Impact of Completion of a Formal Civic Service Program on the Biopsychosocial Health of Returning Veterans with and without Traumatic Brain Injury

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“Invisible Wounds of War” in U.S. Service Members who served in Iraq & Afghanistan

- 18.5% have Post-Traumatic Stress Disorder (PTSD), Depression or both¹
- 19.5% to 23% reported experiencing a traumatic brain injury (TBI)¹,²
  - TBI is caused by a bump, blow, or jolt to the head or a penetrating head injury that disrupts the normal function of the brain (CDC definition)³

¹Tanielian et al., 2008; ²Terrio et al., 2009
³http://www.cdc.gov/traumaticbraininjury/
Kemp & Bossarte, 2013 (suicide statistics)
The Mission Continues

- Founded by Dr. Eric Greitens in 2007
- 346 Fellows Surveyed
Intersection of Health & Mental Health
TMC Fellow Characteristics

Non-TBI

Gender (n=271)

- Male: 64%
- Female: 36%

Age (n=273)

- 22-25 Years: 9%
- 26-30 Years: 8%
- 31-35 Years: 10%
- 36-40 Years: 9%
- 41-45 Years: 2%
- 46-50 Years: 38%
- 50-55 Years: 2%

TBI

Gender (n=66)

- Male: 12%
- Female: 88%

Age (n=67)

- 22-25 Years: 13%
- 26-30 Years: 6%
- 31-35 Years: 3%
- 36-40 Years: 3%
- 41-45 Years: 3%
- 46-50 Years: 39%
**TMC Fellow Characteristics**

**Non-TBI**

**Race (n=269)**
- White/Caucasian: 55%
- Black/African American: 29%
- Asian/Pacific Islander: 7%
- Native American/Alaskan Native: 4%
- Multiracial/Biracial: 0.4%
- Other Race: 5%

**Ethnicity (n=269)**
- Non-Hispanic/Latino: 86%
- Hispanic/Latino: 14%

**TBI**

**Race (n=67)**
- White/Caucasian: 67%
- Black/African American: 15%
- Asian/Pacific Islander: 2%
- Native American/Alaskan Native: 3%
- Multiracial/Biracial: 4%
- Other Race: 9%

**Ethnicity (n=67)**
- Non-Hispanic/Latino: 82%
- Hispanic/Latino: 18%
TMC Fellow Characteristics

**Non-TBI**

Marital Status (n=273)

- Married: 44%
- Divorced, never married: 35%
- Single: 20%
- Widowed: 1%

Have Children (n=272)

- No: 49%
- Yes: 51%

**TBI**

Marital Status (n=67)

- Married: 40%
- Divorced, never married: 33%
- Single: 27%
- Widowed: 1%

Have Children (n=66)

- No: 48%
- Yes: 52%
TMC Fellow Characteristics

Non-TBI

Education (n=272)

- High School/GED: 17%
- Trade Technical or Vocational School after High School: 20%
- Associates Degree: 7%
- Undergraduate Degree: 35%
- Graduate Degree: 19%
- Doctoral Degree: 2%

TBI

Education (n=67)

- High School/GED: 25%
- Trade Technical or Vocational School after High School: 25%
- Associates Degree: 11%
- Undergraduate Degree: 25%
- Graduate Degree: 14%
- Doctoral Degree: 2%
The Mission Continues

Three Main Categories
- Psychological
- Physical
- Social

6-month Volunteer Placement at a Local Nonprofit of their Choice
Were there changes in psychological factors from pre to post?

<table>
<thead>
<tr>
<th>Psychological Factors</th>
<th>Non-TBI</th>
<th>TBI</th>
</tr>
</thead>
<tbody>
<tr>
<td>PTSD Symptoms</td>
<td>$t(263)= 3.109, p = 0.002^*$</td>
<td>$t(62) = 2.711, p = 0.009^*$</td>
</tr>
<tr>
<td>Depression Symptoms</td>
<td>$t(264)= 4.241, p = 0.000^*$</td>
<td>$t(61) = 0.646, p = 0.521$</td>
</tr>
<tr>
<td>Interference due to Emotional Health</td>
<td>$t(262)= 3.775, p = 0.000^*$</td>
<td>$t(61) = 0.659, p = 0.512$</td>
</tr>
<tr>
<td>Psychological Well-being</td>
<td>$t(260)= -1.745, p = 0.000^*$</td>
<td>$t(63) = -1.463, p = 0.149$</td>
</tr>
<tr>
<td>Feelings on Self-efficacy</td>
<td>$t(260)= -2.313, p = 0.021^*$</td>
<td>$t(63) = -2.798, p = 0.007^*$</td>
</tr>
</tbody>
</table>

Peer-mentoring intervention

$\alpha = 0.05$
Were there changes in **physical factors** from pre to post?

<table>
<thead>
<tr>
<th>Physical Factors</th>
<th>Non-TBI</th>
<th>TBI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall Physical Health Rating</td>
<td>t(263) = 2.89, p = 0.004*</td>
<td>t(63) = 2.644, p = 0.010*</td>
</tr>
<tr>
<td>Interference due to Physical Health</td>
<td>t(261) = 1.317, p = 0.189</td>
<td>t(63) = 1.494, p = 0.140</td>
</tr>
</tbody>
</table>

Were there changes in **social factors** from pre to post?

<table>
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<th>Social Factors</th>
<th>Non-TBI</th>
<th>TBI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Isolation and Loneliness</td>
<td>t(263) = 4.924, p = 0.000*</td>
<td>t(61) = 3.811, p = 0.000*</td>
</tr>
<tr>
<td>Availability of Social Support</td>
<td>t(263) = -3.746, p = 0.000*</td>
<td>t(63) = -3.950, p = 0.000*</td>
</tr>
</tbody>
</table>
Summary

- Preliminary results from an Impact Evaluation (pre-post design)
- First Impact Evaluation of a Civic Service Program for Veterans
- Fellows without TBI showed significant pre to post improvements on all psychological and social factors
- Fellows with TBI showed clinical improvements in positive directions for all factors with statistically significant results in mental health and in areas targeted for improvement in other TBI-specific interventions
  - decrease of PTSD symptoms
  - decrease in feelings of loneliness and isolation
  - increase in perceived availability of social support
  - greater magnitude of improvement on self-efficacy relative to Non-TBI group
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