

Modified protrusive wax record in measuring condylar path angle in relation to ethnic variations

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Modified protrusive wax record in recording condylar path angle and ethnic variations

Journal of Clinical and Translational Research

Dear Dr. Musawi,

Reviewers have now commented on your paper. You will see that they are advising that you revise your manuscript. If you are prepared to undertake the work required, I would be pleased to reconsider my decision.

For your guidance, reviewers' comments are appended below.

If you decide to revise the work, please submit a list of changes or a rebuttal against each point which is being raised when you resubmit your work.

Your revision is due by Apr 27, 2017.

To submit a revision, go to <http://jctres.edmgr.com/> and log in as an Author. You will see a menu item call Submission Needing Revision. You will find your submission record there.

Yours sincerely

Michal Heger
Editor-in-Chief
Journal of Clinical and Translational Research

Reviewers' comments:

Editor-in-chief:

Dear author,

Thank you for submitting your work to JCTR. Three experts in the field have critically appraised your paper, and rendered an accept (1x) and major revision (2x) verdict. I kindly ask you to fully address the comments by reviewers 2 and 3 because some of the comments are of very fundamental nature. Please prepare a point-by-point response document where you either indicate that a certain request for modification has been implemented or rebut a comment that you do not agree with. Also, we request that you use track changes in the resubmission draft so that the editorial board and the reviewers can verify and check your modifications directly.

Due to the major revision recommendations, I will send your revised draft out for re-review. Please know that at JCTR we like to work constructively with authors and reviewers towards an optimal quality of your manuscript. We do not always abide by what reviewers recommend, but make a balanced judgement between your revision and their critical comments. So your paper may still be rejected if inadequately modified, underscoring the importance of preparing a solid revision.

Reviewer #1: It would be helpful to note earlier and throughout the article which plane the CPAs are referring to, F or C. Furthermore, I have some reservations about making the jump to ethnic variations. While I agree that there are bell distributions throughout the population, I question whether the survey size and comparative studies cited support the ethnic statement. The author however does use the word 'suggest' rather than make a forceful conclusion, so while I may have some reservations with his conclusions, I do respect his/her right to do so.

Reviewer #2: A research report on condylar path angle (CPA) measurements, in 30 post-adolescent Malay subjects, is presented in which bilateral CPA measurements were compared and the overall CPA assessment was also compared with a mean standard derived from literature. Poured dental casts from each subject were mounted in their centric positions into a semi-adjustable articulator after which the CPA was measured based on protrusive movements. The authors conclude that there were no differences between the measured left and right CPAs, that a strong linear correlation exists between both CPAs, and that an ethnic variation in CPA exists in Malay subjects in comparison to Caucasians. The manuscript requires major revision and the following recommendations will help improve the overall quality of the report, but the scientific design should also be revised.

ABSTRACT

The abstract needs more precision. For example, in the Background section, it would be good to include a mean standard CPA value and whether this standard is based on Caucasians as an index of comparison.

Provide the CPA data for each observation listed in the Results section, percentages do not specify what angles were measured.

Practical implications section (lines 48-51): why do the authors refer to a comparison between semi-adjustable articulator versus a simple articulator? The focus of the report was not based on articulator comparisons and is not appropriate. Performing a study on comparisons between a simple and a semi-adjustable articulator would have served better towards a plea for using better articulators, unfortunately however comment is speculative and was not the focus of the study.

INTRODUCTION

The Introduction section is incomplete and requires more detail. Provide a reference in support of the number (110 mm) mentioned in the second sentence on lines 9-12 on page 3.

The authors should report a mean CPA against which they plan to perform their comparisons, for example Caucasians in this case. It would also be good to include the CPAs reported by other ethnic populations such as China and Nigeria for perspective.

Next to the aims, the authors did not formulate a hypothesis.

MATERIALS & METHODS

The M&M is should help others easily repeat the experiments and still misses precision. Lines 16-19 on page 5, the authors should provide the mixing ratios.

Lines 38-41 on page 5: the Bennett angle is mentioned but no angle was reported, was the Bennett angle set to 15? Why do the authors write 30 Camper's or 45 Frankfurter, was it no possible to stick to one method for standardization? Their writing does not imply standardization. Finally, the authors must have read other research and a reference in support of using for example Bennett and Camper's angles should be included.

Under the Protrusive Record section (lines 38-39 on page 6), the authors should disclose who trained the participants, assuming it was one of the manuscript authors, e.g. "Participants were trained (by AUTHOR INITIALS) on how to perform the protrusive movement.

