Craniofacial anthropometric norms of Malays
Ngeow W C, Aljunid S T

ABSTRACT

Introduction: This study was undertaken to establish the craniofacial anthropometric norms of young adult Malaysian Malays.

Methods: The study group consisted of convenient samples of 100 healthy volunteers (aged 18–25 years), with an equal number of female and male subjects who had no history of mixed racial parentage. 22 linear measurements were taken twice from 22 landmarks over six craniofacial regions.

Results: The Malays shared many similar sizes of measurements with the Singaporean Chinese. Their left eye fissure length and mouth width (ch-ch) were almost identical for both genders. However, Malay females had an upper lip height (sn-sto) (left) and ear width (pra-pa) similar to Singaporean Chinese females. Six other measurements, viz. the head width (eu-eu), head circumference (on-op), face height (n-gn), lower face height (sn-gn), (left) eye fissure height (ps-p1), cutaneous upper lip height (sn-is) and cutaneous upper lip height (ls-sto), were 0.4–4.3 mm less in the Malays. Measurements for another four parameters, viz. the length of the head (g-op), biocular width (ex-ex), lower vermilion height (stoli) and (left) ear length (sa-sba), were 0.5–3.6 mm higher in the Malays. Only three measurements were obviously different; the height of the head (v-n) and intercanthal width (en-en) were lower, and the protrusion of the nasal tip (sn-prn) was higher in the Malays.

Conclusion: These findings suggest that three features, i.e. the height of the head (v-n), intercanthal width (en-en) and protrusion of the nasal tip (sn-prn) may be useful in differentiating a Malay face from a Singaporean Chinese one.

Keywords: anthropometry, craniofacial anthropometric norms, face, facial features

INTRODUCTION

Anthropometry is the measurement of living subjects. It has been shown to be useful in orthodontic research and in reconstructive surgery, where the soft tissue morphology of the face can be studied more reliably than comparisons from radiographs. Anthropometric measurements of the head and face can be used together with cephalometry, computed tomography (CT) and magnetic resonance (MR) imaging in preparation for a patient undergoing plastic and reconstructive surgery. This study seeks to expand scientific research to create hands-on value for surgeons treating the Malays, who mainly reside in Malaysia, Singapore, Brunei, Thailand and the Indonesian archipelago. Together, they make up about 250 million of the world population. This study addresses a current void, i.e. the lack of a specific anthropometric study on the craniofacial complex of Malays. All this while, Southeast Asian plastic and reconstructive surgeons, head and neck surgeons, oral and maxillofacial surgeons, orthodontists, forensic investigators and other practitioners have not had any baseline anthropometric templates for the craniofacial complex of the Malays, referring instead to subjective visual "landmark" comparisons as their main tool. Using established anthropometric craniofacial measurement techniques to find universal craniofacial focal points, this study's primary intention was to establish a baseline quantitative data of the Malays.

METHODS

The study group consisted of a convenient sample of 100 young adult Malays, with an equal number of female and male subjects. Their age ranged from 18 to 23 years. The participants chosen were generally healthy and exhibited no craniofacial abnormalities acquired either through road traffic accidents or other forms of trauma, congenital or developmental discrepancies and had no history of having undergone plastic or reconstructive surgery. Subjects of mixed parentage were excluded from this study. The data was collected between June and December 2004. Standard anthropometric instruments were used in this study. They were the Mitutoyo digital sliding calliper (Mitutoyo Corp, Kawasaki, Japan), spreading calliper, measuring tape and a modified sliding calliper with bubble levels.