Australian Military Mental Health, PTSD and Suicide: How Does Risk Change Over Time”.

Professor David Forbes
Director, Phoenix Australia – Centre for Posttraumatic Mental Health
Department of Psychiatry, University of Melbourne
Background

• A series of dataset that examine the prevalence and longitudinal course of mental health, PTSD and suicidality in the ADF

• Each attempts to not only identify rates of these mental health issues over time, but also the key risk factors as they emerge across key time points

• Key datasets
  • Longitudinal resilience study examining mental health and wellbeing from recruitment through to the first four years of service (2019)
  • Defence mental health prevalence study (2010)
  • Transition and wellbeing research program – tracking ADF members from the prevalence study through those who had discharged form the ADF in the previous 5 years (2015)

• The focus of this presentation will be what is identifiable at key transition points with the most substantial emphasis on the transition from military to civilian life
Study #1
The Longitudinal ADF Study Evaluating Resilience (LASER-Resilience):
Patterns and Predictors of Wellbeing in the Early Years of the Military Career

Investigator team:
Phoenix:
Professor David Forbes; Dr Lisa Dell, A/Prof Virginia Lewis (LaTrobe University); Dr Monique Crane (Macquarie University); Professor Meaghan O'Donnell; Ms Nicole Sadler; Dr Sean Cowlishaw; Dr Julia Fredrickson;
Dr Sonia Terhaag

Defence:
COL Laura Sinclair, Ms Helen Benassi, Ms Jess Murray, Ms Cate Chesney, Ms Carolina Casetta

Scientific Advisory Committee
Professor Alexander McFarlane, Professor Richard Bryant, COL Stephanie Hodson
The Sample

Analytic sample of 5,329
At Time 1:

Mean age 20 years
Majority male 84.74%
Army 65.65%
Navy 19.74%
Air Force 14.61%
23.63% reported prior military experience
Methodology of the study

- Study employed a longitudinal panel design.
- Commenced at enlistment/appointment and followed participants through the early years of their military career, up to four years post-enlistment/appointment.
- General Enlistees (GEs) and Officer appointees in multiple cohorts were surveyed over five time points.
What influences change at each time point?

Psychological distress and posttraumatic stress symptoms

- Sleep impairment ($\beta = 0.40$ to $0.60$)
- High levels of self-reported anger ($\beta = 0.40$ to $0.55$)
- More frequent use of self-blame coping ($\beta = 0.34$ to $0.44$)
- Lower sense of morale ($\beta = -0.18$ to $-0.37$)
- Less social support from all sources ($\beta = -0.06$ to $0.30$)
- More frequent use of risk-taking ($\beta = 0.15$ to $0.26$)
- Being male ($\beta = -0.08$ to $-0.11$)
Factors associated with psychological distress over time

<table>
<thead>
<tr>
<th>Stable-low group (84%)</th>
<th>vs</th>
<th>High-decreasing group (6%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Being male</td>
<td></td>
<td>High trauma exposure</td>
</tr>
<tr>
<td>High levels of social support from all sources</td>
<td></td>
<td>Negative social interactions</td>
</tr>
<tr>
<td>Use of acceptance coping style</td>
<td></td>
<td>Use of self-blame, avoidance and risk-taking coping styles</td>
</tr>
<tr>
<td></td>
<td></td>
<td>High anger</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sleep impairment</td>
</tr>
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<td></td>
<td></td>
<td>Navy membership</td>
</tr>
</tbody>
</table>

Factors associated with psychological distress over time

![Graph showing K10 Score over time with different groups indicated: Low increasing (n=9.6%), Stable low (n=84.0%), High decreasing (n=6.5%), ADF screening cut-off.](image-url)
Factors associated with *posttraumatic stress over time*

