Author’s response to reviews

Title: Effects of nonsurgical periodontal treatment on glycated haemoglobin on type 2 diabetes patients (PARODIA 1 study): a randomized controlled trial in a sub-Saharan Africa population

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TO THE EDITOR

BMC Oral Health

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Dear Editor,

We thank all the reviewers for their careful reading of our manuscript and for their helpful comments and suggestions. The changes in the manuscript are highlighted in blue. We have made changes accordingly and we believe that the paper is greatly improved. Our point-by-point replies to the reviewers and editor are below. We are most grateful for the opportunity to publish in BMC Oral Health and thank you for your consideration.

Sincerely,

The authors
EDITORIAL STAFF COMMENTS REGARDING REPORTING STANDARDS:

BMC Oral Health operates a policy of open peer review, which means that you will be able to see the names of the reviewers who provided the reports via the online peer review system. We encourage you to also view the reports there, via the action links on the left-hand side of the page, to see the names of the reviewers.

REVIEWER’S COMMENTS

Reviewer #1: Rathna Vaithilingam

Authors’ response:

The authors thank the reviewer for their review and positive comments.

Reviewer #1- Comment 1: Abstract

(1): 02 subjects in each group were excluded from the study

Authors’ response:

Thank you for this excellent suggestion. In response, we have added the following sentences in the abstract.

“Two subjects in each group were excluded from the study. Data were analyzed on thirty patients (15 per group).”

Reviewer #1- Comment 2: Methods

(1) For patients with moderate to severe chronic periodontitis, it is surprising that they did not require periodontal treatment in the last six months prior to the study. Were they on follow-up periodontal therapy for this to be assessed? Probably it should be reworded as patients were excluded if they had received periodontal prior to the study

Authors’ response:

Thank you for this suggestion. We agree with you. The sentence has been rephrased as proposed.

“The participants were excluded if they had received periodontal treatment (scaling and root planning) or experimented any alteration of the diabetes treatment six months prior to the study”. (see page 5, paragraph 3)
(2) References shall be given for the O’Leary plaque index and the Ainamo and Bay GBI

Authors’ response:

We thank you for raising this point. This was left-out, it has actually been added in the updated manuscript (References 27 and 28 in the paper).


(3) What was the reason for providing subjects with chlorhexidine in addition to povidone iodine?

Authors’ response:

Thank you for this important question. Povidone iodine has been used during the non-surgical periodontal treatment as sub gingival irrigant while chlorhexidine was provided to subjects as a mouth wash.

We clarified it in the methods (page 6, paragraph 3).

(4) Why was additional dental floss given to the treatment group?

Authors’ response:

Thank you for this important question. Dental floss is a known additional measure for plaque control, unfortunately, in limited-resources settings like ours, people are unaware of the importance of this device. Therefore, it is not systematically used by the patients. To improve plaque control of patients in our context, dental floss was given in order to help them familiarize with the device and ensure that they use it properly.

In page 7, paragraph 1; we have added a paragraph to clarify this concern.

(5) Modified bass technique is for tooth-brushing and not interdental brushing or dental flossing

Author’s response:

Thank you for this comment.
We completely agree. This has been corrected in the main text. (Please see page 7, paragraph 3)

(6) Why were all participants in the treatment group only given treatment after six months?

Author’s response:
Thank you for the question. As presented in the paper, all recruited patients underwent full periodontal assessment at baseline, 6 weeks after assigned treatment and 3 months after assigned treatment. The treatment was not only given after six months.

(7) Was any treatment given to the control group at the end of the three months?

Author’s response:
Thank you for the question. Yes, the control group received the same treatment as the treatment group at the end of the study. (Please see the highlighted sentences in the 2nd paragraph of page 8)

Reviewer #1 - Comment 3: Results

(1) Figure 1: what do you mean by lost?

Author’s response:
Thank you for the question. This figure represents the flow of participants during the study, and the term “lost” referred to the dropped out of some participants.

(2) What was the standard deviation for the relative reduction?

Author’s response:
Thank you for raising this point. This was computerized and the result has been added in the main text. Please see the highlighted sentences in page 9, line 21 of the results section)

“Finally, they was a relative reduction of 2.2 ± 2.5 points in HbA1c attributable to non-surgical periodontal treatment [p = 0.02] (Figure 2).”
Did the compliance to chlorhexidine mouth wash and its adverse events have any effect on the results?

Author’s response:

Thank you for the question. No dear reviewer, this section was created in order to respect the author’s guidelines for the submission to the journal.

Abbreviation IR, needs to be mentioned in full before the abbreviation is given

Author’s response:

Thank you for this comment. We agree with you and this has been updated in the paper.

PD and CAL values at baseline are quite low and do not reflect patients with moderate to severe periodontitis, you will need to sub classify your periodontal PPD and CAL, to % of sites with <4mm, 4-6mm and >6mm to better appreciate the distribution of disease in your subjects. This needs to be discussed in your discussion section

Author’s response:

Thank you for this concern and suggestion. This has been addressed in Table 1 of results.

Reviewer #1 - Comment 4: Discussion

Most subjects were overweight; please discuss this observation and how it may contribute to your results.

