Peer review history for:

Ridel AF, Demeter F, L'Abbé EN, Vandermeulen D, Oettlé AC. Shape analysis of the nasal complex among South African groups from CBCT scans. S Afr J Sci. 2024;120(5/6), Art. #12972. https://doi.org/10.17159/sajs.2024/12972

HOW TO CITE:
Shape analysis of the nasal complex among South African groups from CBCT scans [peer review history]. S Afr J Sci. 2024;120(5/6), Art. #12972. https://doi.org/10.17159/sajs.2024/12972/peerreview

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Reviewer A: Round 1
Date completed: 21 September 2022
Recommendation: Accept / Revisions required / **Resubmit for review** / Decline
Conflicts of interest: None declared

Does the manuscript fall within the scope of SAJS?
Yes/No
Is the manuscript written in a style suitable for a non-specialist and is it of wider interest than to specialists alone?
Yes/**No**
Does the manuscript contain sufficient novel and significant information to justify publication?
Yes/No
Do the Title and Abstract clearly and accurately reflect the content of the manuscript?
Yes/No
Is the research problem significant and concisely stated?
Yes/No
Are the methods described comprehensively?
Yes/No
Is the statistical treatment appropriate?
Yes/No/Not applicable/Not qualified to judge
Are the interpretations and conclusions justified by the research results?
Yes/Partly/No
Please rate the manuscript on overall contribution to the field
Excellent/Good/**Average**/Below average/Poor
Please rate the manuscript on language, grammar and tone
Excellent/Good/**Average**/Below average/Poor
Is the manuscript succinct and free of repetition and redundancies?
Yes/No
Are the results and discussion confined to relevance to the objective(s)?
Yes/No
The number of tables in the manuscript is
Too few/**Adequate**/Too many/Not applicable
The number of figures in the manuscript is
Too few/Adequate/**Too many**/Not applicable
Is the supplementary material relevant and separated appropriately from the main document?
Yes/No/**Not applicable**
Please rate the manuscript on overall quality
Excellent/Good/**Average**/Below average/Poor

Is appropriate and adequate reference made to other work in the field?

Yes/No

Is it stated that ethical approval was granted by an institutional ethics committee for studies involving human subjects and non-human vertebrates?

Yes/No/Not applicable

If accepted, would you recommend that the article receives priority publication?

Yes/**No**

Are you willing to review a revision of this manuscript?

Yes/No

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Yes/No

Comments to the Author:

The authors present a interesting study disseminating shape differences of the nasal soft- and hard-tissue structures in contemporary South-African populations. They extensively test for shape variation explained by covariates such as sex, age and size. The article in general is well argued but could use some linguistic polishing regarding the usage of the correct propositions and comma placement. That said, I am also a bit confused regarding the automated landmarking procedure (that does not seem to be used):

In L 57 ff. the authors state that "To avoid the problems of manually placing landmarks by multiple operators, the utilization of automatic anatomical extraction techniques, such as automatic landmarking, is more suitable for analyzing large datasets" which made me expectant about the employed automated landmark extraction method. There is also a workflow chart (fig 1) depicting a pipeline based on non-elastic surface registration.

In the M&M section however, it is stated that "Biological landmarks were respectively placed on the external nose (soft-tissue) and the facial skeleton (hard-tissue) following the definition in facial approximation literature" (L 149-150). The ensuing tests for inter- & intraobserver testing suggests that the authors only employed manually placed landmarks. I would like to see the rationale why the proposed workflow was not used or not applicable in this study and what made the authors to employ the manual landmarking method. If the automated approach was not used Fig. 1 is completely pointless.

Also the results part needs some more clarification.

Here some minor issues:

L 111: population groups were => are

L 228: population affinity means => population means

L230: "a larger shape" : try to avoid attributions like larger/smaller in shape context as it is corrected for size. Instead I would suggest wording like "the shape appears to be more elongated/wider/prominent in population X when compared to population Y"

L 286: "the interaction of age and aging with population": why age AND aging?

L 287: "all tests did not report a similar outcome for age, but significance was reported for the interaction between population affinity and age": I do not understand what the authors want to say. Please reword.

