Reviewer's report

Title: Cognitive Function, Social Integration and Mortality in a U.S. National Cohort Study of Older Adults

Version: 1 Date: 17 February 2009

Reviewer: Valory N Pavlik

Reviewer's report:

The authors are to be commended for linking cognitive function data from the NHANES III survey with the mortality follow up to assess the role of cognitive function in mortality. The finding that cognitive function and social integrations are independent predictors of mortality and do not interact is important. There are several concerns with the manuscript in its present form however.

Major Compulsory Revisions:

1. The authors acknowledge that the cognitive function test used in NHANES III does not correspond to any other standard screening or diagnostic test. The test consisted of some very easy items for persons who are cognitively intact (orientation to person, place, time, and verbal recall) and a task that is considerably more difficult (counting backwards from 20 by 3’s). To combine these three tasks into a global score that represents “cognitive function” is of questionable validity. Ideally, the authors should present analyses for the different subcomponents of the SICF. In addition, the authors should describe the extent to which the NHANES interview methodology allowed for exclusion of individuals with existing dementia. The concern is that the SICF is heavily weighted toward dementia screening, and the results reflect the mortality risk associated with dementia or MCI, rather than variability in cognitive function per se. A presentation of the distribution of scores on the separate components of the test, and any associations with mortality outcomes that seem warranted from these distributions would facilitate interpretation of the findings.

2. The inflammatory marker CRP is not introduced until the end of the results section. It should also be mentioned under “confounding and mediating variables” in the methods section.

3. The authors should comment on the fact that survival was identical in the persons scoring 12-13 and 17 on the SICF, and the curve for those scoring 14-16 was very atypical. The survival graphs support this reviewer’s concern that the simple addition of items on the SICF does not adequately reflect the psychometric properties of the different subcomponents.

Minor Revisions

Abstract: CRP should be added to the list of controlling variables.
P. 11: The sentence beginning on line 2, “Table 1 shows…” seems to be repeated at the beginning of the second paragraph.

**Level of interest:** An article of importance in its field

**Quality of written English:** Needs some language corrections before being published

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

**Declaration of competing interests:**

I declare that I have no competing interests.