Working in post conflict zone is as stressful as working home

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*preliminary evidence from a multi sample PTSD screening*
1. INTRODUCTION

• Since the early 2000s, post-traumatic stress disorder (PTSD) has increasingly become part of people's consciousness around the world and this can be partially attributed to the impact of the wars in Afghanistan and Iraq.

• Individuals develop PTSD after experiencing a single or series of traumatic events that often involve death, threat of death, or serious physical or psychological injury, including threat to the physical integrity of oneself or others.

• Although lifetime risk for exposure to PTE is extremely high (60%-90%), the prevalence of PTSD is relatively low and approximately 9% of individuals exposed to any PTE report PTSD at some point across the lifespan (Breslau et al., 1998; Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995).
1.1. PTSD rates of military personnel

- Reported rates varies between 1% and 60%.
- Many factors: age, sex, time of deployment, type of mission, the outcome of mission, support after deployment.
- The higher rates of PTSD among people with chronic physical disabilities resulting from war-zone injuries.
- However, many veterans who have extensive combat exposure are well adjusted and high functioning.
- Moreover, war-zone exposure can have potentially salutary effects. Elder and Clipp (1989) concluded that veterans with heavy combat exposure had the greatest gains in resilience and decreases in helplessness relative to less-exposed veterans.
1.2. Motivation of the study

• In the last years, mass-media became very interested to discuss this issue.

• Few years ago, Romanian Army has been accused by mass-media that do not recognise PTSD among veterans returned from war or post-war zones and this attitude was called the „NO Syndrome”.

• Few weeks ago, discussing the case of a military who committed suicide mass-media concluded that he did it because he had PTSD, and he had PTSD because he went in Afghanistan few years ago.

• The underlined message was that people who returned from international missions are dangerous (for others or for themselves) and institutions are not able to detect or treat them.
2. METHODS

• **Measure:**
  - The military version of PTSD Checklist (PCL-4) has been used to screen for PTSD among military personnel

• **Participants:**
  - 25 gendarmes returned from Afghanistan
  - 225 gendarmes from 5 different zone working home in mobile units

• **Data Analysis:**
  - Comparative analysis
  - Bayesian Independence Samples T-Test

• **Hypothesis:**
  - H0 – the differences between military working home and those returned from Afghanistan are not significant.
  - H1 - the differences between military working home and those returned from Afghanistan are significant (Afghanistan > Home)
2.1. PTSD Checklist (PCL-M)

• The PCL-4 is a 17-item self-report measure reflecting DSM-IV symptoms of PTSD. It has a variety of purposes, including:
  ▪ screening individuals for PTSD
  ▪ aiding in diagnostic assessment of PTSD
  ▪ monitoring change in PTSD symptoms

• The PCL can be scored to provide a presumptive diagnosis:
  ▪ determine whether an individual meets DSM-IV symptom criteria as defined by at least 1 B item (items 1-5), 3 C items (items 6-12), and at least 2 D items (items 13-17).
  ▪ determine whether the total severity score exceeds a given normative threshold.
  ▪ combine methods (1) and (2) to ensure that an individual meets both the symptom pattern and severity threshold.
2.1. Suggested PCL cut-point scores

- **The goal of the assessment**: A lower cut-point is considered when screening for PTSD or when it is desirable to maximize detection of possible cases. A higher cut-point is considered when informing diagnosis or to minimize false positives.

- **The prevalence of PTSD in the target setting**: Generally, the lower the prevalence of PTSD in a given setting, the lower the optimal cut-point.

<table>
<thead>
<tr>
<th>Estimated Prevalence of PTSD</th>
<th>Typical Setting</th>
<th>Suggested PCL Cut-Point Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td>15% or Below</td>
<td>e.g. civilian primary care, Department of Defense screening, or general population samples</td>
<td>30-35</td>
</tr>
<tr>
<td>16-39%</td>
<td>e.g. specialized medical clinics (such as TBI or pain) or VA primary care</td>
<td>36-44</td>
</tr>
<tr>
<td>40% or Above</td>
<td>e.g. VA or civilian specialty mental health clinics</td>
<td>45-50</td>
</tr>
</tbody>
</table>

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### 3. RESULTS

#### 3.1 Descriptive statistics for samples

#### Descriptive Statistics for Afghanistan sample

<table>
<thead>
<tr>
<th></th>
<th>Age</th>
<th>Experience</th>
<th>Missions</th>
<th>Months</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td>25</td>
<td>23</td>
<td>25</td>
<td>25</td>
</tr>
<tr>
<td>Mean</td>
<td>37.08</td>
<td>12.74</td>
<td>1.84</td>
<td>19.48</td>
</tr>
<tr>
<td>Std. Deviation</td>
<td>5.62</td>
<td>5.02</td>
<td>0.94</td>
<td>11.86</td>
</tr>
<tr>
<td>Minimum</td>
<td>28.00</td>
<td>7.00</td>
<td>1.00</td>
<td>10.00</td>
</tr>
<tr>
<td>Maximum</td>
<td>48.00</td>
<td>23.00</td>
<td>5.00</td>
<td>60.00</td>
</tr>
</tbody>
</table>