<table>
<thead>
<tr>
<th>Stable-low group (82%)</th>
<th>vs</th>
<th>Low-increasing group (6%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Being male</td>
<td>High trauma exposure</td>
<td></td>
</tr>
<tr>
<td>Being an Officer</td>
<td>Navy membership</td>
<td></td>
</tr>
<tr>
<td>High levels of social support from family/friends and peers</td>
<td>Use of self-blame coping style</td>
<td></td>
</tr>
<tr>
<td>Use of acceptance and reappraisal coping styles</td>
<td>High anger</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Stable low (n=82.5%)</th>
<th>Low increasing (n=5.8%)</th>
<th>High decreasing (n=2.3%)</th>
<th>Moderate decreasing (n=9.4%)</th>
<th>General cut-off</th>
</tr>
</thead>
<tbody>
<tr>
<td>T2</td>
<td>6</td>
<td>8</td>
<td>7</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>T3</td>
<td>6</td>
<td>8</td>
<td>7</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>T4</td>
<td>6</td>
<td>8</td>
<td>7</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>T5</td>
<td>6</td>
<td>8</td>
<td>7</td>
<td>7</td>
<td>6</td>
</tr>
</tbody>
</table>
Studies #2 & 3. Transition wellbeing study - A large research and investigator Team

<table>
<thead>
<tr>
<th>Investigator Team</th>
<th>CTSS Research Team</th>
<th>Project Management Team</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prof Miranda Van Hooff (Lead)</td>
<td>Ms Maria Abraham</td>
<td>Ms Karen Barker</td>
</tr>
<tr>
<td>Dr Ellie Lawrence-Wood</td>
<td>Ms Jenelle Baur</td>
<td>Ms Jess Styles</td>
</tr>
<tr>
<td>Prof Sandy McFarlane</td>
<td>Ms Marie Iannos</td>
<td>Ms Kanny Tait</td>
</tr>
<tr>
<td>Col Nicole Sadler</td>
<td>Dr Amelia Searle</td>
<td>Dr Loretta Poerio</td>
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<td>Dr Stephanie Hodson</td>
<td>Ms Judy Bament</td>
<td>Col Laura Sinclair</td>
</tr>
<tr>
<td>Ms Helen Benassi</td>
<td>Dr Craig Hansen</td>
<td>Ms Kylieigh Heggie</td>
</tr>
<tr>
<td>Prof David Forbes</td>
<td>Dr Blair Grace</td>
<td>Ms Melissa Preston</td>
</tr>
<tr>
<td>Dr Helen Kelsall</td>
<td>Dr Stuart Howell</td>
<td>Ms Carolina Casetta</td>
</tr>
<tr>
<td>Prof Malcolm Sim</td>
<td>Mr Roger Glenny</td>
<td>Warrant Officer Class One Iain Lewington</td>
</tr>
<tr>
<td>Prof Jeffrey Rosenfeld</td>
<td>Dr Jodie Avery</td>
<td>Dr Alan Verhagen</td>
</tr>
<tr>
<td>Prof Jane Burns</td>
<td></td>
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<tr>
<td>Prof Richard Bryant</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
2010
The 2010 ADF Mental Health Prevalence and Wellbeing Study (MHPWS)
• Representative All current serving Regular ADF members in 2010 (N=50,049)

2015
The Transition and Wellbeing Research Programme: Mental Health and Wellbeing Transition Study
• Representative sample of all current serving Regular ADF members in 2015 (N=52,500)
• Representative Sample of all ADF members who transitioned from the Regular ADF between 2010-2014 (N=24,932)

Data Sets
Longitudinal Sample: N=8497
Transitional ADF: N=2334
2015 Regular ADF: N=6163
What is a Transitioned ADF member?

All regular service leavers, including Ex-Serving ADF members and Active and Inactive/Standby Reservists who transitioned from Regular ADF service in the five-year period from January 2010 to December 2014.
Key Take Home Messages
Rates of Affective and Anxiety Disorders are higher in current serving ADF members compared to the Australian community.
# 12 Month Mental Disorder in the ADF v Australian Community

