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Sexually Dimorphic Faciometrics in Black Racial Groups from Early Adulthood to Late Middle Age

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Abstract:	An increasing body of research focusing on gender-related traits has utilized faciometrics in order to consider sexual dimorphism: Aspects as diverse as social heuristics, facial attractivness, sexual orientation, aggression and trustworthiness have all been investigated. However, the majority of these studies have tended to focus on White or Caucasian student populations, and have paid little regard to either older populations or racial background. The current study therefore investigated sexual dimorphism in 450 participants (225 women) from a Black population across four age-groups (20s, 30s, 40s, and 50s). In line with much previous research using White or Caucasian faces, the expected sexual dimorphism was seen in the younger age group in three of the four indices (cheekbone prominence, facial width to lower facial height and lower face height to full face height). However, consistent with more recent literature, the facial width to height ratio (fWHR) was not found to be significantly different between men and women in this age group. Contrary to previous research, when considering broader age groups, the three established measures of facial sexual dimorphism, when looked at independently, remained static over time, but this was not true for fWHR. It is concluded that facial structure does not follow the same aging trajectory in all populations and care should be taken in choice of facial metric, depending on the nature of the sample under investigation.

Sexually Dimorphic Faciometrics in Black Racial Groups from Early Adulthood to Late Middle Age

The role of sexual dimorphism in human evolution has long been a field of particular interest both in terms of social and sexual selection, with level of sex-congruent phenotypic markers providing, it is proposed, information to others regarding personality, fecundity and good genes relevant to our ancestral forebears. Markers of 'maleness' have therefore been used as a proxy for perceived masculinity in men and 'femaleness' as a proxy for perceived femininity in women (though see Mitteroecker, Windhager, Müller, & Schaefer, 2015, for further comment). For example, any source of information regarding probable levels of aggression and dominance in males, factors highly salient to living in social hierarchies, would be of benefit to those living within the social group. If factors associated with aggression and dominance are observable within the human face, then these factors will be valuable aids to harmonious social living. One such factor would be facial width to height ratio, a facial metric showing a small but significant, positive relationship with aggressive tendencies and behaviors (see Haselhuhn, Ormiston & Wong, 2015, for a meta-analysis) and dominance (Lefèvre, Etchells, Howell, Clark, & Penton-Voak, 2014; Mileva, Cowan, Cobey, Knowles, & Little, 2014).

Similarly, any source of information regarding probable levels of fecundity in women would be of benefit to ancestral men. If factors associated with fecundity are observable within the human face, then these factors will again be valuable aids to successful male reproductive effort. It is posited that more attractive females are also those who display more feminine features, whether in the face through, for example, less pronounced jaws and chins (Enlow, 1990), or in the body through for example, lower waist to hip ratio (Karremans, Frankenhuis & Arons, 2010; Singh, Dixson, Jessop, Morgan & Dixson, 2010). Good genes sexual selection theory (Trivers, 1972), suggests that individuals will select mates based on traits that honestly evidence good genes and that the inherent advantages they bestowed on their offspring's survival or reproductive success is based on such a premise, though more recent research shows that cross-cultural factors (e.g. societal development or environmental pathogen load) further influence these preferences (e.g. Little, Cohen, Jones, & Belsky, 2007, Moore et al., 2013; Penton-Voak, Jacobsen, & Trivers, 2004; Scott, Swami, Josephson, & Penton-Voak, 2008; Stephen, Scott, Coetzee, Pound, Perrett, & Penton-Voak, 2012). Whilst there have been interesting developments within these areas of study, not least the challenge from cross-cultural investigation of populations from diverse economic development, suggesting that human preferences for sexually dimorphic faces may, in fact, be an artifact of the novel environment (Scott et al., 2014), the focus on sexual dimorphism as an area of salience to evolutionary psychologists still remains.

