Validation of a depression screening tool for use with Aboriginal and Torres Strait Islander Australians

Presented by Nick Glozier

On behalf of: A/Prof Maree Hackett, Prof Alan Cass, Prof Timothy Skinner, Dr Armando Teixeira-Pinto, Dr Deb Askew, Prof Alex Brown & Dr Graham Gee
Background

• Indigenous Australians over-represented in all indicators of poorer health and social status
• Chronic diseases* are the most important contributor to health inequities for A&TSI people
• Chronic disease has a profound impact on mental health
• People with chronic disease have higher rates of depression
  (WHO Global estimates: 22% Recent MI, 27% Diabetes, 29% Hypertension, 31% Cerebrovascular disease)
• People with depression at a higher risk of cardiovascular disease and stroke

*Cardiovascular disease, cerebrovascular disease, diabetes, chronic kidney disease (CKD), chronic obstructive pulmonary disease (COPD)
Mental health disparities

HIGH/VERY HIGH LEVELS OF PSYCHOLOGICAL DISTRESS in the last four weeks, by Indigenous status—2008

Source: 2008 National Aboriginal and Torres Strait Islander Social Survey, 2007–08 National Health Survey
Depression

• Global lifetime prevalence 4.3-17%; leading cause of disability (YLD)
• Only recognised in up to 50% of cases (often present with physical symptoms)
• 20-50% depression is chronic, recurrent, associated with ↑ disability and ↓ outcomes for co-morbid medical conditions
• ~20% of people with major depression receive treatment
• People with depression have risk of premature death x2 population

Psychological well-being is not systematically considered in chronic disease prevention or treatment
Depression and Chronic Disease - links

- Common cause – inflammation, circadian,
- Stressors
- Sequelae of depression – HRV, HPA disturbance
- Health behaviours – exercise, smoking
- Adherence
- Health service
- Lower detection rates
- Less treatment
## Access to Care

**Table 2. Use of Revascularization Procedures in Individuals With and Without Mental Disorders**

<table>
<thead>
<tr>
<th></th>
<th>PTCA</th>
<th>CABG</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Unadjusted %</td>
<td>RR</td>
</tr>
<tr>
<td>Mental disorder (n = 5365)</td>
<td>11.8</td>
<td>0.75</td>
</tr>
<tr>
<td>Schizophrenia (n = 188)</td>
<td>9.0</td>
<td>0.55</td>
</tr>
<tr>
<td>Affective (n = 315)</td>
<td>9.2</td>
<td>0.51</td>
</tr>
<tr>
<td>Substance use (n = 1138)</td>
<td>12.1</td>
<td>0.58</td>
</tr>
<tr>
<td>Other (n = 3724)</td>
<td>11.0</td>
<td>0.77</td>
</tr>
<tr>
<td>No mental disorder (n = 108,288)</td>
<td>16.8</td>
<td>...</td>
</tr>
</tbody>
</table>

*Each column (ie, percutaneous transluminal coronary angioplasty [PTCA] or coronary artery bypass graft [CABG] surgery) is derived from 2 separate logistic regression equations. The first equation models odds of the procedure of interest as a function of all 4 mental disorders, using “no mental disorder” as a comparison group. A second equation models odds of the procedure as a function of a single variable denoting any mental disorder. Each model adjusts for the demographic and clinical variables outlined in Table 1 and hospital and regional covariates outlined in the text. Relative risk (RR) was calculated from odds ratios (ORs) using the following equation: OR/(1 – P_0) + (P_0 × OR) where P_0 is the rate of procedures among patients without mental disorders. Ellipses indicate referent group.*

Source: Druss et al *JAMA.* 2000;283:506-511
Guidelines

Screening, referral and treatment for depression in patients with coronary heart disease

A consensus statement from the National Heart Foundation of Australia

In 2003, an Expert Working Group of the National Heart Foundation of Australia (NHFA) issued a position statement on the relationship between “stress” and heart disease. They concluded that depression was an important independent risk factor for first and recurrent coronary heart disease (CHD) events. Here, we provide an update on evidence obtained since 2003 regarding depression in patients with CHD, and include guidance for health professionals on screening and treatment for depression in patients with CHD.

