**Facial-width-to-height ratio (fWHR) measured from 2D images using a
fully automated method and a manual-landmark-placement method
produce very similar results**

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Data and analysis code are publicly available at <https://osf.io/hk3yf/>

Researchers have argued that facial-width-to-height ratio (fWHR) measured from face images predicts a range of social judgments, social outcomes, and behaviours (see Dixson, 2018 for a recent review). However, not all findings from the fWHR literature appear to be robust, potentially because the original studies were underpowered (see, e.g., Zhang et al., 2018).

Positioning landmarks on face images in order to calculate fWHR (the manual-landmark-placement method) can be time consuming and is one barrier to increasing the number of faces included in fWHR studies. Fully automated methods for measuring fWHR are one potential solution to this problem. Although a fully automated method for measuring fWHR from 2D images currently exists (de Kok, 2017), we are not aware of any studies that have investigated the correlation between fWHR measured using this automated method and fWHR measured from manually placed landmarks.

We carried out such a test using the 102 face images publicly available at https://figshare.com/articles/Face_Research_Lab_London_Set/5047666. These images were taken under standardized photographic conditions, have been aligned on pupil position, and already have manually placed landmarks positioned on the images. For the automated method, fWHR ($M=2.23$, $SD=0.15$) was calculated using de Kok's (2017) fWHR calculator, with the measurement setting set to "top = 'eyebrow'". For the manual-landmark-placement method, fWHR ($M=2.17$, $SD=0.15$) was calculated using the "Calculate Facial Metrics" function in WebMorph.org (DeBruine, 2018). This latter method calculates fWHR using landmark points that have been used in several previous studies (e.g., Lefevre, Lewis, Perrett, & Penke, 2013; Zhang et al., 2018).

Figure 1 shows the relationship between fWHR measurements calculated using these two methods. The two sets of fWHR measurements were very highly correlated ($r = .91$, $N=102$, $p < .001$). These results suggest that the fully automated and manual-landmark-placement methods for calculating fWHR produce very similar results.

Figure 1. The relationship between fWHR calculated using de Kok's (2017) fully automated method and a manual-landmark-placement method that has been used in previous studies (e.g., Lefevre et al., 2013; Zhang et al., 2018).

References

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