Unveiling Liver Disease Risk–The Public Health Implications of Visceral Adiposity Assessment with the Chinese Visceral Adiposity Index: A Letter to the Editor

Dear Editor

The article published by Liu and colleagues, "Associations between Chinese Visceral Adiposity Index and the Risk of Metabolic Dysfunction-associated Steatotic Liver Disease and Liver Fibrosis: A Large Cross-sectional Study," represented a significant contribution to public health.[1] The study investigated the utility of the Chinese visceral adiposity index (CVAI) in predicting the risk of metabolic dysfunction-associated steatotic liver disease (MASLD) and liver fibrosis in a large and diverse American population. As a specialist in public health, I commend the authors for addressing a critical need: the development of accessible, non-invasive tools for assessing these increasingly prevalent liver conditions. The study's rigorous methodology and impactful findings could substantial implications for both public health strategies and clinical practice.

A key strength of this study lies in its robust design, which utilized a large and diverse sample from the National Health and Nutrition Examination Survey (NHANES). This approach enhanced the generalizability of the findings and underscored their relevance for implementing population-level screening strategies across the USA. The study's central finding–a positive association between CVAI and the risk of both MASLD and liver fibrosis–carries significant public health implications. It suggests that CVAI can serve as a valuable tool for identifying individuals at elevated risk of developing these liver conditions, which are associated with considerable morbidity and mortality.

Moreover, the study demonstrated a clear dose-response relationship between increasing CVAI and the risk of both MASLD and liver fibrosis, with individuals in the highest quartile of CVAI exhibiting the most pronounced risk. This robust relationship underscored the critical role of visceral adiposity in the pathogenesis of these liver diseases. Such finding carries significant implications for prevention, as visceral adiposity can be effectively modified through lifestyle interventions, such as dietary changes and increased physical activity.[2] The study further highlighted the potential of CVAI as a valuable screening tool, demonstrating an area under the receiver operating characteristic (AUROC) curve of 0.759 for diagnosing MASLD and 0.771 for fibrosis.[1]

From a public health perspective, this study had several important implications. First, it reinforced the urgent need for increased awareness and screening for MASLD and liver fibrosis, particularly among individuals with elevated CVAI. This information could guide the development of targeted screening programs to identify high-risk individuals early, enabling timely interventions and potentially mitigating the progression of these liver diseases.

Second, the study emphasized the critical need to address the root cause of these liver conditions: visceral adiposity. Public health interventions should focus on promoting healthy lifestyle behaviors, such as regular physical activity and the adoption of healthy dietary patterns, to reduce the prevalence of visceral adiposity within the population.

Third, this study demonstrated the value of CVAI as an accessible and cost-effective alternative to more expensive and invasive diagnostic procedures. The ease of assessing CVAI, which primarily involves measuring waist circumference, enhances its feasibility for implementation in resource-constrained settings, thereby expanding access to these crucial diagnostic assessments.

Besides, the findings of the study demonstrated the robustness and generalizability of CVAI as a predictor of MASLD and liver fibrosis across various subgroups. However, it is essential to validate

these findings in diverse populations to ensure the continued applicability of CVAI across different cultural and demographic contexts.

Future research should focus on several key areas. Longitudinal studies are crucial to establish the temporal relationship between CVAI, MASLD, and liver fibrosis, as well as to investigate the extent to which changes in CVAI over time correlate with changes in disease progression. Furthermore, research is required to elucidate the underlying biological mechanisms by which visceral adiposity contributes to the development of liver disease. Finally, intervention studies are essential to evaluate the effectiveness of public health initiatives to reduce visceral adiposity and, consequently, mitigate the incidence of MASLD and liver fibrosis.

The authors also several limitations to the study, including its cross-sectional design and the reliance on non-invasive imaging techniques, such as transient elastography (VCTE), rather than liver biopsies for diagnosis. Future studies should address these limitations to strengthen the robustness of the findings and draw more definitive conclusions.

In conclusion, the study by Liu and colleagues provided valuable insights into the role of CVAI as a significant biomarker for MASLD and liver fibrosis within the American population. These findings have profound implications for public health, underscoring the need for increased screening efforts, targeted interventions, and comprehensive approaches to improve health outcomes for individuals at risk for these liver conditions.

Conflict of Interest: None declared.

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