Author’s response to reviews

Title: Adequate Access to Healthcare and Added Life Expectancy among Older Adults in China

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Author’s response to reviews:

Dear Editor,

Thank you for providing us an opportunity to revise our manuscript entitled "Access to Healthcare and Added Years of Life Expectancy among Older Adults in China" (BGTC-D-18-00523) (Note that we have modified the title to "Adequate Access to Healthcare and Added Life Expectancy among Older Adults in China" per one reviewer’s comment). The comments provided by the three reviewers are helpful in further refining our manuscript. Per your and the reviewer's suggestions, we have revised our manuscript and addressed each of these concerns.

To major changes are worth noting here: (1) Rather than separate statistical analyses by sex and by urban-rural residence, we ran statistical analyses for the entire sample. This revision ensures for more consistent comparisons when covariates are presented. The new results are very close to the previous ones. (2) We relocated some of the descriptions previously presented in the Appendix to the main body of the text. This change ensures that there is more clarity about the methodology that some reviewers raised. All major revisions are marked in red in the manuscript.

We believe the revised version of our manuscript is substantially improved. To facilitate re-review, we uploaded our response letter as a supplementary file, in addition to providing our responses in the boxes in the online system.
Thank you again – and we look forward to your decision.

Sincerely,

The Author

We appreciate the Reviewers’ careful reading of our manuscript and their insightful comments. Following these suggestions, we have revised the paper accordingly. Below we note some major changes and then provide our responses to each of the specific comments. All major changes in the manuscript are indicated in red.

Major changes:

We now run all models with the data for both sexes combined and for urban/rural combined — rather than the stratified analyses from the initial submission. This will help to ensure more consistency when comparing results between women and men and between rural and urban older adults in the presence of covariates, and the new results are very close to the previous ones.

Reviewer #1

Introduction

I think the introduction part needs to provide more information on the Chinese medical care system as background information, especially in regard to senior individuals. For example, the statement mentioning about the "dual-system" would be confusing for readers who are not familiar with China. It seem also necessary to discuss more about the progress of research regarding the consequence of inadequate access to healthcare among Chinese elders, so that the importance of this research will be well justified. In this sense, it seems the reference #7 could be discussed here, instead of at the conclusion.

Response: Excellent point. As suggested, we now have provide additional information about the Chinese dual medical care system. We also extended our discussion of research on the consequences of inadequate access to healthcare among Chinese older adults; and further underscored the importance of the present research in the context of the UN’s 2030 agenda—toward promoting healthy lives and well-being for all at all ages.

Methods
1) For the statement of "Consistent with prior research, we pooled the five waves of CLHLS data to obtain robust estimates", please specify prior research.

Response: As suggested, we have now added some citations.

2) For covariates, though it is reasonable to put details as appendix, it will be good to provide a list in the text.

Response: As recommended, we have now moved details from Appendix A to the main body of the text.

3) The statement of "Proxies accounted for 23.1% (weighted 4.8%) of the sample" appears confusing. What is the adopted weighting method? And how is the proportion of 23.1% calculated?

Response: The unweighted proxy rate was 23.1%; whereas the weighted proxy rate was 4.8%. Because the CLHLS is a specially-designed survey with oversampling of very long-lived people (e.g., centenarians account for almost 30% of the sample in each wave), sampling weights are applied to reflect the entire population of older adults in China. The CLHLS sampling weight was constructed based on the age-sex-urban/rural residence of the sampled provinces. When the sampling weight was applied, the proportion of questionnaires with proxy responses to at least one question was 4.8% (i.e., reduced from 23.1% without sampling weights). These details have now been further clarified in the revised manuscript. Also please note, based on another reviewer’s comments, we have now added a descriptive table for the weighted sample.

4) For the last two sensitivity analyses, the rationale are not stated clearly. Especially the last one, which compares CLHLS with WPP, seems not a sensitive test, but more of a validation of the mortality data quality of CLHLS. Thus it could be moved to other places.

Response: We agree with the Reviewer that these are not sensitivity analyses per se. We have now moved this text to the Mortality and Life Expectancy section as a validation of data quality (rather than as a sensitivity analysis).

Results

For the results part, I highly suggest the authors expanding Table 1 to include the rural and urban division, which is as important as the gender dimension, given the huge rural/urban disparity in China.

Response: As suggested, we have now added a Table to reflect urban-rural differences in life expectancy regarding adequate and inadequate access to healthcare.

