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LETTER

Comments on "Temporal Relationship Between Visceral Fat and Inflammation, and Their Joint Effect on Cardiometabolic Diseases: Evidence from the China Health and Retirement Longitudinal Study (CHARLS)" [Letter]

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Dear editor

I have thoroughly reviewed the manuscript entitled "Temporal Relationship Between Visceral Fat and Inflammation, and Their Joint Effect on Cardiometabolic Diseases: Evidence from the China Health and Retirement Longitudinal Study (CHARLS)" by Lin et al, which explores the associations between visceral fat, inflammation, and cardiometabolic diseases (CMD).[1] The study provides valuable insights into the joint effects of these two factors, contributing significantly to our understanding of CMD risk prediction and prevention. However, several aspects of the study and its analysis warrant further discussion and could be improved for more robust findings.

Firstly, although the study used a cross lagged panel model to explore the temporal relationship between CVAI and hs CRP, the unidirectional relationship observed by the authors (visceral fat → inflammation) did not fully consider the possible reverse causal relationship. Can inflammation also affect the accumulation of visceral fat in reverse? In the future, more complex modeling methods such as structural equation modeling can be used to further verify this causal relationship. In addition, the low hs CRP threshold (1 mg/L) chosen by the author may underestimate the impact of inflammation on cardiac metabolic diseases. Suggest the author to use different hs CRP thresholds for sensitivity analysis to verify the stability of the results.

Secondly, as for the interaction between visceral fat and inflammation, although the results show that they have significant additive interaction in hypertension and diabetes, no significant difference has been found in the multiplication interaction, which suggests that the combined effect of the two may not be completely synergistic. The author should further explore the nonlinear patterns of interaction or adopt more complex statistical methods.

Thirdly, although the research sample comes from a representative CHARLS cohort, it is still uncertain whether it can be extended to other regions or populations (such as young people or other ethnic groups). The study should further consider the impact of lifestyle and regional differences on the results. In addition, the author did not provide detailed exclusion criteria (such as those who have already suffered from cardiovascular diseases), which may affect the generalizability of the results.

Finally, although this study showed that visceral fat and inflammation are both associated with the risk of cardiovascular diseases, and their combined use can improve risk assessment, given that the roles of inflammation and fat may vary in different diseases, future research can further validate the incremental value of CVAI and hs CRP in predicting cardiovascular diseases.

Overall, this study makes a valuable contribution to understanding the role of visceral fat and inflammation in the development of cardiometabolic diseases. However, there are several limitations in terms of statistical modeling, the definition of variables, and the generalizability of the results. Addressing these points in future research would help to refine the current findings and enhance the applicability of the study to broader populations.

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Data Sharing Statement

No new data has been generated for this communication.

Author Contributions

Zhongsong Zhang contributed to formal analysis, writing – original draft and writing – review and editing; gave final approval of the version to be published; have agreed on the journal to which the communication has been submitted; and agree to be accountable for all aspects of the work.

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The author declare that there are no competing interests associated with the communication.

Reference

1. Lin M, Zhou Y, Wu R, et al. Temporal relationship between visceral fat and inflammation, and their joint effect on cardiometabolic diseases: evidence from the China Health and Retirement Longitudinal Study (CHARLS). *J Inflamm Res*. 2025;18:14913–14926. doi:10.2147/JIR.S539644

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