DIAGNOSIS

Center for Epidemiologic Studies Depression Scale had high sensitivity and specificity for major depression in older adults

Beekman AT, Deeg DJ, van Limbeek J, et al. ***Criterion validity of the Center for Epidemiologic Studies Depression Scale (CES-D): results from a community-based sample of older subjects in the Netherlands.*** *Psychol Med 1997 Jan;**27**:231–5.*

Objective
To determine the test characteristics of the Center for Epidemiologic Studies Depression Scale (CES-D) as a screening test for depressive and anxiety disorders in older adults.

Design
Blinded comparison of CES-D scores with diagnosis made according to the criteria of the *Diagnostic and Statistical Manual of Mental Disorders, 3rd edition (DSM-III)*, using the Diagnostic Interview Scale (DIS).

Setting
11 municipalities in the Netherlands.

Participants
487 participants between 55 and 85 years of age (60% between 55 and 74 y, 58% women) drawn randomly from the community.

Description of test and diagnostic standard
Interviews were conducted by trained interviewers in the homes of the participants. Screening (CES-D) and diagnostic (DIS) interviews were given by separate interviewers. An adapted version of the DIS was used which included only the sections on *DSM-III* criteria for affective and anxiety disorders.

Main outcome measures
Sensitivity, specificity, and likelihood ratios.

Main results
235 participants (48%) had a total score of ≥16 on the CES-D. 21% had higher anxiety scores, and 17% scored <24 points on the Mini-Mental State Examination. Sensitivity and specificity were weighted to adjust for the stratified sampling used in the study. Sensitivity and specificity were high for a diagnosis of major depression within the previous month when the cut off on the CES-D was 16 (table). Sensitivity dropped and specificity rose when the cut off was changed to 18 and 20. Sensitivity was much lower for diagnoses of major depression within the previous year, lifetime diagnosis of dysthymic disorder, and all anxiety disorders within the previous year (table). False positives were less likely to be women ($p<0.05$), more likely to be older (ie, >75 y, $p<0.01$), and equally likely to have received higher education or to be married. True and false positives were similar with regard to physical health and cognitive performance.

Conclusion
Using a cut off of ≥16, the Center for Epidemiologic Studies Depression Scale had high sensitivity and specificity for major depression in the previous month in a community based sample of older adults.

Weighted sensitivity, specificity, and positive and negative likelihood ratios (+LR, –LR) for a Center for Epidemiologic Studies Depression Scale (CES-D) score ≥16

Disorder	*Sensitivity, % (95% CI)*	*Specificity, % (CI)*	*+LR**	*–LR**
Major depression (previous month)	100	87.6 (86 to 89)	8.06	0.0
Major depression (previous year)	70.6 (59 to 82)	88.0 (86 to 89)	5.88	0.33
Dysthymic disorder (life time)	40.8 (31 to 50)	86.7 (86 to 89)	3.07	0.68
All anxiety disorders (previous year)	40.3 (33 to 47)	88.1 (86 to 89)	3.39	0.68

+LR = positive likelihood ratio; –LR = negative likelihood ratio; *numbers calculated from data in article.

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Commentary

Although the study by Beekman *et al* differs from several others in that it is primarily concerned with assessing the performance of a screening test rather than estimating rates of depression, the scale's validity might be questioned if the rates differed wildly between studies. Psychiatrists considered that 13% of subjects needed treatment in New York; 12.4% in London; and 11.3% in Liverpool.[1,2] However, for DSM major depression much lower rates were found: 3.7% in North Carolina; 2% reported in this study; and 1% in Canberra.[3]

The method used by Beekman *et al* is sound enough for valid conclusions to be drawn from the results, although the extent to which medical interviewers were blinded to screening data is not clear. The CES-D showed satisfactory sensitivity and specificity in detecting recent major depressive disorder, but was poor for major depression and anxiety disorder within the previous year and for lifetime dysthymia. The nosology of anxiety disorders is much debated by psychogeriatricians. Lindesay maintains that they can be categorised separately, running counter to the more traditional view that they are manifestations of depressive illness in older patients.[4] This study does not resolve the issue.

Clinical applicability is relatively limited because the CES-D has good criterion validity only for recent major depression. The negative findings are also important, however. The CES-D is not an appropriate instrument for general screening of affective disorders within the community. Instruments such as the Geriatric Mental State-AGECAT, although more complex and time consuming, are required.

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2 Copeland JR, Gurland BJ, Dewey ME, *et al. Br J Psychiatry* 1987;**151**:466–73.
3 Henderson AS, Jorm AF, MacKinnon A, *et al. Psychol Med* 1993;**23**:719–29.
4 Lindesay J. *Br J Hosp Med* 1997;**57**:304–5.