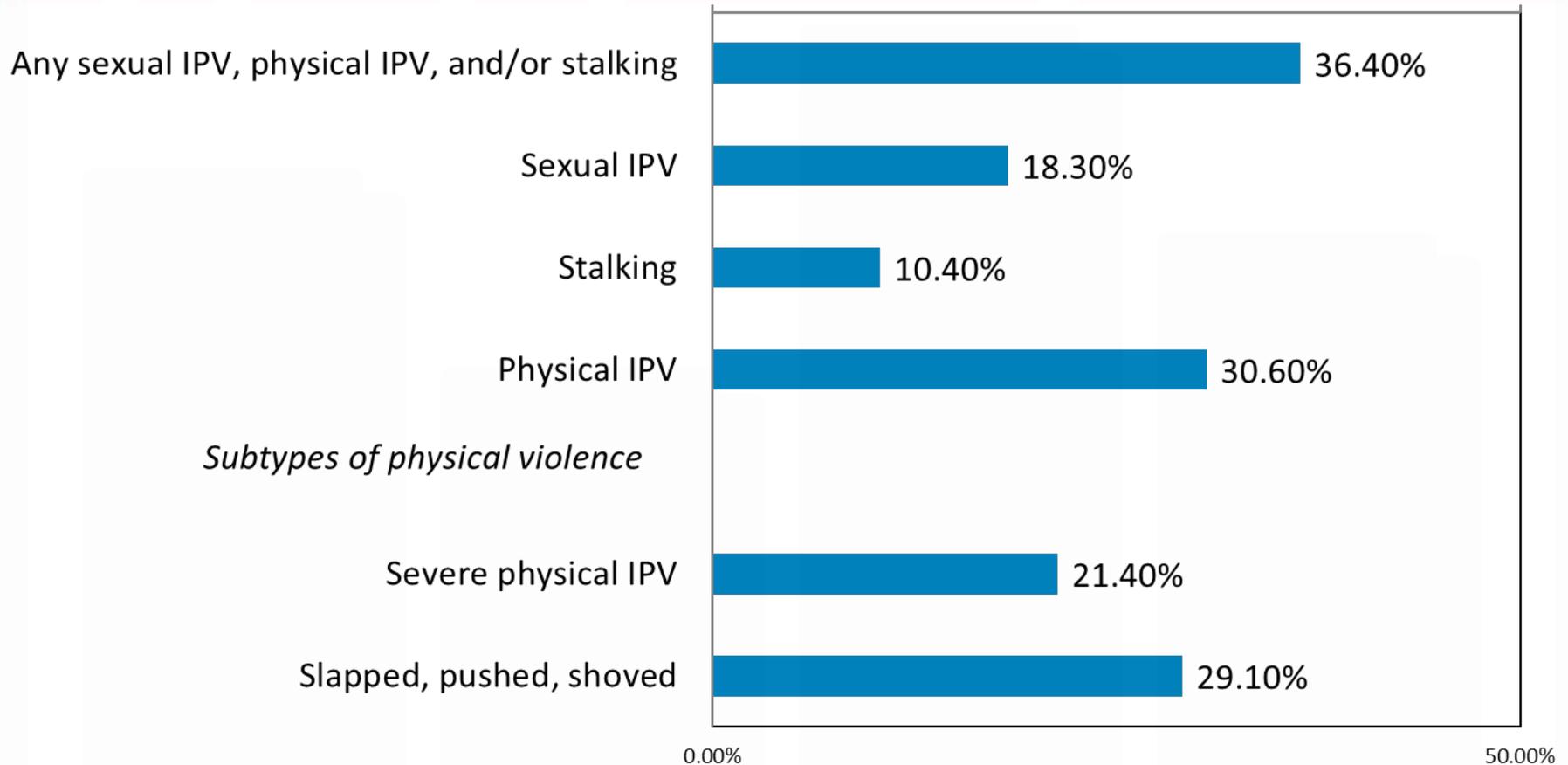
- Intimate partner violence as a cause of head injuries and traumatic brain injury (TBI)
- IPV-related TBI's associations with mental health (i.e., PTSD) and VA healthcare use
- Role of head injuries in recovery from PTSD among interpersonal trauma survivors
- Next steps for research
- National PTSD Brain Bank is recruiting

# Intimate Partner Violence (IPV) Defined

Physical violence, sexual violence, stalking or psychological aggression from a past or current intimate partner (CDC, 2017)



# IPV Against Women – Lifetime Prevalence Among U.S. Women, NISVS 2015



# Head Injuries and Traumatic Brain Injury (TBI): Making the Connection with IPV

- TBI is a serious and underdiagnosed consequence of IPV
  - Blow or jolt to the head that disrupts physiological functioning of the brain
- At least 30% of women who experience IPV report some form of severe physical assault<sup>1</sup>
- Head, neck and face are the most common places for IPV-related injuries
- Estimates from the literature
  - 35% - 92% of women in shelters have experienced  $\geq 1$  head injury during violent attack(s)<sup>2</sup>
  - Multiple head injuries from IPV are common<sup>3</sup>
- Little is known about IPV-related TBI among women Veterans

<sup>1</sup>Thompson, Bonomi, Anderson et al., 2006

<sup>2</sup>Ivany & Schminkey, 2016

<sup>3</sup>Valera & Berenbaum, 2003

# Overview of Women Veterans



- Women Veterans are the fastest-growing population of Veterans in the Veterans Health Administration (VHA)
  - Women in VHA care nearly tripled from 159,000 in 2000 to 439,000 in 2015
- In 2017, **over 700,000 women Veterans** are enrolled in VHA care
  - Meeting their health needs is a high priority for VHA
- Approximately 10% of women Iraq and Afghanistan war (OEF/OIF/OND) Veterans using VHA screen positive for deployment-related TBI vs. 20% of male counterparts<sup>1</sup>
- Carry a greater health burden than non-veteran women (e.g., multiple medical complications, posttraumatic stress disorder [PTSD], depression), and use more primary and mental health care than male counterparts<sup>2</sup>

<sup>1</sup> Hendricks et al., 2013

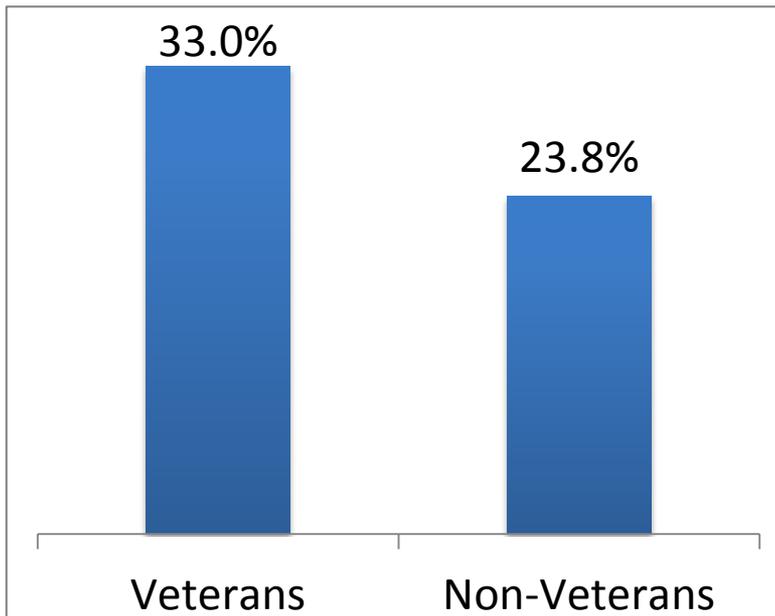
<sup>2</sup> Frayne et al., 2014

# IPV Experience among Women Veterans



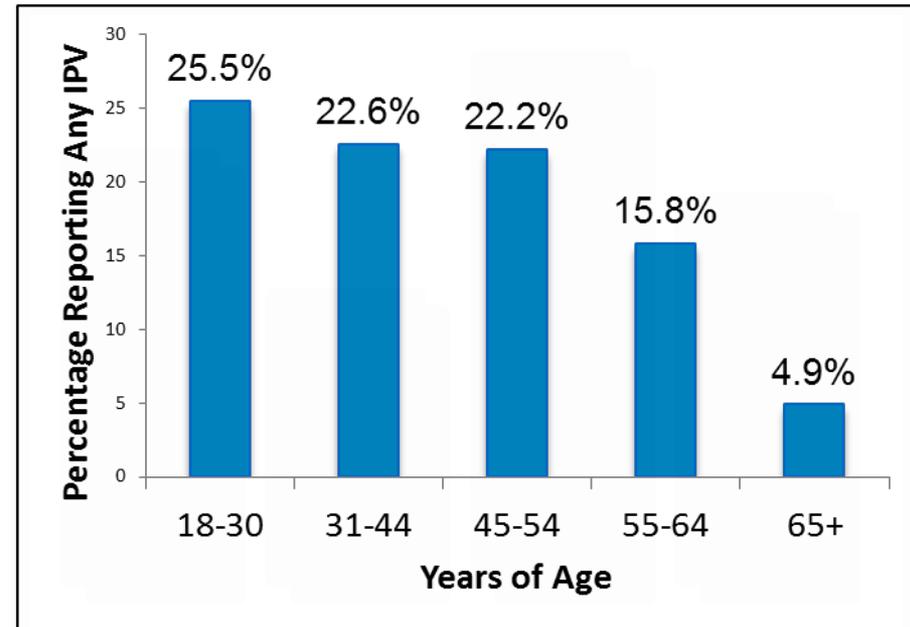
One in Three Women Veterans are Hurt by Someone They Love.  
**Let VA Help.**

## Lifetime IPV among Women Veterans Compared to Non-Veteran Women



Dichter et al. *Women's Health Issues*. 2011

## Past-Year IPV by Age Group Among VHA Primary Care Patients



Kimerling et al. *JGIM*, 2016

# Study 1: Regional Mail Survey

## Study Aims

1. To identify the occurrence of self-reported IPV-related TBI in a sample of female VA patients
2. To examine the associations of IPV-related TBI with mental health symptoms and VA healthcare use

## Design

- Mail survey of female VA patients in New England who had participated in a larger study and had agreed to be re-contacted
  - 80% response rate
- Multiple mailing strategy between February and April 2013
  - Up to 3 contacts; \$10 incentive

Iverson, K.M. & Pogoda, T.K. (2013). Traumatic brain injury among women veterans: An invisible wound of intimate partner violence. *Medical Care*, 53, 112-119.