Line 58 on page 6: was a mean computed from the 3 times the procedure was repeated and used as a number to represent a participant's data? The authors should clarify what they did with these numbers.

Statistical Analysis section: the authors did not perform a sample size calculation. Why not (in the very last paragraph of this report, in the Discussion section, the authors argue that their sample size may have been too small)? Referencing data from existent literature, a sample size calculation would have been easy to perform and to some extent would eliminate doubt regarding sample size or bring to light the validity of other research reports.

RESULTS

After stating the number of participant and their age, the rest results section should be re-structured to present the data of the actual CPA angles first and then comment on whether the data satisfied falling within a normal range (%), also the normal range was not presented anywhere in the manuscript (see Introduction comment). The general results comparing mean Malay CPAs versus a mean standard (index) is missing (this was also part of the aim).

Line 9 on page 8: the authors refer to normal ranges in Figure 8, to which data are they referring to? This is not represented in their bar graph nor is it written in text to in their figure legend. Figure needs revision to include normal ranges for comparison and the reference of which it was adapted from.

DISCUSSION

The Discussion should start with a brief retelling of the study aims followed by a concise presentation of their main results.

Line 26 on page 8: the authors state in their very first line in the Discussion section that "Few dentists make use of semi-adjustable articulators", this is speculation and a deviation from the study that was focused on comparing CPAs and not articulators. The authors should focus on CPAs and the research aims.

Lines 33-36 on page 8: the authors state that protrusive CPA measurements are the "most feasible and least complicated method to use...", an opposite remark is stated earlier in their M&M regarding the difficulty in these measurements, please clarify this point.

Lines 16-19 on page 9: the authors write, "The CPAs for both sides were out of the normal range for the majority of the participants"; what is the norm and what did you use as a normal index for comparison? Would it not have been better to first consolidate all CPA data from a systematic review to distill a large population-based mean as an index for comparison also? It is advised to at least compare their data with other studies as described in the discussion paragraphs; use actual angle degrees since percentages cannot be used replace the data from the articulators. The authors should limit their conclusions to information that was obtained within the scope of their study and not to overstate them or speculate beyond. Finally, if there exist also variations within Caucasians, how then did the authors chose an average value for CPAs for comparison. This suggests that the choice of an index of comparison may have been bias to accommodate their data within a very narrow range of CPAs and not a more reliable and broader index for comparison.

PRACTICAL IMPLICATIONS

Lines 4-12 on page 10: the comments presented in this section were not properly addressed in the manuscript and should be included. The authors did not present any CPA mean values nor did they state what the settings were reported by other studies. Moreover, a recommendation from this report on articulator settings, based on the comments in this section, is missing and would serve this paper well in terms of practical implications.

Cannot be recommended for publication at this time.

Reviewer #3: This study describes measurements of the condylar path angle (CPA) of a small group of Malayan persons. The authors conclude that the Malay population have measurable variations in the CPA and they suggest an ethnic variation in the CPA.

Comments:

1. The authors should clearly indicate the novelty of their findings. Their data are in line with those presented before by others and therefore it is unclear what they add to those previous findings.

2. The group of persons used for their measurements is very small; only 30 subjects were used in their study. The number should be increased considerably and also the age range should be increased.
3. If the authors like to conclude on an ethnic variation in the CPA, as they do now, persons with different ethnic background should be compared. Such a direct comparison will probably provide interesting data on similarities or dissimilarities of an ethnic variation in measurement of the CPA.

*****Author response*****

Reviewer 2

A research report on condylar path angle (CPA) measurements, in 30 post-adolescent Malay subjects, is presented in which bilateral CPA measurements were compared and the overall CPA assessment was also compared with a mean standard derived from literature. Poured dental casts from each subject were mounted in their centric positions into a semi-adjustable articulator after which the CPA was measured based on protrusive movements. The authors conclude that there were no differences between the measured left and right CPAs, that a strong linear correlation exists between both CPAs, and that an ethnic variation in CPA exists in Malay subjects in comparison to Caucasians. The manuscript requires major revision and the following recommendations will help improve the overall quality of the report, but the scientific design should also be revised.

Dear reviewer, many of your comments were truly valuable, and I would like to thank you for spending the time and effort to make our submission and presentation of the study a more robust one!

For the comments that we agreed with, we have modified our writing and implemented them in the edited and re-submitted version of the manuscript which will be attached with this email. For those comments you will find the sentence “Agreed with reviewer and edited manuscript accordingly” next to them. For the comments that we had an explanation for, you will find the explanation underneath them, some of them were accompanied with references that are attached with this correspondence.

