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

The Wounded Warrior Recovery Project

Susan I. Woodruff, PhD

April 17, 2014
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.
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.
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).
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

- Army (70%)
- Marine Corps (26%)
- Navy (2%)
- Air Force (2%)

Mechanism of Injury

- IED (60%)
- Non-IED Blast (13%)
- Other (13%)
- Gunshot (14%)

Mean age at injury: 29.6 yrs (6.4)

97% Male
84% Enlisted
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

- Mild (26%)
- Moderate (16%)
- Severe (21%)
- None (37%)
## Preliminary Data: Correlates of QOL

Controlling for Injury Severity:

<table>
<thead>
<tr>
<th>Variable</th>
<th>Relationship</th>
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<td>Age</td>
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<td>Officer/enlisted status</td>
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<td>Mechanism of Injury</td>
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<td>Witnessed death</td>
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<td>Depression category</td>
<td>sig; strong linear relationship</td>
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<tr>
<td>PTSD symptoms</td>
<td>sig; PTSD associated with lower QOL</td>
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<tr>
<td># of injuries</td>
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<tr>
<td># of body regions affected</td>
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• 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.
• Ideas related to HDMA topic areas?