L289: ""Regarding, soft-tissue shape" the comma shout be after "soft-tissue shape"

Author response to Reviewer A: Round 1

The authors present a interesting study disseminating shape differences of the nasal soft- and hard-tissue structures in contemporary South-African populations. They extensively test for shape variation explained by covariates such as sex, age and size. The article in general is well argued but could use some linguistic polishing regarding the usage of the correct propositions and comma placement. That said, I am also a bit confused regarding the automated landmarking procedure (that does not seem to be used):

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In the M&M section however, it is stated that "Biological landmarks were respectively placed on the external nose (soft-tissue) and the facial skeleton (hard-tissue) following the definition in facial approximation literature" (L 149-150). The ensuing tests for inter- & intraobserver testing suggests that the authors only employed manually placed landmarks. I would like to see the rationale why the proposed workflow was not used or not applicable in this study and what made the authors to employ the manual landmarking method. If the automated approach was not used Fig. 1 is completely pointless. Also the results part needs some more clarification.

AUTHOR: We are grateful to Reviewer A for these valuable comments that contribute to improving this article. The authors state that all comments, suggestions, and recommendations from Reviewer A were addressed, and modifications were performed in the manuscript. As suggested by Reviewer A, we followed the suggestion of doing some linguistic polishing and the manuscript was reviewed by a science editor.

The authors would like to confirm that an automatic landmarking procedure was used in this research. Details on the automatic landmarking workflow used was detailed in the manuscript page 3 lines 143-146 *"*In this research, we propose a reliable assessment of morphological variations attributable to variables (population affinity, age, sex, and allometry) by applying an automated landmarking workflow[5,8] and GMM."; page 4 lines 169-172: "Using the MeVisLab v. 2.7.1 software, triangular surface mesh creation and anatomical extraction were carried out. Relevant anatomical structures in 3D were obtained and retrieved using an already tested and published automatic dense landmarking workflow [5,8]. The automated landmarking workflow used is depicted in Figure 1. » and page 7 lines 207-209: "The dispersion was used to assess the reproducibility of digitisation across and between observers (inter-and intra-observer) for the whole sample (400 3D reconstructions) based on the utilization of automatic landmarking. ». We also agree with reviewer 1 to add some clarification about using the automatic landmarking procedure in the results sections. The following sentence was adjusted in the results section page 8 lines 261-264: "With regard to the intra- and inter-measurement errors (ME) of the craniometric (mean: 0.22mm; SD: 0.02mm) and capulometric (mean: 0.23 mm; SD: 0.04 mm) landmark locations placed using the automatic landmarking procedure, lower mean values were found for both configurations (soft- and hard-tissue)."

L 111* *(*please kindly note that the line numbering has changed)*: population groups were => are

AUTHOR: *page* 3 line 132: "population groups were" was changed to "population groups are"

L 228: population affinity means => population means

AUTHOR: page 8 line 271: "population affinity means" was changed to "population means".

L230: "a larger shape" : try to avoid attributions like larger/smaller in shape context as it is corrected for size. Instead I would suggest wording like "the shape appears to be more elongated/wider/prominent in population X when compared to population Y"

AUTHOR: We agree, and the use of "larger" was replaced by "wider" in the manuscript page 8 line 273 and page 14 line 300.

L 286: "the interaction of age and aging with population": why age AND aging?

AUTHOR: We agree, and the following sentence was modified accordingly page 16 lines 316-319: "In the whole soft- and hard-tissue sample, the interaction of age and the covariate age with population affinity and sex was shown."

L 287: "all tests did not report a similar outcome for age, but significance was reported for the interaction between population affinity and age": I do not understand what the authors want to say. Please reword.

AUTHOR: We agree with the reason for the misunderstanding, and the following sentence was modified accordingly by replacing "interaction" with "covariation" page 16 lines 317-319: "For the underlying bone-tissue morphology, all tests did not report a similar outcome for age, but significance was reported for the covariation between population affinity and age (Table 3)."

L289: "Regarding, soft-tissue shape" the comma shout be after "soft-tissue shape"

AUTHOR: We agree, and “Regarding, soft-tissue shape” was amended by “Regarding soft-tissue shape,” page 16 line 319.

L 111* *(*please kindly note that the line numbering has changed)*: population groups were => are

AUTHOR: page 3 line 132: “population groups were” was changed to “population groups are”

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Reviewer J: Round 1

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