Thanks again!

ABSTRACT

The abstract needs more precision. For example, in the Background section, it would be good to include a mean standard CPA value and whether this standard is based on Caucasians as an index of comparison.

Agreed with reviewer and edited manuscript accordingly.

Provide the CPA data for each observation listed in the Results section, percentages do not specify what angles were measured.

The results are mentioned in detail under the Result section in Figure (8) where it explains how many subjects fall in which range. I could mention it in the abstract section but there will be repetition of same information.

Practical implications section (lines 48-51): why do the authors refer to a comparison between semi-adjustable articulator versus a simple articulator? The focus of the report was not based on articulator comparisons and is not appropriate. Performing a study on comparisons between a simple and a semi-adjustable articulator would have served better towards a plea for using better articulators, unfortunately however comment is speculative and was not the focus of the study.

Agreed with reviewer and edited manuscript accordingly (statement modified to remove implication that comparison of articulators is the intent).

INTRODUCTION

The Introduction section is incomplete and requires more detail. Provide a reference in support of the number (110 mm) mentioned in the second sentence on lines 9-12 on page 3.

Agreed with reviewer and edited manuscript accordingly, below are the references indicating the 110 mm setting. Most articulator manufacturers recommend the setting. For example, the link provided there was also a study that confirms it (number two below). Finally number three is the text it that mentioned it (which was added to the manuscript as a reference).

1. <https://whipmix.com/products/denar-mark-ii-articulator/>

2. Article 1: Page 41 Table 9

3. Textbook: Functional Occlusion in Restorative Dentistry and Prosthodontics. Iven Klineberg, Steven Eckert. Chapter 9, Pg 119 (added reference)

The authors should report a mean CPA against which they plan to perform their comparisons, for example Caucasians in this case.

Agreed with reviewer and edited manuscript accordingly.

It would also be good to include the CPAs reported by other ethnic populations such as China and Nigeria for perspective.

Agreed with reviewer and edited manuscript accordingly.

Next to the aims, the authors did not formulate a hypothesis.

Agreed with reviewer and edited manuscript accordingly.

MATERIALS & METHODS

The M&M is should help others easily repeat the experiments and still misses precision. Lines 16-19 on page 5, the authors should provide the mixing ratios.

Agreed with reviewer and edited manuscript accordingly.

Lines 38-41 on page 5: the Bennett angle is mentioned but no angle was reported, was the Bennett angle set to 15? Why do the authors write 30 Camper's or 45 Frankfurter, was it no possible to stick to one method for standardization? Their writing does not imply standardization.

Agreed with reviewer and edited manuscript accordingly.

Finally, the authors must have read other research and a reference in support of using for example Bennett and Camper's angles should be included.

Agreed with reviewer and edited manuscript accordingly.

Under the Protrusive Record section (lines 38-39 on page 6), the authors should disclose who trained the participants, assuming it was one of the manuscript authors, e.g. "Participants were trained (by AUTHOR INITIALS) on how to perform the protrusive movement.

Agreed with reviewer and edited manuscript accordingly. However, author initials were not used and replaced it with the word "operator" instead. PS. I, one of the authors, was the operator.

Line 58 on page 6: was a mean computed from the 3 times the procedure was repeated and used as a number to represent a participant's data? The authors should clarify what they did with these numbers.

Agreed with reviewer and edited manuscript accordingly.

Statistical Analysis section: the authors did not perform a sample size calculation. Why not (in the very last paragraph of this report, in the Discussion section, the authors argue that their sample size may have been too small)? Referencing data from existent literature, a sample size

calculation would have been easy to perform and to some extent would eliminate doubt regarding sample size or bring to light the validity of other research reports.

This study is investigating an entire ethnic group for a possibly existing variation, the bigger the sample the better it is definitely. However, with the sample size used a significant finding was noticed. A review of similar published studies lead to the use of 30 subjects. Studies are attached as Articles 2-7; Article 2 (20 subjects), Article 3 (one subject), Article 4 (10 Subjects), Article 5 (5 subjects), article 6 (32 subjects) and Article 7 (54 subjects). Yet we still feel that a larger sample should have been used to increase the strength of the study, and for this reason we mentioned it as a limitation, but unfortunately time was not a luxury that we had due to the restrictions of the program schedule.

