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**Comparison of self-report and structured clinical interview in the identification of
depression**

Amanda L Stuart¹ amandh@barwonhealth.org.au

Julie A Pasco^{1,2,3} juliep@barwonhealth.org.au

Felice N Jacka^{1,4} felice@barwonhealth.org.au

Sharon L Brennan^{1,2,5} sharob@barwonhealth.org.au

Michael Berk^{1,4,6,7} mikebe@barwonhealth.org.au

Lana J Williams^{1,4} lanaw@barwonhealth.org.au

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Affiliations:

¹ Deakin University, School of Medicine, Geelong, Australia; ² NorthWest Academic Centre, The University of Melbourne, Sunshine Hospital, St Albans, Australia; ³ Barwon Health, Geelong, Australia. ⁴ The University of Melbourne, Department of Psychiatry, Parkville, Australia; ⁵ Australian Institute for Musculoskeletal Sciences, St Albans, Australia; ⁶ Orygen Youth Health Research Centre, Parkville, Australia; ⁷ Florey Institute for Neuroscience and Mental Health, Parkville, Australia

Corresponding author and contact for re-print requests:

Amanda Stuart

Deakin University, School of Medicine

Epidemiology Unit for Healthy Ageing

PO Box 281, Geelong 3220, Australia

Tel: +61 3 4215 3308 Fax +61 3 4215 3491

Email: amandh@barwonhealth.org.au

Abstract

Background: A self-report method seeking a binary response for assessing depression is a cost-effective and time-efficient way to obtain a psychiatric history, yet the reliability of this method is largely unknown. The aim of the study was to compare and assess the validity of two methods for identifying a past history of depression in a population-based study.

Methods: This study examined data collected from 891 men and 1086 women participating in the Geelong Osteoporosis Study. Self-reports of depression were compared with results obtained using the Structured Clinical Interview for DSM-IV-TR Research Version, Non-patient edition (SCID-I/NP).

Results: Using the SCID-I/NP, 146 (16.4%) men and 285 (26.2%) women met criteria for a lifetime depression. Of those participants, 61.0% (n=263) self-reported a history of depression. The level of agreement between self-reporting depression and the SCID-I/NP depression module was reasonably high; 61% sensitivity, 89.5% specificity and the overall level of agreement (kappa) was 0.5.

Limitations: Results may not be generalizable to other self-report instruments nor be suitable for use in clinical samples

Conclusion: The SCID-I/NP remains the gold standard for identifying depression; however, given the moderate level of agreement between the self-report questionnaire and SCID-I/NP in our current study, we conclude that simple self-report methods can be used to identify depression with some degree of confidence.

Key words: Depression; structured clinical interview; self-report; sensitivity; specificity; diagnosis.

1. Introduction

Self-report methods and symptom scales are often utilised to obtain diagnostic information in large-scale epidemiological studies, as they are cost-effective and time-efficient. There are many simple scales available to measure symptoms of depression that are either self-administered or administered by a lay person. The number of items on a depression symptom scale can vary, however, scales with as little as two-items have been successfully utilised to detect depression (1). Research comparing depressive symptoms measured using such convenient survey instruments and results from 'gold standard' psychiatric examinations, such as the Structured Clinical Interview for Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV) (SCID-I), report varying levels of agreement among clinical and survey settings (2).

Simple self-report methods that seek a binary (yes/no) response have been used to ascertain the presence of medical conditions in a medical history exam. Past research has shown good sensitivity and specificity for self-reported medical conditions against physician reports for well-defined chronic conditions, such as hypertension, whereas over-reporting has been identified with conditions such as arthritis (3).

A self-report yes/no questionnaire assessing psychiatric disorders is an effective way to obtain information regarding psychiatric history, yet the reliability of this method remains in question. One study, the Segimiento Universidad de Navarra (SUN) project (4), compared self-reported physician diagnosis of depression with the SCID-I in a group of university

graduates. In that study, the clinical assessment confirmed depression in 74% of those with a self-reported diagnosis (4).

This current analysis is a head-to-head comparison of a simple, self-reported identification method for lifetime depression compared against a gold-standard clinical psychiatric assessment, using data from a large, randomly-selected, population-based sample of men and women.

2. Methods

2.1 Participants

This study utilised data collected as part of the Geelong Osteoporosis Study (GOS), which is an on-going, population-based study of Australian men and women randomly-selected from electoral rolls for the region (Barwon Statistical Division, South-Eastern Australian). Initially, 1494 women (20-94 yr) and 1540 men (20-93 yr) were enrolled between 1994-1997 and 2001-2006, respectively and have returned for ongoing assessment. Details of non-participation have been published elsewhere (5, 6).