Summary

- In 2003, the National Heart Foundation of Australia position statement on "stress" and heart disease found that depression was an important risk factor for coronary heart disease (CHD). This 2013 statement updates the evidence on depression (mild, moderate and severe) in patients with CHD, and provides guidance for health professionals on screening and treatment for depression in patients with CHD.
Chronic disease & depression

Aboriginal and Torres Strait Islanders are 3-4 times more likely to die from CV conditions than non-Indigenous Peoples

• Do negative psychological states (depression, stress, [socioeconomic position]) explain some of the gap?
• Is this in part a health service issue?
• No research in Aboriginal and Torres Strait Islander people
• No validated measure of depression for use with this Aboriginal and Torres Strait Islander people
Depression: assessment/classification

Syndrome = YES/NO
- Constellation of signs & symptoms
- Semi-structured/structured interview (DSM / ICD diagnosis)
- Composite International Diagnostic Interview (CIDI)

Symptom burden = dimensional
- Affective, behavioural, somatic, negative cognitions
- Questionnaires, interviewer administered, self-completed
- PHQ-9/modified
### Original PHQ-9

Over the last 2 weeks, how often have you been bothered by any of the following problems? (use " ✓ " to indicate your answer)

<table>
<thead>
<tr>
<th></th>
<th>No (≤2)</th>
<th>Several days</th>
<th>More than half the days</th>
<th>Nearly every day</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Little interest or pleasure in doing things</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>2. Feeling down, depressed, or hopeless</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>3. Trouble falling or staying asleep, or sleeping too much</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>4. Feeling tired or having little energy</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>5. Poor appetite or overeating</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>6. Feeling bad about yourself—or that you are a failure or have let yourself or your family down</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>7. Trouble concentrating on things, such as reading the newspaper or watching television</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>8. Moving or speaking so slowly that other people could have noticed. Or the opposite—being so fidgety or restless that you have been moving around a lot more than usual</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>9. Thoughts that you would be better off dead, or of hurting yourself in some way</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

Add columns:

- [ ]
- [ ]
- [ ]

TOTAL:

*(Healthcare professional: For interpretation of TOTAL, please refer to accompanying scoring card.)*
Prof Alex Brown’s PhD work

• Translation and *adaptation* of PHQ-9
  – within and across 5 primary Aboriginal languages
  – in Central Australia, with Aboriginal men
  – Iterative process over 12 months
• Some concepts unfamiliar: hopelessness
• Others consistent: depression
• Some questions covered opposing concepts and were split
• Time frame (previous 2 weeks) and severity grading was understood
**Standard vs adapted PHQ-9**

**Over the last 2 weeks, how often have you been bothered by any of the following problems?**
*(use ‘✓’ to indicate your answer)*

1. Little interest or pleasure in doing things
2. Feeling down, depressed, or hopeless
3. Trouble falling or staying asleep, or sleeping too much
4. Feeling tired or having little energy
5. Poor appetite or overeating
6. Feeling bad about yourself—or that you are a failure or have let yourself or your family down
7. Trouble concentrating on things, such as reading the newspaper or watching television
8. Moving or speaking so slowly that other people could have noticed. Or the opposite—being so fidgety or restless that you have been moving around a lot more than usual
9. Thoughts that you would be better off dead, or of hurting yourself in some way