RESULTS

After stating the number of participant and their age, the rest results section should be re-structured to present the data of the actual CPA angles first and then comment on whether the data satisfied falling within a normal range (%),

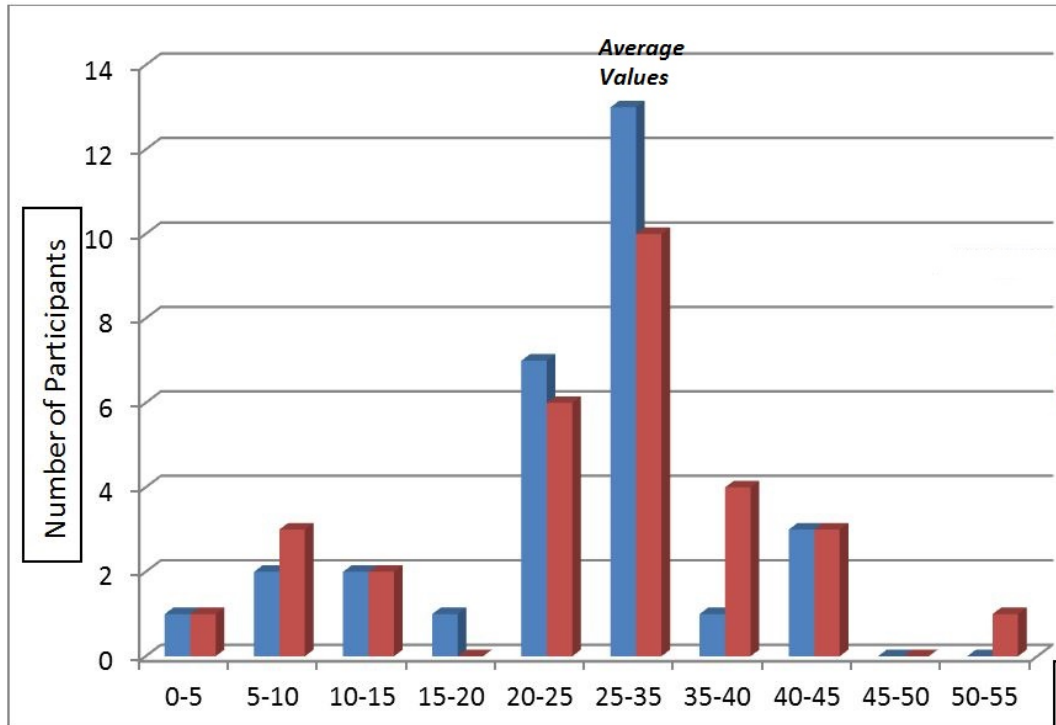
Agreed with reviewer and edited manuscript accordingly.

also the normal range was not presented anywhere in the manuscript (see Introduction comment). The general results comparing mean Malay CPAs versus a mean standard (index) is missing (this was also part of the aim).

Agreed with reviewer and edited manuscript accordingly (under the Introduction section).

Line 9 on page 8: the authors refer to normal ranges in Figure 8, to which data are they referring to? This is not represented in their bar graph nor is it written in text to in their figure legend. Figure needs revision to include normal ranges for comparison and the reference of which it was adapted from.

The paragraph combined with figure 8 are displaying the finding, did not want to rewrite what the paragraph is telling the reader in the result section. Figure was edited to be more specific to Mean CPA values (edited figure is below).



DISCUSSION

The Discussion should start with a brief retelling of the study aims followed by a concise presentation of their main results.

Agreed with reviewer and edited manuscript accordingly. Added sentence explaining the aim.

Line 26 on page 8: the authors state in their very first line in the Discussion section that "Few dentists make use of semi-adjustable articulators", this is speculation and a deviation from the study that was focused on comparing CPAs and not articulators. The authors should focus on CPAs and the research aims.

The statement is actually not referring to the semi-adjustable articulator per se, but rather to the advantage the articulator has in recording CPAs without the need for complicated and/or expensive machinery. The purpose is to explain that everyone owns a semi-adjustable articulator but not use the features that it has (in this case recording the CPA).

Lines 33-36 on page 8: the authors state that protrusive CPA measurements are the "most feasible and least complicated method to use...", an opposite remark is stated earlier in their M&M regarding the difficulty in these measurements, please clarify this point.

The difficulty mentioned was related to the original wax protrusive method i.e. reproducibility of the protrusive position recorded. With the modified method used in this study, the problem was solved by the use of the protrusive jig mounted on patients' teeth; hence the problem of reproducibility was fixed and procedure is made easier and more reliable.