Research interests have been diverse, from studies considering, more broadly, the underlying associations between anatomy and behavior (Lefèvre, Lewis, Perrett, & Penke, 2013; Pound, Penton-Voak, & Surridge, 2008) to studies considering, for example, the consistency of social evaluations (Hehman, Flake, & Freeman, 2015) and social heuristics (Hehman, Leitner, & Freeman, 2014; Palumbo, Adams, Hess, Kleck & Zebrowitz, 2017), facial attractiveness (Danel & Pawlowski, 2007; Frackiewicz, 2001; Kleisner, Kočnar, Tureček, Stella, Akoko, Třebický, & Havlíček, 2017; Penton-Voak et al, 2001), mate choice (Danel, Dziedzic-Danel, & Kleisner, 2016) and sexual orientation (Hughes & Bremme, 2011; Valentova, Kleisner, Havlicek, & Neustupa, 2014; Robertson, Kingsley & Ford, 2017). There is also, now, a large body of research using faciometrics to promote understanding of dominance-related behavioral traits, including studies on aggression (with Haselhuhn et al, 2015 providing a useful meta-analysis of this research) and judgments of aggression

(Geniole, Molnar, Carré, & McCormick, 2014), as well as on achievement drive (Lewis, Lefèvre, & Bates, 2012), unethical behavior (Haselhuhn & Wong, 2011) co-operation and trustworthiness (Stirrat & Perrett, 2010; Stirrat & Perrett, 2012), and prejudicial beliefs (Hehman, Leitner, Deegan, & Gaertner, 2013).

There is, then, a wealth of literature investigating issues pertaining to sexual dimorphism, from constructions of masculinity based on the manipulation of images (e.g. Lefèvre & Saxton, 2017; Lobmaier, Bobst, & Probst, 2016; Penton-Voak, Perrett, Castles, Kobayashi, Burt, Murray, &Minamisawa, 1999) to morphometric measures involving ratios or linear distance (e.g. Mileva et al, 2014; Pound, Penton-Voak, & Surridge, 2008; Robertson et al, 2017) to geometric morphometric analyses (e.g. Danel et al, 2016; Scott, Pound, Stephen, Clark, & Penton-Voak, 2010; Windhager, Schaefer, & Fink, 2011). The generalizability of such research to ageing populations, however, has been questioned with only a minority drawn from non-traditional student-aged samples (see Danel et al, 2016; Hehman et al, 2014; Hodges-Simeon, Sobraske, Samore, Gurven, & Gaulin, 2016; Kramer, 2015; Lefèvre, Lewis, Bates, Dzhelyova, Coetzee, Deary, & Perrett, 2012; Robertson, Kingsley, & Ford, 2017, and Welker, Bird, & Arnocky, 2016). Indeed, whilst Robertson et al (2017) were able to establish consistent sexual dimorphism across the lifespan utilizing one faciometric measure (specifically cheekbone prominence), other measures of sexual dimorphism followed distinct developmental trajectories, the consistent factor being a general decline of sexual dimorphism over age. Such ontogenetic findings are consistent with the prior research into age-related facial change (Atkinson, 2013; Ross & Williams, 2010, and Urban et al., 2016). For example, Urban et al., (2016), used three-dimensional geometric, morphological analysis of CT scans to reveal significant, *and* sexually dimorphic, age-related changes to the human skull. It would be rational, then, to assume that as the allometric relationship differs between, for example, the brain and the human body in contrast to the heart and the human body (with the brain and body being virtually isometric with an allometric coefficient of α=.98, in contrast to the hypo-allometric relationship between heart and body at α=.73; Moore, 1983), such differences in allometric scaling may also occur in the human face post puberty.

A similar issue with regard to the generalizability of the faciometric literature concerns the racial background from which the samples have been drawn. That is not to say the research has been 'color-blind'. Phenotypic differences between established racial groups have been recognized, though not on the whole explicitly, and as a result Methods sections tend to state that participants were 'White' or 'Caucasian'. Thus generalizability within such groups has been supported. Nevertheless, there has been a paucity of research utilizing faciometrics, outside of dry skull research, within other racial groups (though see Hodges-Simeon et al, 2016; Kramer, 2015; Kleisner et al, 2017; Lefèvre et al, 2012; Scott et al, 2008; Stephen et al, 2012; Ozener, 2012 and Welker et al, 2016), creating a real and worrying bias in the literature available in this area. This, of course, runs counter to the APA guidelines on multicultural research which advocate the notion that recognition of 'the intersection of racial and ethnic group membership with other dimensions of identity (e.g., gender, age, …) enhances the understanding and treatment of all people' (2002, p. 16). Indeed, as stated within the current guidelines, the

> ' APA and its members are presented with an opportunity to participate directly, as professional psychologists, in engaging a fuller understanding of diversity and its considerations within practice, research, consultation, and education (including supervision) to directly address how development unfolds across time and intersectional experiences and identities; and to recognize the highly diverse nature of individuals and communities in their

defining characteristics, despite also sharing many similarities by virtue of being human'.