# Measures: Modified VA TBI Screening Tool

## Q 1 ) IPV-related head event(s):

- 1) Hit in the head with an object, hand, or fist
- 2) Pushed/shoved head into a wall, car, furniture or object
- 3) Broken teeth/jaw
- 4) Eye/ear injuries
- 5) Being strangled/choked
- 6) Other injury to head, neck or face

## Q 2) Head event associated with:

- 1) Loss of consciousness
- 2) Altered consciousness (i.e., dazed or confused)
- 3) Posttraumatic amnesia, (i.e., not remembering the events before or after the injury)
- 4) Concussion
- 5) Head injury

# Measures: Mental Health and Healthcare Use

## Mental Health Symptoms

- ***PTSD Checklist***  
(PCL; Weathers et al., 1993)  
to assess *DSM-IV* PTSD  
symptom severity
- ***Center for Epidemiologic  
Studies Depression Scale***  
(CES-D; Radloff, 1977)  
to assess depression  
symptoms

## Past-year VA healthcare Use

- ***Medical visits:*** 1) routine  
outpatient care, 2) ER visits for  
medical problem, and 3)  
inpatient care
- ***Mental health visits:*** 1)  
outpatient mental health care,  
2) ER visits for mental health  
problem, and 3) inpatient care

# Sample 1 Characteristics

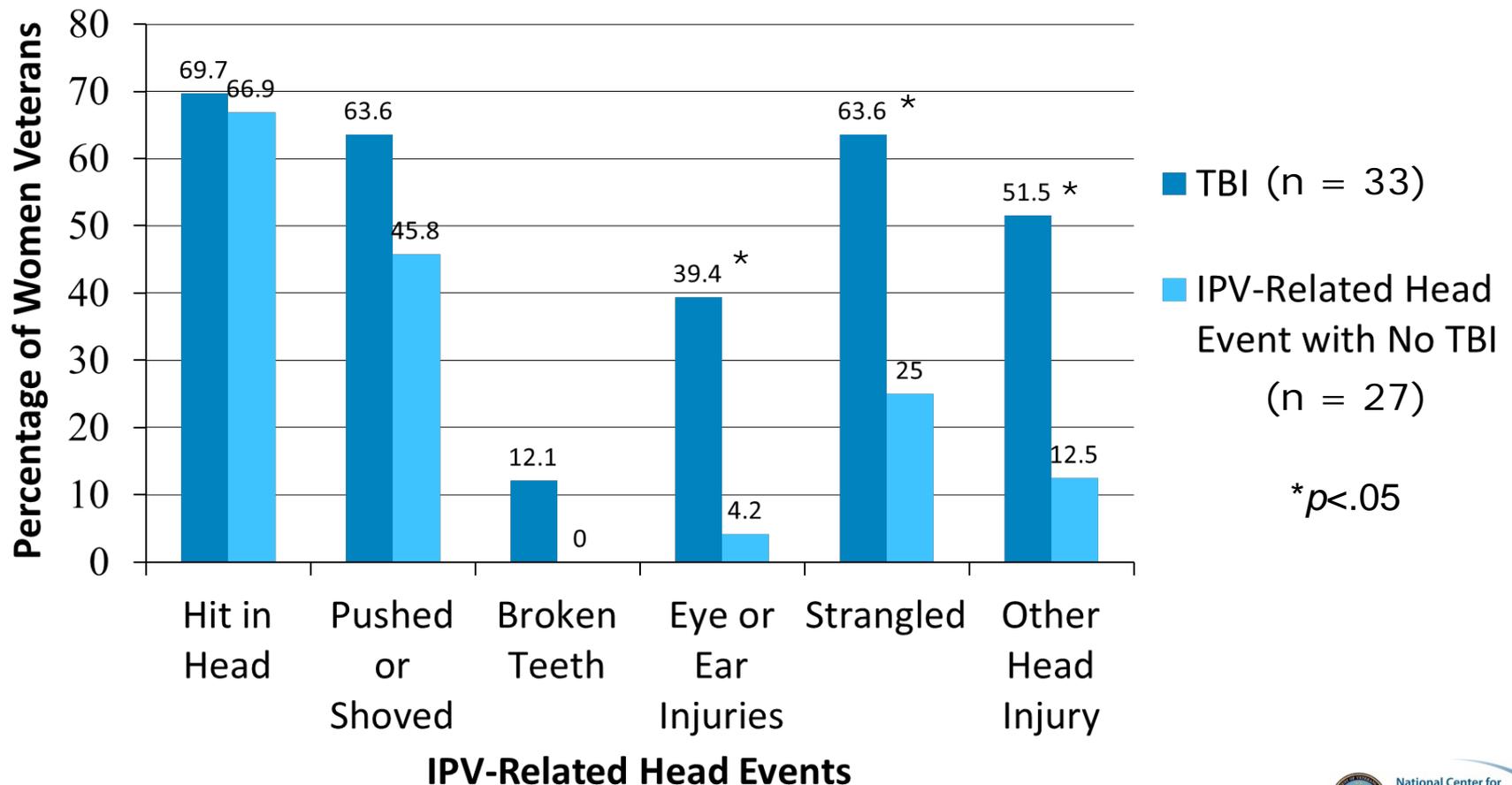
## Sociodemographics

- N = 176 female Veterans
- Average age = 53.0, *SD* = 14.1
- 87.5% White
- Years of military service:
  - $\leq 4$  = 54.3%; 5-10 = 24.4%,  
and  $\geq 10$  = 21.3%
- Military branch:
  - Army = 51.7%; Navy = 18.4%; Air Force/Marines/Coast Guard = 29.9%
- 25% had been deployed in service of OEF/OIF/OND