Here are some minor issues:
1) It seems better to use age 80 rather than 85 for Table 1.

2) All figures have no titles and are not clear.

3) The use of "the absolute and relative gains" seems not clear, and the authors may need to elaborate or simply use something like year difference and increase in percentage.

Response: (1) In focusing on older adults (with age 65 being the youngest in the CLHLS), we followed conventional practice in the gerontological studies by focusing on age 85. (2) We now provide titles to all figures at the end of the manuscript per journal submission guidelines. (3) As suggested, we changed the wording to "increase in years of life expectancy" and "percentage of increased life expectancy."

Discussion

Firstly, the authors separate Model I and II in analyses, but do not tell why. For me, the effects of medical care access in Model II may suggest a role of contextual factors beyond the individual level. I hope the authors may put some efforts when discussing about findings of covariates.

Response: We have now provided justification for Models I and II in the Analysis section. In brief, the purpose of Model II (which is now Model III) is to adjust for some major factors associated with mortality and determine whether the association between access to medical care and mortality is influenced by these potential confounders. We agree with the Reviewer that access to healthcare is likely influenced by contextual factors—such as local socioeconomic development level, availability of health care facilities, and so on. However, due to the lack of data on such measures, we are unable to directly model the effects of potential contextual factors. In response, our revised manuscript further acknowledges the role of contextual factors in possibly contributing to the association between access to medical care and mortality. We also noted this limitation and that the present study did not account for the capacity of the local healthcare system. However, we also note that a respondent's self-rated assessment of their access to healthcare (i.e., including his/her perception about the capacity of local healthcare system) may indirectly capture some of these contextual factors.

Second, I think the gender story is not well told as explanation. Following the stated logic that the rural adults gains more as they are more socioeconomically disadvantaged, how come the females gains less, who are also socioeconomically disadvantaged in reference to males? I feel the authors may work on this part more carefully.

Response: We thank the Reviewer for raising this excellent question. In the revised manuscript, we re-designed our analytic strategy and now extended our discussion/explanation of differences in life expectancy between adequate and inadequate access to medical care by sex and urban-rural residence—also including additional references. Please refer to pages 8-12.
Last, I hope the authors could be a bit more cautious on the subtle difference between "access to healthcare" and "adequate access to healthcare".

Response: Thank you for catching this. In the revised manuscript, we are more careful in this terminology. To better response to this comment, we changed the title to "Access to Healthcare and Life Expectancy among Older Adults in China."

Reviewer #2

OBJECTIVE - Full research articles: is there a clear objective that addresses a testable research question(s) (brief or other article types: is there a clear objective)?

Yes - there is a clear objective

DESIGN - Is the current approach (including controls and analysis protocols) appropriate for the objective?

No - there are major issues

EXECUTION - Are the experiments and analyses performed with technical rigor to allow confidence in the results?

No - there are major issues

STATISTICS - Is the use of statistics in the manuscript appropriate?

No - there are issues with the statistics in the study

INTERPRETATION - Is the current interpretation/discussion of the results reasonable and not overstated?

No - there are minor issues

OVERALL MANUSCRIPT POTENTIAL - Is the current version of this work technically sound? If not, can revisions be made to make the work technically sound?

Maybe - with major revisions

PEER REVIEWER COMMENTS:
GENERAL COMMENTS: This paper addresses an important question in China, the magnitude of the life expectancy increased with better access to health care among seniors. The authors used a nationally representative longitudinal data with a large sample size. The life expectancy calculation is well validated with other national statistics. However, the main limitation lies on the self-reported access to health care in the CLHLS data. It is not clear how validity is the self-reported measurement compared with other objective measurement. For example, it is surprising that only 6% of respondents indicated inadequate access to health care although there are significant problems in the health care systems to provide adequate services to Chinese patients. Therefore, more refined analyses are needed to address this limitation.

