Reviewer’s report

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

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Reviewer: Kyriakos Markides

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- The links between cognitive function and mortality and social integration and mortality have been well-documented. In the introduction, the authors should explain why the present study is necessary and important. What will this study add compared to previous research?

- The authors indicate in the introduction that mechanisms explaining the association between cognitive function and mortality “remain obscure.” The authors should explain some of the hypothesized, potential mechanisms.

- The authors indicate that “findings regarding interactions and independence of cognitive function and social integration are lacking in studies of mortality.” A review of the current evidence would be very helpful. It is very likely that at least some studies have included both cognitive and social variables in relation to mortality. Did these studies suggest an independent association of each? Is there research examining an interaction between cognitive function and social integration? Why might an interaction be expected? What is the rationale for the authors’ hypothesis that the effect of cognitive function score would be “less in the well-integrated than in the less well-integrated”? The authors should review research concerning the interaction between cognitive function and social integration. For example, there is some research that suggests an interaction between social networks and Alzheimer’s disease pathology, such that even at more severe levels of disease, individuals with larger network sizes had higher cognitive function (Bennett DA, Schneider JA, Tang Y, Arnold SE, Wilson RS. Lancet Neurol 2006;5:406-12.)

- In reference to the cognitive measure, the authors indicate that the “combination of items asked in the NHANES III does not correspond to any known, validated screen”. Is there no research examining the reliability and validity of the NHANES III cognitive measures? What was the internal consistency reliability (Cronbach’s alpha) in the current sample at baseline? What evidence of validity can the authors provide? Does the measure have content validity? Criterion-related validity? Does it behave in a manner that is consistent with previous research? It is highly important to establish reliability and validity of the outcome measure. If the measure is not valid for measuring late-life cognitive function, then the research results will be invalid as well.

- Analysis was not adjusted for depression/depressive symptoms. Depression is
associated with late-life cognitive function, social integration, and mortality and may be an important confounding or explanatory variable.

- Table 1 should include the comparison group for each characteristic so that the distribution of the characteristic across groups may be compared. For example, include males as well as females; <80 as well as 80+; survivors as well as decedents.