This study utilised data from the GOS 10-year follow up for women and 5-year follow up for men. Of 1127 women who participated in the GOS 10- year follow-up, participants for whom psychiatric data were not available were excluded from the analyses, resulting in a final sample of 1086, aged 20-93yr. For men, of the 978 who participated in the 5-year follow up, participants for whom psychiatric data were not available were excluded from the analyses, resulting in a final sample of 891, aged 24-92yr. The study was approved by the Barwon Health, Human Research Ethics Committee. All participants provided written, informed consent.

2.2 Psychiatric measures

The presence of medical and psychiatric conditions (lifetime) was self-reported. Participants were asked if they had ever been exposed to medical conditions from a number of disease groups including metabolic, cardiovascular, psychiatric, cancer, childhood and respiratory (yes/no) and if so, at what age. Depression was included in the list of medical conditions and it was asked: "Have you ever suffered from depression?"

Past and current mood disorders were assessed on the same day by a different staff member utilising the validated Structured Clinical Interview for the DSM-IV Non-patient edition (SCID-I/NP) (7). The SCID-I/NP, based on DSM-IV criteria, is generally accepted as the gold standard for identifying mental illness and will be used as the criterion standard in this study. This tool enabled the identification of those who had ever experienced a mood disorder, including major depressive disorder (MDD), minor depression, bipolar disorder, dysthymia, mood disorder due to a general medical condition and substance induced mood disorder and were collectively termed 'depression' for the purpose of this analysis. All interviews were conducted by personnel with qualifications in psychology, who were trained using live and videotaped interviews under the supervision of a psychiatrist.

2.3 Other measures

Information regarding medication use, lifestyle behaviours and sociodemographic factors was obtained by self-report. Tobacco smoking was documented and classified as current or not. Medication use was confirmed by cross-referencing with the participants' lists of medications or containers, and was considered current if the participants reported use at the time of assessment. Socioeconomic status (SES) was identified using Socio-Economic Index for Areas (SEIFA) scores based on the 2006 Australian Bureau of Statistics Census data (8). The SEIFA values were used to form the Index of Relative Socioeconomic Advantage/Disadvantage (IRSAD), an area-based index that includes variables such as high and low income, and higher and lower skilled occupations. A low score as measured by IRSAD indicates the most disadvantaged.

2.4 Statistical analysis

Descriptive statistics for the sample population were completed using Minitab (version 15; Minitab, State College, PA, USA). Calculations for the self-report data relative to the SCID-I/NP data included sensitivity - calculated by dividing the number of true positives by the number of true positives and false negatives; specificity - calculated by dividing the number of true negatives by the number of true negatives and false positives; positive predictive value - calculated by dividing the number of true positives by the number of true positives and false positives; negative predictive value - calculated by dividing the number of true negatives by the number of true negatives and false negatives; and the kappa statistic - calculated by dividing the number of true positives and true negatives by the total number, taking into account agreement by chance (9). Sensitivity, specificity, positive predictive value and negative predictive values were expressed as percentages.

3. Results

The median age of the whole group was 54.9 years, comprising 45% men, 13% smokers and 10% antidepressant users (Table 1). The spread of SES was relatively even, with approximately 20% in each of the SES categories as measured by IRSAD, and just over half of participants (54.1%) had completed secondary school or held a post-secondary school qualification. A total of 146 (16.4%) men and 285 (26.2%) women met SCID-I/NP criteria for lifetime depression; the most common being major depressive disorder (87%, n=375).

Of those identified as having a lifetime history of depression in the SCID-I/NP, 61.0% (n=263) also self-reported a history of depression; 59.6% (n=87) men and 61.8% (n=176) women (Table 2). Of the 1546 participants who did not meet criteria for depression in the SCID-I/NP, 9.4% (n=70) of men and 11.5% (n=92) of women self-reported a history of depression. There was a discrepancy between the SCID-I/NP diagnosis and self-report of depression for 330 participants; 129 men and 201 women. A total of 168 participants were identified as having a history of depression, yet did not self-report depression (false negative) and 162 participants self-reported depression but did not meet SCID-I/NP criteria (false positive). Compared to the SCID-I/NP, the sensitivity of the self-report medical condition questionnaire was 61.0%, specificity was 89.5%, positive predictive value was 61.9%, negative predictive value was 89.2% and the overall level of agreement (kappa) was 0.5.