<table>
<thead>
<tr>
<th>Disorder</th>
<th>ADF %</th>
<th>ABS %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any Anxiety Disorder</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Panic Attack</td>
<td>14.8</td>
<td>12.6</td>
</tr>
<tr>
<td>Panic Disorder</td>
<td>7.1</td>
<td>6.5</td>
</tr>
<tr>
<td>Panic Disorder</td>
<td>1.4</td>
<td>2.5 *</td>
</tr>
<tr>
<td>Agoraphobia</td>
<td>2.5</td>
<td>1.9</td>
</tr>
<tr>
<td>Social Phobia</td>
<td>3.8</td>
<td>4.5</td>
</tr>
<tr>
<td>GAD</td>
<td>1.1</td>
<td>1.8</td>
</tr>
<tr>
<td>OCD</td>
<td>3.2</td>
<td>1.4</td>
</tr>
<tr>
<td>PTSD</td>
<td>8.3 *</td>
<td>5.2</td>
</tr>
<tr>
<td>Any Affective Disorder</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Depressive Episodes</td>
<td>9.5 *</td>
<td>5.9</td>
</tr>
<tr>
<td>Dysthymia</td>
<td>6.4 *</td>
<td>3.1</td>
</tr>
<tr>
<td>Bipolar Affective</td>
<td>1.1</td>
<td>0.8</td>
</tr>
<tr>
<td>Any Alcohol Disorder</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alcohol Harmful Use</td>
<td>2.8</td>
<td>5.3</td>
</tr>
<tr>
<td>Alcohol dependence</td>
<td>2.3</td>
<td>3.0</td>
</tr>
<tr>
<td>Any Disorder</td>
<td>5.2 *</td>
<td>8.3</td>
</tr>
<tr>
<td>Any Alcohol Disorder</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alcohol Harmful Use</td>
<td>22.0</td>
<td>20.7</td>
</tr>
</tbody>
</table>

*Significant difference from Australian Community.
There is a picture of increasing severity of both mental and physical symptoms from service to civilian life.
The Prevalence of 12-month ICD-10 Disorder

- Any Alcohol Disorder
  - 2015 Transitioned ADF: 5.2%
  - 2010 Regular ADF: 8.3%
  - 2007 NMHWBS: 12.9%

- Any Affective Disorder
  - 2015 Transitioned ADF: 5.9%
  - 2010 Regular ADF: 9.5%
  - 2007 NMHWBS: 23.1%

- Any Anxiety Disorder
  - 2015 Transitioned ADF: 12.6%
  - 2010 Regular ADF: 14.8%
  - 2007 NMHWBS: 37%

- Any 12 Month Disorder
  - 2015 Transitioned ADF: 20.7%
  - 2010 Regular ADF: 22%
  - 2007 NMHWBS: 46.4%
<table>
<thead>
<tr>
<th>12 month ICD-10 Disorder</th>
<th>2010 Regular ADF (N=50,049)</th>
<th>2015 Transitioned ADF (N=24932)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Panic Attack</strong></td>
<td>3537</td>
<td>4244</td>
</tr>
<tr>
<td><strong>Panic Disorder</strong></td>
<td>709</td>
<td>1344</td>
</tr>
<tr>
<td><strong>Agoraphobia</strong></td>
<td>1261</td>
<td>2975</td>
</tr>
<tr>
<td><strong>Social Phobia</strong></td>
<td>1919</td>
<td>2738</td>
</tr>
<tr>
<td><strong>Specific Phobia</strong></td>
<td>3011</td>
<td>1936</td>
</tr>
<tr>
<td><strong>Generalised Anxiety Disorder</strong></td>
<td>533</td>
<td>917</td>
</tr>
<tr>
<td><strong>Obsessive Compulsive Disorder</strong></td>
<td>1581</td>
<td>1029</td>
</tr>
<tr>
<td><strong>Posttraumatic Stress Disorder</strong></td>
<td>4169</td>
<td>4408</td>
</tr>
<tr>
<td><strong>Depressive Episodes</strong></td>
<td>3182</td>
<td>2783</td>
</tr>
<tr>
<td><strong>Dysthymia</strong></td>
<td>526</td>
<td>1140</td>
</tr>
<tr>
<td><strong>Bipolar Affective Disorder</strong></td>
<td>1401</td>
<td>2443</td>
</tr>
<tr>
<td><strong>Alcohol Harmful Use</strong></td>
<td>1420</td>
<td>948</td>
</tr>
<tr>
<td><strong>Alcohol Dependence</strong></td>
<td>1171</td>
<td>2271</td>
</tr>
</tbody>
</table>
Self Reported Physical Health

Similar to the mental health findings, the Transitioned ADF also reported poorer physical health than the 2015 Regular ADF including:

