Reviewer's report

Title: The 10/66 Dementia Research Group's fully operationalised DSM IV dementia computerized diagnostic algorithm, and its criterion validity, compared with that of the 10/66 dementia algorithm, against clinician diagnosis: a population validation study.

Version: 1 Date: 13 December 2007

Reviewer: Tim Slade

Reviewer's report:

This manuscript reports the results of a study examining the concordance between different scoring methods for the diagnosis of DSM-IV Dementia in a population-based study. The results demonstrate that the authors' operationalization of the DSM-IV criteria for dementia was a more conservative algorithm as compared to a scoring algorithm previously derived in a pilot study. The manuscript is relatively detailed. However, there is some missing information which makes a reader naive to the area of dementia assessment confused.

Major Compulsory Revisions
None

Minor Essential Revisions
A number of times throughout the manuscript the authors make reference to concepts that are not fully explained. For example, in the measures section the authors talk about a weighted score from the cognitive scale of the CSI D and a discriminant function score from a combination of two other scores. What do the authors mean by these terms? The authors talk about the CERAD without defining this acronym. The authors also talk about "indices of definition" when referring to the geriatric Mental State interview. What does this mean? How exactly is this interview used to generate diagnoses of psychopathology. In the section that defines memory impairment the authors talk about a threshold of 1.5 standard deviations below the mean. What are they finding the mean of?

Discretionary Revisions
It is perhaps not surprising that the 10/66 dementia algorithm is more concordant with the clinician diagnoses given the 10/66 algorithm was initially derived based on correspondence with a clinician. This raises the issue of what is the gold standard against which to compare any new algorithm? Should the gold standard be the clinician diagnosis? It is obvious from this study (and the authors mention in themselves) that the clinicians did not fully operationalise the DSM-IV criteria for dementia when they were making their diagnosis. Therefore, it seems unfair to compare a strict fully operationalized DSM-IV definition against such a clinician. It will always come up short. When discussing the operationalization of the DSM-IV criteria the authors themselves say "we sought to operationalize the
decision making process of a competent clinician”. What does this say about their clinicians? Further discussion of the issue of appropriate gold standards is warranted.

A limitation of the methodology of the current study is that all diagnostic constructs were derived from the same pool of assessment data. Given this data was collected via clinician assessment there is a chance that method variance is reduced resulting in an increase in concordance amongst the different operationalizations of dementia. This would make the results seem more optimistic than they actually are. The manuscript would be enhanced with a discussion of these issues.

What next?: Accept after minor essential revisions

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Acceptable

Statistical review: Yes, and I have assessed the statistics in my report.

Declaration of competing interests:
I declare that I have no competing interests