



A Protocol for Tracking Quality of Life Outcomes in Those Injured in Combat:

The Wounded Warrior Recovery Project

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Problem



- ▶ As many as 50,000 service members have been injured in overseas contingency operations.
- ▶ Est. 16,000 would have died in previous conflicts.
- ▶ Compensation and care expected to exceed \$700 billion (Bilmes, 2007).
- ▶ Injured service members may be at risk for poor quality of life (QOL) outcomes.
- ▶ There are limited military studies that have assessed QOL outcomes among service members injured in combat.
 - Primarily injury-specific studies
- ▶ The relationship between combat injury related QOL and its covariates is not well understood.

QOL Concept



- A multi-dimensional concept that includes domains related to physical, mental, emotional, and social functioning.
- Recognizes that the quality of one's life must include objective and subjective information.
 - Important secondary injury outcome
- Particularly relevant outcome for clinical patients, those with chronic diseases, and trauma (e.g., RA, asthma, cancer, injury, limb loss).
- Can be used to measure incremental improvements rather than complete cure.

Objectives



- The Wounded Warrior Recovery Project (WWRP) is a tri-service longitudinal population-based study aimed at investigating QOL outcomes after combat injury.
- WWRP will track changes in QOL and describe variations in those changes as they relate to:
 - sociodemographic factors,
 - injury characteristics (mechanism, severity, body regions)
 - clinical/diagnostic measures, and
 - medical procedures and services
- WWRP results will play an important role in assessing the effectiveness of treatments for those wounded in combat and allocating resources.

Approach



Targeted WWRP Study Population

- Approximately 10,000 combat-injured Ss will be contacted and invited to participate (active duty and separated; all severity levels).

Enrollment

- Enrollment of active duty began last year. Participants will be followed for 6 years, with web-based QOL/psychosocial surveys conducted every 6 months.

Links to Other Data Sources

- Medical/clinical and personnel data from various sources will supplement QOL data.

Psychosocial Survey Measures



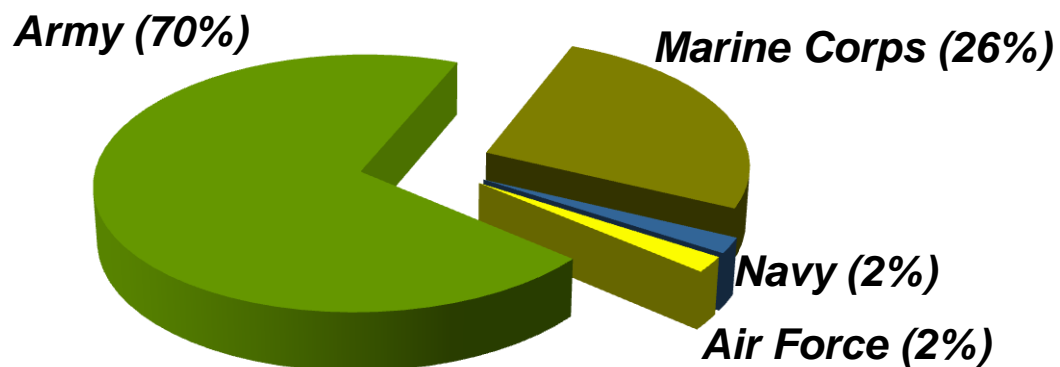
- **QOL – Quality of Well-Being Scale, Self Administered (QWB-SA)**– measures recent Mobility, Social Functioning, Health Symptoms, and Physical Activity. Ranges from 0–1.
- **PTSD Checklist (PCL-C)** – a 17 item checklist that measures past-month problems and complaints.
- **Center for Epidemiological Studies Depression Scale (CES-D)** – a 20 item scale that measures past-week depressive symptoms.
- **Injury circumstances (e.g., witnessing death) (Time 1 only).**
- **Ad-hoc measures** for special topics (e.g., pain, genital injury, ocular DZ associated with TBI, and moral injury).

Examples of Research Questions



- ▶ What is the trajectory of QOL among battle-injured service members, and how does it compare with matched civilian trauma patients?
- ▶ What are the cross-sectional and longitudinal correlates of QOL, in particular, baseline PTSD and TBI?
- ▶ How are multiple deployments and longer durations of deployment related to QOL?
- ▶ What situational injury factors documented near the point of injury predict subsequent QOL?
- ▶ Are there optimal types and timing of treatments, procedures, and services for injuries that positively impact QOL?
 - e.g., protective effect of morphine given early in the care process?