APA 2017, p.6

Explanations can be drawn, in part, from the systematic over-representation of certain groups of people (generally white, middle class students) in research generally. Indeed, as Henrich, Heine and Norenzayan (2010) contend, people from Westernised, Educated, Industrialised, Rich and Democratic (or WEIRD) societies represent 80% of the research participants in the Behavioural Sciences but just 12% of the global population. The failing to represent non-Whites may also stem from the reluctance to discuss 'race' explicitly, in view of the sensitivity and lack of consensual definition over the terms employed (race, ethnicity, culture, etc.) and of the suggestion that race may be biologically determined as opposed to socially constructed. In this study we follow the APA (2002) in that we see race as a social construction, that being 'the category to which others assign individuals on the basis of physical characteristics, such as skin color or hair type' (2002, p.9). Our research also mirrors the extant literature in as much as we employ an overarching banner 'Black' in the same way that prior research has employed the overarching banner 'White' to describe our sample. It is recognised that by so doing we ignore the phenotypic heterogeneity of such a group, whilst recognising, too, the phenotypic heterogeneity of a 'White' sample. We contend, nevertheless, that there are phenotypic facial differences between these groups, and therefore assertions made regarding sexual dimorphism in a White population should not and cannot be generalised to a Black population. This research, then, as a replication of the research conducted by Robertson et al (2017), seeks to establish whether sexual dimorphism of facial features exists within a Black sample, using established faciometric measures in a student aged population. It further seeks to establish whether such dimorphism, should it be present within a student-aged sample, declines over age, consistent with this prior research.

Study 1

In this study we sought to establish facial sexual dimorphism in a Black, research-typical student-aged sample, by investigating the validity of the four previously established, ratio-led, and purportedly sexually dimorphic measurements (though see Robertson et al, 2017, for comment re fWHR) as discussed.

Method

Materials.

Facial photographs of 75 men and 75 women were collected from the MORPH longitudinal facial image database (Ricanek & Tesafaye, 2006), of 55,000 facial photographs and 13,000 individuals.[11] As per protocol set by Robertson et al (2017), selection criteria was for any image classified in the database as Black, and required that all were aged in their twenties (see Table 1). Again, consistent with prior protocol, none wore glasses, and all images selected were neutral in expression, forward-facing and exhibiting no discernible head rotation or tilt. Images from which measurement could not be accurately made (perhaps through piercings, hairstyle or unclear hairline) were rejected. As there was no specific order to the database, the first images which were classified as ‘Black’ in the file descriptor and met our age criterion were chosen and then assessed against the remaining criteria.

Facial measures.

ImageJ, an open-source, Java written program allowing analysis of scientific images, was used to take facial measurements following the faciometrics of the Robertson et al (2017) study. Thus, the following faciometrics were investigated: (1) Cheekbone Prominence (ChP,

[1] As photographs in the database were provided by adults specifically for research purposes, no further permissions were required from the ethics committee of the authors’ institution.

a/b), (2) Face width to lower face height (FW/LFH, a/c), (3) Lower face height to full face height (LFH/FFH, c/d) and (4) Facial width to height ratio (fWHR, a/e) (See Fig.1). By (a) we mean the horizontal distance between right and left zygions, by (b) we mean the horizontal distance between right and left gonions, by (c) we mean the vertical distance from the nasion to the chin, by (d) we mean the vertical distance from the hairline to the chin, and by (e) we mean the vertical distance from the nasion to the mid-point of the lips.

Results

Facial sexual dimorphism in a student-aged group was investigated by way of a one-way between groups multivariate analysis of variance. The independent variable was gender and the four dependant variables were cheekbone prominence**,** facial width to lower face height, lower face height to full face height and lastly, facial width to height ratio. Preliminary assumptions were performed to check for univariate and multivariate outliers, normality, linearity, homogeneity of variance-covariance matrices and multicollinearity with no significant issues found. There was a statistically significant gender difference on the combined dependent variables, F (4, 144) = 8.01, p‹.001, partial η^2 = .18. When the results for the dependent variables were then considered separately (and having made the appropriate Bonferroni adjustment of the alpha level to .0125, reflecting the four dependent variables), three of the four dependent variables retained statistical significance – cheekbone prominence, F (1, 147) = 10.34, p = .002, partial η^2 = .07, facial width to lower facial height, F (1, 147) = 12.33, p = .001, partial η^2 = .08, and lower face height to full face height, F (1, 147) = 23.47, p‹.001, partial η^2 = .14. However, independently facial width to height ratio, was not significant, F (1, 147) = .061, p = NS, partial η^2 ‹ .001.