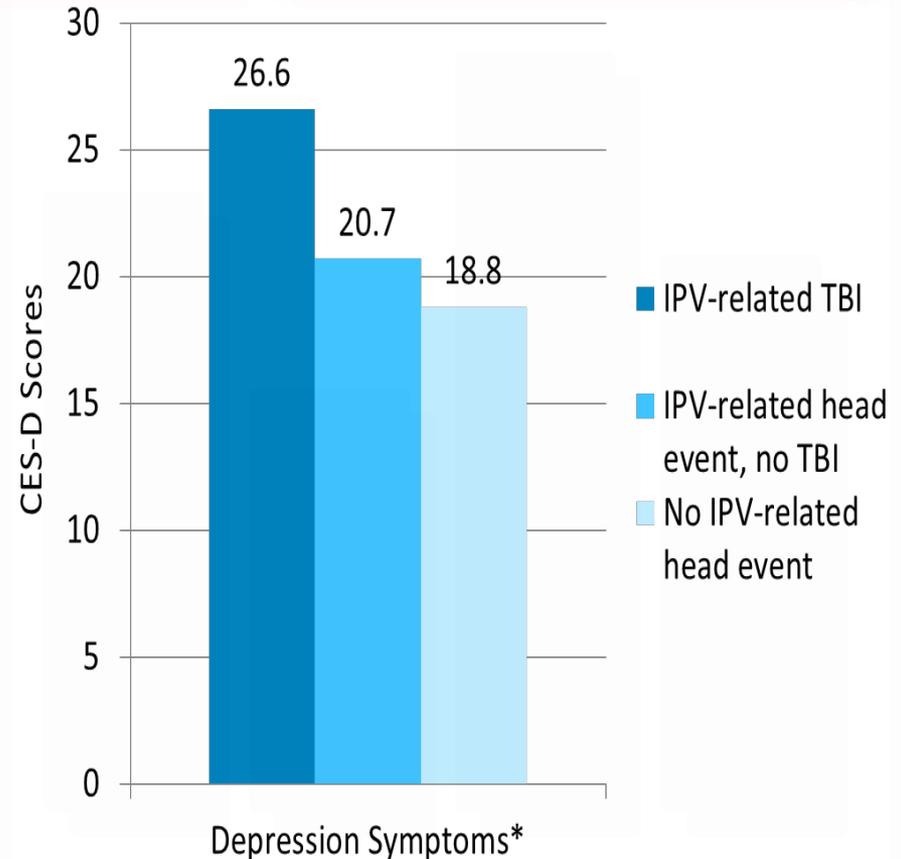
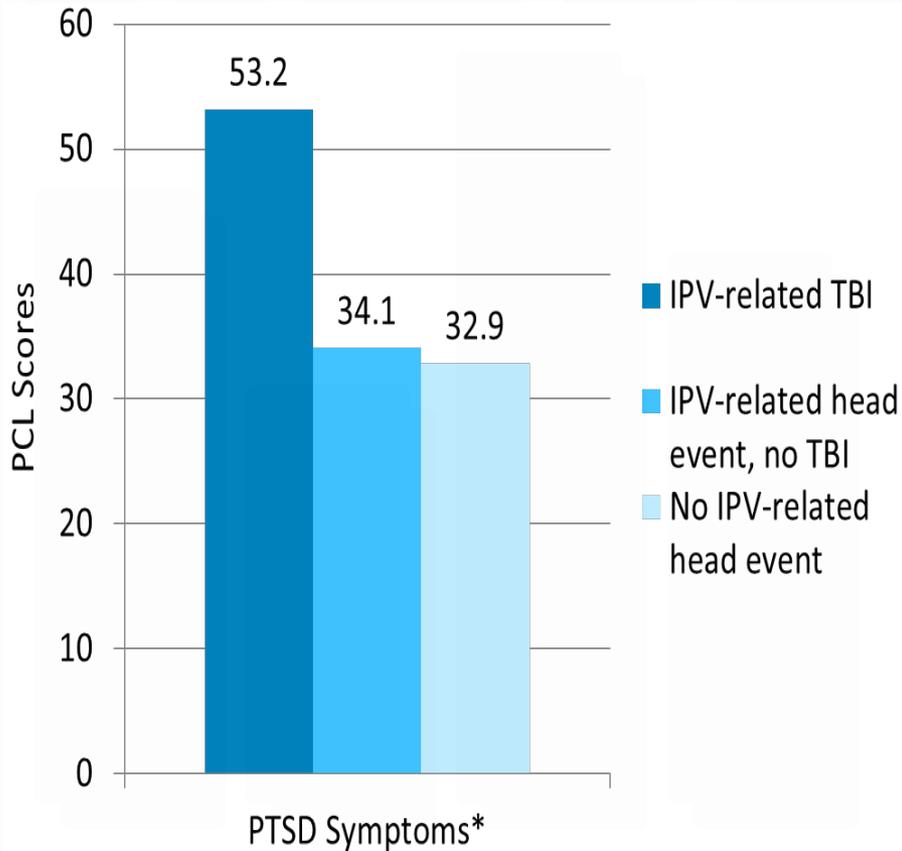
## IPV-Related TBI status

- 19% ( $n = 33$ ) met criteria for IPV-related TBI history
- 14% ( $n = 24$ ) reported an IPV-related head event without TBI

# IPV-related Head Events



# IPV-related TBI is Associated with More Severe PTSD and Depression Symptoms



# Correlates of IPV-related TBI

- IPV-related TBI was associated with higher VA healthcare utilization:
  - Greater volume of past-year VA healthcare use
  - More ER visits for medical and mental health problems
  - More outpatient and inpatient mental health visits
- Women who experienced IPV-related TBI reported significantly more IPV:
  - More past-year physical IPV
  - More past-year sexual IPV

# Study 2: National Web-Based Survey

## Study Aims

1. To identify the occurrence of IPV-related head events and IPV-related TBI history with and without current symptoms in a national sample of women Veterans who experienced lifetime IPV
2. Examine the associations among IPV-related TBI with IPV-related PTSD diagnosis and DSM-5 PTSD symptom domains (criterion B-E)

## Design

- A web-based survey was administered in 2014 to a national sample of 411 U.S. women veterans (75% participation rate); \$10 incentive
- 55% (N=224) of women reported lifetime IPV and comprised the current sample

Iverson, K. Dardis, T. & Pogoda, T. (2017). Traumatic brain injury and PTSD symptoms as consequences of intimate partner violence. *Comprehensive Psychiatry*, 53, 112-119.

# Measures: Modified VA TBI Screening Tool and Current Symptoms

## IPV-related head event(s):

- 1) Hit in the head with an object, hand, or fist
- 2) Pushed/shoved head into a wall, car, furniture or object
- 3) Broken teeth/jaw
- 4) Eye/ear injuries
- 5) Being strangled/choked
- 6) Other injury to head, neck or face

## Head event associated with:

- 1) Loss of consciousness
- 2) Altered consciousness (i.e., dazed or confused)
- 3) Posttraumatic amnesia, (i.e., not remembering the events before or after the injury)
- 4) Concussion
- 5) Head injury

## Current TBI Symptoms

One or more of the following symptoms began or got worse following the IPV-related head event **and** occurred within the past week:

- Memory problems or lapses
- Balance problems or dizziness
- Sensitivity to bright light
- Irritability
- Headaches
- Sleep problems

## PTSD from IPV and PTSD Symptom Criteria

**PTSD Checklist** (PCL-5; Weathers et al., 2013) to assess probable *DSM-5* PTSD status and cutoffs for *DSM-5* symptom criteria:

- Criteria B: Intrusion
- Criteria C: Avoidance
- Criteria D: Cognition/Mood
- Criteria E: Arousal

# Sample 2 Characteristics

## Sociodemographics

- N = 224 female Veterans
- Average age = 49.12,  $SD = 13.5$
- 62.9% Non-White
- Years of military service:
  - $\geq 5$  years = 40%
- Military branch:
  - Army = 43.8%; Navy = 21.9%; Air Force/Marines/Coast Guard = 33.0%
- 19% had been deployed in service of OEF/OIF/OND

## IPV-related TBI and PTSD

- 28.1% (n = 63) of the 224 women in this sample screened positive for IPV-related TBI *history*
- 12.5% (n = 28) of the 224 women screened positive for IPV-related TBI *with current symptoms*
- 24.6% (n = 55) of the 224 met criteria for probable PTSD

# TBI and PTSD Symptom Profiles

Women with DSM-5 IPV-related TBI with current TBI symptoms:

- Were 5.9 times more likely to have probable IPV-related PTSD than women with no IPV-related TBI
- Were significantly more likely than women without current TBI symptoms and women without IPV-related TBI to meet criteria for:
  - PTSD Criterion B (Intrusion) – 78.6% vs. 37.1% and 29.2%
  - PTSD Criterion C (Avoidance) – 82.1% vs. 40% and 29.8%
  - PTSD Criterion D (Cognition/Mood) – 85.7% vs. 31.4% and 32.9%
  - PTSD Criterion E (Arousal) – 89.3% vs. 34.3% and 28%
  - Cramer's *V* for all 4 clusters = .34 - .42

# VHA has Many Opportunities to Address IPV and TBI

- Integrated healthcare system with accessible EMR
  - Routine screening of women VA patients in primary care, EDs, mental health etc.
- IPVAP Coordinators to assist with local programming
  - Assessment, safety planning, building referral networks with community resources
  - Cross training with TBI clinics and other services (e.g., mental health)
- Available referral to Polytrauma Clinics
  - Comprehensive TBI Evaluations → Treatment recommendations and referrals
- Increasing training for VHA providers on IPV and its correlates
- Wrap-around mental health services and social support services
  - Evidence-based assessments and interventions for PTSD, depression etc.
  - Programs to address homelessness, supported employment, etc.
- Women's health, TBI, and behavioral health are priority areas within VHA research
  - Women's Health Research Network and Practice-Based Research Networks (Evron)

# VA Outreach and Awareness Efforts

*Pledge to screen and intervene*



**#StopIPV**

I make a difference  
by screening for intimate partner violence.

Ask your VA Provider for help.



National Domestic Violence Hotline 1-800-799-SAFE



U.S. Department  
of Veterans Affairs



National Domestic Violence Hotline 1-800-799-SAFE



National Center for  
**PTSD**  
POSTTRAUMATIC STRESS DISORDER



U.S. DEPARTMENT OF VETERANS AFFAIRS

# VA and DoD Developed Apps

## “Concussion Coach” App

[polytrauma.va.gov/ConcussionCoach.asp](http://polytrauma.va.gov/ConcussionCoach.asp)



### Description

Concussion Coach was designed for Veterans, Service members, and other individuals who experience physical, cognitive, and emotional symptoms that may be related to mild to moderate traumatic brain injury. This app provides users with information about concussion, a self-assessment instrument for symptoms and their severity,

[US Department of Veterans Affairs \(VA\) Web Site](#) [Concussion Coach Support](#) [Application License Agreement](#) [...More](#)

### What's New in Version 1.1

Bug fixes and compatibility enhancements

Free

Category: [Health & Fitness](#)

Updated: Sep 07, 2017

Version: 1.1

Size: 67.5 MB

Language: English

Seller: US Department of

Veterans Affairs (VA)

© US Department of

Veterans Affairs

Rated 12+ for the following:

Infrequent/Mild

Medical/Treatment Information

Compatibility: Requires iOS 8.0

or later. Compatible with

iPhone, iPad, and iPod touch.

