

PEER-REVIEW REPORT

Name of journal: *World Journal of Cardiology*

Manuscript NO: 78107

Title: Risk stratification of patients who present with chest pain and have normal troponins using a machine learning model

Provenance and peer review: Unsolicited manuscript; Externally peer reviewed

Peer-review model: Single blind

Reviewer's code: 05207387

Position: Editorial Board

Academic degree: DSc, PhD

Professional title: Professor

Reviewer's Country/Territory: South Korea

Author's Country/Territory: United States

Manuscript submission date: 2022-06-15

Reviewer chosen by: AI Technique

Reviewer accepted review: 2022-06-16 01:07

Reviewer performed review: 2022-06-18 00:29

Review time: 1 Day and 23 Hours

Scientific quality	<input type="checkbox"/> Grade A: Excellent <input checked="" type="checkbox"/> Grade B: Very good <input type="checkbox"/> Grade C: Good <input type="checkbox"/> Grade D: Fair <input type="checkbox"/> Grade E: Do not publish
Language quality	<input type="checkbox"/> Grade A: Priority publishing <input checked="" type="checkbox"/> Grade B: Minor language polishing <input type="checkbox"/> Grade C: A great deal of language polishing <input type="checkbox"/> Grade D: Rejection
Conclusion	<input type="checkbox"/> Accept (High priority) <input checked="" type="checkbox"/> Accept (General priority) <input type="checkbox"/> Minor revision <input type="checkbox"/> Major revision <input type="checkbox"/> Rejection
Re-review	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

Peer-reviewer statements	Peer-Review: [<input checked="" type="radio"/>] Anonymous [<input type="radio"/>] Onymous Conflicts-of-Interest: [<input type="radio"/>] Yes [<input checked="" type="radio"/>] No
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SPECIFIC COMMENTS TO AUTHORS

Thanks for recommending me as a reviewer. The study aimed to create a machine learning model (MLM) for risk stratification with better PPV while maintaining an NPV of 99%. Bivariate analysis was performed using a chi-square test or Fisher's exact test. Age was compared via t-test. Binomial regression (BR), random forest, and XGboost MLMs were used for prediction. Bootstrapping was used for the internal validation of prediction models. BR was also used for inference. Alpha criterion was set at 0.05 for all statistical tests. R software was used for statistical analysis. Overall, this study is well written. If authors complete minor revisions, the quality of the study will be further improved.

1. The introduction section is well written. If the authors describe the necessity of ML algorithms and research trends in more detail in the introduction section, it can help readers understand.

2. page 16: In my opinion, "Limitations" should be combined into the last paragraph of the discussion section rather than splitting the sections apart.

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Peer-review model: Single blind

Reviewer's code: 05759722

Position: Peer Reviewer

Academic degree: PhD

Professional title: Research Scientist, Teaching Assistant

Reviewer's Country/Territory: Malaysia

Author's Country/Territory: United States

Manuscript submission date: 2022-06-15

Reviewer chosen by: AI Technique

Reviewer accepted review: 2022-07-12 20:05

Reviewer performed review: 2022-07-17 07:31

Review time: 4 Days and 11 Hours

Scientific quality	<input type="checkbox"/> Grade A: Excellent <input type="checkbox"/> Grade B: Very good <input checked="" type="checkbox"/> Grade C: Good <input type="checkbox"/> Grade D: Fair <input type="checkbox"/> Grade E: Do not publish
Language quality	<input type="checkbox"/> Grade A: Priority publishing <input checked="" type="checkbox"/> Grade B: Minor language polishing <input type="checkbox"/> Grade C: A great deal of language polishing <input type="checkbox"/> Grade D: Rejection
Conclusion	<input type="checkbox"/> Accept (High priority) <input type="checkbox"/> Accept (General priority) <input type="checkbox"/> Minor revision <input checked="" type="checkbox"/> Major revision <input type="checkbox"/> Rejection
Re-review	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Peer-reviewer statements	Peer-Review: [<input checked="" type="checkbox"/> Y] Anonymous [<input type="checkbox"/>] Onymous Conflicts-of-Interest: [<input type="checkbox"/>] Yes [<input checked="" type="checkbox"/> Y] No
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SPECIFIC COMMENTS TO AUTHORS

The authors of this manuscript presented a machine learning model for risk stratification for patients with chest pain with aiming for better positive predictive value. The primary outcome was abnormal cardiac stress tests followed by cardiac catheterization and/or coronary artery bypass graft within 30 days. The study is well written and presented. However, there are some major concerns that must be addressed to further improve the manuscript: 1. The abstract is very lengthy and should be shortened. 2. The description of introduction part is not clear. Content related with generic background should be reduced. 3. The originality of the study should be emphasized. 4. The novelty/originality shall be further justified that the manuscript contains sufficient contributions to the new body of knowledge. The knowledge gap needs to be clearly addressed in the Introduction. 5. Literature survey is not sufficient to present the most updated for further justification of the originality of the manuscript. You should carry out a thorough literature survey of papers published in a range of top medical journals to fully appreciate the latest findings and key challenges relating to the topic addressed in your manuscript and to allow you to present your contribution more clearly to the pool of existing knowledge 6. A comparative analysis is missing from the manuscript. The authors should compare their proposed ML model performance with the related literature contributions. It is very hard to prove that the presented method has obtain an improvement with no comparison with existing's models in the literature. 7. Lastly, Binomial regression (BR), random forest, and XGboost have been widely used in X, Y and Z field. It is not clear in this case, why a new method is even needed for risk identification of patients with chest pain.

RE-REVIEW REPORT OF REVISED MANUSCRIPT

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Reviewer's code: 05759722

Position: Peer Reviewer

Academic degree: PhD

Professional title: Research Scientist, Teaching Assistant

Reviewer's Country/Territory: Malaysia

Author's Country/Territory: United States

Manuscript submission date: 2022-06-15

Reviewer chosen by: Jing-Jie Wang

Reviewer accepted review: 2022-09-19 11:42

Reviewer performed review: 2022-09-19 11:50

Review time: 1 Hour

Scientific quality	<input type="checkbox"/> Grade A: Excellent <input type="checkbox"/> Grade B: Very good <input checked="" type="checkbox"/> Grade C: Good <input type="checkbox"/> Grade D: Fair <input type="checkbox"/> Grade E: Do not publish
Language quality	<input type="checkbox"/> Grade A: Priority publishing <input checked="" type="checkbox"/> Grade B: Minor language polishing <input type="checkbox"/> Grade C: A great deal of language polishing <input type="checkbox"/> Grade D: Rejection
Conclusion	<input type="checkbox"/> Accept (High priority) <input checked="" type="checkbox"/> Accept (General priority) <input type="checkbox"/> Minor revision <input type="checkbox"/> Major revision <input type="checkbox"/> Rejection
Peer-reviewer	Peer-Review: <input checked="" type="checkbox"/> Anonymous <input type="checkbox"/> Onymous



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statements

Conflicts-of-Interest: [] Yes [Y] No

SPECIFIC COMMENTS TO AUTHORS

The authors have addressed all my concerns. This paper can be accepted it.