Reviewer's report

Title: Agreement between cranial and facial classification through clinical observation and anthropometric measurement among Envigado school children

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Reviewer: Wei Cheong Ngeow

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Comment for authors: Major compulsory revision

General comment

In general this is a commendable piece of research. The authors tried to determine if classifying head and face by merely viewing their clinical feature will be adequate to arrive to similar anthropometric indices; the results however showed otherwise.

Introduction:

The literature review appears adequate. However, the authors failed to cover the aspect of cephalic and facial indices in children, which may be different at different age groups in different gender. Old reports, like the one by Welcker (1862) found with the male skulls showed an increase of the cephalic index from birth (75) that continued till the age of 20 years, where an index of 80.4 was achieved. Different observation was noted for his female skulls, which did not show a similar gradual increasing index. The female indices of various ages exhibiting a great deal of irregularity, although some increase from the 2nd to the 14th year was noted (Ref: Welcker. Untersuchungen über Wachstum und Bau des menschlichen Schädels, Teil 1. Leipzig, 1862). This difference may be of importance when analyzing data and discussion the finding.

Material & methods

A lot of effort has be put into this study due to the high number of subjects recruited. Having said so, the authors appear to only perform the measurement on the subjects once (apart from those chosen for calibration). This cause one to question the accuracy of the measurements. Visual assessment is a subjective assessment, and rightly enough, the authors have performed intra- and inter-examiner assessment. However the method of intra-examiner assessment was not described, e.g. was it done on a group of children (how many) and on how many occasions? How would the examiner(s) agreed that a child is mesocephaly for example by performing visual assessment? In addition, to describe that the examiner “stood a step away in front of the child” to conduct the profile measurement is unscientific. Did the examiner have a fix distance for this purpose? Was the child seated when viewing him/her? Was the viewing done with the examiner and child seeing each other at the same level e.g. eye to eye level?
Results

The authors have summarized their findings in 5 tables. In addition, they should further analyze their finding based on the age, gender and even socioeconomic status as all these factors may affect the process of visual assessment. As stated in the comment on “Introduction”, the cephalic index has been reported to differ at different age. However, will a examiner performing general visual assessment on two children aged 8 and 9 years able to make pick up the difference? Thus one child which a mesocephalic head index at 79 may be mistaken to be brachycephalic at an index of 80.

Discussion

The authors have rightly said in the second paragraph of Discussion that during growth process, cranial and facial development of the individual can be influenced by a variety of factors such as environmental conditions, socioeconomic level, race, ethnicity, breathing pattern and nutritional habits. Sadly, these factors were not taken into consideration during the analysis of results and when discussing their finding.

In paragraph 3, the authors tried to compare the head and/or facial features found in their subjects with those reported elsewhere. Unfortunately, most of the literatures cited were on adults, rendering one to question if this comparison is proper. A relook into literatures related to children will be necessary to draw comparison.

In paragraph 4, the authors described the other features dolichocephalic individuals, such as having a brain which is relatively narrow and elongated sagittally. They went on to say that this establishes a flatter cranial base, i.e., the angle between the middle and anterior cranial base is more open, which has the following basic implications for the face pattern: 1) the entire naso-maxillary complex is moved forward relative to the jaw due to the rotation of the skull base to the front, and the anterior and middle segments of the cranial base are longer sagittally; 2) the entire nasomaxillary complex is lower in relation to the mandibular condyle, this causes a downward and backward rotation of the mandible. These people tend to have a retrognathic profile. I fail to see the relevance of these facts with the results of their findings.

In paragraph 5, I also fail to relate the suggestion of subjects with euryprosopic facial type to have strong muscles and morphological features such as larger transverse size and parallelism between the occlusal and mandibular planes, smaller gonial angle and decreased lower anterior facial height. Similarly, I fail to see the clinical significance with the results obtained that suggests an association with correction problems and stability of deep bite. Lastly, I also fail to relate their findings to a suggestion that those individuals with a brachycephalic type were usually Class III individuals due to a more posterior position of the maxilla and a more anterior location of the mandible (they did not look into the occlusion of their subjects).
Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:

No competing interest