### Customer Ratings

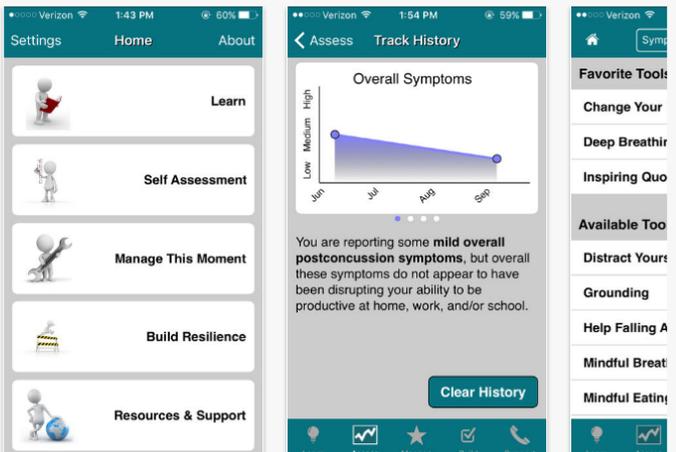
This application hasn't received enough ratings to display a summary.

More iPhone Apps by US Department of Veterans Affairs (VA)



PTSD Coach

### iPhone Screenshots



## “PTSD Coach” App

[ptsd.va.gov/public/materials/apps/PTSDCoach.asp](http://ptsd.va.gov/public/materials/apps/PTSDCoach.asp)



### Description

PTSD Coach was designed for those who have, or may have, posttraumatic stress disorder (PTSD). This app provides you with education about PTSD, information about professional care, a self-assessment for PTSD, opportunities to find support, and tools that can help you manage the stresses of daily life with PTSD. Tools range from relaxation

[US Department of Veterans Affairs \(VA\) Web Site](#) [PTSD Coach Support](#) [Application License Agreement](#) [...More](#)

### What's New in Version 3.0

Improved and expanded tools for managing symptoms  
PCL-5 assessment  
Expanded educational topics

Free

Category: [Health & Fitness](#)

Updated: Aug 01, 2017

Version: 3.0

Size: 89.1 MB

Language: English

Seller: US Department of

Veterans Affairs (VA)

© 2011 US Department of

Veterans Affairs

Rated 12+ for the following:

Infrequent/Mild

Medical/Treatment Information

Compatibility: Requires iOS 9.0

or later. Compatible with

iPhone, iPad, and iPod touch.

### Customer Ratings

Current Version:

★★★★ 6 Ratings

All Versions:

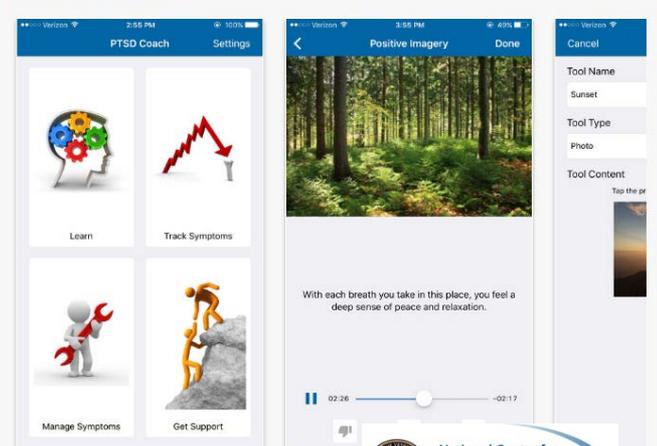
★★★★ 122 Ratings

More iPhone Apps by US Department of Veterans Affairs (VA)



PFA Mobile

### iPhone Screenshots



# Future Directions

- Need to understand the ways in which IPV-related TBI may compound the effects of other stressors, including deployment-related TBI
  - Retraumatization  $\leftrightarrow$  TBIs
- TBI stemming from sexual assaults that occurs during military service (military sexual trauma)
- Unknown comorbidity of IPV-related TBI and deployment-related TBI
- Correspondence between IPV-related TBI screening tools and comprehensive TBI evaluations
  - Modified VA TBI screening tool holds promise
- Women's experiences and perceptions of such care
  - Effectiveness, Acceptability, Safety

# Take Home Messages

- Women Veterans are a sub-population at high risk for IPV-related TBI
  - Nearly 1 in 5 among general sample of women Veteran VHA patients
  - Nearly 1 in 3 women Veteran IPV survivors
- PTSD symptom profiles are somewhat different for women Veterans with IPV-related TBI with current TBI symptoms
  - Researchers and clinicians should use caution when attributing overlapping symptoms to PTSD and consider TBI comorbidity when addressing IPV
- IPV-related TBI is robustly associated with mental health needs
- IPV-related TBI among women Veterans is associated with high volumes VHA healthcare use, especially ER and mental health visits
- Integrated healthcare systems, especially VHA, are well-poised to address and study IPV-related TBI

# Clinical Considerations

- Contact your local IPVAP Coordinator to learn more about IPV screening and intervention options at your sites
  - National Program Manager: Dr. LeAnn Bruce ([LeAnn.Bruce@va.gov](mailto:LeAnn.Bruce@va.gov))
- Build off of VA's efforts to routinely screen women for past -year IPV
  - Screen women who have experienced IPV for TBI (past-year and lifetime)
  - Modified VA TBI Screening Tool
  - Alternatively, ask about whether she' experienced violence/blow to the head that resulted in loss of consciousness or alterations in consciousness, etc.
- Provide referrals for neuropsychological evaluation
- Safety planning
  - Talk about ways to protect her head
- Treat mental health symptoms stemming from IPV
- Increase education and outreach across clinics and disciplines
- Destigmatization of IPV and its health effects

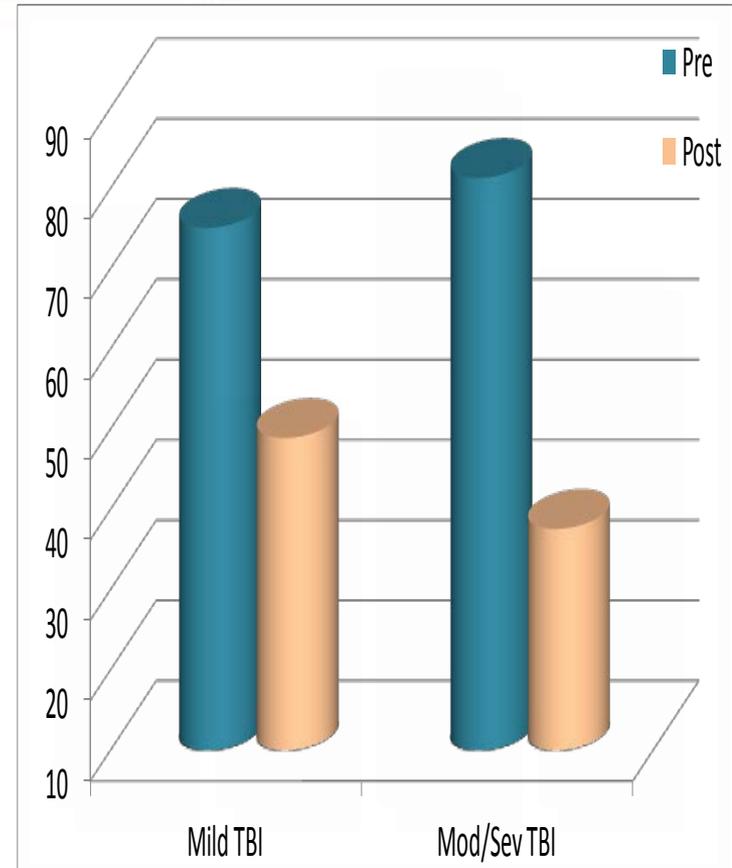
# The Influence of Head Injury on Recovery from PTSD

# Cognitive Processing Therapy: An Evidence-based Treatment for PTSD

- Evidence-based intervention for PTSD
- Cognitive theoretical perspective
- Can be conducted within group or individual format
- Typically about 12 sessions conducted on a weekly basis with many opportunities for continued work outside the session.

# Cincinnati VA Comorbid TBI/PTSD<sup>1</sup>

- Only study to date looking at outcomes across severity of TBI with CPT
- OEF/OIF Veterans in residential care
- CPT plus cognitive rehab
- Significantly greater improvements in the Veterans with moderate to severe TBI.



Chard et al., 2011

# The Center for Trauma Recovery

- Between 2001-2014, three clinical trials were conducted to assess the efficacy of Cognitive Processing Therapy (CPT) on civilian survivors of interpersonal violence.<sup>1</sup>
- We combed back through data to assess:
  - The extent of **trauma** reported by these survivors
  - The extent of **injury** reported during these assaults
  - The number and type of **head injuries**
  - The influence of those head injuries on the course of **recovery**

<sup>1</sup>Resick, Galovski, et al., 2008; Galovski et al., 2012; Galovski et al., 2016

# Study Sample

- 496 adult participants were screened for PTSD secondary to interpersonal violence
  - 37 years of age
  - 15.25 years since their index event
  - 13.25 years of education
  - 84% female
  - Race: 42% African-American, 49% White, 9% other
  - 49% single, 19% married/cohabitating, 25% divorced/separated
  - Annual Income:
    - \$5k - \$20K: 34%
    - <\$5,000: 25%

# Measures

- Clinician Administered PTSD Scale – DSM-IV
- Beck Depression Inventory II
- Lifetime Trauma Survey
- Trauma Interview
  - Identified Index Trauma
  - Assessed injury during index event
  - Assessed injuries which occurred during other lifetime assaults

# QUESTION 1

What is the extent of trauma exposure in this sample?

