Dears Editors,

Thank you very much for giving us opportunities to revise this manuscript. We have studied reviewers’ comments carefully and have made some revision for our work. We would like to re-submit it for your consideration. The amendments are highlighted in revised mode in the revised manuscript. In addition, we have further checked and made some refinements of expressions this time. Point by point responses to the reviewers’ comments are listed below.

We would like to express our great appreciation to you and reviewers for the constructive and positive comments for our paper.

Replies to Dawid Pieper, MPH:

Please refer to the protocol in your manuscript by mentioning that it is in appendix 4. I was wondering how your "Anticipated or actual start date" could be 2017/03/01 as stated in the protocol? To what does this date refer? I don’t believe this was the final date of the protocol as
then if would have made more sense to include the years 2015 and 2016 instead of 2014 and 2015. Maybe I am missing something here.

Furthermore, please include a short statement whether there were any changes in the review compared with the protocol.

Reply-

1）Thanks for your constructive advice. We referred the protocol in our manuscript:

Prior to beginning the review, we wrote a protocol outlining our search strategy, inclusion criteria, and outcomes of interest, the protocol and changes in the review compared with the protocol can be found in appendix 1.

2) Sorry to confuse you about the “anticipated or actual date”. Indeed it is the date we began this study. When one of the author Dr. Ji Wang （my fellow apprentice）did his Masters Dissertation entitled “Efficacy and Safety for Procedures and Prostheses in Total Hip or Knee Arthroplasty: an Overview of Systematic Reviews”, he collected all the systematic reviews in TKA and THA from 2014 to 2015. We used the same SRs he found to do the quality assessment.

3) The original manuscript completely followed the protocol. But after three turns of revisions based on the comments from the peer reviewers, there were changes in some details of the review. We do not know where we can state the changes as the protocol is not eligible for registration in PROPERO. Now we provided a statement of changes in the review compared with the protocol in the end of our Appendix 1.

1. We have modified the term mAMSTAR to mod-AMSTAR

2. Study selection and data extraction: one of the characteristics changed the name from “total number of participants in SRs” to “total number of authors in SRs”; in consideration of statistical independence, we minimized the characteristics from 15 to 10.
3. Statistical analysis: we add more details in this part, meanwhile we did not conduct the test between characteristics that not statistical independent with mod-AMSTAR items and total mod-AMSTAR score.

Thanks for making clear that you did not apply a strict definition of a systematic review or meta-analysis. However, relying on the statements of authors of the included studies might lead to mistakes (i.e. either you might miss relevant SRs that are not termed in that way, or you will include SRs that are in fact no SRs. This is a major Limitation and this needs to be very clearly discussed. I understand that this is a practical approach but your finding might be extensively biased. Consider including a statement that future studies should be conducted based on a clear SR definition.

Reply-Thanks for your advice, we have discussed it in the revised manuscript:

Our practical inclusion criteria for SRs might miss relevant SRs that were not clearly stated or included SRs that were in fact not real SRs. Future studies should be conducted based on a clear SR definition.

I think the language of your paper still needs to be improved a lot before getting published. This refers to grammatical errors, while there are also some other mistakes such as ASTAR instead of AMSTAR, for example.

Reply-thanks for your careful checking with our work, we have asked someone who is good at English to modify some grammar and spelling mistakes, we hope you are satisfied with our work this time.

Replies to Al Mayhew:

1. Remove AMSTAR from title. We have established that you are using a modified AMSTAR, and I would call it mod-AMSTAR. mAMSTAR has been used in another paper and the version of AMSTAR you are using is different. When you describe mod-AMSTAR, mention that it is based on AMSTAR in the abstract as well as in the text.

Reply-thanks for your advice, we have modified the term mAMSTAR to mod-AMSTAR in our revised manuscript. We used mod-AMSTAR instead of AMSTAR in the title, and we have described that our mod-AMSTAR was based on AMSTAR in abstract and text:
Abstract: Quality of systematic reviews was assessed using modified 25-items “Assessment of Multiple Systematic Reviews” (mod-AMSTAR) tool, which was based on AMSTAR scale.

Text: Methodological quality was assessed using modified AMSTAR (mod-AMSTAR), which was based on AMSTAR scale.

2. I am not sure of the use of abbreviations in the abstract. I will leave this decision to the editorial team.

Reply—we would try to minimize the use of abbreviations in the abstract.

3. Last sentence in background: I would change to: "Therefore, the purpose of this study was to assess the methodological quality of systematic reviews in THA or TKA and to examine the relationship of bibliographical characteristics with the methodological quality of reviews."

Reply—thanks for your advice, we have revised.

4. First sentence of methods: Change to "Prior to beginning the review, we wrote a protocol outlining our search strategy, inclusion criteria, and outcomes of interest."

Protocol should be Appendix 1. Add date written to the protocol.

Reply—thanks for your advice, we have modified the appendix order of protocol and cited it in our revised manuscript:

Prior to beginning the review, we wrote a protocol outlining our search strategy, inclusion criteria, and outcomes of interest, this protocol and changes in the review compared with the protocol can be found in appendix 1.
5. Search Strategy: Do you need to list the terms if you have the full strategy as an appendix?

Reply: Thanks for your advice. Indeed, all the search terms have been in the full strategy. We removed the lists for search terms.

6. Quality Assessment section: The sentence following is not clear to me: "Our study did not change the total score by equally divided the score of each item to all its sub-items."

Reply: The total score of original AMSTAR is 11 with 1 point for 1 item. We equally divided the score of each item to all its sub-items, for example, the item 5 was refined into 2 sub-items with each sub-item 0.5 point, so the total score of the mod-AMSTAR score was still 11 points.

7. Quality Assessment: Move the references that also use a modified AMSTAR to the end of the paragraph. I think you are saying that the modifications you are making to AMSTAR are not the same as other authors. So write this out.

Reply: we have made the corresponding modification in our manuscript.

8. Quality Assessment: Please clarify that you had 2 reviewers perform AMSTAR assessments as well. (I believe you did but I could not find it documented.) I am not a strong believer in using Kappa scores when you have a consensus process to deal with disagreements. If space was an issue, I would support removing the paragraph about the Kappa process and the Kappa results. But I am happy to leave this decision to the editorial team.

Reply: we have applied this point to our revised manuscript:

The quality assessment was also conducted by two of our reviewers (XW, HS). The Cohen kappa (κ) statistic was….
9. Search Results: You must cite the reference for the PRISMA figure, here in the text and within the figure.

Reply- we have cited the reference in the revised manuscript

10. Methodological Quality.

a. You need to rewrite the second paragraph. Here is a suggestion:

    Included studies were more likely to have searched two or more databases (Item 3), etc……... Included studies were less likely to have provided an a priori design or a published protocol,…etc….

Reply-thanks for your advice, we have revised our manuscript as your suggestion:

    Included studies were more likely to have searched two or more databases (Item 3), to provide a list of included primary studies (Item 5.1), to provide characteristics of participants and interventions (Item 6.1 and Item 6.2), to assess and document scientific quality of included studies (Item 7) and to provide appropriate methods to combine the findings (Item 9). Included studies were less likely to have provided an a priori design or a published protocol (Item 1), to limit the publication type (Item 4.1), to provide excluded primary studies list (Item 5.2) and to report support for the included primary studies (Item 11.2) (Table 1).

b. I do not know what you mean by coincidence rate. I think you mean adherence to an item. If you are going to report this number, you need to explain in the methods earlier in the paper that you will report it and how you calculated the value.

Reply- we have deleted the coincidence rate.

c. I think you should put this second paragraph before the paragraph that talks about number of high, moderate and low quality reviews according to mod-AMSTAR.

Reply-thanks for your advice, we have exchanged the order of those two paragraphs.
11. Bibliographic characteristics and methodological quality:

a. The number of reviews for TKA (37, 58.7%) was more than that of THA (25, 39.7%). This only adds up to 62 and you included 63. Was there one study that looked at both TKA and THA?

Reply - yes, there was one study looked at both TKA and THA, we have described it in table 3 and appendix.

b. Factors associated with quality.

i. The impact factor finding is very interesting. But the regression coefficient is small. Did you calculate an r2?

Reply - the r2 between two variables was 0.326 (still small), the correlation was significant at the 0.01 level (2-tailed).

ii. Item 4.2 in your mod-AMSTAR is language restriction. And language restriction is also one of the factors you are using to see if it is related to the quality score. I think that means that the variables are not statistically independent. I would want a statistician to ensure this comparison is appropriate. (Apologies that I did not find this or the next point in my earlier review.)

Reply - we greatly appreciate for your careful checking of our results. After consulting a statistician, we removed factors not statistically independent and also removed following factors from the analysis: Number of SRs that searched specific databases; Search terms reported for one or more electronic databases; eligibility of study design; language of restriction; conflicts of interest.

We have modified the corresponding part in our article.

iii. The same issue is present for declaration of conflict of interest. I think it is inappropriate to assess an item as an independent variable which is also contributing to the dependent variable. Again, I think we need approval from a statistician before this result is published. This one is less clear because funding and conflict of interest could be different.

Reply - See the reply of 11 please
12. Discussion

a. Overall methodological quality assessment: I would not compare the quality of TKA and THA reviews to other fields, mainly because you are using a modified AMSTAR. It is not really a fair comparison. If you still decide to include this comparison, I would emphasize that the mod-AMSTAR may have contributed to the differences.

Reply—we further explained this possibility in our limitation part as:

The mod-AMSTAR score will usually exceed the AMSTAR score; some items will get a partial score with mod-AMSTAR (e.g. 0.25, 0.67) but would have received a score of 0 on AMSTAR as they did not meet all the criteria to get a point. This could lead to substantial differences between AMSTAR and mod-AMSTAR scores, with more reviews judged as having higher quality using mod-AMSTAR compared with AMSTAR scoring system, this can prone to bias when we compare our results with other studies.

b. Some authors will register in Prospero but not include their methods. There are journals which consider and accept protocols for publication.

Reply—thanks for your advice, we have added this point to our manuscript:

Non-Cochrane reviews should have their priori design registered in a formal registry platform such as PROSPERO (international prospective register of systematic reviews)[35] as PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) required, or publish their protocol on appropriate journals.

c. Re including multiple study types: Yes, information may be lost but it can be much more difficult to carry out reviews with multiple designs. Often, more than one risk of bias tool is required and authors find a lot more studies. Study design is an additional component of heterogeneity and the synthesis is much more difficult. Furthermore, restriction of study type is not a criterion in the original AMSTAR; the criterion is about grey literature. You changed it in your mod-AMSTAR to discuss study type and language. I think you should be more cautious in your recommendation here. The mod-AMSTAR does not address grey literature, but I think that is acceptable because you have been clear about what you are evaluating.

Reply—The study type in our sub-item 4.1 “Was there any restriction for publication type?” in mod-AMSTAR represent grey literature or conference abstract, essay or abstract published in journal, we did not mean to restrict the study design to RCT or other study designs. We have modified study type to publication type to avoid confusion.
13. Quality assessment scale of primary study: I would add something about ROBINS-I being very new and we are still learning about it.

Reply-the studies we include did not use the ROBINS-I because this tool introduced to public in 2016, but we only include studies published from 2014 to 2015. It was not possible for authors in our included studies to use this tool, we just want to introduce this scale to readers, it is not necessary to elaborate too much about it.

14. Association between publication characteristics and methodological quality:

a. I don't think this is a surprising finding. Can you explain what 0.38 means? Maybe look at the range of impact factor scores and the mod-AMSTAR?

Reply-this coefficient was from the linear regression equation (y=0.3835x+5.6986), but rounded with two digits after the decimal point. It means when the Journal impact factor increased 1 the mod-AMSTAR score increased 0.38, which can reflect the slope of the linear regression. The range of impact factor and the total mod-AMSTAR score in corresponding part of our manuscript can be found in table 3 and the methodological quality part.

b. See item 11(b)

Reply-we have revised in the manuscript.

15. Strengths and limitations:

a. I would be more conservative. Unless you followed AMSTAR 2 exactly, I would not say that AMSTAR 2 supports your decision to change AMSTAR to mod-AMSTAR. The changes you made may not be the same changes as the authors of AMSTAR 2 made.

Reply-we read the interpretation of the AMSTAR 2 carefully, the original expression about the two refined items was “Two domains were given more detailed coverage in AMSTAR 2 than in the original instrument: duplicate study selection and data extraction now have their own items (they were combined in the original tool). The possible influence of funding sources is now considered separately for individual studies included in the review and for the review itself.
Previously they were combined in one item.” We think designers of this scale also considered those two items contain several aspects; they made the same modification as we did.

16. Other: The English grammar and writing still needs a lot of work. There are many times when the wrong verb tense is used or the sentence structure is poor. English writing can be very difficult. I would suggest that you ask someone who has strong English writing skills who has not read the paper before and can provide a new look at the paper and offer suggestions to improve the writing. There are grammatical errors in the appendices as well.

Reply-thanks for your careful checking with our work, we have asked someone who is good at English to modify some grammar and spelling mistakes, we hope you are satisfied with our work this time.

We hope that the revised version of the manuscript is now acceptable for publication in your journal.

I am looking forward to hearing from you soon.

With best wishes,

Yours sincerely,

Xinyu Wu

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