

Review Form 3

Journal Name:	Archives of Current Research International
Manuscript Number:	Ms_ACRI_129780
Title of the Manuscript:	Application of Artificial Neural Networks for Detecting Diabetes Mellitus Using Demographic, Clinical, Lifestyle, and Dietary Risk Factors: A Case Study from Kaura Namoda, Nigeria
Type of the Article	

General guidelines for the Peer Review process:

This journal's peer review policy states that **NO** manuscript should be rejected only on the basis of '**lack of Novelty**', provided the manuscript is scientifically robust and technically sound. To know the complete guidelines for the Peer Review process, reviewers are requested to visit this link:

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PART 1: Comments

	Reviewer's comment	Author's Feedback <i>(Please correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)</i>
Please write a few sentences regarding the importance of this manuscript for the scientific community. A minimum of 3-4 sentences may be required for this part.	<div>1. It addresses the critical need for early detection and effective management of Diabetes Mellitus (DM), by utilizing a comprehensive dataset from a diverse patient population in Nigeria.</div> <div>2. The use of the Multi-Layer Perceptron Neural Network (MLPNN) demonstrates impressive accuracy, with particularly promising results when dietary factors are incorporated.</div> <div>3. This research not only advances predictive healthcare modelling but also demonstrates the effectiveness of a holistic approach to risk factor identification, which can enhance early intervention strategies for diabetes prevention and management globally.</div>	
Is the title of the article suitable? (If not please suggest an alternative title)	The title of the article is generally suitable but could be made slightly more concise and clearer to enhance its impact and readability. (demographic, clinical, lifestyle, and dietary risk factors for early diabetes prediction by using Artificial Neural Networks)	

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Is the abstract of the article comprehensive? Do you suggest the addition (or deletion) of some points in this section? Please write your suggestions here.	<p>The abstract of the article is generally comprehensive and well-structured, clearly summarizing the purpose, methods, results, and conclusions of the study. However, there are a few suggestions for improvement that could enhance clarity, completeness, and conciseness.</p> <p><b>(Materials and method)</b>Mention feature selection explicitly: The abstract discusses the use of "significant risk factors" but doesn't mention the feature selection method used in more detail, which could be an important aspect of the methodology.</p> <p><b>(Conclusion)</b>Some suggestions can be given for future research directions in the Conclusion section</p>	All suggestions were considered
Is the manuscript scientifically, correct? Please write here.	<p>The manuscript is largely consistent with standard scientific principles, but a few aspects require clarification or verification to confirm its accuracy. Here's a detailed assessment:</p> <p><b>(Data Collection and Source )</b> The source of the patient data (General Hospital Kaura Namoda) and the duration (January 2019 to December 2023) are clearly specified. However, it's important to confirm:</p> <ul style="list-style-type: none"><li>- Whether ethical approval was obtained for the use of patient records.</li><li>- Whether the data was anonymized to protect patient privacy.</li><li>- The manuscript does not clarify how the records were split into the two data sets. Were they derived from the same patient pool? If so, there could be an overlap or bias.</li></ul> <p><b>(Methodology)</b></p> <ul style="list-style-type: none"><li>- The use of the MLPNN (Multi-Layer Perceptron Neural Network) algorithm and feature selection methods is appropriate.</li></ul> <p>However, details about:</p> <ul style="list-style-type: none"><li>- The specific feature selection method.</li><li>- Hyperparameter optimization for the MLPNN.</li><li>- Size of training, validation, and test sets within the 400 patients in each dataset.</li></ul> <p>These details are crucial for reproducibility.</p> <p><b>(Performance Metrics)</b></p> <ul style="list-style-type: none"><li>- The results (accuracy, sensitivity, specificity, AUROC) are impressive, particularly for the second dataset, which achieved 100% accuracy in the test sample. However:</li><li>- Achieving 100% accuracy, sensitivity, and specificity in the test set suggests possible overfitting. This should be discussed or additional cross-validation performed.</li></ul> <p><b>(Scientific Consistency)</b></p> <ul style="list-style-type: none"><li>- The manuscript uses appropriate metrics and methods for evaluating the MLPNN model. However, extremely high results (particularly for the second dataset) warrant a closer examination of the model training process to rule out overfitting or data leakage.</li></ul> <p><b>(Language and Presentation)</b></p> <ul style="list-style-type: none"><li>- The manuscript would benefit from minor language improvements for clarity and flow (e.g., "The Model detected 94.9% of patients as non-DM" could be rephrased for precision).</li></ul>	All suggestions were considered
Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form.	<p><b>Suggestions for Additional References</b></p> <p>To strengthen the manuscript, consider including:</p> <ul style="list-style-type: none"><li>- Replace outdated references with more recent studies where applicable.</li><li>- Include additional references on modern machine learning techniques and their application to medical diagnosis, particularly those focusing on real-world deployment and model evaluation.</li><li>- Ensure all references are accessible and verifiable, as some URLs appear incomplete or outdated.</li></ul> <p>-References can be accompanied by links or DOI identifiers to ensure easy access.</p>	All suggestions were considered
Is the language/English quality of the article suitable for scholarly communications?	suitable	
Optional/General comments	<p>The paper is well written and nice motivated.</p> <p>The examples chosen are suitable for better demonstration.</p> <p>The related work section is thorough.</p> <p>The experiment's data is convincing towards the acceptance of the paper.</p>	

PART 2:

	Reviewer's comment	Author's comment (if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)
Are there ethical issues in this manuscript?	(If yes, Kindly please write down the ethical issues here in details)	