Prevalence of Past-Year Mental Disorders in Canadian Military Personnel and Civilians: Understanding the Differences

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Faculty/Presenter Disclosure

• Faculty: Corneliu Rusu
• Relationships with commercial interests:
  – Not applicable
Disclosure of Commercial Support

• No commercial support
Mitigating Potential Bias

• Not applicable
Introduction

- Mental disorders are prevalent and impactful in both military and civilian populations
- Higher burden of mental disorders in military personnel relative to their corresponding general population (McFarlane et al. 2011; Kessler at al. 2014, Pearson et al. 2014; Goodwin et al. 2014; Rosellini et al. 2015)
- Prevalence differences potentially driven by:
  - Differences in socio-demographic composition
  - Differences in trauma exposure
  - Differences in mental health systems
  - Selection effects
Past Prevalence Comparisons

• Higher prevalence of past-year MDE and GAD in CAF Regular Force personnel than the comparable age-and-sex standardized Canadian general population (Pearson et al. 2014)

• Higher prevalence of 30-day MDD and GAD in non-deployed soldiers than in socio-demographically comparable civilians (Kessler et. al 2014)

• Higher prevalence of lifetime GAD in new soldiers than in corresponding matched civilians (Rosellini et al. 2015)
Past Prevalence Comparisons

• Serving military personnel were more likely to endorse symptoms of probable common mental disorder compared to employed individuals in general population (Goodwin et al. 2014)

• Excess of depression, PTSD and suicidal ideation in military personnel relative to demographically similar civilians (McFarlane et al. 2011)
Key Limitations of Past Research

• Failure to account for differential distribution of confounders beyond age and sex (Pearson et al. 2014)

• Use of non-contemporaneous samples (Kessler et al 2014; Rosellini et al. 2015; Mc Farlane et al. 2011)

• Different survey modes and contexts (Kessler et al 2014; Rosellini et al. 2015; Mc Farlane et al. 2011; Goodwin et al. 2014)

• Use of brief survey instruments (Kessler et al. 2014; Goodwin et al. 2014)

• None have accounted for childhood trauma, which:
  – Contributes to mental disorders and suicide (Sareen et al. 2013; Afifi et al. 2014)
  – Appears to be more prevalent in military than in civilians (Blosnich et al. 2014)
Objective

• Compare the prevalence of past-year major depressive episode (MDE), generalized anxiety disorder (GAD), alcohol use disorder (AUD), suicide ideation (SI), and suicide attempts (SA) in CAF Regular Force personnel with highly-comparable individuals in the Canadian general population
Methods

• Two cross-sectional population-based surveys conducted by Statistics Canada
  – 2013 Canadian Forces Mental Health Survey (CFMHS 2013)
  – 2012 Canadian Community Health Survey – Mental Health (CCHS-MH 2012)
• Similar sampling techniques to ensure representativeness
• Similar collection of socio-demographic and child abuse victimization information
• Similar assessment of MDE, GAD, AUD, SI, and SA
• Validated diagnostic instrument:
  – World Mental Health – Composite International Diagnostic Interview 3.0 (WMH-CIDI)
## CAF Regular Force vs Civilians

<table>
<thead>
<tr>
<th>Socio-demographic characteristic</th>
<th>Canadian general population (N=26,934,200)</th>
<th>CAF Regular Force (N=64,360)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age range</td>
<td>15-102</td>
<td>17-60</td>
</tr>
<tr>
<td>Age≤ 45 years</td>
<td>46%</td>
<td>79%</td>
</tr>
<tr>
<td>Men</td>
<td>49%</td>
<td>86%</td>
</tr>
<tr>
<td>Race: white origin</td>
<td>80%</td>
<td>90%</td>
</tr>
<tr>
<td>Recent immigrant</td>
<td>2%</td>
<td>0%</td>
</tr>
<tr>
<td>Married/common-law</td>
<td>63%</td>
<td>66%</td>
</tr>
<tr>
<td>Post-secondary education</td>
<td>62%</td>
<td>61%</td>
</tr>
<tr>
<td>Full-time employed</td>
<td>53%</td>
<td>100%</td>
</tr>
<tr>
<td>Personal income ≤ $40,000</td>
<td>55%</td>
<td>6%</td>
</tr>
<tr>
<td>Residence: Atlantic provinces</td>
<td>7%</td>
<td>23%</td>
</tr>
</tbody>
</table>
## CAF Regular Force vs Civilians