# Exposure to Traumatic Events: The Index Trauma

Identified Index Trauma	N/%
Childhood Sexual Assault	195 (40%)
Childhood Physical Abuse	45 (9.2%)
Adult Sexual Assault	120 (24.6%)
Adult Physical Assault	124 (25.5%)

## In addition to the index trauma...

Additional Trauma Exposures	N/%
Childhood sexual trauma (contact)	349 (73%)
Chronic CSA (range: 12 -100s)	302 (64.3%)
Childhood Physical Trauma	301 (64%)
Adult Sexual Trauma	307 (47.6%)
Adult Physical Assault	361 (56%)
Intimate Partner Violence	287 (58.7%)

# QUESTION 2 & 3

What is the extent of injury reported during attacks?

How many of the injuries are consistent with “significant head injury”?

# Non-Head Injuries

Injuries	Index Trauma	Injuries from other assaults 1 - 3 times	Injuries from other assaults 4 - 50+ times
Bruises on body	42.6%	16.7%	43.9%
Broken bones	5.8%	13.3%	3.8%
Cuts	24.1%	16%	16.9%
Burns	4.6%	8.6%	3.8%
Miscarriage	2%	9.7%	2%
STDs	3.6%	14.1%	1%
Damage to internal organs	9.4%	5.6%	4%

# Head Injuries

Injuries	Index Trauma	Injuries from other assaults 1 - 3 times	Injuries from other assaults 4 - 50+ times
Bruises: head, face, neck	34.7%	24.5%	32.7%
Broken bones: head, neck, face	3.8%	10.7%	2%
Cuts: head, neck, face	18.1%	15.7%	13.4%
Lost consciousness	18.3%	20.8%	6.4%
Damaged teeth	4.8%	10.4%	0%
Ruptured eardrum	2%	5%	0%

## In summary...

- Participants across 3 clinical trials reported quite complex interpersonal trauma histories
- The extent of the injuries (including head injuries) both during the index trauma and throughout their trauma histories was substantial and repetitive.
- Adding to the traumatic stress burden reported by our participants, the majority also described socioeconomic disadvantage:
  - lower levels of education
  - lack of employment
  - over half lived below the poverty line.

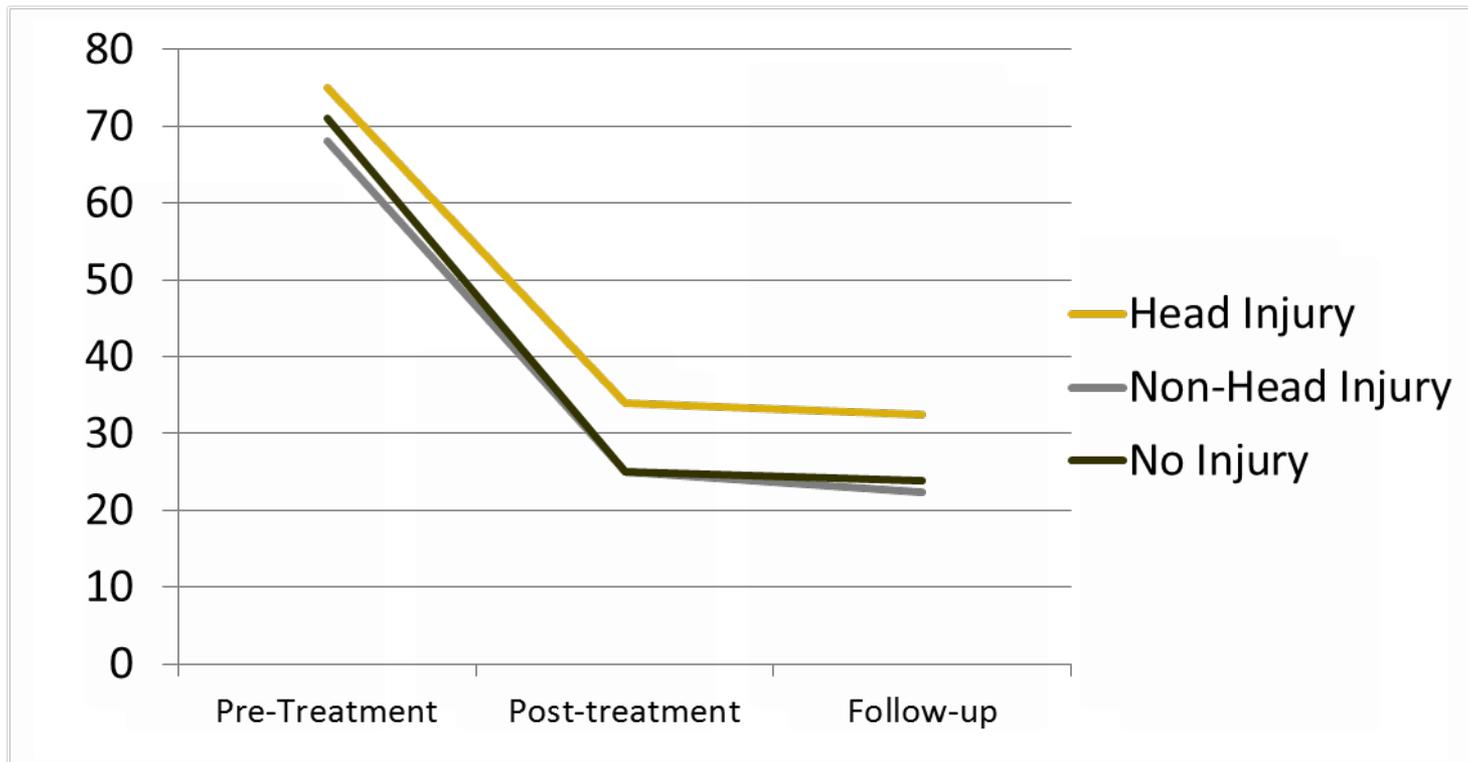
## QUESTION 4

Does the experience of head injury influence recovery from PTSD & depression over a course of CPT?

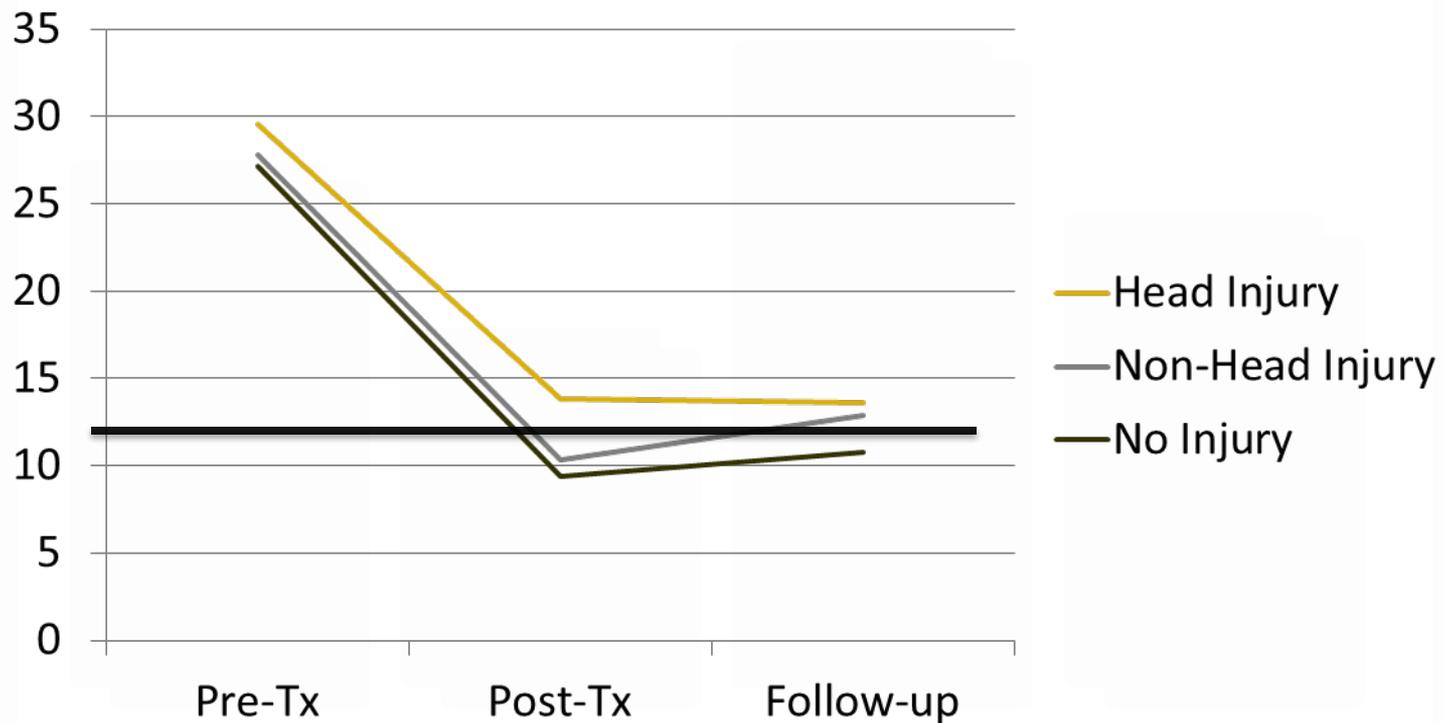
# Study conditions

- In order to assess the influence of HI on treatment outcome, we grouped the sample into 3 comparison conditions:
  - **Head Injury** (N = 224)
    - Bruises, broken or dislocated bones in head, neck, face; knocked unconscious, broken teeth, ruptured eardrums
  - **Non-head injury** (N = 38)
    - Bruises, broken or dislocated bones in areas other than head, neck, face; ruptured internal organs, STDs, burnings, knifings, poisoning, gunshots, miscarriages
  - **No Injury** (N = 42)

