

Association of Khat chewing and shisha smoking with metabolic syndrome and diabetes factors among Yemeni women

The article went through 2 rounds of review and all 3 reviewers. In Round 1, the reviewers A and B agreed to publish their reviews anonymously, and the reviewer C agreed to publish their review while revealing their identity

In Round 2, the reviewer C agreed previously to publish his opinion anonymously and the reviewer A agreed to publish their reviews anonymously

The authors agreed to disclose the reviewers' reports and their responses to the reviewers' comments.

Disclaimer: The peer review report content is the entire copy of the reviewers' and authors' comments. Typing and punctuation errors are not edited.

ROUND 1

Reviewer A: Anonymous

Recommendation: Revisions Required

The submitted manuscript contains data that support the hypothesis presented. However, there is a need for revision/correction of very few points that were detailed in the file.

[Reviewer Files](#)

Reviewer B: Anonymous

Recommendation: Accept Submission

- The results and discussion section begins by repeating information contained in the methodology.
- Add the units of measurement for the parameters in Tables 1 and 2.
- The calculation of the ratio between triacylglycerols (triglycerides) and HDL cholesterol could be performed to indicate cardiovascular risk.

Reviewer C: Fabiana Andréa Moura

Recommendation: Resubmit for Review

General Comments

This is a current and scientifically relevant study. However, some points require revision by the authors:

"Impact" is not suitable for a cross-sectional study, as it implies causation.

Formatting adjustments are needed, including paragraph spacing and adding spaces before references.

Abstract

The authors imply causation by stating that higher TG levels and larger waist circumference (WC) in the Khat-chewing group "resulted in increased insulin resistance"—yet they do not present HOMA-B results. Since this was not a cohort study, causal effects of Khat chewing cannot be claimed.

While TG and WC are indicators of insulin resistance, such an association can only be suggested if there was an increased prevalence of hypertriglyceridemia and abdominal obesity—which the authors did not assess, as they only reported continuous numerical values without categorizing the sample.

The authors introduce a time element by stating that "Khat chewing for a long time is a risk factor for metabolic syndrome and type 2 diabetes mellitus," but the analysis did not adjust for duration of use. Thus, this conclusion is not supported by the methodology.

Introduction

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Khat chewing is not presented as a problem for the Yemeni population, nor is it clarified why it specifically affects women. This should be explained to justify the inclusion criteria.

Methods

All abbreviations (e.g., HDL) must be defined.

A major issue is the inclusion of women aged 30–60 years without accounting for menopause, a known cardiovascular risk factor due to metabolic changes. ANCOVA should adjust for this.

Systolic and diastolic blood pressure should not be listed under "Anthropometric parameters."

Suggested analyses:

TyG index

Sample categorization by cardiovascular risk (e.g., hypertriglyceridemia, low HDL levels) rather than using continuous variables only. The same applies to BMI.

Statistical analysis: The authors describe results instead of methods. There is no mention of post-hoc tests for ANOVA, despite multiple tables presenting this analysis.

Results

Table 1:

Age is not an anthropometric parameter, the title should be adjusted.

Results should specify whether data are presented as mean $\pm$ SD, median (IQR), etc.

Missing legend (e.g., BMI abbreviation is undefined).

Unclear notation:

"Triacylglycerol ($p = 0.007$; 1×10^{-5})" - what does 1×10^{-5} represent?

"Blood pressure among Khat-chewer non-smoker females ($p = 0.291$; 516)" - what is 516?

Table 2: The title implies causation, which is inappropriate for a cross-sectional design.

Inconsistent terminology: HDL is referred to as HDLc, HDL, HDL_C - standardization is needed.

TG is not defined.

Regression data should be presented as: Beta (95% CI), p-value.

Table 4: The title incorrectly uses "effect" and refers to "metabolic syndrome"- when in fact, only some metabolic parameters (not all diagnostic criteria) were assessed. Variables were not categorized, so metabolic syndrome prevalence was not determined.

Tables 2, 4, 5, and 7: The last three columns are unclear - presumably p-values, but this is not specified. The tables are highly confusing and difficult to interpret.

"Meat analysis" should be corrected.

Discussion

Inconsistent terminology: The authors alternate between "triglycerides" and "TG."

While combining Results and Discussion can improve flow, the authors list all results first and only discuss them at the end. Separate sections are recommended.

The discussion focuses on the effects of Khat consumption rather than the association between Khat use and metabolic syndrome-related factors, making it misleading

ANSWERS TO ROUND 1

[Author's Files](#)

ROUND 2

Reviewer A: Anonymous

Recommendation: Accept Submission

no comments

Peer Review Reports

Reviewer C: Fabiana Andréa Moura

Recommendation: Accept Submission

please replace $p = 0.000001$ with $p < 0.001$

ACCEPT SUBMISSION

Oct. 02, 2026