

# Review of: "Implementing Machine Learning to predict the 10-year risk of Cardiovascular Disease"

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**Potential competing interests:** No potential competing interests to declare.

Dear Author,

I read your article and saw that a study aims to use machine learning (ML) to predict cardiovascular disease (CVD) risk over ten years.

I think, overall your article is well-written and clear. You clearly state your work's purpose, methods, results and implications. However, I have some suggestions to improve your article further. These are:

- In the abstract, the results of metrics used to evaluate the ML model's performance should also be given. This will help the reader better understand the results.
- How the use of ML techniques contributes to CVD risk estimation should be more clearly demonstrated in the related studies section.
- In the Results section, comparing the obtained results with the traditional models should be made in more detail and supported by references. This will increase the scope and reliability of the study.
- The Discussion section should specify more concretely how the results obtained can be transferred to clinical practice or benefited, such as identifying risk groups, promoting behaviour change or optimizing health resources. This will show the impact and value of the work.
- A paragraph should be added at the end of the introduction for the roadmap of the article's structure.
- You could use some transition words or phrases to connect your paragraphs and sentences, such as "however", "therefore", "in addition", "moreover", etc. This would make your conclusion more coherent and logical.
- Descriptions of the independent variables in the data set should be added below Figure 2.
- The resolution of the figures can be increased and the grammatical errors in English should be corrected.
- Also, in this study, it may be useful to include the Brier score. Because the Brier score offers a different perspective from other metrics (accuracy, specificity, sensitivity, or AUC) used to evaluate the performance of ML models in predicting CVD risk. The Brier score shows how well the predicted probabilities fit with real events. This helps to measure the calibration and reliability of ML models. In addition, the Brier score can be used to compare ML and

conventional models. Thus, it can be seen more clearly how much better ML models predict than traditional models.

Thank you