# Change in PTSD: (CAPS)



# Change in Depression: (BDI-II)



# “Are you experiencing ongoing medical complications from your injury?”

- We were able to identify 21 individuals who described ongoing medical problems/symptoms consistent with head injury. In their words...
  - “continued pain, chronic jaw dislocation, hearing loss”
  - “headaches & vision difficulties b/c being hit repeatedly in head”
  - “headaches, hearing problems, eyesight left eye, dizziness, memory problem”
  - “memory loss, incontinence, extremity numbness, had to learn to talk & walk & use hands again.”
  - “thinking-head injuries, with teeth dentures, partials, left eye permanently damaged, torn ligament”

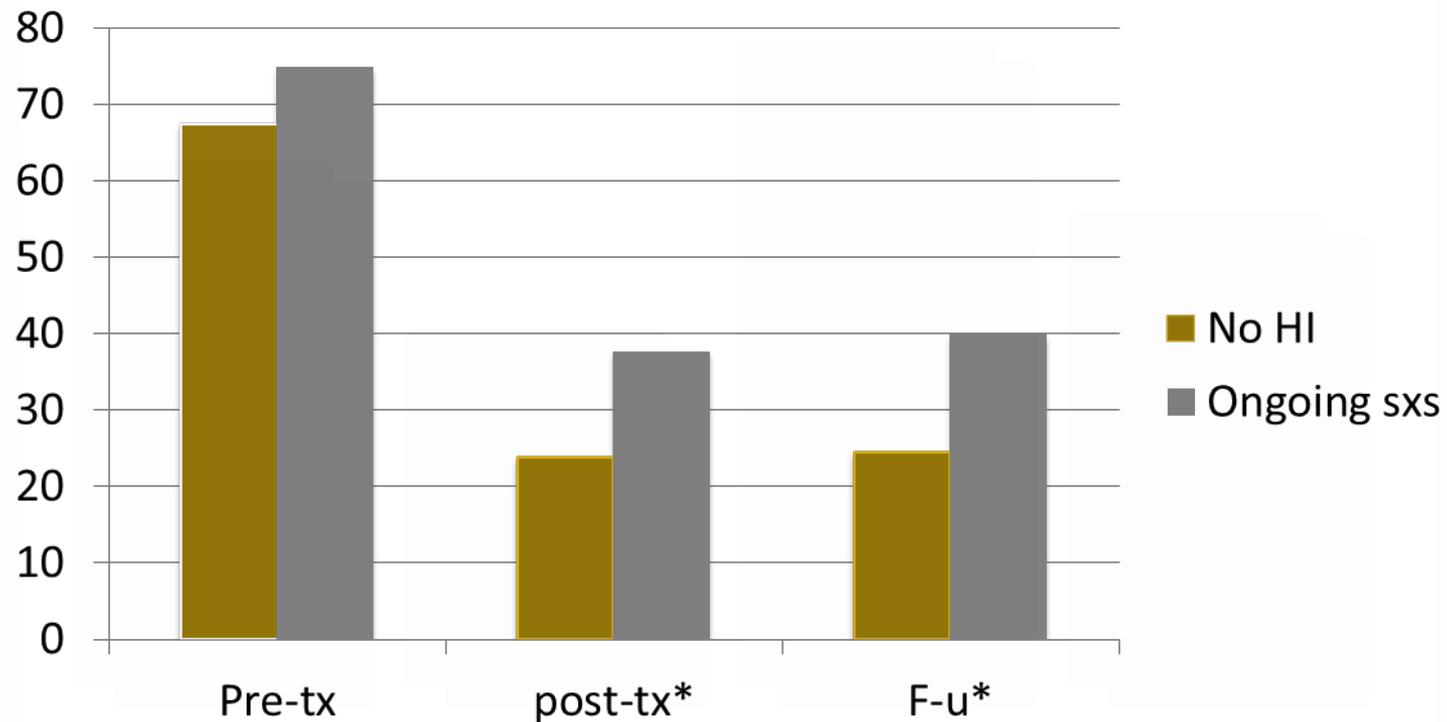
# Compared to a group who denied head injuries...

- BUT, reported other ongoing medical problems/symptoms reported:
  - “blood clots in lungs”
  - Multiple participants: “Pregnancies from assault, inability to conceive”
  - “hip pops out of joint, lower back pain; lost ability to carry child full term”
  - “nerve damage in left leg, right leg, right arm, removed part of pancreas and spleen, (pain in stitches)”
  - “gastrointestinal sensitivity for whole life, inability to conceive”
  - “permanent liver damage due to poisoning” -4 yrs escaped
  - “burns got infected- can’t sit or lay down”
  - “stomach pain/HPV/cervical cancer/ulcers/gallbladder removed”

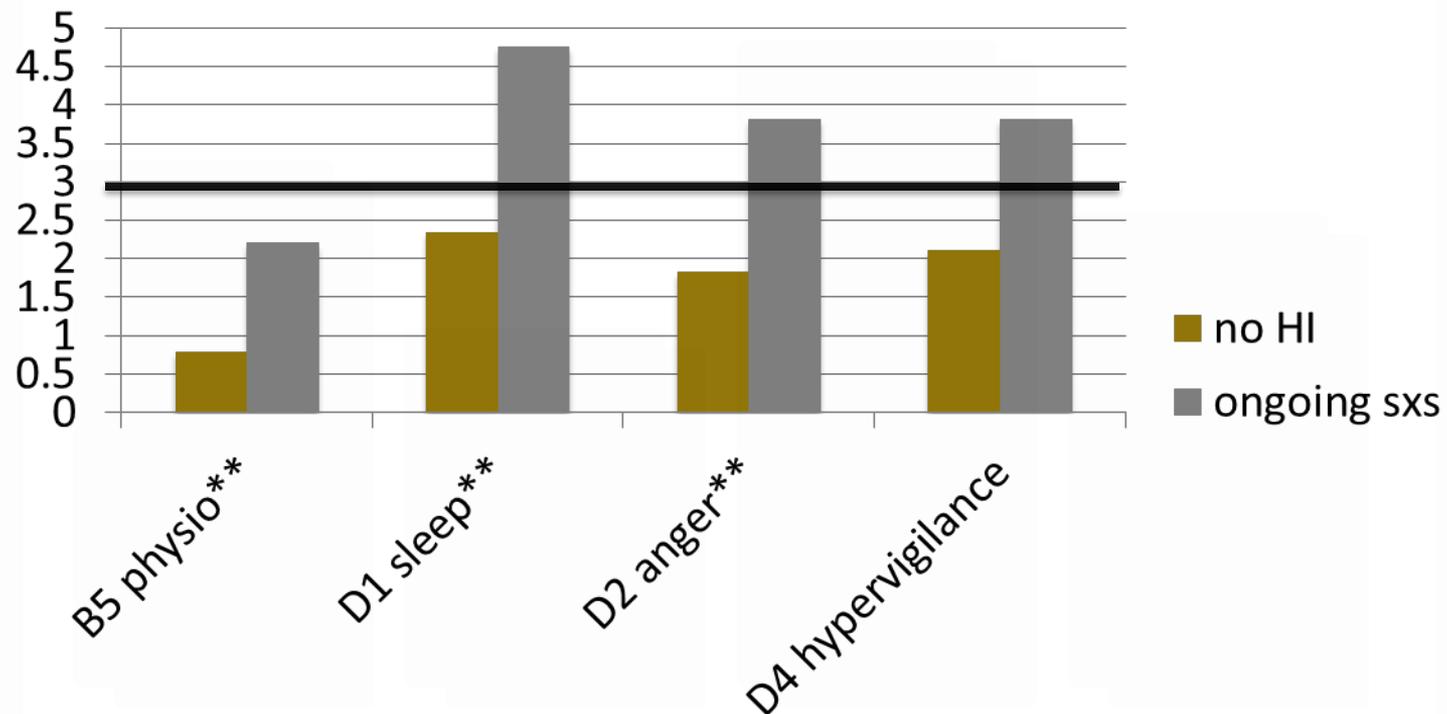
# Ongoing medical problems consistent with head injury vs no HI

	Ongoing HI sx's (n = 21)	No HI (n = 84)
Time since index trauma	X = 8.8 years	X = 15.8
Gender	0 males	Includes 7 males
Dropped out of treatment	42%	30%
Index trauma	52% APA* 5% CSA* 10% CPA 33% ASA	13% APA 51% CSA 1% CPA 35% ASA
CSA	62%	73%
CPA	57%	41%
ASA	62%	61%
APA*	86%	54%
IPV*	64%	35%

