

Peer Review Report

Review Report on Predicting the risk of T2DM in China: application of the NCDRS with a cohort study

Original Article, Int J Public Health

Reviewer: Reviewer 3

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EVALUATION

Q 1 Please summarize the main findings of the study.

The study applies the NCDRS, a risk score developed for identifying people at high risk of type 2 diabetes, to a cohort population to assess the predictive ability of the score. Previously, the risk score was only tested in cross-sectional samples, limiting the ability to assess its validity. The cohort consists of patients in a single hospital who did not have a previous diagnosis of diabetes and attended at least one follow-up session during the study period from 2009 to 2016.

The risk score is found to be predictive of incident type 2 diabetes including after controlling for a number of biomarkers and risk behaviors. The sensitivity and specificity in this population are acceptable for use as a non-invasive clinical tool, although the determination of the cutpoint for this population is substantially different from that found in other studies.

Q 2 Please highlight the limitations and strengths.

Strengths

This is a large cohort with a long follow up which helps validate the utility of the risk score as a predictive tool and not just using cross-sectional data. The study collected a large range of metabolic markers and risk factors that strengthen the validity of the tool by showing its predictive capacity even after controlling for these variables.

Limitations

A number of areas in the paper are unclear, in part because of language issues but also from a lack of description. It makes it hard to assess the quality.

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.

Thank you for the opportunity to review this interesting paper. The utility of risk scores in low-resource clinical settings and for large screening activities is indisputable and with growing numbers of T2DM in China, this is an area of high public health priority.

Major comments

The paper must be reviewed by a native English speaker to improve the language. There are areas where some clarity is lacking and it could benefit from the help of an experienced editor or colleague.

The introduction could be strengthened by a review of other risk scores, whether these have been tested in the population, and why the NCDRS was developed.

Methods

Some details are missing from the methods which need to be elaborated. What was the response rate of the study? How many refused to participate? How many dropped out before the end? How was the imputation for missingness done? Was there a systematic distribution in missing data? How was this dealt with? Line 97 and 98 should give a comprehensive list of variables selected and not just say "etc." This could be done in a table.

How were ethics and informed consent obtained? You mention some people needed help completing the survey, did they fully understand the informed consent? How did you ascertain that?

Organizing the participants into quartiles is a bit confusing considering a cut point has been established. Perhaps being consistent in presenting below and above the cut point would be better?

It is unclear why Model 1 does not control for age and sex. I see stratification was done, which makes sense, but these covariates should be included in every model.

I am very surprised to see that fatty liver disease is linked to a lower risk score value. I think this needs more investigating as it conflicts with the vast body of literature on this topic.

Please provide a more detailed section on strengths and limitations. You mention this population is not representative of the general population. What implications could this have for the findings and the proposed cut point?

Minor comments

I have a number of minor comments on the language of the paper but I think overall it would be better just to have it reviewed by a native English speaker.

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?

No.

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:

Major revisions.