Discussion

Study 1 provides support for the sexual dimorphism of facial features within a Black sample, using established faciometric measures in a student aged population. The findings are consistent with a wealth of literature utilising White or Caucasian faces in which sexual dimorphism has been found in cheekbone prominence, facial width to lower facial height, and lower face height to full face height (Hughes & Bremme, 2011; Lefèvre et al., 2012, 2013; Little et al., 2008; Robertson et al, 2017). Additionally, and as expected given the more recent evidence generally rejecting fWHR as a sexual dimorphic ratio (Kramer, 2015, 2017; Kramer et al., 2012; Lefèvre et al., 2012; Lefèvre, Lewis, Perrett, & Penke, 2013; Ozener, 2012; Robertson et al, 2017; though see Saribay, Biten, Meral, Aldan, Třebický, & Kleisner, 2018), the current study also found no sexual dimorphism in this metric. Thus, in a student aged sample, our findings support previous literature in the sexual dimorphism of three of these four, recognized sexually dimorphic faciometrics.

Study 2

Method

Materials.

As in Study 1, facial photographs of 225 men and 225 women were collected from the MORPH longitudinal facial image database (Ricanek & Tesafaye, 2006). Again, selection criteria was for any image classified in the database as Black, and this time required that all were aged 20-59, with four age groups created representing the 20s, 30s, 40s and 50s. There were no significant differences in mean ages between men and women for each age group (see Table 1). All other selection criteria remained the same as in Study 1, the first images being classified as 'Black' in the file descriptor and meeting our revised age criterion being chosen and then assessed against the remaining criteria.

Results

Sexual dimorphism of cheekbone prominence, facial width to lower facial height, lower facial height to full facial height and fWHR was investigated across the four decades of life, i.e. the twenties, thirties, forties, and fifties, via a two-way between-groups multivariate analyses of variance. Preliminary assumptions were again performed to check for univariate and multivariate outliers, normality, linearity, homogeneity of variance-covariance matrices and multicollinearity. Two images showed Mahalanobis Distances in excess of the critical value of 18.47 (at 56.9 and 31.1 respectively), and these were therefore removed from the analysis. Otherwise no significant issues were noted. There was no significant interaction between gender and age group.

When looking at the main effect of sexual dimorphism, there was statistically significant dimorphism in the combined facial metrics, F (4, 436) = 32.05, p‹.001, Wilks' Lamda= .77; partial η^2 = .23. Independently, and having made the necessary Bonferroni adjustment to alpha level, all facial metrics also showed sexual dimorphism - cheekbone prominence, F (1, 439) = 47.63, p‹.001, partial η^2 = .10, facial width to lower facial height, F (1, 439) = 72.07, p‹.001, partial η^2 = .14, lower facial height to full facial height F (1, 439) = 65.51, p‹.001, partial η^2 = .13 and fWHR, F (1, 439) = 8.54, p‹.001, partial η^2 = .02 (see Table 2).

When looking at the main effect of age, there were statistically significant differences in the combined facial metrics across the four age groups, F (12, 1314) = 2.71, p = .001, Wilks' Lamda= .93; partial η^2 = .02. Independently, however, and having made the necessary Bonferroni adjustment to alpha level, only fWHR was significantly different across these age groups, F (3, 439) = 6.59, p‹.001, partial η^2 = .04 (see Table 3).