# PTSD severity across assessment intervals (CAPS)

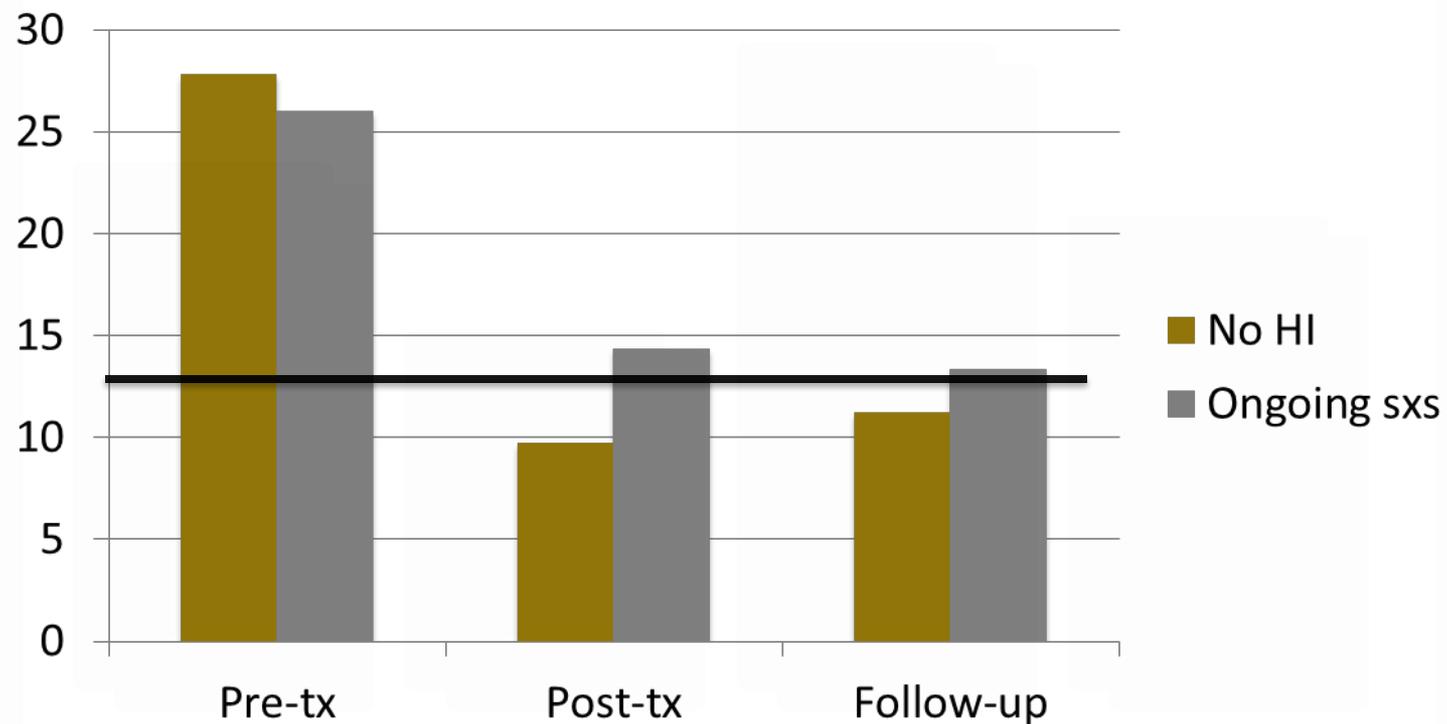


# Individual symptoms of PTSD at Post-tx



\* =  $p < .05$ ; \*\* =  $P < .01$ . Trends for psychological distress and foreshortened future

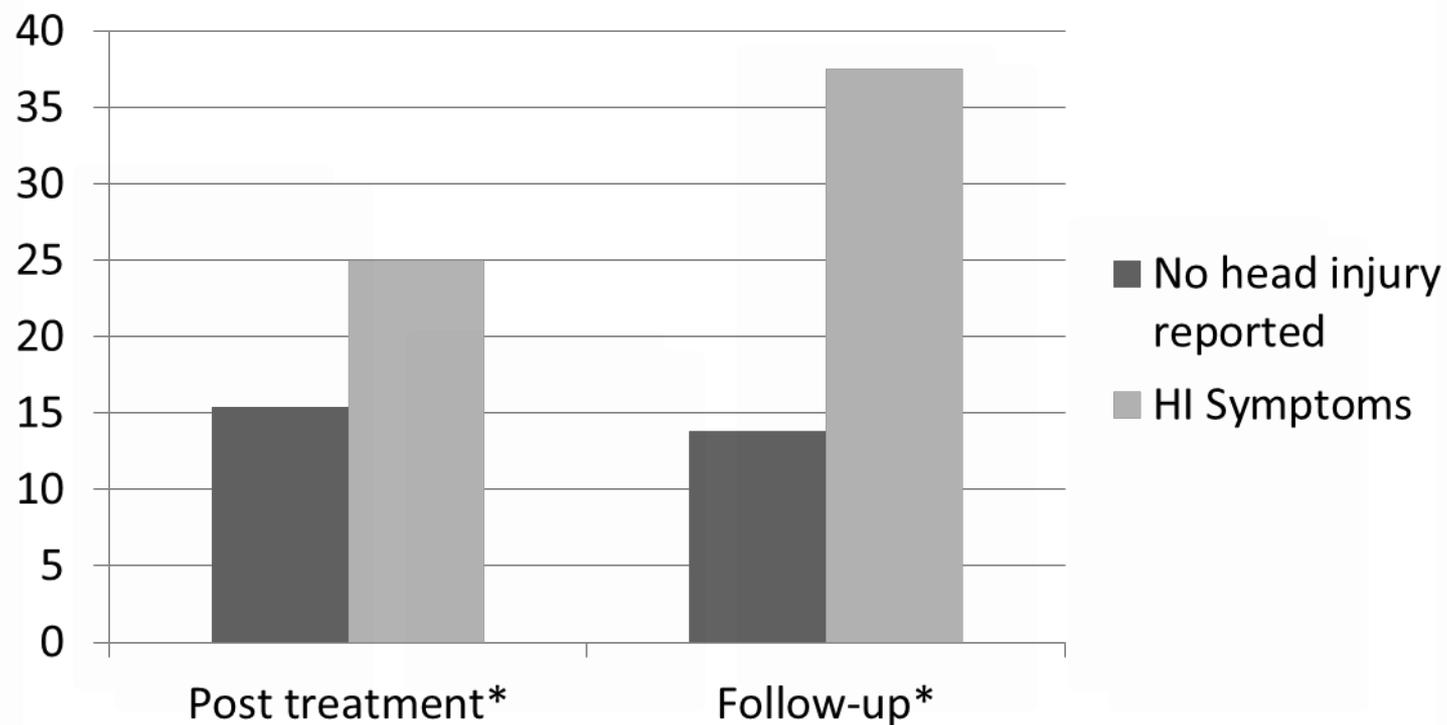
# Depression severity across assessment intervals (BDI-II)



# Individual depression symptoms at post-tx

- Anhedonia ( $p=.022$ ) and Pessimism ( $p = .052$ ) remained higher in the ongoing head injury group
- Trends emerged indicating higher residual symptom severity following a course of treatment for:
  - Loss of pleasure ( $p = .077$ )
  - Suicidality ( $p = .097$ )
  - Changes in appetite ( $p = .066$ )

# Refractory PTSD



# The good news...

- Our head injured individuals showed significant improvements in PTSD and depression at rates of change similar to their non-head injured and non-injured counterparts.
- Therapy did not appear to be less palatable to the head injured participants, even those suffering from medical problems associated with the HI. There were no differences in completion rates.
- **However**, our head-injured participants are reporting more severe symptoms at baseline and are significantly more likely to remain above clinical cutoffs for PTSD after a course of treatment.
- The differences in outcomes may be due to several specific symptoms of PTSD. The question remains: are these symptoms better attributable to head injury than to PTSD and depression?

# The Challenge: To which condition do we attribute the residual symptoms?

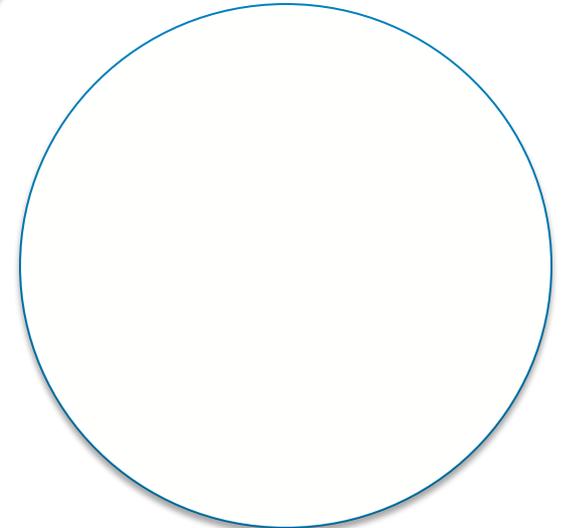
PTSD

Intrusive Thoughts  
Nightmares  
Flashbacks  
Distress  
Physio  
Avoidance  
Foreshortened Future  
Numbing  
Detachment  
Amnesia  
Startle  
Cognition  
Anger  
Mood  
Concentration  
Insomnia  
Hypervigilance

DEPRESSION

Mood  
Anger  
Insomnia  
Concentration  
Suicidality  
Appetite  
Energy  
Worthless  
Anhedonia  
Psychomotor Agitation

TBI



# More questions than answers...

- To what extent does brain injury influence recovery from PTSD?
- What elements of the assault might be particularly important in prognosis?
  - Force of blow? Location of blow? Time spent unconscious? Time since assault?
- Chronicity of exposure – multiple blows, developmental age during assaults? Time between injuries? Sex differences?
- How might we improve our ability to detect the effects of brain injury?
- Will this knowledge lead us to more holistic interventions banking on multi-disciplinary strategies?