**IN THE LAST TWO WEEKS, HOW OFTEN HAVE YOU BEEN FEELING THE FOLLOWING:**

1. HAVE YOU BEEN FEELING SLACK, NOT WANTED TO DO ANYTHING?
2. HAVE YOU BEEN FEELING UNHAPPY, DEPRESSED, REALLY NO GOOD, THAT YOUR SPIRIT WAS SAD?
3. HAVE YOU FOUND IT HARD TO SLEEP AT NIGHT, OR HAD OTHER PROBLEMS WITH SLEEPING?
4. HAVE YOU FELT TIRED OR WEAK, THAT YOU HAVE NO ENERGY?
5. HAVE YOU NOT FELT LIKE EATING MUCH EVEN WHEN THERE WAS FOOD AROUND?
6. HAVE YOU BEEN EATING TOO MUCH FOOD?
7. HAVE YOU BEEN FEELING BAD ABOUT YOURSELF, THAT YOU ARE USELESS, NO GOOD, THAT YOU HAVE LET YOUR FAMILY DOWN?
8. HAVE YOU FELT LIKE YOU CAN’T THINK STRAIGHT OR CLEARLY, ITS HARD TO LEARN NEW THINGS OR CONCENTRATE?
9. HAVE YOU BEEN TALKING SLOWLY OR MOVING AROUND REALLY SLOW?
10. HAVE YOU FELT THAT YOU CAN’T SIT STILL; YOU KEEP MOVING AROUND TOO MUCH?
11. HAVE YOU BEEN THINKING ABOUT HURTING YOURSELF OR KILLING YOURSELF?
+ 7 culturally specific SEWB items

<table>
<thead>
<tr>
<th>Questions</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
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<tbody>
<tr>
<td>IN THE LAST TWO WEEKS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1  HAVE YOU FELT THAT YOUR SPIRIT WAS WEAK?</td>
<td>NO</td>
<td>A LITTLE BIT</td>
<td>A LOT</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2  HAVE YOU BEEN DRINKING MORE GROG OR SMOKING MOREGANJA THAT YOU USUALLY DO?</td>
<td>NO</td>
<td>A LITTLE MORE</td>
<td>A LOT MORE</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3  HAVE YOU BEEN FEELING HOMESICK, LONELY FOR FAMILY OR HOME?</td>
<td>NO</td>
<td>SOMETIMES</td>
<td>MOST OF THE TIME</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4  HAVE YOU FELT YOUR ANGER BUILDING UP INSIDE YOU READY TO EXPLODE?</td>
<td>NO</td>
<td>A LITTLE BIT</td>
<td>A LOT</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5  DO YOU THINK YOU HAVE TOO MUCH WORRY?</td>
<td>NO</td>
<td>SOMETIMES</td>
<td>MOST OF THE TIME</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6  HAVE YOU FELT THAT YOU CAN’T STOP THINKING ABOUT THE THINGS THAT CAUSE YOU WORRY?</td>
<td>NO</td>
<td>SOMETIMES</td>
<td>MOST OF THE TIME</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7  HAVE YOU FELT CRANKY, IRRITABLE OR ALWAYS IN A BAD MOOD?</td>
<td>NO</td>
<td>A LITTLE BIT</td>
<td>A LOT</td>
<td></td>
<td></td>
<td></td>
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</table>
Depression in Aboriginal Men

Prof Alex Brown’s PhD work

The chart shows the percentage of Aboriginal men in urban and remote areas with different PHQ-9 scores, indicating the prevalence of depression.

- **0-4**: Urban - 47.80%, Remote - 71.30%
- **5-9**: Urban - 32.60%, Remote - 22.30%
- **10-14**: Urban - 15.20%, Remote - 6.40%
- **15-19**: Urban - 2.20%, Remote - 2.20%
- **20+**: Urban - 2.20%, Remote - 2.20%
Rationale for validation study

• In order to understand the burden of depression in Aboriginal and Torres Strait Islander people with and without chronic disease we need a validated, culturally appropriate diagnostic/screening tool
• A valid tool could become a routine part of care, could be incorporated into ABCD (Audit & Best practice in Chronic Disease) approaches & healthy adult checks
• Enable a baseline to be taken against which intervention efficacy can be measured.
• Hence...a validation study
Inclusion criteria

• Self identify as Aboriginal or Torres Strait Islander
• Male or female
• ≥ 18 years of age
• KVC recruitment platform: Regular attendee (≥ 1 visit in last 12 months) at participating primary health care (PHC) centre
• Can give informed consent

• Centres in NT, WA, QLD, NSW, SA, ?Tasmania
• Metropolitan, rural and remote
How it works

• Each PHC engaged for a block of recruitment
• Consecutive PHC attendees meeting criteria invited to participate
• IRF: Consent + time for questionnaire & interview
• IRF: Basic demographics + modified PHQ-9 (self-completed but will be read out if necessary) + 7 culturally specific questions or,
• PHQ-9 + 7 Qns administered by other staff member
• Interview by trained study clinical psychologist, GP, AHW, psychiatrist (CIDI) etc not aware of PHQ-9 scores
CIDI as gold standard