Response: We appreciate the Reviewer’s overall positive assessment of our manuscript. We also thank the Reviewer for raising this important issue. As far as we know, the vast majority of publications have used the actual use of medical services (or doctor visits) to denote access to care. However, there is a growing body of research that has shifted from using objective measures of utilization of medical care at older ages to self-reported measures – in part, to help mitigate the counterintuitive findings that have emerged [1, 2]. For example, some studies have argued that the actual utilization is an endogenous factor that may confound the observed association between healthcare and health outcomes [2]—i.e., people with complex comorbidities exhibit higher rates of utilization. Likewise, there has been a debate about the bi-direction association between health insurance coverage and health status—i.e., whether having insurance impacts health or whether health status impacts having insurance [3]. The current study minimized these issues of endogeneity and captured important information beyond simply utilization [4, 5]. Self-reported access to medical care reflects an individual's wider context and perceptions about whether they can obtain medical care services when needed—including information about (i) whether the use of medical care meets their needs, (ii) whether they could get timely treatment, (iii) whether there are any barriers or delays in receiving care, (iv) whether the services they received are satisfactory, and (v) other perceived dimensions in accessing care [4-6]. In China, health insurance coverage after 2011 reached to over 95% in rural areas (and 98% in urban areas) from less than 20% around the beginning of the century [7-11]. Thus, it is possible that less than 10% of the CLHLS sample did not have adequate access to medical care—although this is of course different from their actual use. These issues—as strengths and limitations of the study—are noted in the revised manuscript.

References


REQUESTED REVISIONS:

The authors need to validate the self-reported access to health care in some ways. This will be central in the revision to address why only 6% of respondents reporting not to have adequate access to health care. The authors may need to compare the characteristics of these people with the respondents claiming to have adequate access to health care and see whether the non-access-to-care population may be more fragile, which leads to a shorter life expectancy. In another word, the reported gain in life expectancy is likely to be overestimated.

The paper does not have detailed descriptive statistics about the analytical sample and their access to care statistics, health care utilization, or health insurance statistics.
Self-reported access to care is also endogenous regards to respondents' socio-demographics. It's difficult to claim the independent contributions of the self-claimed access to care to life expectancy.

Response: Regarding the validity of self-reported access to medical care, please see our response above. For the potential factors contributing to lower life expectancy among those with inadequate access to healthcare, we have adjusted for a wide range of demographic factors, socioeconomic status, family/social support, health practices, and health conditions in the analyses. Thus, the findings on differences in life expectancy between those with adequate vs. inadequate access to healthcare are net of the confounding effects of these factors. Regarding the role of health insurance contributing to the advantage in life expectancy for those with adequate access, we fully agree with the Reviewer that health insurance is an important confounding factor. In response to this issue, our models included whether the respondent had health insurance. However, we found almost no change in the association between access to healthcare and mortality.

Reviewer #3

What is the impact of access to health care in old age is a very pertinent question for health policy in rapidly aging populations. This is an excellent paper using a good analytical strategy. My questions refer to clarifications in methods and results that could provide more information on context and easy the interpretation of results and therefore require some modifications in the discussion.

Methods :

Please describe in detail the exposure variable : Adequate or inadequate access to medical care. How the indicator adequate/inadequate access to health care was constructed? Did it refer to the last episode of disease or health need? What was the time frame? Please show in a table or write in the text the information on the answers to all items included in the construction of adequate care. .

Response: Thank you for raising these important points. To assess self-reported access to medical care, the CLHLS asked "whether you could get adequate access to healthcare (medical care) services when needed" with answers of yes or no. Similar to other studies of self-reported access to care, we believe that this measure has some advantages over utilization (actual use) of medical care as we stated in our response to Reviewer 2. We also agree with the Reviewer that more detailed data on the time frame and/or episode-specific nature of their reported access is warranted for future studies. We highlight this limitation in our revised manuscript.

Results
Please, add a descriptive table with sex-specific distribution of all covariates (showing number of people in each category, i.e., number of men with less than high school education, etc.) and proportion of adequate access to care in each category of each covariate.

Table S1 should be completed with intermediate models. For example:

* Model I adjusting for age and rural-urban residence;
* Model II: further adjusting for Socioeconomic status indicator at baseline (education, occupation and baseline economic situation);
* Model III: further adjusting by marital status and close proximity of children;
* Model IV: further adjusting for smoking;
* Model V: further adjusting by health and functioning indicators.

Response: We agree with the Reviewer’s proposed approach and we carried out this analytic design for our study. In the interests of space and clarity, we only presented the results from Model I and Model VI (including all factors in Models I to V), rather than the results from all models. However, in the revised manuscript, we also presented the results from Model II in response to another comment noted above. Furthermore, we have also presented the results from other three models in an Appendix.

Lastly, the sentence in reference to the United States "To put these findings into perspective, the average life expectancy at age 65 has only increased by 5.5 years over the past sixty-five years in the United States [16] ? could be eliminated and replaced by some comparison of the effect on life expectancy of adequate health care with the effects of either the economic situation, the effect of current marital status or children proximity.

Response: As suggested, this sentence has been deleted.