Author's response to reviews

Title: The Association between Race and Income on Risk of Mortality in Patients with Moderate Chronic Kidney Disease

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Reviewer's report
Title: The Association between Race and Individual Level Income on Mortality among those with Moderate Chronic Kidney Disease
Reviewer's report:
1. Is the question posed by the authors well defined? Yes
2. Are the methods appropriate and well described? Yes
3. Are the data sound? There were 1,305 patients with missing eGFR values for which CKD could not be assessed. Authors compared demographics and clinical characteristics of these patients with those included in the analysis and addressed issue of potential bias. Other data limitations satisfactorily addressed. Given consideration of limitations, data are sound.
4. Does the manuscript adhere to the relevant standards for reporting and data deposition? Yes
5. Are the discussion and conclusions well balanced and adequately supported by the data? Yes
6. Are limitations of the work clearly stated? Yes, limitations are clearly stated and adequately addressed.
7. Do the authors clearly acknowledge any work upon which they are building, both published and unpublished? Yes
8. Do the title and abstract accurately convey what has been found? Suggest revising title as “Association of Race and Income with Risk of Mortality in Patients with Moderate Chronic Kidney Disease”
9. Is the writing acceptable? Writing is generally quite good, however, before it can be published it must be thoroughly reviewed for material errors (e.g., p6 line 6: “2761” should be “2789”?), typos (e.g., p5 lines 18-19: “…ESDR(eGFR<15...per 1.73m2) at baseline…”), punctuation errors (e.g., use of commas, semi-colons), awkward and run-on sentences (e.g., p7, 5-8: “Additional factors included smoking status (former, current and never) and body mass index (BMI), measured in kg/m2, was categorized as underweight (<18.5), normal weight (18.5 to 24.9), overweight (25 to 30) and obese (>30).”, terminology (e.g., use of “death” when “mortality” would seem more appropriate) and use of the definite article “the” (sometimes omitted, sometimes used inappropriately). Phraseology could be tidied up in several places...fewer words, more precise language, minimize use of long introductory dependent clauses, simple declarative sentences best. Overall, the exposition is very good, and the writing clear and understandable. Needs some polishing.
Major Compulsory Revisions: None
Minor Essential Revisions:
1. Item 9 above: Review and revise for errors, punctuation, etc.

The above mentioned punctuation and grammar has been corrected.
2. p6 line 6: Should 2,761 be 2,789?
The line should have read “2,761”.

3. p7 line 4: Should “Education (high school diploma, high school diploma,...” be “Education (no high school diploma, high school diploma,...”?
Yes, this line has now been updated (page 7, lines 4-5)

4. p7 line 5: Does “insurance” refer to medical insurance? Please specify type of insurance.
This refers to health insurance and the text has been updated (page 7 line 5).

5. p8 lines 5-6: Revise as simply “Interaction between race and income was investigated.”
This text has been updated (page 8 lines 9-10).

6. p9 line 21: Report p-value for interaction of race and income “…significant (p =0.xxx).”
This p-value has been added to the text (page 10 lines 19-20).

7. p10 line 3: Put the 95% CI after the HR estimate, “1.45 (95% CI 1.27 – 1.66)”
This text has been updated (page 10 line 7).

8. p10 line 16: Give results on interaction of Race and Income for outcome ESRD or death. Report the interaction p-value.
This p-value has been added to the text (page 10 lines 19-20)

Discretionary Revisions: None
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.

Reviewer’s report
Title: The Association between Race and Individual Level Income on Mortality among those with Moderate Chronic Kidney Disease
Version: 2 Date: 28 June 2014
Reviewer: Tazeen Jafar
Reviewer’s report:

Interesting work by et al on national cohort REGARDS evaluating the relationship between SES and mortality and ESRD among patients with CKD.

The results are not surprising. It would be interesting to evaluate the factors contributing to high mortality among CKD patients with low income.

One major comment is to account for baseline blood pressure levels (in addition to presence of hypertension) and albuminuria in the adjusted models assessing the relationship between income and mortality. Please present a separate Model in Table 2 after accounting for these predictors.