Sensitivity ranged from 56.7% to 64.7% across the SES levels, with the highest sensitivity for those in the lowest SES group and the lowest sensitivity in the highest SES group. Specificity was similar between SES groups: lowest specificity 88% (SES group 2), highest specificity 90.4% (SES group 4). Sensitivity differed across education levels: primary school – 72.2%; part secondary school – 65.4%; completed secondary school – 53.7%; and post-secondary

school – 59.6%. Specificity was more consistent: primary school – 92.0%; part secondary school – 88.6%; completed secondary school – 88.0%; and post-secondary school – 91.4%.

4. Discussion

The overall level of agreement between self-report depression and clinically determined depression using the SCID/NP was moderate to good, with 61% of the study population identified as having a history of depression using the SCID/NP also self-reporting past depression.

Previous studies comparing depressive symptom survey instruments and 'gold standard' clinician-administered measures report varying results. In support of our study, the SUN project reported a sensitivity of 74% and specificity of 81% for self-reported physician diagnosis of depression against the SCID-I in a group of 96 university graduates (4).

A literature review by Eaton and colleagues (2) reported sensitivities ranging from 25 to 100 (median 67) and specificities ranging from 22 to 99 (median 91) for the 29 studies comparing self-report scales to gold standard clinical interviews. Also, the detection rate of depressive illness by physician, without the use of survey instruments, against SCID-I diagnosis has been reported to be as low as 40% (10). Taken in context, the sensitivity of 60% in our current study for a simple one-line question is reasonable by comparison.

Sensitivity and specificity were similar for men and women, with a difference of approximately 2% between genders. Interestingly, sensitivity was higher among participants within the lowest SES group and the lowest education groups; the sensitivity differed by 18.5% across levels of educational attainment. Reasons for under- and over- reporting depression by self-report could include denial due to the sensitive nature of the topic, state dependant memory influenced by current mood state and/or poor memory (11) (12). Recent evidence suggests disclosure of depression has been increasing amongst the

Australian population over the past few decades, however there is still stigma associated with depression and mental illness (13) (14). A lack of understanding of the definition of depression may also be an important factor in the accuracy of self-reported depression, past studies have shown that the term 'depression' has been attributed to other forms of mental illness (14) and more well-defined or life threatening diseases are more accurately reported (3). However, given that we observed lower sensitivity among participants in the higher SES groups, it may be plausible that those participants were concerned with social desirability and thus more likely to under-report depression. In comparison, individuals of lower SES may be less likely to answer questions in a way that will influence a favourable opinion of themselves.

Strengths of the study include the large sample size and the use of a representative, age-stratified, gender balanced and well characterised population sample. Limitations of the current study include the use of a specific self-report instrument; these findings may not be generalizable to other self-report instruments nor be suitable for use in clinical samples. Participants in the current study have also completed questionnaires regularly over the study period so may therefore be more familiar with the process. Another factor to consider is the validity of the SCID-I/NP itself. Although based on the DSM-IV criteria and generally accepted as the gold standard, we acknowledge that there is currently no gold standard to evaluate the validity of the SCID. Nevertheless, the LEAD (Longitudinal, Expert, All Data) standard has been suggested as a good criterion measure for evaluating the SCID (15), and importantly, Miller and colleagues reported excellent agreement between the SCID-clinical version and the LEAD standard (16).

5. Conclusion

The SCID-I remains a 'gold standard' tool for identifying incident depression. However, simple, self-report measures of lifetime depression can be used with some degree of confidence given the high level of agreement with the SCID-I/NP in the current study.

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Table 1 – Participant characteristics (n=1976).

Characteristic	Total group n (%)
Age (years), median (IQR)	54.9 (40.0-69.1)
Men- n (%)	891 (45.1%)
Smoking (current)	257 (13.0%)
SES (1=most disadvantaged)	
1	308 (15.7%)
2	410 (20.8%)
3	423 (21.5%)
4	401 (20.4%)
5	426 (21.7%)
Use of antidepressants (current)	198 (10.0%)
Educational attainment	
Primary school	68 (3.4%)
Part secondary school	838 (42.5%)
Completed secondary school	421 (21.3%)
Post-secondary school qualification	647 (32.8%)

Note- missing data; smoking n=2, socioeconomic status (SES) n=9, educational attainment n=3

Table 2 - Cross-tabulation of SCID-I diagnosis and self-reported data for lifetime occurrence of depression for men and women combined.

	Self-report data		
SCID-I diagnosis	No history of depression	Past history of depression	TOTAL
No history of depression	1384	162	1546
Positive diagnosis	168	263	431
TOTAL	1552	425	1977

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Author/s:

Stuart, AL;Pasco, JA;Jacka, FN;Brennan, SL;Berk, M;Williams, LJ

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