Lines 16-19 on page 9: the authors write, "The CPAs for both sides were out of the normal range for the majority of the participants"; what is the norm and what did you use as a normal index for comparison?

Agreed with reviewer and edited manuscript accordingly. The average value was added to the text of the article (values of Caucasian population included) and figure 8 was modified to indicate which values are the average ones.

Would it not have been better to first consolidate all CPA data from a systematic review to distill a large population-based mean as an index for comparison also? It is advised to at least compare their data with other studies as described in the discussion paragraphs; use actual angle degrees since percentages cannot be used replace the data from the articulators. The authors should limit their conclusions to information that was obtained within the scope of their study and not to overstate them or speculate beyond.

There are no studies that investigated the CPA for the Malay ethnic group before. And since articulators were made based on Caucasian measurements, hence Malays are compared to Caucasians.

Finally, if there exist also variations within Caucasians, how then did the authors chose an average value for CPAs for comparison. This suggests that the choice of an index of comparison may have been bias to accommodate their data within a very narrow range of CPAs and not a more reliable and broader index for comparison.

The average values chosen are the ones recommended by dental academics, schools and textbooks. Those values came from studies that were done in the early and mid 1900's, studies done on Caucasians (by Gysi, Woelfel, Posselt and others) and are implemented as the average values for every patient. Recent study done by Melkers (Article 7) has shown that those average values are not accurate for all Caucasians as well yet they are still called "average values" and are used in daily patient treatment, and he recommended not relying on them and measuring the CPA for every patient.

PRACTICAL IMPLICATIONS

Lines 4-12 on page 10: the comments presented in this section were not properly addressed in the

manuscript and should be included. The authors did not present any CPA mean values nor did they state what the settings were reported by other studies.

Agreed with reviewer and edited manuscript accordingly. CPA mean values are now stated following previous reviewers' comments.

Moreover, a recommendation from this report on articulator settings, based on the comments in this section, is missing and would serve this paper well in terms of practical implications.

The recommendation made by the study is not to rely on pre-setting the articulators based on average value, in other words the "average values" used are not so average, since there are ethnic groups that do not fall within those values and Caucasian group itself has a high percentage of population that do not fall within those "average values". Basically the recommendation is to measure it for every patient rather than relying on pre-setting.

Reviewer 3

Dear reviewer, your comments were truly valuable, and I would like to thank you for spending the time and effort to make our submission and presentation of the study a more robust one!

For the comments that we had an explanation for, you will find the explanation underneath them; some of them were accompanied with references that are attached with this correspondence.

Thanks again!

1. The authors should clearly indicate the novelty of their findings. Their data are in line with those presented before by others and therefore it is unclear what they add to those previous findings.

Previous studies investigated different ethnic groups (i.e. Caucasian, Chinese, Nigerians) but not Malays. There has been no study that investigated the Malay ethnic group.

2. The group of persons used for their measurements is very small; only 30 subjects were used in their study. The number should be increased considerably and also the age range should be increased.

This study is investigating an entire ethnic group for a possibly existing variation, the bigger the sample the better it is. However, with the sample size used a significant finding was noticed. A

review of similar published studies lead to the use of 30 subjects. Studies are attached as Articles 2-7.

Article 2 (20 subjects), Article 3 (one subject), Article 4 (10 Subjects), Article 5 (5 subjects), article 6 (32 subjects) and Article 7 (54 subjects)

2. If the authors like to conclude on an ethnic variation in the CPA, as they do now, persons with different ethnic background should be compared. Such a direct comparison will probably provide interesting data on similarities or dissimilarities of an ethnic variation in measurement of the CPA.

The study basically compared the Malays to Caucasians (since the average values are based on Caucasians). However, I agree that direct comparison to another group would have made it a better study. Unfortunately I did not have a large community of Caucasian population in Malaysia where this study was conducted.

2nd editorial decision

Date: 11-May-2017

Ref.: Ms. No. JCTRes-D-17-00002R1

Modified protrusive wax record in measuring condylar path angle in relation to ethnic variations
Journal of Clinical and Translational Research

Dear authors,

I am pleased to inform you that your manuscript has been accepted for publication in the Journal of Clinical and Translational Research.

You will receive the proofs of your article shortly, which we kindly ask you to thoroughly peruse and correct any errors.

Thank you for submitting your work to JCTR.

Kindest regards,

Michal Heger
Editor-in-Chief
Journal of Clinical and Translational Research

Comments from the editors and reviewers:
