

Peer Review

Review of: "The Influence of Glycemic Status and Sociodemographic Factors on Patients' Dental Caries Risk and Experience in Lagos, Nigeria"

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Manuscript Title:

The Influence of Glycemic Status and Sociodemographic Factors on Patients' Dental Caries Risk and Experience in Lagos, Nigeria

General Overview:

This is a well-conceived and carefully written study investigating the association between glycemic status, sociodemographic factors, and dental caries experience. It addresses a significant gap in the literature, particularly in low- and middle-income country contexts. The methodology is appropriate, the statistical analysis is generally solid, and the discussion is thoughtful and connected to existing research. Minor adjustments are recommended to improve clarity, acknowledge study limitations more robustly, and strengthen the interpretation of non-significant findings.

Detailed Comments:

Title:

Strength: The title accurately reflects the main objective and scope of the study.

Suggestion: No changes needed.

Abstract:

Strength: The abstract summarizes the background, methods, key results, and conclusion logically.

Suggestions:

Explicitly mention that the study is "cross-sectional" early in the abstract's methods section.

Clarify that while trends were observed, not all associations reached statistical significance.

Introduction:

Strength: Strong rationale and extensive background, covering both global and regional relevance.

Suggestions:

There is some minor redundancy in the early paragraph structure (e.g., explaining DM prevalence and its systemic effects multiple times).

Specific Examples of Redundant Phrasing:

In the second paragraph, the global prevalence of diabetes and the projected future burden (2030, 2045) could be merged to avoid repeating prevalence statistics.

The distinction between microvascular and macrovascular complications and their oral implications could be better integrated without reiterating similar ideas.

It would also be helpful to clearly state the specific hypothesis or research question at the end of the introduction.

Methods:

Strength: Comprehensive explanation of the study design, inclusion/exclusion criteria, and data collection process. Ethical standards were appropriately followed.

Suggestions:

The calibration of the examiner is mentioned but would benefit from **more details**, such as:

Was intra-examiner reliability assessed using a Kappa statistic or Intraclass Correlation Coefficient (ICC)?

What value was achieved (e.g., Kappa = 0.80)?

How many patients or teeth were re-examined for calibration?

Specify that HbA1c thresholds were used both to select participants and to confirm their diabetic/non-diabetic status.

Results:

Strength: The results are well-organized, and appropriate statistical methods were applied.

Suggestions:

The text should more explicitly state which associations did not reach statistical significance to prevent misinterpretation.

Specific Examples of Non-Significant Findings that Should be Clarified:

The adjusted odds ratio (aOR) between diabetes and high caries risk (aOR = 1.386, $p = 0.530$) — clarify that this was not statistically significant.

Gender differences in caries risk (aOR = 1.711, $p = 0.301$) — highlight that although a trend was observed, it was non-significant.

Ethnic group comparisons for caries risk (e.g., Yoruba vs Igbo) were also non-significant and should be explicitly labeled as such in the narrative, not just left in tables.

Standardize p-value reporting (e.g., always report to 3 decimal places or consistent use of " <0.001 ").

Discussion:

Strength: The discussion is thoughtful and connects findings well with the broader literature.

Suggestions:

Be more cautious in interpreting trends that did not reach statistical significance.

Expand the discussion to include **more on dietary habits and oral hygiene practices:**

Specific Information that Could be Added:

Discuss how the frequency of sugary beverage consumption, dietary counseling, and nutritional status could interact with caries risk in diabetic patients.

Mention that oral hygiene practices (tooth brushing frequency, use of fluoride toothpaste, dental check-up frequency) are critical mediators of caries risk, independent of systemic disease.

Highlight that socioeconomic status could indirectly influence both dietary patterns and oral hygiene behaviors, compounding the risk for caries.

Emphasize that diabetes alone may not fully account for increased caries risk if oral hygiene is adequate and dietary sugar intake is controlled.

Conclusion:

Strength: The conclusion is aligned with the findings and appropriately cautious.

Suggestions:

Restate that causality cannot be determined.

Recommend longitudinal studies and interventional studies to confirm causal pathways and test preventive strategies.

Strengths of the Study:

Addresses an important public health topic in an underrepresented population.

Large sample size and systematic data collection.

Multivariate analyses adjusted for relevant confounders.

Clear translational relevance to clinical and community health interventions.

Limitations:

Cross-sectional design limits the ability to infer causality.

Non-matching of comparison groups could introduce residual confounding.

Some trends did not achieve statistical significance.

Limited reporting on examiner calibration and patient oral hygiene/dietary behaviors.

Final Recommendations:

Minor revisions to improve clarity and acknowledge non-significant findings explicitly.

Expand methodological details about calibration.

Deepen the discussion of oral hygiene and dietary habits as mediators.

Overall, the manuscript is **acceptable after minor revisions**.

Final Recommendation: Minor Revision

Declarations

Potential competing interests: No potential competing interests to declare.