- Composite International Diagnostic Interview (CIDI) is a structured diagnostic interview
- Designed to be used by trained interviewers who are not clinicians
- NG certified CIDI trainer
- Only administer CIDI screening and depression modules
- Diagnoses: DSM IV Major or Minor, Depressive Episode, ICD Severe, Moderate or Mild Depressive Episode, DSM IV Recurrent Brief Depression, DSM IV Dysthymia and ICD Dysthymia
- Planning to use computer assisted version
Sample size assumptions

<table>
<thead>
<tr>
<th>Gold standard SCID</th>
<th>New test mPHQ-9</th>
<th>95% CI</th>
<th>precision</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>-</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>383</td>
<td>23</td>
<td>405</td>
</tr>
<tr>
<td>+</td>
<td>43</td>
<td>53</td>
<td>95</td>
</tr>
<tr>
<td></td>
<td>425</td>
<td>75</td>
<td>500</td>
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</table>

Sensitivity = 0.70
Specificity = 0.90
PPV = 0.55
NPV = 0.94

Prevalence = 0.15
Pre-test odds = 0.18
Post-test odds = 1.24

- Sensitivity: Proportion of actual (SCID) cases correctly identified by mPHQ-9
- Specificity: Proportion of actual (SCID) non-cases correctly identified by mPHQ-9
- PPV: Proportion of true positives
- NPV: Proportion of true negatives
## Investigators on NHMRC application

<table>
<thead>
<tr>
<th>Chief Investigators</th>
<th>Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIA</td>
<td>A/Prof Maree Hackett</td>
</tr>
<tr>
<td></td>
<td>The George Institute for Global Health</td>
</tr>
<tr>
<td>CIB</td>
<td>Prof Alan Cass</td>
</tr>
<tr>
<td></td>
<td>Menzies School of Health Research</td>
</tr>
<tr>
<td>CIC</td>
<td>Prof Nick Glozier</td>
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<tr>
<td></td>
<td>University of Sydney</td>
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<tr>
<td>CID</td>
<td>Prof Timothy Skinner</td>
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<td></td>
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<tr>
<td>CIF</td>
<td>Dr Deborah Askew</td>
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<td>Queensland Health</td>
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### Associate Investigators

<table>
<thead>
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<th>Associate Investigators</th>
<th>Institution</th>
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<tbody>
<tr>
<td>AIA</td>
<td>Prof Alex Brown</td>
</tr>
<tr>
<td></td>
<td>South Australian Health &amp; Medical Research Institute</td>
</tr>
<tr>
<td>AIB</td>
<td>Graham Gee</td>
</tr>
<tr>
<td></td>
<td>Victorian Aboriginal Health Service</td>
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</tbody>
</table>
Budget?

• ~$800,000
• 3 year grant/~10 sites/~50 participants per PHC
• Lots of community engagement at each site pre/during/post
• Training of IRFs and CIDI interviewers
• Data collection including fidelity testing
• Analysis
• Feedback to community
• Results
• Plan for intervention/trial
Expected outcomes

• Provide evidence on whether to recommend use of the aPHQ-9 as a screening tool for depression & how it should be used during routinely conducted annual adult health assessments within primary health care.

• Enabling exploration of the burden and correlates of depressive symptoms with co-morbid chronic disease and chronic disease risk factors in Indigenous patients routinely attending primary health care.

• Enabling assessment of the effectiveness of management strategies for depression in Indigenous patients routinely attending primary health care.

• The site-specific and overall study results will be fed back to all participating sites and interested community members through facilitated focus groups.
Longer plan

• Explicit aim of identifying key targets, processes, objectives and methods for a future intervention trial for depression and chronic disease within Indigenous primary health care partner sites in the future.

• Lead IRF will collate focus group results from each AMS, and work with the study steering committee members to develop a trial protocol.

• This will, in turn, be presented back to all participating AMSs for consideration.
Keen to hear

• Your thoughts on the current plan
• Your level of interest in being a recruiting site
• Anything really

THANK YOU