#### Descriptive Statistics for all samples

<table>
<thead>
<tr>
<th>Job Experience</th>
<th>Brasov</th>
<th>Craiova</th>
<th>Ploiesti</th>
<th>Mures</th>
<th>Bacau</th>
<th>INT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td>51</td>
<td>65</td>
<td>33</td>
<td>21</td>
<td>52</td>
<td>23</td>
</tr>
<tr>
<td>Mean</td>
<td>11.75</td>
<td>13.1</td>
<td>12.24</td>
<td>13.71</td>
<td>13.04</td>
<td>12.74</td>
</tr>
<tr>
<td>Std. Deviation</td>
<td>5.44</td>
<td>5.36</td>
<td>4.29</td>
<td>6.44</td>
<td>6.14</td>
<td>5.02</td>
</tr>
<tr>
<td>Minimum</td>
<td>3.00</td>
<td>4.00</td>
<td>4.00</td>
<td>1.00</td>
<td>1.00</td>
<td>7.00</td>
</tr>
<tr>
<td>Maximum</td>
<td>22.00</td>
<td>29.00</td>
<td>23.00</td>
<td>23.00</td>
<td>26.00</td>
<td>23.00</td>
</tr>
</tbody>
</table>
3.2. Reliability Analysis of PCL

<table>
<thead>
<tr>
<th>Research Lots</th>
<th>Cronbach Alpha</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brasov</td>
<td>.84</td>
<td>.77</td>
</tr>
<tr>
<td>Craiova</td>
<td>.80</td>
<td>.72</td>
</tr>
<tr>
<td>Ploiesti</td>
<td>.94</td>
<td>.90</td>
</tr>
<tr>
<td>Mures</td>
<td>.96</td>
<td>.93</td>
</tr>
<tr>
<td>Bacau</td>
<td>.95</td>
<td>.93</td>
</tr>
<tr>
<td>Afghanistan</td>
<td>.78</td>
<td>.62</td>
</tr>
</tbody>
</table>
## 3.3 PCL Results

<table>
<thead>
<tr>
<th>Location</th>
<th>Mean</th>
<th>S.D.</th>
<th>% Confidence Interval for Mean</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Afghanistan, N=25</td>
<td>18.84</td>
<td>2.90</td>
<td>17.64, 20.04</td>
<td>17</td>
<td>27</td>
</tr>
<tr>
<td>Brasov, N=51</td>
<td>19.20</td>
<td>3.21</td>
<td>18.29, 20.10</td>
<td>17</td>
<td>32</td>
</tr>
<tr>
<td>Craiova, N=65</td>
<td>19.06</td>
<td>2.91</td>
<td>18.34, 19.78</td>
<td>17</td>
<td>28</td>
</tr>
<tr>
<td>Ploiesti, N=33</td>
<td>19.58</td>
<td>4.96</td>
<td>17.82, 21.34</td>
<td>17</td>
<td>42</td>
</tr>
<tr>
<td>Mures, N=24</td>
<td>20.00</td>
<td>6.10</td>
<td>17.42, 22.58</td>
<td>17</td>
<td>42</td>
</tr>
<tr>
<td>Bacau, N=52</td>
<td>22.37</td>
<td>8.78</td>
<td>17.42, 24.81</td>
<td>17</td>
<td>55</td>
</tr>
</tbody>
</table>

### Independent Samples T-Test

<table>
<thead>
<tr>
<th></th>
<th>t</th>
<th>df</th>
<th>p</th>
<th>Cohen's d</th>
<th>95% CI for Cohen's d</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCL</td>
<td>-1.05</td>
<td>248</td>
<td>0.29</td>
<td>-0.221</td>
<td>-0.634, 0.193</td>
</tr>
</tbody>
</table>

*Note.* Student's t-test.
3.4. Test of Normality

- The entire variables have a deviation from the assumption of normality according to Shapiro–Wilk Normality Test.
- The null-hypothesis of this test is that the population is normally distributed, therefore if the p-value is less than the .05 alpha level, then the null hypothesis is rejected and there is evidence that the data tested are not from a normally distributed population (Shapiro, Wilk, 1965).

<table>
<thead>
<tr>
<th>Samples</th>
<th>Shapiro-Wilk</th>
<th>Statistic</th>
<th>df</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brasov</td>
<td></td>
<td>,728</td>
<td>51</td>
<td>,000</td>
</tr>
<tr>
<td>Craiova</td>
<td></td>
<td>,743</td>
<td>65</td>
<td>,000</td>
</tr>
<tr>
<td>Ploiesti</td>
<td></td>
<td>,575</td>
<td>33</td>
<td>,000</td>
</tr>
<tr>
<td>Mures.</td>
<td></td>
<td>,575</td>
<td>24</td>
<td>,000</td>
</tr>
<tr>
<td>Bacau</td>
<td></td>
<td>,664</td>
<td>52</td>
<td>,000</td>
</tr>
<tr>
<td>Afghanistan</td>
<td></td>
<td>,697</td>
<td>25</td>
<td>,000</td>
</tr>
</tbody>
</table>
3.5. Bayesian inference

• Taking into account that the scores of TLS on both samples present significant deviation from the normal distribution, I assumed that Bayesian inference would be more appropriate to test the difference between the two leaders.