Discussion

Study 2 sought first to establish the existence of facial sexual dimorphism within a Black sample from young adulthood to late middle age (i.e. from the 20s through to the 50s). Inspection of the multivariate analysis across these age groups indicated that when analysed together the four faciometric measures considered (cheekbone prominence, facial width to lower facial height, lower face height to full face height and fWHR) remained sexually dimorphic with a large effect size. Furthermore, when taken individually, cheekbone prominence, facial width to lower facial height, and lower face height to full face height all retained dimorphism, consistent with the student aged sample. Interestingly, however, and unlike the student-aged sample, in the broader age group fWHR was, now, found to be sexually dimorphic, with a larger fWHR in women than men. This was an unexpected finding, not being consistent with the more recent research which has found no support for the sexual dimorphism of this trait, either in student-aged samples, or across the spread from young adulthood to late middle age (Kramer, 2015, 2017; Kramer et al., 2012; Lefèvre et al., 2012; Lefèvre, Lewis, Perrett, & Penke, 2013; Ozener, 2012; Robertson et al, 2017). It is noted, however, that this finding is consistent with the research by Hughes and Bremme, (2011), Little, Jones, Wait, Tiddeman, Feinberg, and Perrett (2008), and Penton-Voak, Jones, Little, Baker, Tiddeman, Burt, and Perrett (2001).

The second study also sought to establish whether sexual dimorphism, present within a student-aged sample, declines over age, consistent with prior research presented by Robertson et al (2017). When analysed it was found, again, that age had a significant impact on sexual dimorphism when considering all faciometric measures together, though this impact was small, accounting for just 2% of the variance in the respective measures. When the results for the faciometric measures were considered separately neither cheekbone prominence, facial width to lower facial height, nor lower face height to full face height changed significantly over age. On the other hand, fWHR was shown to decrease from young adulthood to late middle age (with age, here, accounting for 4% of its variance).

General Discussion

The current research supports the existence of sexually dimorphic faciometrics in a Black sample, broadly consistent with the existing research in Whites, when considering a student-aged sample. In both the current research on a Black sample and previous research on White samples (e.g. Robertson et al., 2017), both cheekbone prominence and facial width to lower face height were found to be larger in women than men, as opposed to lower face height to full face height which was found to be larger in men than women (Hughes & Bremme, 2011; Lefèvre et al, 2012; Little et al, 2008; Penton-Voak et al, 2001). Similarly, too, fWHR was not found to be sexually dimorphic in either Black or White samples.

However, when considering a sample ranging in age from the twenties to the fifties, differences between the current Black samples and previously reported White samples emerge. In this study all faciometrics remained independently sexually dimorphic, including fWHR. This was not true of prior research with a White sample, where the trajectories of the different faciometrics were quite different (Robertson et al, 20017). For example, cheekbone prominence remaining sexually dimorphic in every age group, in contrast to lower face to full face height which was sexually dimorphic in only the twenties, and facial width to lower facial height which retained significance until the 50s at which point it was lost.

In terms of fWHR, the current study indicated sexual dimorphism, running counter to the generally accepted findings in White samples that this particular faciometric is not, in fact, sexually dimorphic (Kramer, 2015; Kramer, Jones & Ward, 2012; Lefèvre et al, 2012; Lefèvre, Lewis, Perrett & Penke, 2013; Ozener, 2012). (The findings are, however, consistent with research conducted with a Turkish sample of undergraduate students, though this was accounted for by Body Mass Index; Saribay et al, 2018). Additionally, this faciometric was the only metric seen to change significantly over age, with a linear decline (representing a general 'feminisation'), consistent, interestingly, with the findings of Hehman et al (2014) in their investigations into the effects of lifespan changes to fWHR in men on social perceptions. This was also consistent with the findings of Kramer (2015) in which he found a negative fWHR/ age correlation in European women (but a positive one in Asian-Oriental women), although he found no such relationship between age and fWHR in men. The only other known research on fWHR on ageing populations has not found sexual dimorphism in fWHR (Kramer, 205; Lefèvre et al, 2012; Robertson et al, 2017).

That such age-related changes are evident is interesting, particularly so as those changes differ between Black and White populations. It is possible that the differing cross-cultural trajectories may be attributed to socio-economic conditions, environmental differences, differences in 'life-histories' and so on, but future research will be needed in order to gain a clearer understanding of these putative explanatory factors. The findings are, however, consistent with the research supporting age-related changes to cranial morphology as found by Ross & Williams (2010), Atkinson (2013) and Urban et al. (2016). Additionally, ontogenetic allometry in phenotypic facial structure may also be the result of related factors including changes to, for example, the angle of the lower jaw (occurring at differing developmental points for men and women; Shaw et al, 2011), levels of circulating hormones and their impact on both adiposity and the dermal layer (Ziomkiewicz, Ellison, Lipson, Thune, & Jasienska, 2008) and so on. A limitation of the current study is that the precise degree of allometry (or otherwise) in specific facial dimensions is not known as body measures (e.g. height, body mass index, weight etc.) were not available. Given that facial allometry in the stricter sense (i.e. face shape in relation to body size) should influence perceptions of masculinity (e.g. larger faces tend to have wider jaws; Mitteroecker et al., 2015), future research in this area would be beneficial in order to understand more completely the exact relationship between these variables.

