The Psychological Impact of Polytrauma: From the Individual to the Community and Back Again

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Defining Polytrauma

- Walker, Clark and Sanders (2010) cogently argue for the term "Post deployment multisymptom disorder" to describe the triad constellation of symptoms of OEF/OIF veterans
- Generally subsumed under this term:
  - PTSD
  - Post-concussive Syndrome
  - Pain

Post deployment Multi-Symptom Disorder Symptoms

- Sleep disturbance
- Low frustration tolerance/irritability
- Concentration/attention /memory problems
- Fatigue
- Headaches
- Musculoskeletal Disorder (PAIN)
- Affective disturbance
- Apathy
- Personality Change
- Substance Misuse
- Activity Avoidance
- Employment/School Difficulties
- Relationship Conflict
- Hypervigilence

Points of Impact

- The directly injured (veterans)
- The cohort at the time of injury
- The care providers at time of injury
- The family over time
- The "receiving" healthcare system
- The "discharge" community
- The local, state, and federal systems
- The long-term care community

A few thoughts

- Here we have the proverbial road to hell; although there is a tremendous amount of effort being expended, functional outcomes have not yet been approached for the majority of the systems effected by polytrauma
- Today in this cluster of brief talks, you will hear about care providers both at the time of injury and in the family system
- I will give you a brief overview of what we have found in our veterans

Background

- Today's Veterans are more likely to experience and survive a traumatic brain injury (TBI) during deployment than previous generations (Vasterling et al., 2009).
- Although the majority of mild TBI (mTBI) symptoms dissipate within days to weeks of the injury, roughly 10-15% of veterans with mTBI will experience lingering physical, cognitive, and behavioral symptoms (Stein & McAllister, 2009).

Background (cont.)

- mTBI is strongly associated with higher rates of Post-Traumatic Stress Disorder (PTSD) in OEF & OIF veterans (Hoge, 2008).
- However, overlap between post-concussive symptoms, PTSD, and depression, as well as other complicating factors (e.g. multiple traumatic events), make the etiological model of comorbid mTBI and PTSD difficult to understand.

PTSD Criteria: Quick and Dirty

- The person has been exposed to a traumatic event that was life threatening, or involved serious injury or threat to the physical integrity of self or others and responded with intense fear, helplessness or horror.
- 1 Re-experiencing Symptom (intrusive recollections, distressing dreams, flashbacks, psychological or physiological distress with reminders)
- 3 Avoidance or numbing symptoms (avoidance of thoughts/feelings/situations, inability to recall trauma, diminished interest, restricted affect, foreshortened future)
- 2 Hyper-arousal symptoms (difficulty sleeping, irritability/angry outbursts, difficulty concentrating, hypervigilance, exaggerated startle)

Mild TBI

- Concussion
- Blow or jolt to the head that results in brief loss of consciousness (< 30 min), altered mental status (dazed/confused), or post-traumatic amnesia
- Post-concussive symptoms (PCS): memory problems, dizziness/balance problems, ringing in the ears, headaches, sleep disturbance, fatigue, irritability.

Objective

- Measure the main effects of combat exposure and persistent PCS on PTSD and depression in a sample of returning OEF/OIF Veterans

- Examine which persistent PCS were most strongly associated with deployment problems after co-varying combat exposure

Method

- Baseline data were analyzed from an ongoing longitudinal research study of 108 OEF/OIF veterans.
- Veterans were paid $60 to complete a baseline diagnostic interview and self-report questionnaires
- Veterans were screened mTBI; participants endorsing current PCS were compared to those not endorsing current PCS.

Methods: Eligibility Criteria

- OEF/OIF Veteran
- English-speaking; able to comprehend and sign ICF
- 18 years of age or older
- Enrolled at CTVHCS (or willing to be enrolled)
- Able to complete the structured interviews and self-report assessments
- Willing to be contacted for follow-up assessments
- Deemed stable on psychotropic medications (defined as ≥3 months on a selective serotonin reuptake inhibitor or monoamine oxidase inhibitor; >1 month on an anxiolytic or beta-blocker; >1 month medication discontinuation or "wash out" for all medications) at the time of the BL assessment
- Deemed stable in psychotherapy (≥3 months stabilization for psychotherapy and 1-month psychotherapy wash-out) at the time of the BL assessment.

