
Responds to reviewer's comments:

Reviewer 1

Comment 1: *We thank the authors for their innovative approach to a public health issue and their interesting genetic investigation. The Mendelian randomization is a modern way to explore the genotype correlation in several conditions, i.e. metabolic and cardiovascular disorders. However, the manuscript is based only on European genetic databases/data encompassing different vitamins and their possible association with the risk of PCOS. The extracted data is not stratified according to the PCOS phenotype (major limit that the authors should report).*

Reply : Thanks for your affirmation and constructive suggestions. We have revised the paper according to your suggestions. Actually, as you said, the manuscript is based only on European genetic databases and the extracted data is not stratified according to the PCOS phenotype (major limit that the authors should report). We have added these limitations in the manuscript: We restricted our analysis to participants of European ancestry to minimize bias due to population stratification, the findings of this study may not be generalizable other non-European populations(Lines 300-302). As for the data is not stratified according to the PCOS phenotype, we have also discussed it in the limitation: the data stratified according to the PCOS phenotype can not be obtained, and further studies should be performed to explore the effect of vitamin supplements on different PCOS phenotype(Lines 305-307).

Comment 2: *The findings are very inspiring (possible role of lipophilic vitamins and vitamins B) but still hypothetic and need deeper and broader analysis. Further real life and population-based studies are needed to confirm these results.*

Reply : Thanks, we have added this content: More prospective population-based studies and functional in vivo and in vitro trials are required to clarify the function of vitamin supplements in the onset of PCOS and its main pathways(Lines 312-316).

Comment 3: *English should be revised and more recent references are required; systematic reviews and meta-analyses are also lacking : only 03 in the bibliography.*

Reply : Thanks. The articles have been polished by the native English speaker and company for any grammatical, stylistic and typographical errors. Please see the Certificate of Language Polishing. And we have already cited more references and systematic reviews. Please see the updated manuscript.

Editor's comments

Comment: *I have reviewed the Peer-Review Report, the full text of the manuscript, and the relevant ethics documents, all of which have met the basic publishing requirements of the World Journal of Clinical Cases, and the manuscript is conditionally accepted. I have sent the manuscript to the author(s) for its revision according to the Peer-Review Report, Editorial Office's comments and the Criteria for Manuscript Revision by Authors. Before final acceptance, uniform presentation should be used for figures showing the same or similar contents; for example, "Figure 1 Pathological changes of atrophic gastritis after treatment. A: ...; B: ...; C: ...; D: ...; E: ...; F: ...; G: ...". Please provide the original figure documents. Please prepare and arrange the figures using PowerPoint to ensure that all graphs or arrows or text portions can be reprocessed by the editor. In order to respect and protect the author's intellectual property rights and prevent others from misappropriating figures without the author's authorization or abusing figures without indicating the source, we will indicate the author's copyright for figures originally generated by the author, and if the author has used a figure published elsewhere or that is copyrighted, the author needs to be authorized by the previous publisher or the copyright holder and/or indicate the reference source and copyrights. Please check and confirm whether the figures are original (i.e. generated de novo by the author(s) for this paper). If the picture is 'original', the author needs to add the following copyright information to the bottom right-hand side of the picture in PowerPoint (PPT): Copyright ©The Author(s) 2023. Authors are required to provide standard three-line tables, that is, only the top line, bottom line, and column line are displayed, while other table lines are hidden. The contents of each cell in the table should conform to the editing specifications, and the lines of each row or column of the table should be aligned. Do not use carriage returns or spaces to replace lines or vertical lines and do not segment cell content. Please upload the approved grant application form(s) or funding agency copy of any approval document(s). Before final acceptance, when revising the manuscript, the author must supplement and improve the highlights of the latest cutting-edge research results, thereby further improving the content of the manuscript. To this end, authors are advised to apply a new tool, the RCA. RCA is an artificial intelligence technology-based open multidisciplinary citation analysis database. In it, upon obtaining search results from the keywords entered by the author, "Impact Index Per Article" under "Ranked by" should be selected to find the latest highlight articles, which can then be used to further improve an article under preparation/peer-review/revision. Please visit our RCA database for more information at: <https://www.referencecitationanalysis.com/>*

Reply :Thanks for your comments. We have revised the manuscript as you requested. Please see the attached files.