

## ARE FACIAL INDICATORS GOOD MARKERS OF SEXUAL DIMORPHIC DIFFERENCES?

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**Background:** Facial indices are commonly used to assess facial masculinization and feminization and are thought to reflect sexually selected traits linked to physiological, behavioural, and psychological characteristics. However, evidence for consistent sex differences remains inconclusive.

**Objective:** To examine sexual dimorphism in facial indices commonly used to quantify facial masculinization and feminization in a contemporary Polish population.

**Materials and methods:** The study included 3D facial scans of 459 women and 400 men aged 20–79 years. Using 43 anatomical landmarks, 95 linear measurements and ten facial proportion indices – including the nasal index, fWHR, facial index, and cheekbone prominence – were calculated from Vectra 3D images.

**Results:** Significant nominal sex differences were observed for the nasal, mouth, and total facial indices ( $p < 0.001$ ); for fWHR and the lower fWHR ( $p < 0.01$ ); and for cheekbone prominence ( $p < 0.05$ ). Higher mean values in women were found for the lower facial height to total facial height ratio, upper facial index, cheekbone prominence, lower fWHR, and mouth width index. Despite these statistically significant differences, the distributions of index values in women and men largely overlapped. Dimorphism indices for facial proportions were consistently small, ranging from 0.07 for the lower facial height to total facial height ratio to 0.56 for the mouth width index, with relatively minor percentage differences between female and male means (0.41–17.59%).

**Conclusions:** These findings suggest that reliance on single proportional indicators may be insufficient for assessing facial masculinization or feminization, and that future research should focus on multivariate, multi feature approaches.

**Keywords:** Vectra 3D imaging system; Facial morphology; Facial masculinization/feminization.

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