# **Moving Forward: Improving our Understanding of the Sequelae of Head Injury in Women who Suffer through Interpersonal Assaults**

# Characterizing head injury sustained during IPV

- WHSD/NCPTSD is launching a study to assess the influence of TBI in women survivors of IPV who suffer from PTSD.
- Partners:
  - Translational Research Center for TBI and Stress Disorders at the Veteran's Administration in Boston Healthcare System (TRACTS)
  - Missouri Institute of Mental Health (MIMH)
  - Washington University
- Primary Aim: **Understand the interactive mechanisms that underlie this comorbidity in order to develop multimodal, personalized treatments that will be more effective than current, single modal strategies.**

# TBI and IPV assessment battery

Neuropsychological

Medical and Physiological

# VA's National PTSD Brain Bank

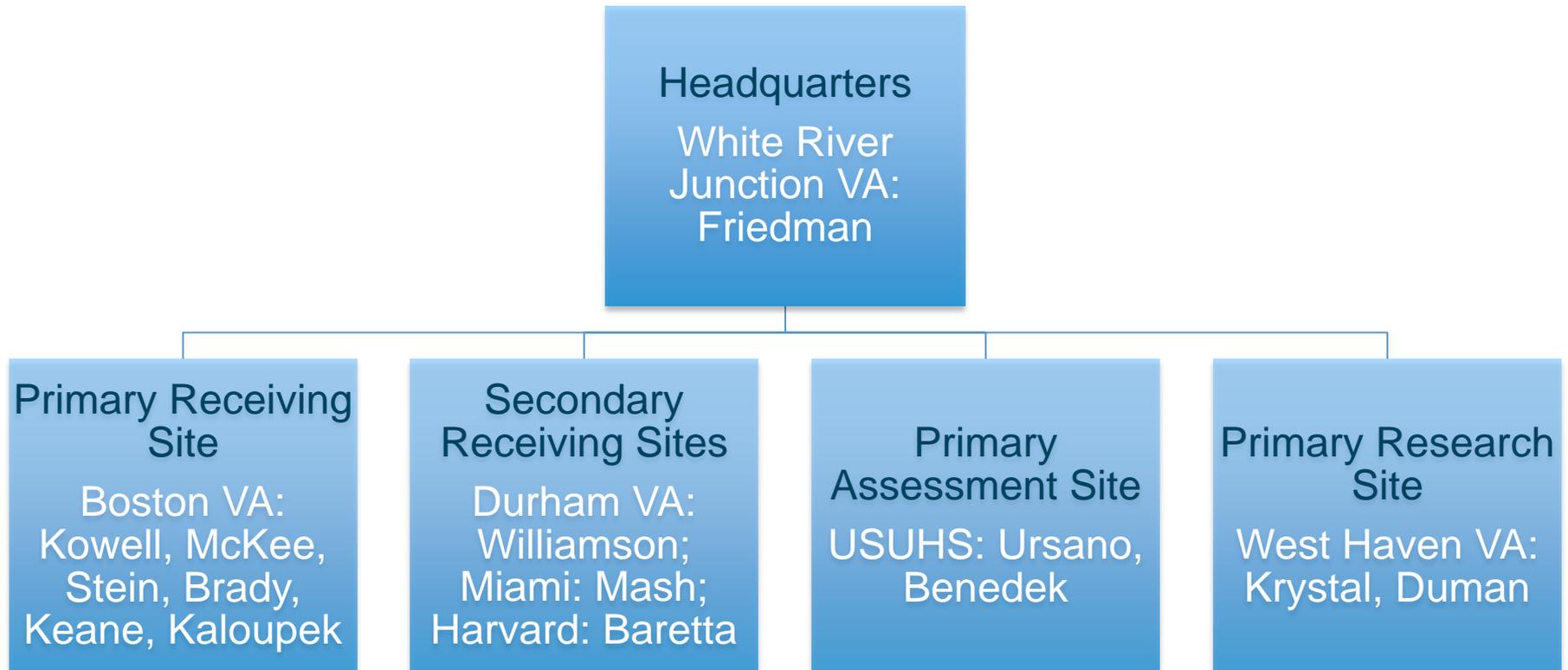
# VA National PTSD Brain Bank

- Aim: Promote understanding of the impact of stress, trauma and PTSD on brain tissue, neurocircuitry, and gene expression. The brain bank will:
  - acquire & prepare brain tissue, establish psychiatric diagnosis, promote research through intramural and extramural programs
- Budget: First year \$1.8 million, Recurring \$1.5 million
- At Boston, programmatically linked with the VA's Alzheimer's, ALS, TBI & CTE Brain Banks
- Will receive comparison tissue (normal & psychiatric controls) from all receiving sites
- Only VA Brain Bank that is authorized to accept tissue from non-Veterans

# VA National PTSD Brain Bank

- Secondary Acquisition Sites (primarily through collaboration with Medical Examiner Offices ) & Additional Research:
  - Miami VA/U Miami, Durham VA/Duke, South Texas VA/UTHSCA, Harvard Brain Bank
- Research is also going on at Boston, Duke, Central Texas VA/Texas A&M & Harvard. West Haven leads the intramural research core.
- There are 5 NIMH NeuroBioBanks.
  - We network with all 5
  - Two (Miami & Harvard) are members of our consortium
  - Pittsburgh is actively collaborating with us in research

# VA National PTSD Brain Bank: Organizational Chart



# NPBB: Current Inventory of Brain Tissue

Primary Diagnosis	Gender		Total	Veteran	Suicide
	Male	Female			
Post-Traumatic Stress Disorder	34	22	56	28(17)	10(3)
Major Depressive Disorder	27	19	46	4(2)	16(4)
Depression Not Otherwise Specified	10	1	11	4(4)	3(2)
Schizoaffective Disorder	0	1	1	1(1)	0
Bipolar Disorder	1	4	5	2(1)	1(1)
Anxiety	1	0	1	0	0
Alcohol	1	0	1	0	0
Control	32	15	47	5(3)	0
<b>Totals</b>	<b>106</b>	<b>62</b>	<b>168</b>	<b>44(28)</b>	<b>30(10)</b>

This table shows NPBB's current inventory of brain tissue by diagnosis, gender, veteran status and whether the donor died from suicide. Numbers in parentheses (in the veteran and suicide columns) represent the number of males in each category.

# VA's National PTSD Brain Bank Partners with Pink Concussions

## #PINKBrainPledge

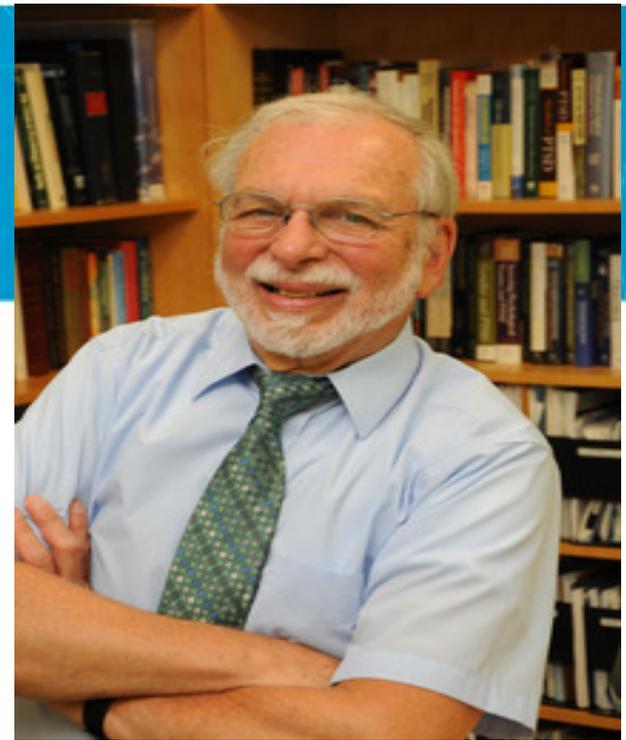
Women encouraged to pledge to donate their brains for a study of the effects of TBI and PTSD

For more information on this effort

- [pinkconcussions.com](http://pinkconcussions.com)
- [research.va.gov/programs/tissue\\_banking/PTSD/](http://research.va.gov/programs/tissue_banking/PTSD/)
- Call: 1-800-762-6609

VETERANS HEALTH ADMINISTRATION

PINK CONCUSSIONS



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# Thank you!

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