Author's response to reviews

Title: Physical activity in older people: a systematic review

Authors:

Fei Sun (gsfe@vip.163.com)
Alison E While (alison.while@kcl.ac.uk)
Ian J Norman (ian.norman@kcl.ac.uk)

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Author's response to reviews: see over
Dear Editor
We have revised the manuscript in light of the reviewer feedback. The outline of our revisions are set out below and related to the reviewer feedback.

Reviewer 1
Abstract:
It would be important to the author mention the prevalence rates of physical activity obtained in the study.
Response: The prevalence had been added.

Introduction:
Deepening the arguments for the study.
More details about justifications are necessary. Which advances in health in this study? Which the application to publish this study in a medical journal?
The authors can define what the purpose of the study because the results are presented with various strata whereas sex, location, age.
Response: Additional sentences have been inserted to justify the study and its relevance to a medical journal.

Method:
Why the authors did not analyze the methodological quality of studies?
Response: An additional column has been added to Table 3 re the quality of the self-report studies.

The adoption of different types of AF, as well as different cutoffs analyzed simultaneously limits the results?
Response: Yes, the studies varied greatly regarding measurement, categorization of PA, analytic algorithm and criteria. This is acknowledged in the text.

Authors need to explore the limitations of the study. Form of sample selection? Power of the sample size to represent the studies? Why not only include studies representative of certain regions?
Response: The limitations of the study are set out in a separate section. It was not possible to select/identify studies representative of certain regions not least because research on the topic has attracted variable interest across different countries.

Discussion
What are the implications of these results in health?
The conclusions are not clear? No show the results of prevalence physical activity in older.
Response: The implications for public health are addressed but with the proviso that the existing evidence needs strengthening through more well designed studies on the scale of youth and other adult research, consistent measurement and inclusion of household PA. Differences in PA prevalence by gender, age, geographical location and over time are discussed on the basis of the available evidence. The conclusion has been revised and we believe that it is clear.

Reviewer 2
Major Compulsory Revisions:
1. Methods- Why is the methods section at the end of the paper after the conclusion section?
It belongs before the results and discussion section so that readers can comprehend what the inclusion/exclusion criteria were for studies to be included in the review and interpret the generalizability and validity of the findings. Related to this, the authors should identify how many studies the search resulted in and how many were excluded with the primary reasons for exclusion. This information may be in Figure 1 but I was unable to read the figure (technological issue). It should be noted that in the paper you refer to figure 2 when describing the study selection process when it is figure 1.

Response: The re-ordering of the text has been undertaken in the revision.

2. Overview of selected papers- The authors indicate that the main findings of the studies are reported in Tables 1 and 2- this is incorrect. Its tables 3 and 4. Please check the entire paper to make sure there is consistency between the tables/figures listed in the paper and the actual tables and figures provided.

Response: The Tables are now correctly numbered and reflect the text.

3. Results and Discussion- PA recommendations or guidelines. In this paragraph, the authors described grouping the studies into whether they adopted higher or lower levels of PA based on stated weekly PA frequency requirements. It is not clear why this was done or what it adds to the review. It is not clear how the authors made their decision regarding high or low activity based on the guidelines either. The distinctions seem arbitrary and many of the guidelines overlap (e.g., the PAGA guidelines recommend at least 150 minutes of moderate intensity PA or 75 minutes of vigorous PA and so does the CDC-ACSM as defined in your paper). I am also not sure what the Y or N means- does this mean that the studies used the guidelines or met the guidelines?

Response: The guidelines were grouped into higher or lower level if they stated weekly PA frequency requirements. The frequency requirement was withdrawn from guidelines because scientists found no different effect to health whether PA comprised 30 min each time or 5 times a week compared to 50 min each time or 3 times a week. This change was most obvious difference across the guidelines.

The PAGA guideline and CDC-ACSM recommendations overlap, but are not equivalent. The CDC-ACSM recommendation was based on 30 min every day and at least 5 days in a week. It required daily PA amount and weekly PA frequency. But PAGA only has the weekly total PA amount requirement.

Explanations regarding Y and N have been added after Table 2.

4) Self-reported PA- Again, I am not following what the authors are trying to say with the higher versus lower levels of recommendations. This paragraph needs to be revisited. In the last sentence “using the lower criteria, sufficient PA in 9 other studies increased from...” it is not clear what 9 other studies the authors are referring to- they indicated 24 used the lower criteria. Is there a sentence missing. I can see where the authors might be heading- perhaps they are trying to say which guidelines were used as the criteria for meeting the recommendations influences the % of people classified as meeting the criteria. However, this is not clear as written.

Response: Apologies; thank you for identifying this error. The error in the text has been amended - it should be 24 other studies.

5) In the paragraph, residential differences in PA- did the two studies described by the authors measure the same constructs of physical activity? In other words did they both include all PA or just LTPA? Could this be the reason for the discrepant findings?