Baseline blood pressure (systolic and diastolic) and serum albumin have been added as predictors. The updated model (now referred to as model 7 in table 2a) including baseline blood pressure and albuminuria strengthen the HR for low income (HR=1.58, 95%CI 1.24-2.00) compared to model 6 which did not account for these 2 factors (HR=1.44, 95% CI 1.22-1.71). Additionally, the HR comparing blacks versus whites in model 7 was also stronger (HR=1.30, 95%CI 1.02-1.65) than model 6 which did not account for blood pressure and albuminuria (HR=1.24, 95%CI 1.04-1.27). Table 2b, which includes both death and incident ESRD as an outcome has also been updated and point estimates for low income and black race were slightly higher in model 7 compared to model 6. HR for low income in model 7 (HR=1.32, 95%CI 1.06-1.65) is slightly higher than model 6 (HR=1.28, 95%CI 1.09-1.51). The HR for black race vs white race in model 7 (HR=1.63, 95%CI 1.31-2.01) is slightly higher than that in model 6 (HR=1.52, 95%CI 1.30-1.78).

Death, the primary outcome, was ascertained through telephone based follow-up. Who provided the information? In what proportion was it validated by national registration record? What was done in case data were not verified?

Proxies, which were identified by the participant at enrollment, provided initial reports of a death. Death was then confirmed through the national death index, social security administration and death certificates. The date of death was based on one of these sources (NDI, SSA or death certificate). When participants were lost to follow-up and proxies could not be found, NDI, SSA and web searches (through Lexis Nexis and other sources) were relied upon. More detailed information on death ascertainment has been added to the methods section (page 6 lines 9-14), where we now state “Mortality from any cause was our primary outcome of interest and was assessed through telephone follow-up every 6 months by a proxy that was identified by the participant at baseline. [20]The National Death Index, Social Security Death Index and death certificates were used to identify death events for proxies who could not be found and to confirm the date of death among those reported dead by proxies. We also considered a combined outcome of incident ESRD or mortality. Follow-up data for our study was available through March 2013.”

Low income alone has been shown to be associated with high mortality in the US
population. Albeit it is only one component of SES. Although the investigators have accounted for neighborhood/county poverty score and gini index, and education level, several other factors contribute to socioeconomic positioning eg occupation, type of housing, access to resources. Some communities would have programs for the un-insured providing opportunities for better control of risk factors for CKD progression. These elements are not captured in the analysis which is a limitation. Please discuss.

We agree that, while we assessed several indicators of socioeconomic status, we lacked other measures which may contribute to greater mortality among low income persons. We now discuss this in the limitations section of our Discussion (page 14 lines 10-13 ), where we state “Although several measures of SES were included in our analyses, we did not have information on utilization of safety net programs or community health centers among the uninsured which has been shown to be associated with higher quality of care for chronic diseases. [36] “

Did the investigators rely on self report of individual income? Has this measure been validated? Please discuss.

Self-reported household income was reported in our study, and was not validated against more objective means such as paystubs. Therefore, household income may have been misclassified. has not been validated. This point has been included in the limitations section of the Discussion (page 14, lines 3-7), which now reads “We relied on self-reported household income, which has not been validated and likely to be misclassified as participants may overestimate their income. However, misclassification of income may have been mitigated by having participants select their income from four categories in the telephone interview compared to an open-ended question.”.

Im also not clear whether the investigators asccertained “household income” as implied in the text or “Individual income” as stated in the title. Please clarify.

Household income was collected and is now used consistently throughout the manuscript.

How was home BP measured? Which device was used? Were these standardized measurements?

Blood pressure was measured twice during in-home interviews by trained study team members using a standard aneroid sphygmomanometer. More detailed information on blood pressure measurements are now included in the manuscript, on Page 7 lines 16-18, which now reads “Baseline systolic and diastolic blood pressure was measured twice in the left arm with a standard aneroid sphygmomanometer after participants were seated in a chair for three minutes with both feet on floor . The two blood pressure measurements were averaged. [20]”.

In Table 2, in the footnotes please clarify what co-morbidities were accounted for in the Model 3

Comorbidities (heart disease, hypertension, and diabetes) are listed in footnote b in Table 2.
Level of interest: An article of importance in its field
Quality of written English: Acceptable
Statistical review: No, the manuscript does not need to be seen by a statistician.
Declaration of competing interests: I declare that I have no competing interests'