Validation of a New Screen for Depression in Older Adults

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INTRODUCTION

There is a current need for a brief, efficient, and cost-effective screening measure for depression in older adults in both clinical and research settings. The Hubley Depression Scale for Older Adults (HDS-OA; Hubley, 1998) is a relatively new and short 16-item depression screen designed with older adults in mind that is based on the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV). It uses a dichotomous yes/no response format, large font size, reminders of the reference period, and is freely available for clinical and research purposes. At present, however, it lacks sufficient psychometric evidence to support its use. The only other measure designed specifically with an older population in mind is the Geriatric Depression Scale (GDS; Yesavage et al., 1983). The freely available GDS also uses a dichotomous yes/no response format, but the original version is considerably longer at 30 items and is not based on current diagnostic criteria for depression. The most commonly used depression screen in clinical and research settings is the commercially available Beck Depression Inventory-II (BDI-II; Beck, Steer, & Brown, 1996). The BDI-II has 21 items; each item consists of four statements from which the respondent chooses the statement closest to the way he/she feels. This depression screen was not designed specifically for older adults, is a longer measure, and uses a response format that is more cognitively complex. The HDS-OA was designed to be a significant and cost-effective competitor to the GDS and BDI-II.

PURPOSE OF STUDY

The purpose of the study was to examine the psychometric properties of the HDS-OA using a combined sample of depressed and non-depressed middle-aged and older adults. Specifically, we examined the reliability of HDS-OA scores as well as construct validity (e.g., depressed/non-depressed differences, gender differences, correlation with BDI-II scores) and criterion-related validity (e.g., sensitivity, specificity) evidence to support the inferences made from the HDS-OA.

METHOD

Participants

The preliminary sample (*N* = 82) reported here consists of 41 depressed inpatients and outpatients (14 men, 27 women) from two hospitals, who range in age from 44 to 85 years (*M* = 60.9, *SD* = 10.05), and 41 age and gender-matched non-depressed community-based participants (14 men, 27 women), who range in age from 43 to 84 years (*M* = 60.8, *SD* = 9.89).

Measures

Hubley Depression Scale for Older Adults (HDS-OA): The HDS-OA (Hubley, 1998) is a 16-item brief screening measure for depression in older adults that is based on the DSM-IV criteria for depression. It uses a yes/no response format. HDS-OA scores can range from 0 to 16.

Beck Depression Inventory-II (BDI-II): The BDI-II (Beck et al., 1996) is a 21-item measure designed to screen for depression in adults. Each item consists of four statements from which the respondent chooses the one closest to the way he/she feels. BDI-II scores can range from 0 to 63.

Structured Clinical Interview for DSM-IV-TR Axis-I Disorders, Non-Patient Version (SCID-I/NP): The SCID-I/NP (First, Spitzer, Gibbon, & Williams, 2007) is a diagnostic measure and semi-structured interview based on the DSM-IV-TR. It was used to confirm the absence of a mood disorder (i.e., a current major depressive episode, dysthymia, or bi-polar disorder) and psychosis in the community-based sample.

Mini-Mental State Examination (MMSE): The MMSE (Folstein, Folstein, & McHugh, 1975) is a quick and commonly used screen for cognitive impairment. Scores equal to or less than 23 (out of 30) are suggestive of cognitive impairment. All participants in the study scored 23 or greater.

Procedure

The depressed sample was recruited first from two hospitals. These individuals were already diagnosed as depressed and were being treated on an inpatient or outpatient basis. The non-depressed community sample was recruited afterwards. These individuals were matched by age and gender to those in the depressed sample to allow for better control over between-group differences. In the community sample, all participants were evaluated using the SCID-I/NP and only those diagnosed as non-depressed were included in the study. All participants signed an informed consent form and completed the MMSE, HDS-OA, and BDI-II. The HDS-OA and BDI-II were administered in counterbalanced order to control for order effects.

RESULTS

Internal Consistency

Internal consistency reliability of the HDS-OA scores, using Cronbach's alpha, was .94.

Construct Validity

Convergent validity: Scores on the HDS-OA and BDI-II correlated .92.

Gender differences: Gender differences on the HDS-OA were examined using the non-parametric Mann-Whitney U test, as the parametric test assumption of normality of scores was violated for both men and women. Trivial and statistically non-significant differences in HDS-OA scores were found between men (*median* = 2.5) and women (*median* = 3.5), U = 722, z = -0.34, p = .74; r = .04.

Group differences: Differences in HDS-OA scores between depressed and non-depressed groups were examined using the non-parametric Wilcoxon Signed Rank Test because the parametric test assumption of normality of scores was violated for the non-depressed group. A large statistically significant difference was revealed between the depressed (*median* = 10.0) and non-depressed (*median* = 0.0) group scores for the HDS-OA, z = -5.50, p < 0.001, r = .61.

Criterion Validity

Criterion-related validity was examined by evaluating sensitivity and specificity of the HDS-OA scores in differentiating depressed and non-depressed individuals. *Sensitivity* is the percentage of individuals in the sample identified as depressed by the HDS-OA out of those diagnosed as depressed, whereas *specificity* is the percentage of individuals identified as non-depressed by the HDS-OA out of those diagnosed as non-depressed. These values were obtained via receiver operating characteristic (ROC) curve analyses conducted using the software program *Analyse-It*. The ROC curve plots the proportion of true positives against the proportion of false positives. The area under the curve (AUC) is a measure of the accuracy of a diagnostic test and can range from 0.0 to 1.0. An AUC of .80 or more indicates that a diagnostic test is useful as a case-finding screen (Holmes, 1998). The AUC for the HDS-OA was .98. A cut-off score of 3 yielded an optimal balance between sensitivity (93%) and specificity (88%), with a greater emphasis placed on identifying depressed individuals (i.e., sensitivity; see Table 1).

CONCLUSIONS

The study provides evidence supporting the reliability of scores and validity of inferences from the HDS-OA with a sample of 82 depressed and non-depressed middle-aged and older adults. ROC curve analyses suggest the HDS-OA is useful as a case-finding screen and that scores of 3 or greater be used to screen for depression.

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Table 1
Sensitivity and Specificity of Cut Scores on the HDS-OA

Cut Score[a]	Sensitivity	Specificity
1	1.00	.63
2	.95	.78
3	.93	.88
4	.88	.95
5	.88	.98
6	.83	1.00

[a] Max. score on the HDS-OA = 16