- more physical health symptoms,
- more service-related injuries,
- increased lifestyle risk factors,
- poorer self-perceived health,
- satisfaction and quality of life,
- a greater risk of circulatory condition, high blood pressure, a musculoskeletal or connective tissue condition, chronic low back pain, a nervous system condition and hearing loss.
### 12 month Suicidality higher in Transitioned

<table>
<thead>
<tr>
<th></th>
<th>Transitioned ADF 2015</th>
<th></th>
<th></th>
<th>2015 Regular ADF</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n = 24,932</td>
<td></td>
<td></td>
<td>n = 52,500</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Weighted n</td>
<td>%</td>
<td>95% CI</td>
<td>Weighted n</td>
<td>%</td>
<td>95% CI</td>
</tr>
<tr>
<td>Felt life not worth living</td>
<td>7208</td>
<td>28.9</td>
<td>27.3, 30.6</td>
<td>6927</td>
<td>13.2</td>
<td>10.7, 16.2</td>
</tr>
<tr>
<td>Felt so low thought about committing suicide</td>
<td>5294</td>
<td>21.2</td>
<td>19.8, 22.8</td>
<td>4493</td>
<td>8.6</td>
<td>6.4, 11.3</td>
</tr>
<tr>
<td>Made a suicide plan</td>
<td>1965</td>
<td>7.9</td>
<td>6.9, 8.9</td>
<td>950</td>
<td>1.8</td>
<td>1.0, 3.3</td>
</tr>
<tr>
<td>Attempted suicide</td>
<td>505</td>
<td>2.0</td>
<td>1.6, 2.6</td>
<td>311</td>
<td>0.6</td>
<td>0.2, 1.6</td>
</tr>
<tr>
<td>Any suicidality†</td>
<td>5342</td>
<td>21.7</td>
<td>20.2, 23.3</td>
<td>4533</td>
<td>8.8</td>
<td>6.7, 11.6</td>
</tr>
</tbody>
</table>
There are a number of observable early indicators of emerging disorder that can be used to predict poorer outcomes in Service members over time.
Early Observable Indicator #1: Subsyndromal Mental Health Symptoms

Mental Health and Wellbeing Transition Study

Results from the Transition and Wellbeing Research programme showed that a substantial proportion (20-50%) of Transitioned ADF scored equal to or above the screening cut-offs on the self reported mental health measures with these subsyndromal symptoms placing them at significant risk of later disorder:

- Depression (PHQ) 48.61%
- Psychological Distress (K10) 40.63%
- PTSD (PCL) 33.53%
- Alcohol (AUDIT) 30.22%
- Generalised Anxiety (GAD-7) 2.4%
K10 and PCL– Longitudinal Cohort (N=7948)

Proportion of longitudinal cohort with no disorder, sub-syndromal disorder and probable disorder on K10 and PCL in 2010 and 2015

- No disorder in 2010 (N=4864, 64%)
- Sub-syndromal Disorder in 2010 (N=2065, 27.2%)
- Probable disorder in 2010 (N=666, 8.8%)

Number of people

- No disorder in 2015
- Sub-syndromal Disorder in 2015
- Probable disorder in 2015
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Proportion of longitudinal cohort with no disorder, sub-syndromal disorder and probable disorder on K10 and PCL in 2010 and 2015

- **No disorder in 2010 (N=4864, 64%)**
  - No disorder in 2015: 74%
  - Sub-syndromal Disorder in 2015: 37%
  - Probable disorder in 2015: 21%

- **Sub-syndromal Disorder in 2010 (N=2065, 27.2%)**
  - No disorder in 2015: 42%
  - Sub-syndromal Disorder in 2015: 34%
  - Probable disorder in 2015: 23%

- **Probable disorder in 2010 (N=666, 8.8%)**
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- Probable disorder in 2015: 16%
Other early indicators of emerging disorder: problematic anger and cumulative trauma and number of deployment exposures.
Predicting symptom EMERGENCE

No Disorder 2010
- Lower Rank: NCO (OR=1.56), OR (1.45)
- Problematic Anger: (OR=2.48)
- High No. Deployment exposures: (OR=1.87)
- 4+ Lifetime Traumas: (OR=3.17)
- Service: Army (OR=1.41)
- Resilience: (OR=0.88)