<table>
<thead>
<tr>
<th>Child abuse victimization(^1)</th>
<th>Canadian general population (N=26,934,200)</th>
<th>CAF Regular Force (N=64,360)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domestic violence</td>
<td>15%</td>
<td>18%</td>
</tr>
<tr>
<td>Physical abuse</td>
<td>42%</td>
<td>61%</td>
</tr>
<tr>
<td>Sexual abuse</td>
<td>10%</td>
<td>8%</td>
</tr>
</tbody>
</table>

\(^1\) One or more times
Comparable Civilian Sample

• Create a civilian sample that matched CAF RegF personnel on a range of socio-demographic and child abuse victimization variables

• Subsampling:
  – Sample restriction
  – Exclusion criteria

• Weighting:
  – Selection of socio-demographic variables
  – Generating weights through sample balancing
Subsampling

• Sample restriction
  – Full-time employed
  – Age range 18-60 years
  – Not recent immigrant

• Exclusion of those with health problems likely incompatible with military health/fitness standards:
  – Chronic physical disorders (COPD, heart disease, stroke, epilepsy, Crohn’s, ulcerative colitis, CFS, MCS, extreme obesity, etc.)
  – Chronic psychological disorders (schizophrenia or other psychosis, bipolar disorder, mania, dysthymia, etc.)
Weighting

- Selection of socio-demographic and child abuse victimization variables:
  - Significantly related to the outcome
  - Having a significantly different distribution among civilians than in CAF RegF personnel
  - Age, sex, marital status, race, education, income, province of residence, adverse childhood experiences (domestic violence, physical abuse, sexual abuse)

- Sample balancing to make distributions of the selected variables in the civilian sample agree with the distributions in the military sample
Iterative Proportional Fitting (Raking)

- Procedure for adjusting survey weights
- Adjusts a table of data cells such that they add up to known control totals
- Adjustment performed in a series of iterations until a certain level of convergence is reached
- Weighted proportions in the restricted civilian sample match those in the RegF personnel for each category of the selected matching variables
Prevalence Estimates

Rusu, Zamorski, Boulos, & Garber (Can J Psych, 2016)

*p<0.05 vs. fully matched civilians

Rusu, Zamorski, Boulos, & Garber (Can J Psych, 2016)

*p<0.05 vs. fully matched civilians
Key Findings

• Higher overall past-year prevalence rates of MDE, GAD, and SI in CAF Regular Forces personnel than in the matched segment of the Canadian household population

• Exception: AUD

• Differences in rates remained substantial after further adjustment for child abuse victimization
Limitations

- Limited number of mental disorders evaluated in both surveys
- PTSD not assessed in civilian sample
- Limited assessment of traumatic events in both surveys
- No information of age of enlistment, precluding analysis of pre-enlistment mental disorders
Implications

• Differences in prevalence rates cannot be solely explained by the differences in socio-demographic characteristics and adverse childhood experiences variables
• Differences likely not due to common methodological problems that complicate military-civilian comparisons
• Potential differences:
  • Trauma exposure (including occupational trauma)
  • Selection effects
  • Mental health systems
  • Survey context effects
Conclusion

• Factors other than differences in socio-demographic composition and history of childhood trauma account for the excess burden of mental disorders in Canadian military personnel

• Future research should target:
  – Occupational trauma exposure
  – Selection effects
  – Survey context