Methods: Exclusion Criteria

- Plan to relocate out of the CTVHCS area within 4 months of protocol initiation
- Meet criteria for a diagnoses of schizophrenia or bipolar disorder
- Report current hallucinations or delusions that are clearly not trauma-related
- Report current suicidal or homicidal risk warranting crisis intervention

Demographics (N = 108)

- M_{age} = 36.4 years, SD = 10.2
- Gender: 12.7% female
- Ethnicity: 30.3% Hispanic/Latino
- Race:
  - 59.8% Caucasian
  - 19.6% African American
  - 3.9% Asian
  - 11.8% Other

Measures

- ***Screen for mTBI:*** Brief Traumatic Brain Injury Screen (BTBIS; Schwab et al., 2006)
- ***Combat Exposure:*** Full Combat Exposure Scale (FCES; Hoge et al., 2004)
- ***PTSD:*** Clinician Administered PTSD Scale (CAPS; Blake et al., 1998)
- ***Depression:*** Beck Depression Inventory II (BDI-II; Beck et al., 1996)

Data Analytic Strategy

- PCS overlapping with symptoms of psychopathology (i.e. irritability and sleep problems) were excluded from the PCS variable.
- Multiple hierarchical regressions were used to examine whether combat exposure and post-concussive symptoms significantly predicted PTSD and depression after controlling for demographic variables.
- ANCOVA examined which individual PCS were most strongly associated with PTSD and depression after entering combat exposure as a covariate.

