

Peer Review Report

Review Report on Association of the CUN-BAE body adiposity estimator with type 2 diabetes in middle-aged and older adults: a retrospective cohort study

Original Article, Int J Public Health

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EVALUATION

Q 1 Please summarize the main findings of the study.

In this study, the data were obtained from the annual health checkup database for residents of the Electronic Health Management Center in Xinzheng, Henan Province, China. A retrospective cohort study was launched to investigate the association of CUN-BAE with the risk of type 2 diabetes mellitus (T2DM) in the Chinese middle-aged and elderly population and to compare the strength of the association between CUN-BAE, body mass index (BMI), waist circumference (WC), waist-to-height ratio (WHtR) and T2DM. The results showed After 503,271 person-years of follow-up, T2DM occurred in 12,967 participants. The multivariable-adjusted HRs of T2DM were 1.374 (1.328–1.421) for CUN-BAE, 1.236 (1.215–1.256) for WC, 1.228 (1.208–1.248) for WHtR, and 1.175 (1.156– 27 1.195) for BMI. Compared to BMI, WC or WHtR, CUN-BAE may more adequately reflect the adverse effects of adiposity on the risk.

Q 2 Please highlight the limitations and strengths.

Research in this area is valuable and it may play a role in the reduction of type 2 diabetes in China. Moreover, the large sample size, the long follow-up period, and the use of an annual health examination dataset in this study provided convincing evidence to some extent. However, there are some limitations of this study that should be noted. For instance, this study focused on the middle-aged and elderly population, which limited the generalizability of this study. In addition, some specific suggestions are offered in the section of introduction, methodology and results that hope authors will take into account.

Q 3 Please provide your detailed review report to the authors. The editors prefer to receive your review structured in major and minor comments. Please consider in your review the methods (statistical methods valid and correctly applied (e.g. sample size, choice of test), is the study replicable based on the method description?), results, data interpretation and references. If there are any objective errors, or if the conclusions are not supported, you should detail your concerns.

1. Abstract

Point 1 **بال** It is recommended that subjects aged 45 years or older be modified to meet the inclusion criteria. (Line 23)

Point 2 **بال** The results of the study are unreasonable and suggest modification. (Line 25)

2. Introduction

Point 1: Lines 31–37: This paragraph mainly described the prevalence of diabetes. It would be desirable to add some description of the T2DM which is related to the research content of this article.

3. Methods

Point 1 **بال** Lines 56,75: It is recommended to delete “and” and “or”.

Point 2: Line 58: The final sample size is suggested to be described in the Results section.

Point 3: Line 66 **بال** Please check whether diabetes-related laboratory test indicators were examined in this study. If so, please add relevant content.

Point 4: Line 72 **بال** Please add the definition and calculation formula of BMI.

Point 5: Line 73 **بال** Related factors and diseases also need to be defined, such as smoking, drinking, hypertension, physical activity, etc.

Point 6: Line 77 **بال** Continuous variables should be expressed as mean±SD if the variables are normally distributed and analysis of variance was used to compare the difference between groups. Please check the distribution types of relevant variables and use appropriate methods for descriptive statistic and analysis.

Point 7: Line 78: Kruskal-Wallis test is applicable to non-normally distributed data. You are advised to modify the error.

4. Results

Point 1: Line 95: Whether the age specific refer to relevant standards needs to be supplemented in the Methods section.

Point 2: Line 101: The statistical symbols (P trend) in this section and Table 3 are not standard. You are advised to modify them.

Point 3: Line 308: The horizontal and vertical headings in Table 2 and Table 3 were not standard. It is suggested to modify them to make them clearer.

Point 4: Line 330: Because the descriptions in the Results section separate the general population from the age subgroups, it is recommended that the section for the middle-aged population in Table 2 be merged with Table 3.

5. Discussion

Point 1: The results of the Restricted cubic spline curves were shown the associations of CUN-BAE, WC, WHtR, and T2DM were nonlinear in all participants and in the young elderly group, but BMI and T2DM were approximately log-linear in all participants and age subgroups. Please explain possible reasons for this result in the Discussion section.

In summary , the structure of this paper is worthy to be affirmed. Furthermore , authors appropriately cite relevant literature in the Discussion section. However, there are some deficiencies in the design and symbol of statistical table.

PLEASE COMMENT

Q 4 → Is the title appropriate, concise, attractive?

Yes.

Q 5 → Are the keywords appropriate?

Yes.

Q 6 → Is the English language of sufficient quality?

Yes.

Q 7 → Is the quality of the figures and tables satisfactory?

Yes.

Q 8 Does the reference list cover the relevant literature adequately and in an unbiased manner?)

Yes

QUALITY ASSESSMENT

Q 9 Originality

Q 10 Rigor

Q 11 Significance to the field

Q 12 Interest to a general audience

Q 13 Quality of the writing

Q 14 Overall scientific quality of the study

REVISION LEVEL

Q 15 Please make a recommendation based on your comments:

Minor revisions.