Sub-syndromal Disorder 2015
- Lower Rank: NCO (OR=1.73), OR (2.41)
- Problematic Anger: (OR=1.99)
- High No. Deployment exposures: (OR=1.99)
- 4+ Lifetime Traumas: (OR=2.16)
- 12mth Suicidality (OR=3.11)

Probable Disorder 2015
Predicting symptom EMERGENCE

No Disorder 2010
- Lower Rank: NCO (OR=1.56), OR (1.45)
- Problematic Anger: (OR=2.48)
- High No. Deployment exposures: (OR=1.87)
- 4+ Lifetime Traumas: (OR=3.17)
- Service: Army (OR=1.41)
- Resilience: (OR=0.88)

Sub-syndromal Disorder 2015
- Lower Rank: NCO (OR=1.73), OR (2.41)
- Problematic Anger: (OR=1.99)
- High No. Deployment exposures (OR=1.89)
- 4+ Lifetime Traumas (OR=2.16)
- 12mth Suicidality (OR=3.11)

Probable Disorder 2015
Predicting symptom PROGRESSION

Problematic Anger: (OR=2.14)
High No. Deployment exposures: (OR=2.97)
4+ Lifetime Traumas: (OR=2.96)
2-3 Lifetime Traumas: (OR=1.59)
Resilience: (OR=0.88)

Rank: NCO (OR=1.79), OR (3.91)
Predicting symptom MAINTENANCE

Problematic Anger: (OR=2.90)
High No. Deployment exposures (OR=2.28)
4+ Lifetime Traumas (OR=2.56)
Seen Health Professional (OR=3.33)
Magnitude of problematic anger and its predictors in the Millennium Cohort

Amy B. Adler¹, Cynthia A. LeardMann²³*, Kimberly A. Roenfeldt³, Isabel G. Jacobson²³, David Forbes⁴, for the Millennium Cohort Study Team

Abstract

Background: Problematic anger is intense anger associated with elevated generalized distress and that interferes with functioning. It also confers a heightened risk for the development of mental health problems. In military personnel and veterans, previous studies examining problematic anger have been constrained by sample size, cross-sectional data, and measurement limitations.

Methods: The current study used Millennium Cohort survey data (N = 90,266) from two time points (2013 and 2016 surveys) to assess the association of baseline demographics, military factors, mental health, positive perspective, and self-mastery, with subsequent problematic anger.

Results: Overall, 17.3% of respondents reported problematic anger. In the fully adjusted logistic regression model, greater risk of problematic anger was predicted by certain demographic characteristics as well as childhood trauma and financial problems. Service members who were in the Army or Marines, active duty (vs. reserves/national guard), and previously deployed with high levels of combat had increased risk for problematic anger. Veterans were also more likely to report problematic anger than currently serving personnel. Mental health predictors included posttraumatic stress disorder (PTSD), major depressive disorder (MDD), and comorbid PTSD/MDD. Higher levels of positive perspective and self-mastery were associated with decreased risk of problematic anger.
Transition, Service and Demographic risk factors

1. Years Since Transition  ↑ 1 and 3 years post transition
2. Discharge type  ↑  Medical discharge
3. DVA Client Status  ↑  DVA clients
4. Transition Status  ↑  Ex-Serving
5. Service Characteristics  ↑  Lower rank, Army
7. Years of Service  ↑  Early Service Leavers (i.e. PTSD highest in 4-7.9 years of service)
Conclusions

1. Insight into both current and ex-serving military members is pivotal to understanding the true magnitude of the mental and physical health impacts of service.

2. Factors influencing trajectories evident from an early stage

3. Importantly many represent modifiable factors – such as sleep, anger and social support (both within and outside of military service networks)

4. Role to recognise and intervene at each transition point – into military, from basic training to employment training, from employment training to first posting, deployments

5. Major transition point is discharge to civilian life where we see considerable escalation of mental health difficulties emerging over the first 5 years
Conclusions

6. There are a number of risk factors and protective factors (i.e. sub-syndromal symptoms, problematic anger, suicidal ideation, cumulative lifetime and deployment related trauma exposure and social support) known to influence the emergence and progression of disorder

7. Identify clear problem and time point targets for early intervention

8. Leadership factors - story for another day....