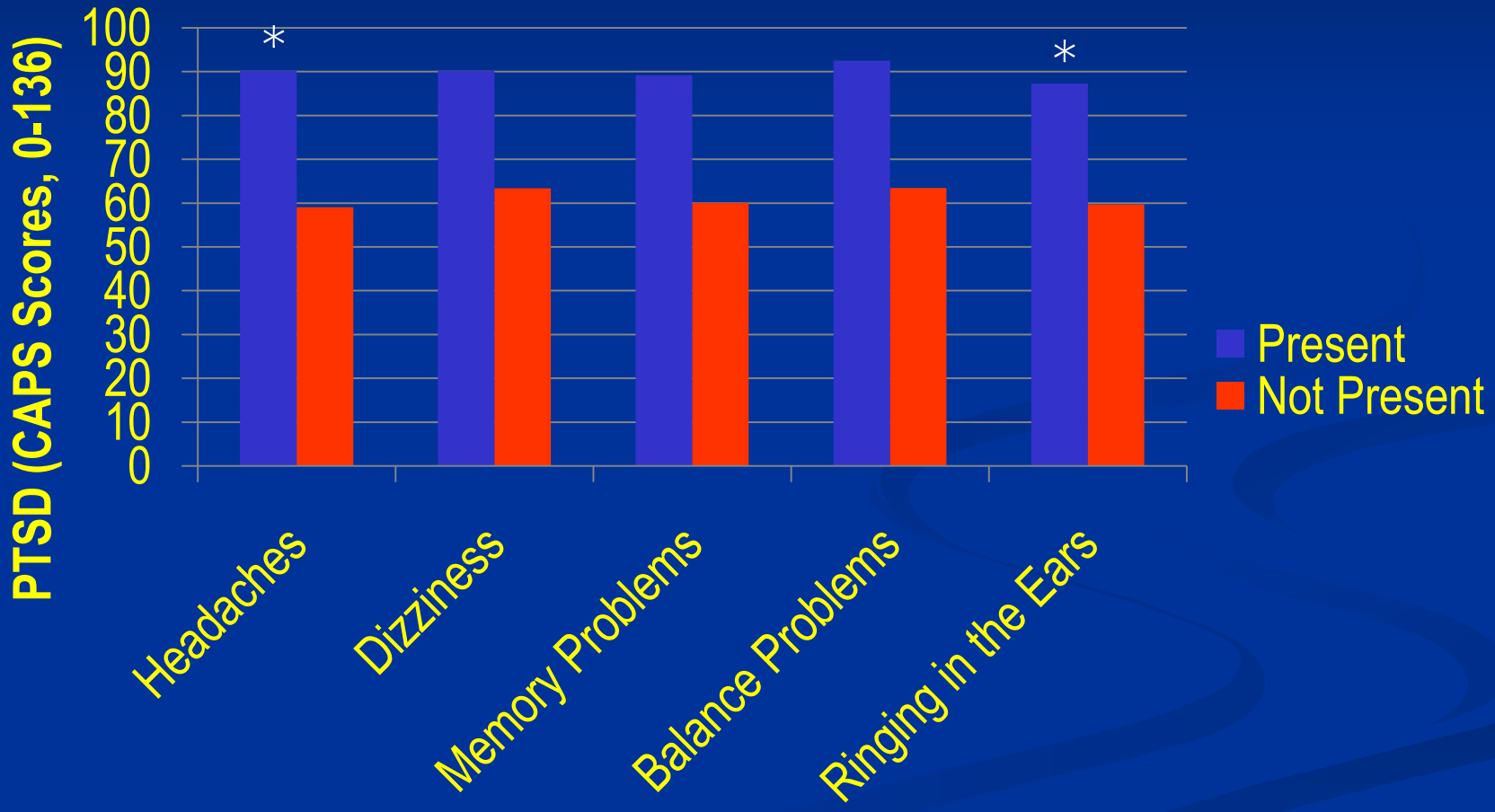
Results

- 51.9% (56/108) of participants screened positive for mTBI.
  - 46.3% (50/108) with current persistent PCS symptoms
  - 53.7% (58/108) with no current PCS symptoms

Table 1. Linear Regression Predicting PTSD

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	β	*t*	*p*
(Constant)	96.417	13.677		7.049	.000
Gender	-12.261	8.818	.122	-1.390	.168
Age	-.418	.298	-.119	-1.400	.165
Race	3.101	6.288	.042	.493	.623
Combat Exposure	**.676**	**.137**	**.500**	**4.940**	**.000**
PCS	**5.136**	**1.950**	**.261**	**2.633**	**.010**
Combat Exposure x PCS	.126	.065	-.175	-1.951	.054