In conclusion, then, though there has been a wealth of previous research investigating sexual dimorphism in facial metrics, research using a more diversely aged White sample cautions against the assumption that facial sexual dimorphism remains static over time, and advocates the use of cheekbone prominence specifically as the favoured metric in a more diversely aged White sample (Robertson et al, 2017). Conversely, the current study finds that, unless considering fWHR, the remaining faciometrics (cheekbone prominence, facial width to lower facial height, and lower face height to full face height) may be relatively safely used both in student aged samples and across more diversely aged Black samples when investigating sexual dimorphism in facial structure and its associations with putatively related constructs.

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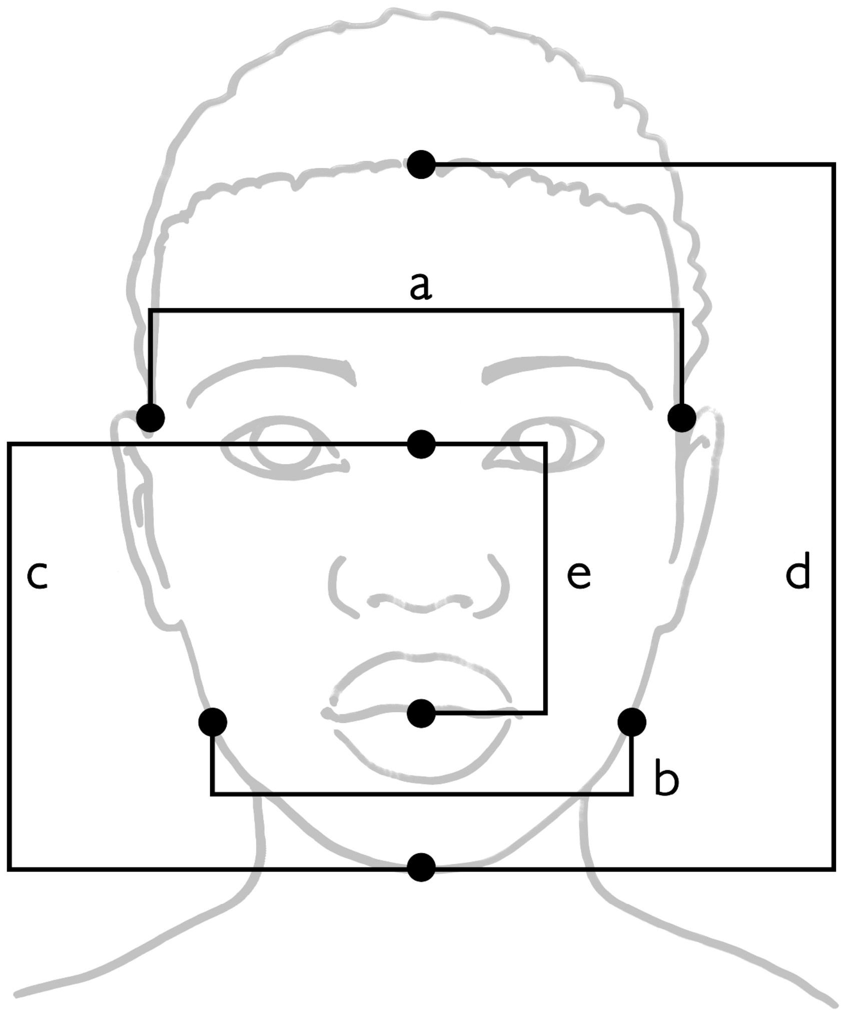

Figure 1: Points used in the calculation of facial metrics

301x386mm (300 x 300 DPI)

Table 1.
Mean (SD) Age by Gender and Age Group

	Male			Female				
Age Group	*n*	*M*	*SD*	*n*	*M*	*SD*	*t*	*p*
20s	75	24.15	9.91	75	24.32	2.96	0.36	NS
30s	50	34.38	3.00	50	34.64	2.92	0.44	NS
40s	50	44.76	2.85	50	44.80	2.89	0.07	NS
50s	50	55.20	2.86	50	53.60	2.44	0.03	NS

