**Author’s response to reviews**

**Title:** Correlation between clinical parameters of crown and gingival morphology of anterior teeth and periodontal biotypes

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**Author’s response to reviews:**

Technical Comments:

1. Ethics approval and consent statement seen in Methods - move to decs.

Dear reviewers, we have modified the manuscript as request. Please see Page20 line12-15.

2. Role of Funding body

Dear reviewers, we have modified the manuscript as request:

This study was supported by a grant from the Key Research and Development Program of Shandong Province (2019GSF107001). The funding bodies were not otherwise involved in the design of the study, nor the collection, analysis or interpretation of data and writing of the manuscript. (Please see page20 line4-7)

3. Rename Research methods and processes to "Methods"

We have modified the manuscript as request. Please see page4 line9.
Editor Comments:

please revise your paper

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 reports:

Ana Lúcia Pompéia Fraga De Almeida, PhD (Reviewer 1):

No comments.

Cinzia Maspero (Reviewer 3): I suggest to address all these concerns and resubmit the manuscript.

ABSTRACT

* In the results we consider that there is a significant difference in the parameters of crown and gingival morphology (CGM) of the maxillary anterior teeth (MAT) affirming this information because consider in the conclusions that the CGM of the MAT of the left and right side are symmetrical existing a significant difference of both sides.

We have modified the manuscript as follow:

There was no significant difference in the parameters of CGM of the MAT at the left and right sides. (Please see page2 line2)

* In the methods 9 parameters are considered: gingival angle (GA), papilla width (PW), papilla height (PH), crown length (CL), crown width (CW), crown width / crown length ratio (CW / CL), bucco-lingual width of the crown (BLW), contact surface width (CSW), and contact surface height / crown length ratio (CS / CL); these 9 parameters were evaluated to determine they were significantly correlated with the periodontal biotype (PB) however in the results because sex was considered as another parameter.

According to the reviewer's suggestion, gender should not be paralleled with the other nine parameters. We have removed gender from table 3.(Please see page11 line9)
* When pluralizing the abbreviations of each parameter it is not correct to add the S in each abbreviation of each parameter (example: PBs)

Dear reviewers, we have checked all the abbreviated plurals in the whole paper, especially PB plurals. thank you very much!

MATERIALS AND METHODS

* The sample was conformed by 56 participants (13 men and 43 women), as it involves studying different parameters because it was not limited to a more homogeneous sample.

Dear reviewers, there are always sampling errors in the design and selection of any sample, which is inevitable. Thank you for your advice!

* Why consider the evaluation of the periodontal biotype (PB) using the periodontal probe if in the background it is considered an unsafe method to measure the clinical parameters of gingival morphology and also subject to the disadvantages of low precision.

Dear reviewers, Test-retest reliability results showed that: the average Kappa coefficient of the transparency of the periodontal probe through the gingival sulcus was 0.733 (P<0.001), indicating the sound reliability of the evaluation method. So we choose to use periodontal probe transmission method to evaluate periodontal biotype.

RESULTS

* In tabla 3 Considering a p ≤ 0.2 according to the ANOVA Test the significant difference can be determined with the following parameters: sex (p = 0.043), PH (p = 0.027), CL (p = 0.237), BLW (p = 0.61) and CSW (p = 0.462) instead those that have no significant difference are: GA (p = 0.0), PW (p = 0.0), CW (p = 0.005), CW / CL (p = 0.0) and CS / CL (p = 0.102) which are different to those marked in the title of tabla 3 where it indicates the following: For different PBs, the CGM characteristics of the right maxillary central incisors are shown in table 3. ANOVA showed that there were significant differences in terms of sex, GA, PW, PH, CW, and CW / CL (P ≤ 0.043), but no significant differences in terms of CL, BLW, CSW, and CS / CL (P ≥ 0.102).

According to the reviewer's reminder, we have made the following changes to the original text:

ANOVA test showed that there were statistical differences in GA, PW, pH, CW, CW / CL, CS / CL among different periodontal biotypes (P ≤ 0.2), but no statistical differences in Cl, BLW, CSW (P > 0.2). (see page11 line6-8 and page2 line3-4)
DISCUSSION

* If the value of p (p ≤ 0.2) according to the ANOVA Test showed a significant difference (p = 0.027) between PH and PB this value is confirmed with that of tabla 3 instead with the CW / CL parameters according to the test of ANOVA refers that there is no significant difference in contrast to what is marked in table 3 where it specifies that it has a significant difference.

According to the reviewer's comments, we have made the following changes to the original text:

In this study, ANOVA showed a significance difference between CW/CL and PB (P < 0.001), although in logistic regression model, CW/CL was eliminated from the regression equation, indicating that it is not an independent influencing factor of PB. (see page16 line12-14)

* The value of the CS / CL parameter marked in this part of the article lacks the values of the standard deviation (+/- DS) as they are marked in tabla 1.

Dear reviewers, we have modified the manuscript as request. Please see Page17 line6.

Dear reviewer, we have changed the author's information due to the latest requirements of the signature specification document of Shandong University. (please see page21 line1-4)