Differences in PTSD Scores by Endorsement of PCS symptoms



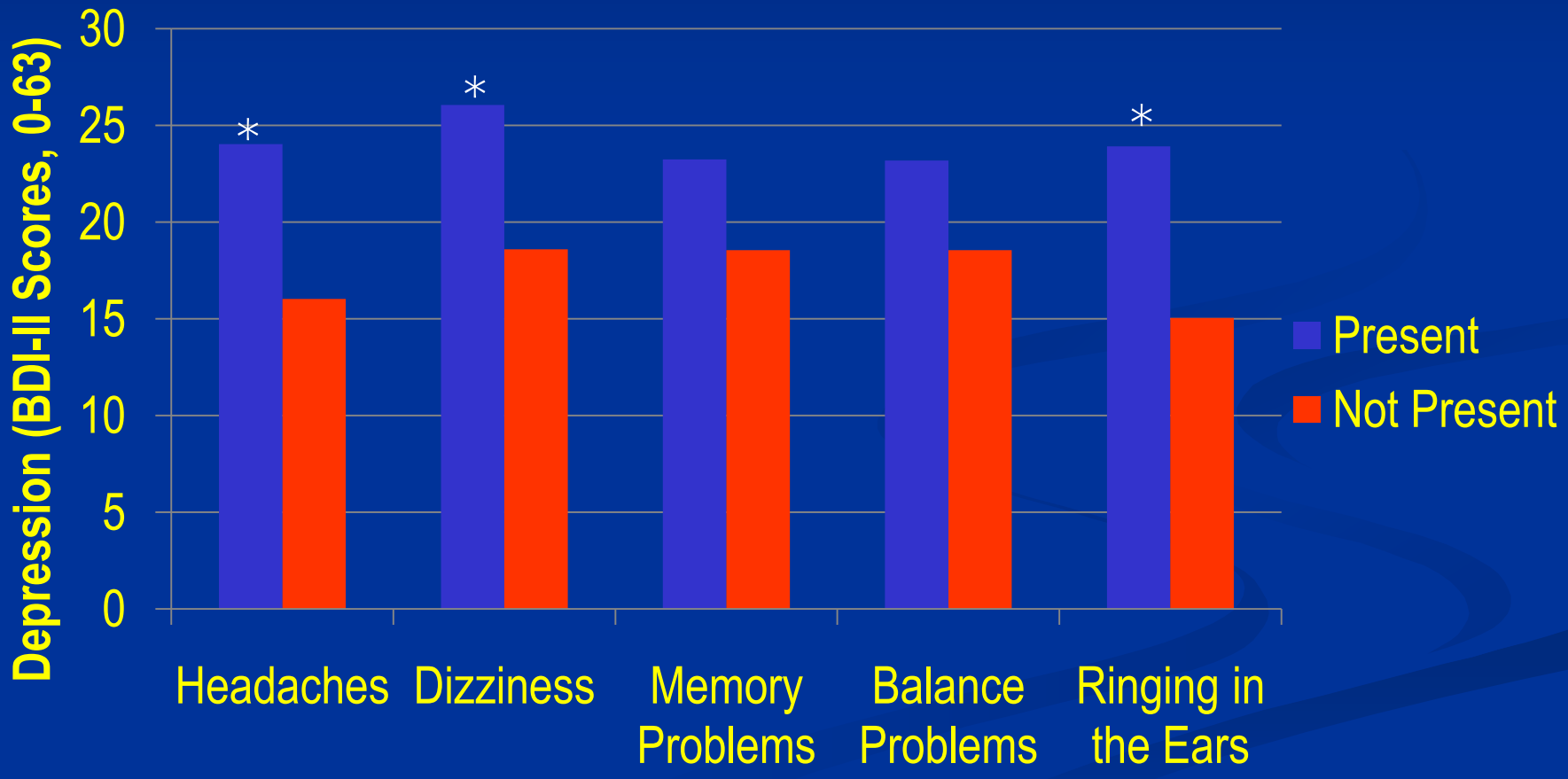
After covarying for combat exposure

* $p < .05$

Table 2. Linear Regression Predicting Depressive Symptoms

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	β	*t*	*p*
(Constant)	30.258	6.014		5.031	.000
Gender	-4.565	3.878	.127	-1.177	.243
Age	-.163	.131	-.129	-1.239	.219
Race	-1.537	2.765	.058	-.556	.580
Combat Exposure	.074	.060	.153	1.233	.221
PCS	**2.236**	**.858**	**.316**	**2.607**	**.011**
Combat Exposure x PCS	-.035	.028	-.136	-1.233	.221

Differences in Depression Scores by Endorsement of Current Post-Concussive Symptoms



After covarying for combat exposure

* $p < .05$

Conclusions

- OEF/OIF with persistent PCS were experiencing higher levels of psychopathology than Veterans experiencing little to no PCS, even after excluding overlapping PCS symptoms.
- After co-varying combat exposure, veterans who endorsed current symptoms of ringing in the ears and headaches had significantly worse PTSD and depressive symptoms.
- Those endorsing dizziness also had worse depressive symptoms.

Future Directions

- These findings suggest that lingering PCS significantly impact Veterans' post-deployment mental health.
- Treatments are needed to address the unique needs of Veterans with PTSD/depression who have experienced mTBI and endorse current PCS.
- Additional research is needed examine the individual and interactive effects of mTBI on psychopathology and functional outcomes.

DVA VISN 17 Center of Excellence for Research on Returning War Veterans

COE Mission

- Promote research on the:
  - Patterns and course of post-deployment adjustment
  - Development of models predicting risk, resilience, recovery and relapse to the sequelae of conflict in war theatres
  - Adaptation and evaluation of existing and as yet undeveloped treatments for veterans (and the families of veterans) with pathologic response to war in order to *facilitate rehabilitation*
  - Dissemination and education on the results of the Center's efforts.

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