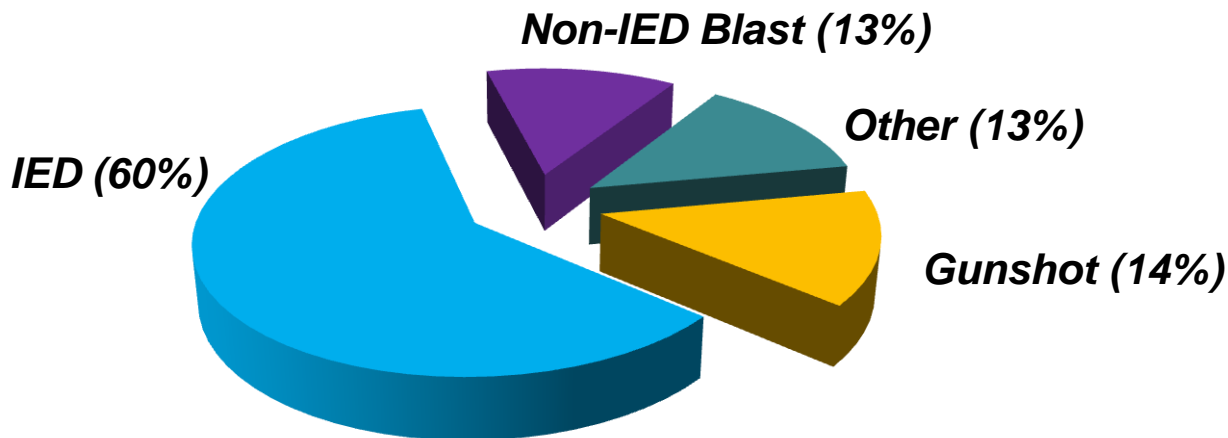
First 1,000 Participants



Branch of Service

**Mean age at injury:
29.6 yrs (6.4)**

**97% Male
84% Enlisted**



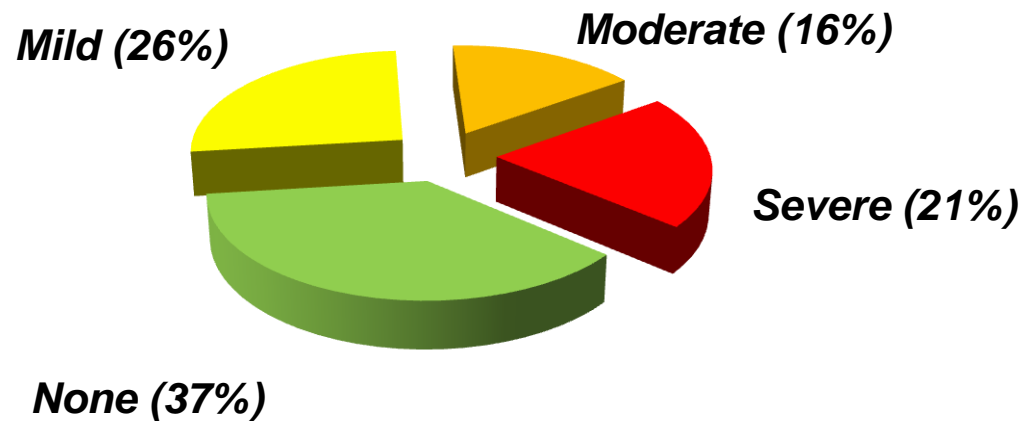
Mechanism of Injury

First 1,000 Participants



Mean Injury Severity Score: 4.9; *SD* = 6.5
Mean # injuries per S: 4.10; *SD* = 4.51
Mean # body regions injured: 2.33; *SD* = 1.38
PTSD symptoms: 50%
Witnessed death: 25%
Mean QOL score (0-1): 0.53; *SD* = 0.17

Depression



Preliminary Data: Correlates of QOL



Controlling for Injury Severity:

Age	ns
Gender	ns
Branch	ns
Race/ethnicity	ns
Time since injury	ns
Officer/enlisted status	sig, enlisted status associate with lower QOL
Mechanism of Injury	sig; IED associated with lower QOL
Witnessed death	sig; witnessing associated with lower QOL
Depression category	sig; strong linear relationship
PTSD symptoms	sig; PTSD associated with lower QOL
# of injuries	sig; more injuries associated with lower QOL
# of body regions affected	sig; more regions associated with lower QOL

Final Points



- This will be the first population-based longitudinal study of QOL after combat injury.
- Institute of Medicine (IOM) priority area.
- Recruitment strategies and confidentiality are key considerations.
- Woodruff SI, Galarneau MR, Luu BN, Sack DI, & Han PP. A study protocol for tracking quality of life among U.S. service members wounded in Iraq and Afghanistan: The Wounded Warrior Recovery Project. *Mil Med.* 179,3:265,2014.
- Ideas related to HDMA topic areas?