Author’s response:

Thank you for this relevant advice; it has been done following your indications (discussion Page 13, second paragraph)

“Diabetes and periodontitis have some risk factors in common like obesity. In our population the mean of BMI was about 28.2±5.4kg/m², obesity was found in 43.3% of the participants. It appears that those 3 states are linked by inflammation as demonstrated by Genco et al. (2005) in their proposed model linking inflammation to obesity diabetes and periodontal infections. In this model, adipocytes secrete proinflammatory cytokines like TNF which is able to inhibit insulin signaling, leading to insulin resistance. As time goes on, diabetes mellitus breaks out with another hyperinflammatory state and can be responsible of periodontitis infections onset. At the
sight of these statements, we can think that the management of overweight or obesity can improve glycemic control in diabetic patients. More over the first lines for diabetic cares are non-pharmaceutical measures which include the diet. So, in this survey, the reduction of BMI could have contribute to glycemic control. However no significant drop in BMI values has been recorded after 3 months follow-up. “

(2) Discuss the limitation of the use of the 2012 CDC-AAP classification as inclusion criteria for an intervention trial.

Authors’ response:

Thank you for this relevant advice; it has been done following your indications (discussion Page 13, third paragraph)

“The patients included in this study had moderate to severe periodontitis according to CDC/AAP classification. However, as this case definition does not incorporate measurements from all the six sites, disease can be underestimate. In the CDC/AAP case definitions, the measurements of mid-buccal and mid-lingual are not includes, it means that furcation involvement is not assessed. Additionally, this case definition for periodontal status does not assess bleeding on probing so that informations about current inflammatory status are not incorporate. It means that this classification could not be suitable for a clinical trial but as we used complementary index like Ainamo and Bay index and evaluated changes in PPD and CAL means, the issues of our investigations are as attractive as expected.”

(3) Page 89 lines 39-41 needs to be rephrased

Author’s response:

We are sorry dear reviewer but we cannot find this page and those lines in the manuscript. Thank you for your comprehension.

Reviewer #2: Narisato Kanamura

Authors’ response:

The authors thank the reviewer for their review and positive comments.
Reviewer #2- Comment 1

This paper is about the relationship between periodontal disease and diabetes and reports that periodontal treatment improves the condition of diabetes. Previous studies so far have pointed out problems such as difficulty in comparing due to the periodontal disease condition and diabetes treatment at the start of the study. Although it is a very interesting research in periodontal medicine research, it is necessary to organize the following points:


Author’s response:

Thank you for these important references. We have added these references in the introduction and discussion to highlights the strong link between periodontal disease and diabetes.

Indeed, despite growing evidence on the benefit of periodontal treatment on glycaemic control in people living with diabetes, randomized controlled trial-derived evidence is lacking from Africa, the continent with the largest burden of infectious diseases and uncontrolled diabetes.


Reviewer #2- Comment 2

The condition of periodontal disease has been investigated in detail, but how about the severity of diabetes? For example, it is about the relationship of periodontal disease with severe or mild symptoms of diabetes. Describe how to treat diabetes.

Author’s response:

Thank you dear reviewer for these questions.

Despite the well known relation between diabetes and periodontal diseases, and recommendations of American Diabetes Association on bidirectional screening, there is still little awareness on this relation in our context. Our study therefore aimed to provide good evidence on the need to treat periodontal diseases during the management of diabetes especially in patients with high glycemic level and severe uncontrolled diabetes. The management of diabetes in our study population was presented in the results, as well as the complications frequencies (Table 1).

Reviewer #2- Comment 3

Although hCRP is not investigated, periodontal disease causes bacteremia and minor chronic inflammation causes IR. Especially in this paper we think that the symptoms of gingivitis are strong, so please consider this point.

Author’s response:

We appreciate the suggestion. Thank you for this important comment.

As this study was design to evaluate the effects of periodontal treatment on glycated hemoglobin, we did not investigate the evolution of inflammation markers. Randomized clinical trials, including measurements of inflammatory mediators to determine the relation between the reduction of HbA1c levels following periodontal therapy and inflammatory markers and longitudinal studies to determine long term effects of scaling and root planning associated to povidone iodine subgingival irrigation on glycaemic control are needed.

Reviewer #2- Comment 4

Did you have any allergic reactions with gargling with 0.2% chlorhexidine gluconate or using 10% povidone iodine?

Author’s response:
Thank you for the question. No dear reviewer. During the study we did not record any allergic reactions neither with 0.2% chlorhexidine gluconate nor 10% povidone iodine.

Reviewer #2- Comment 5

Is periodontal treatment done by the same or standardized medical personnel?

Author’s response:

Dear reviewer, the periodontal treatment has been done by the principal investigator of the study and periodontal parameters & HbA1c level was measured by other investigators.

Reviewer #2- Comment 6: Others

(1) Please, unify the notation of the author’s name of the discussion

Author’s response:

Thank you for this comment. As suggested, this has been updated in the manuscript.

(2) Write the variables using the Mann-Whitney U test and the t-test in Table 1 and Table 2

Author’s response:

Thank you for this excellent suggestion. We have added the different indications concerning the test used in the tables.

(3) Make the notation of PD in Table 1 and Table 2 the first decimal place.

Author’s response:

Thank you for the comment. This has been modified in the updated manuscript.

(4) Set the PD of the Control group in Table 2 to the second decimal place.

Author’s response:

Thank you for the comment. This has been modified in the updated manuscript.
(5) Please revise the figures of retinopathy and diabetic foot in the treatment group of Table 1.

Author’s response:
Thank you for the comment. Figures of retinopathy and diabetic foot have been modified in the updated manuscript.

(6) Please describe the dotted line in fig2.

Author’s response:
Thank you to draw our attention on this omission. This dotted line represents the variation of glycated hemoglobin in control group. The description has been reported on the graph.