Peer-Review Report

Peer Review of "Population Interaction in the Jōmon Society via 3D Data of Human Crania: Geometric Morphometric Study"

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JMIRx Bio2025;3:e85566; doi: 10.2196/85566

Keywords: Jomon; Japan; crania; cranium; bones; anthropology; archaeology; morphology; morphometrics

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Round 1 Review

General Comments

The study [1] is well-structured, with a clear methodological framework and comprehensive statistical analyses. The Discussion effectively integrates archeological, genetic, and environmental perspectives to interpret morphological variation. However, the manuscript could benefit from more concise writing, clearer interpretation of statistical results, and better organization of discussion points to avoid redundancy.

Specific Comments

Major Comments

1. The principal component analysis results and statistical tests are well-documented but could be better contextualized. Some *P* values and effect sizes are presented without adequate interpretation of biological significance.
I'd suggest the authors expand on how the observed morphological differences relate to adaptive or demographic processes.

2. The paper frequently repeats the idea of widespread and continuous interactions among Jōmon populations. While important, this could be streamlined for clarity. I'd suggest the authors consolidate similar points in the Introduction, Discussion, and Conclusion to reduce redundancy.

3. While the study references past research, it would be helpful to explicitly state how this study differs from previous geometric morphometric studies on Jōmon crania. I'd recommend you include a brief section discussing how the current 3D dataset provides new insights compared to traditional biodistance methods.

4. The Methods mention mirroring and reconstruction of crania but do not address potential biases this may introduce. I'd suggest the inclusion of a statement on limitations associated with missing data and how they were mitigated.

Minor Comments

5. The Abstract is informative but a bit lengthy. Consider summarizing key findings in fewer words.

6. Some terms like "prognathism," "biodistance," and "geometric morphometrics" could be briefly defined upon first mention for clarity.

7. Ensure that all figures and tables are referenced in the text where they are discussed. Some figures appear without clear introduction.

8. Check for uniformity in reference formatting, particularly italics in journal names and capitalization.

9. Some long sentences could be split for better readability (eg, in the Discussion section).

10. The Conclusion could briefly outline potential future studies, such as expanding sample sizes or integrating isotopic dietary data.

This study is well-executed and provides valuable insights into Jōmon population interactions using 3D geometric morphometrics. Addressing the clarity of statistical interpretation, reducing repetition, and improving Discussion structure would enhance its impact. I'd also recommend a final round of proofreading for grammar and formatting consistency.

Conflicts of Interest

None declared.

References

1. Nakao H, Kaneda A, Tamura K, Noshita K, Yoshida M, Nakagawa T. Population interaction in the Jōmon society via 3D data of human crania: geometric morphometric study. JMIRx Bio. 2025;3:e72432. [doi: 10.2196/72432]

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