Table 2

Descriptive and Inferential Statistics for Sexual Dimorphism in Individual Facial Metrics

		M (SD)	95% CI	*F*	η_p^2
Cheekbone Prominence				47.63***	.10
20s **	Male	1.13 (.05)	[1.12, 1.14]		
	Female	1.15 (.05)	[1.14, 1.17]		
30s ***	Male	1.11 (.05)	[1.11, 1.12]		
	Female	1.15 (.05)	[1.14, 1.17]		
40s *	Male	1.12 (.05)	[1.10, 1.13]		
	Female	1.16 (.06)	[1.14, 1.17]		
50s *	Male	1.13 (.07)	[1.12, 1.15]		
	Female	1.17 (.05)	[1.15, 1.18]		
	Total Male	1.12 (.06)	[1.11, 1.13]		
	Total Female	1.16 (.05)	[1.15, 1.16]		
Face width to lower face height				72.07***	.14
20s **	Male	1.13 (.07)	[1.12, 1.15]		
	Female	1.17 (.08)	[1.16, 1.19]		
30s **	Male	1.12 (.08)	[1.10, 1.14]		
	Female	1.17 (.08)	[1.15, 1.19]		
40s ***	Male	1.10 (.07)	[1.08, 1.12]		
	Female	1.16 (.08)	[1.14, 1.18]		
50s ***	Male	1.10 (.06)	[1.08, 1.12]		
	Female	1.18 (.08)	[1.16, 1.20]		
	Total Male	1.11 (.07)	[1.10, 1.12]		
	Total Female	1.17 (.08)	[1.16, 1.18]		

Lower face height to full face height				65.51***	.13
20s ***	Male	.63 (.03)	[.63, .64]		
	Female	.61 (.03)	[.60, .62]		
30s ***	Male	.63 (.03)	[.62, .64]		
	Female	.61 (.02)	[.60, .62]		
40s ***	Male	.63 (.03)	[.63, .64]		
	Female	.61 (.03)	[.60, .62]		
50s **	Male	.63 (.03)	[.62, .64]		
	Female	.61 (.03)	[.60, .62]		
	Total Male	.63 (.03)	[.63, .64]		
	Total Female	.61 (.03)	[.61, .62]		
fWHR				8.54**	.02
20s	Male	1.86 (.13)	[1.83, 1.89]		
	Female	1.86 (.03)	[1.83, 1.89]		
30s	Male	1.85 (.14)	[1.81, 1.88]		
	Female	1.85 (0)	[1.81, 1.88]		
40s *	Male	1.79 (.11)	[1.75, 1.82]		
	Female	1.84 (.14)	[1.81, 1.88]		
50s **	Male	1.75 (.13)	[1.72, 1.79]		
	Female	1.84 (.18)	[1.80, 1.87]		
	Total Male	1.82 (.14)	[1.80, 1.83]		
	Total Female	1.85 (.13)	[1.83, 1.87]		

Note. CI = Confidence Interval, η_p^2= partial η^2

*$p<.05$, **$p<.005$, ***$p<.001$

Table 3

Main Effects for Age Group in Individual Facial Metrics

	M (SE)	95% CI	*F*	η_p^2
Cheekbone Prominence			3.33	.02
20s	1.14 (.004)	[1.12, 1.15]		
30s	1.13 (.005)	[1.12, 1.14]		
40s	1.14 (.005)	[1.13, 1.15]		
50s	1.15 (.005)	[1.14, 1.16]		
Face width to lower face height			1.87	.01
20s	1.15 (.006)	[1.14, 1.16]		
30s	1.14 (.007)	[1.13, 1.16]		
40s	1.13 (.007)	[1.12, 1.15]		
50s	1.14 (.007)	[1.12, 1.15]		
Lower face height to full face height			.29	.00
20s	.622 (.002)	[.62, .63]		
30s	.619 (.003)	[.61, .62]		
40s	.622 (.003)	[.62, .63]		
50s	.621 (.003)	[.62, .63]		
fWHR			6.59***	.04
20s	1.86 (.010)	[1.84, 1.88]		
30s	1.85 (.013)	[1.82, 1.87]		
40s	1.82 (.013)	[1.79, 1.84]		
50s	1.79 (.013)	[1.77, 1.82]		

Note. CI = Confidence Interval, η_p^2= partial η^2
***p‹.001