• Bayesian inference is a method of statistical inference in which Bayes’ theorem is used to update the probability for a hypothesis as more evidence or information becomes available.

• During the last years, using Bayes factors has become a concrete and practical alternative to hypothesis testing than using $p$ values (Wagenmakers et.al., 2017).
3.5. Bayesian inference

• The Bayes Factor quantifies the evidence in the data for the hypotheses under investigation. For instance,
  ▪ if $BF_{01} = 10$, the support in the data is 10 times larger for $H_0$ than for $H_1$.
  ▪ if $BF_{10} = 10$, the support in the data is 10 times larger for $H_1$ than for $H_0$.

• According to Jeffreys (1961), BF could be interpreted as substantial (0.5-1), strong (1-2) and decisive (2<).

• According to guidelines presented by Kass and Raftery (1995) a Bayes Factor in the range:
  ▪ 1–3 constitutes anecdotal evidence in favour of $H_0$ or $H_1$,
  ▪ 3–20 constitutes positive evidence and
  ▪ 20–150 strong evidence.

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3.5. Bayesian Analysis of PCL Results

a) Afghanistan versus Mobile Unit 1

- Afghanistan: PCL=18,84
- Brasov: PCL=19,20

![Bayesian Analysis Graph](image-url)
b) **Afghanistan versus Mobile Unit 2**

- Afghanistan: PCL=18.84
- Ploiesti: PCL=19.58

Evidence for H0:
- BF\(_{10}\) = 0.322
- BF\(_{01}\) = 3.108

Evidence for H1:
- Anecdotal

Moderate Evidence:
- Strong

Anecdotal Evidence:
- BF\(_{01}\) < 1/3
c) Afghanistan versus Mobile Unit 3

- AF Afghanistan G: PCL=18.84
- Craiova: PCL=19.06

Evidence for H0: Moderate

\[ BF_{10} = 0.254 \]
\[ BF_{01} = 3.938 \]

Evidence for H1

Evidence

- Strong
- Moderate
- Anecdotal

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b) Afghanistan versus Mobile Unit 4

- Afghanistan: PCL=18,84
- Mures: PCL=20,00

\[ BF_{10} = 0.385 \]
\[ BF_{01} = 2.600 \]

Evidence for H0: Anecdotal

Evidence for H1

Evidence

Moderate

Anecdotal

Anecdotal

Moderate
e) Afghanistan versus Mobile Unit 5

- Afghanistan: PCL=18.84
- Bacau: PCL=20.37
f) International versus National

- International  N=25
- National Lot  N=225
4. DISCUSSION

• The PCL means of gendarmes returned from Afghanistan are not significantly different than the PCL means of gendarmes who are working home.

• Also, there are no significant differences between different categories of military deployed in Afghanistan:
  ▪ Male versus Female
  ▪ Old versus Younger
  ▪ High experience versus Low experience
  ▪ 1 mission versus 2 missions
  ▪ Less months versus More months
4.1. Possible explanations

- Voluntary activity.
- Long period of training (selections, courses, exams)
- Good salary
- Mentoring activities (not combat zone)
- Well treated by colleagues during the mission
- Valuable professional experience
- High potential to be promoted after deployment
- Challenging life experience
4.2. Dilemmas & Precautions

- **Missed PTSD.** The diagnosis of PTSD is often missed in primary care settings (50%). The physicians should become better prepared to recognize this disorder in their patients and initiate proper treatment or appropriate referral.

- **Partial PTSD.** Stating that a significant number of individuals who once had PTSD no longer meet diagnostic criteria, however, does **not mean that such individuals are free of symptoms**. Although recovery does occur, many individuals continue to suffer from partial PTSD. In many cases, these residual symptoms may seriously impair marital, familial, vocational, or social functioning.
4.2. Dilemmas & Precautions

• **Atypical Pattern of PTSD.** Longitudinal studies show that the course of PTSD is quite variable. Although some trauma survivors may become free of most or all PTSD symptoms, others may develop a persistent mental disorder marked by relapses and remissions. Between these two extremes are a number of disease patterns *(acute, delayed, chronic, and intermittent or recurrent forms of PTSD have been well documented)*.

• Op den Velde et al' described three life-span developmental courses among World War II Dutch resistance fighters:
  - a subacute form that gradually becomes chronic,
  - a delayed form with onset 5 to 35 years after the end of World War II, and
  - an intermittent subtype with relapses and remissions
5. REQUESTS & QUESTIONS

• Studies about PTSD rates in your countries
• Recommendation about dealing with mass-media

THANK YOU

For additional information
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