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LETTER

Letter to the Editor Regarding: "Association between Metabolic Score for Insulin Resistance (METS-IR) and Risk of Obstructive Sleep Apnea: Analysis of NHANES Database and a Chinese Cohort" [Letter]

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Dear editor

We read with great interest the article by Zhou et al[1] demonstrating a significant association between the Metabolic Score for Insulin Resistance (METS-IR) and obstructive sleep apnea (OSA) risk. While this study provides valuable insights into METS-IR as a potential screening tool for OSA, particularly in metabolically abnormal individuals without elevated BMI, we wish to highlight several methodological considerations that could enhance future research.

First, regarding sample selection, the OSA risk assessment in the NHANES cohort relied on questionnaire-based definitions, yielding a prevalence of 49.8%. This contrasts with polysomnography (PSG)-confirmed prevalence rates of 10–17% among adults aged 30–70 years, with significant gender disparities (24% in males vs 9% in females).[2] We recommend incorporating home sleep apnea testing (HSAT) or validated portable monitoring devices to improve diagnostic accuracy.[3]

Second, concerning covariate control, two key limitations merit attention: Unadjusted sleep parameters: Sleep duration and fragmentation may independently influence the METS-IR-OSA relationship. Reference to standardized sleep variable adjustments, as implemented in the CARDIA study,[4] would strengthen the analysis. Medication effects: The impact of glucocorticoids and β-blockers on insulin sensitivity[5] warrants consideration in future studies. Recent findings suggest that while certain OSA severity markers correlate with HbA1c, neither OSA severity nor sleep duration is associated with insulin sensitivity or β-cell function indices.[6]

Third, the cross-sectional design precludes causal inference. The bidirectional relationship between OSA and METS-IR—whereby intermittent hypoxia may exacerbate insulin resistance—necessitates intervention studies examining continuous positive airway pressure (CPAP) effects on metabolic parameters.[7]

Finally, the observed gender differences in subgroup analyses may reflect sex-specific fat distribution patterns, with reduced visceral adiposity in women potentially attenuating METS-IR's predictive power.[8] Future studies should explore these physiological distinctions.

In conclusion, while Zhou et al present compelling evidence for METS-IR as an OSA risk marker, addressing these methodological considerations would enhance the validity and clinical applicability of findings. We commend the authors for their valuable contribution to this emerging field.

Data Sharing Statement

Data sharing is not applicable to this article as no data were created or analysed in this study.

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Author Contributions

Qing-qing Shan: Conceptualization, Writing - original draft. Yangke Li: Conceptualization, Writing - original draft. All authors have agreed on the journal to which the article will be submitted. Reviewed and agreed on all versions of the article before submission, during revision, the final version accepted for publication, and any significant changes introduced at the proofing stage, and agree to take responsibility and be accountable for the contents of the article.

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