Response: Both studies used the same instrument, and compared the same type PA (all
domains of PA) so that the discrepant findings appear to mainly come from the residential difference.

6) In the PA prevalence across age groups, what were the cutpoints for older versus younger old? This would help with interpretation of findings. The first sentence also needs to be reworded - it is a bit of a run-on sentence. You also refer to Figure 1 in the last paragraph of this sentence and it should be figure 2.
Response: We did not divide the older people into younger old and older old as the studies adopted different sample categories. The conclusion was based on those studies which divided their samples into several age groups, and reported that the younger age group was physically more active than the older age group.

7) In the paragraph, PA prevalence trends over time, did the authors verify that the same PA module was used across the BRFSS studies?
Response: Yes the same PA module was consistently used by BRFSS since 2001.

8) In the discussion section, who is the reference group identified in the first paragraph? Citations need to be added in several places. Did only one study find males to be more active? Did only 2 studies find men to be more active?
Response: The text has been revised to clarify meaning. The discussion highlights variations in measurement and the need to quantify household activities accurately to enable comparisons across genders.

In general, for the whole discussion section, what are the implications of your findings? What should be done to resolve discrepancies? What do the findings imply for the field of physical activity measurement? What improvements or changes need to be made? What are the next steps?
The authors rehash many of the findings but don't necessarily provide the public health implications of their findings or how to advance the field. This needs to be addressed.
Response: The discussion section has been strengthened regarding the implications for public health and the need for well designed studies.

Minor essential revisions:
1) Overview of selected papers- The authors indicate that the main findings of the studies are reported in Tables 1 and 2- this is incorrect. Its tables 3 and 4. In the following paragraph, the sentence Forty nine papers.... is not clear. Specifically after the four reported longitudinal studies there is a statement in parenthesis, each had 6, 5, 3 and 2 cohorts that needs to be reworded. I think that you are trying to say that the cohort size ranged from 2-6 cohorts. Finally, in this same paragraph, you said that the number of studies conducted each year was relatively constant. This is not consistent with the data you reported- e.g., 33 studies conducted between 2000 and 2004 y and only 7 from 1995-97.
Response: The manuscript has been revised to reflect the above.

2) Overview of selected papers- paragraph 3, last sentence- are the authors trying to say that physical activity had to occur in bouts of at least 10 minutes for to be included in some studies while other studies did not utilize this criterion?
Response: The manuscript has been revised to clarify this point. Yes; there was a lack of consistency across studies.
3) An overview of selected papers - paragraph 4- in the sentence about PA volume, when the authors discuss time spent in moderate to vigorous activity from accelerometers is this based on count data? Were the cut points consistent across studies? This should be described too. 
Response: The data were based on count data. The cut point was not consistent which we have highlighted the discussion section.

4) General PA prevalence in older adults- the authors indicate that 20 studies excluded household PA while 14 included household work in their assessment of LTPA. Did this make a difference in whether people met the recommendations? Related in the studies that reported all domains of PA, what was the range of people meeting the PA recommendations? 
Response: The inclusion of household work in LTPA made a difference in whether people met the recommendation. But we cannot say that the difference between different studies came from this because across the studies differences were also related to the difference of measurements, guidelines, algorithms, samples, etc. A comment regarding the PA prevalence has been added to this paragraph.

5) The last sentence of the 1st paragraph of the section titled objectively measured PA needs to be re-written. It is not grammatically correct. 
Response: This has been revised.

Related, the first sentence of the next paragraph needs to be reworded. In this sentence the authors are trying to say they identified 2 studies that directly compared the results of objectively and subjectively measured physical activity but it does not read this way. 
Response: This has been re-written.

6) Figure 2 has no labels on it. The figure needs to have a title and the graph axes need to be labeled. 
Response: Labels have been provided.

7) I would suggest reading the paper in its entirety for grammatical concerns. There are numerous places where there are grammatical issues. I have already identified several but would kindly suggest examining it again.
Response: The entire manuscript has been carefully proof-read.

Editorial:

MS: 2038968182703585

Physical activity in older people: a systematic review

Your manuscript has now been peer reviewed and the comments are accessible in PDF format from the link below. Do let us know if you have any problems opening the file.

We also need you to make the following Editorial changes:
1. Please could you structure your abstract according to the guidelines provided at this page: http://www.biomedcentral.com/info/ifora/abstracts.

Response: This has been done.

2. For reporting systematic reviews, please adhere to RATS guidelines.

RATS ? Qualitative Studies http://www.biomedcentral.com/info/ifora/rats

Response: The RATS guidelines are not appropriate because all the included studies had quantitative designs. We think this editorial request must be an error.

We would be grateful if you could address the comments in a revised manuscript and provide a cover letter giving a point-by-point response to the concerns.

Response: A detailed response to reviewer feedback and editorial requests is provided.

We hope our paper now meets the standard required for publication.

Yours faithfully

Alison While, Fei Sun and Ian Norman