



Original Article

African and European perception of African female attractiveness



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ABSTRACT

Majority of research on attractiveness is restricted to faces of European origin. The perception of attractiveness may, however, vary across communities due to variations in both facial morphology and local standards of beauty. We investigated the relative contribution of four facial markers of attractiveness based on 101 female facial portraits (standardized, non-manipulated) from Cameroon and Namibia, which were assessed by local male raters and by raters from a distant European population, the Czech Republic. Images from Cameroon include only women of Bantu origin, while Namibians are represented by women of both Bantu (Owambo/Herero) and Nama origin. While controlling for age and BMI, we explored the relationship between female attractiveness and a set of facial traits: fluctuating asymmetry, averageness, shape sexual dimorphism, and skin color (rated and measured in CIELab color space).

In the Cameroonian sample, local male raters favored lighter-skinned female faces with morphology closer to average. The attractiveness of Nama women as rated by Nama men positively correlated with lighter complexion, but this did not extend to rating by Cameroonian men. The attractiveness of Namibian Owambo/Herero women was positively associated with facial femininity and lighter complexion when judged by both Cameroonian and Nama male raters. In all samples, the attractiveness as rated by Czech men was predicted by age and BMI, but not by skin color. We found no significant association between attractiveness and fluctuating asymmetry in any of the tested samples. When controlling for age, the effect of skin color on attractiveness turned to be non-significant in the Owambo/Herero and Nama sample, but remained significant in the Cameroonian sample. Variations in skin color thus represent an important factor of African female attractiveness within the African context, but they do not seem to affect judgements made by European raters. Sensitivity to some facial markers of female attractiveness thus seems to be restricted to regional populations and/or constrained by shared ethnicity.

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1. Introduction

Evidence from many previous studies demonstrates a substantial agreement in preferences regarding facial attractiveness both within and between various human populations (Burke, Nolan, Hayward, Russell, & Sulikowski, 2013; Coetzee, Greeff, Stephen, & Perrett, 2014; Little, Hockings, Apicella, & Sousa, 2012; Rhodes, 2006; Stephen et al., 2012). A crucial question is to what extent are facial preferences universal and whether sensitivity to particular attractiveness cues is adaptive across populations (Pisanski & Feinberg, 2013). A meta-analysis by Langlois et al. (2000) showed a relatively high overall cross-ethnic agreement in the perception of facial attractiveness ($r = 0.88$). This

meta-analysis was, however, based mainly on raters who had been exposed to Western standards of beauty and might, as a result, underestimate cross-cultural variations in facial attractiveness judgements. Nevertheless, a relatively high agreement in attractiveness judgements regarding European-looking individuals from the USA ($\rho = 0.64$) was found in raters from Lagos (Nigeria). The agreement was paradoxically lower in attractiveness ratings of Afro-Americans ($\rho = 0.44$) (Martin, 1964). Similar levels of agreement ($r = 0.60$) were found in a cross-cultural comparison of attractiveness ratings of individuals from the USA when they were assessed by people from rural Senegal and the UK (Silva, Lummaa, Muller, Raymond, & Alvergne, 2012). Zebrowitz et al. (2012), on the other hand, found only a moderate agreement between ratings of faces of one's own and the other ethnic group in Tsimané Indians (Bolivia) and people from the USA. Jones and Hill (1993) also found that assessments of facial attractiveness made by the Aché (Paraguay) and Hiwi (Venezuela) Indians corresponded only very weakly with ratings made by Americans,

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Russians, and Brazilians (mean $r = 0.13$). Further, Sorokowski, Kościński, and Sorokowska (2013a) observed significant cross-cultural differences in attractiveness ratings between Poles and Yali people (West Papua) when Polish faces were assessed by both Poles and Yalis. These findings show that despite a significant cross-cultural agreement in the perception of attractiveness, there is also substantial amount of variation unique to individual cultures.

Yet although the attractiveness of human faces has been widely studied, evidence is markedly sparse outside the Western world, and while several studies compare attractiveness assessments between African and European/Asian individuals (Coetzee et al., 2014; Jones, 1995; Jones & Hill, 1993; Little, Apicella, & Marlowe, 2007; Martin, 1964; Stephen et al., 2012; Zebrowitz, Montepare, & Lee, 1993), to our best knowledge, there is currently no study comparing the perception of attractiveness among different African populations. Previous research had identified several facial characteristics which are systematically associated with the perception of facial attractiveness, such as averageness, symmetry, sexual dimorphism, as well as skin tone, which in African populations is a highly variable visual trait.

According to the “average is attractive” hypothesis, faces closer to the population mean with low levels of distinctiveness are regarded as more attractive (Alley & Cunningham, 1991; Langlois & Roggman, 1990). It was hypothesized that facial averageness indicates heterozygosity and a greater genetic diversity (Little, Jones, & DeBruine, 2011; Rhodes, 2006; Thornhill & Gangestad, 1999). Faces closer to the average are thus believed to reflect higher biological quality, such as increased immunocompetence and disease resistance (Gangestad & Buss, 1993; Lie, Rhodes, & Simmons, 2008; Little et al., 2011; Thornhill & Gangestad, 1993). The alternative hypothesis, i.e., “attractive faces are not average”, may be the result of directional selection towards increasingly juvenile facial features which display a certain level of paedomorphosis or sex-typicality, such as babyfacedness in woman (Alley & Cunningham, 1991). Yet while both factors contribute to facial attractiveness, averageness has been shown to have a larger effect on attractiveness than juvenilization (Wehr, MacDonald, Lindner, & Yeung, 2001).

Faces computer-manipulated to higher averageness have been shown to be positively related to perceived health in both men and women (Rhodes et al., 2001). The association between averageness and attractiveness seems to be more general and hold not only of human faces, but also for instance fishes and even inanimate objects (Halberstadt & Rhodes, 2000; Halberstadt & Rhodes, 2003). When, however, familiarity of the objects is partialized out, association between attractiveness and averageness persists only in animate objects (birds, human faces). This may indicate the existence of an evolved preference for markers of biological quality in objects we encountered in the course of our evolutionary history (Halberstadt & Rhodes, 2003). It has also been proposed that average faces are not attractive because of a preference for a population mean, but due to a symmetry resulting from the mathematical averaging during the preparation of composite images (Alley & Cunningham, 1991; Pittenger, 1991). On the other, it ought to be noted that averageness accounts for a significant part of attractiveness even when the effect of symmetry is controlled for (Rhodes, Sumich, & Byatt, 1999), and although attractive faces tend to be average, the most attractive faces are not the most average ones (Baudouin & Tiberghien, 2004; Perrett, May, & Yoshikawa, 1994).

It has been suggested that high levels of fluctuating asymmetry (FA) indicate developmental instability, that is, an individual's in/ability to cope with stress factors during ontogeny (Özener & Fink, 2010; Thornhill & Gangestad, 1994; Thornhill & Møller, 1997). Low FA is associated with higher attractiveness in both sexes (Hume & Montgomerie, 2001), while high levels of FA have been related to various somatic and mental disorders (Thornhill & Møller, 1997), low intelligence (Banks, Batchelor, & McDaniel, 2010), and lower health assessment (Jones et al., 2001). Pound et al. (2014), however, found no association between low FA and health, while a recent meta-analysis revealed only a weak

association between FA and developmental instability (Van Dongen & Gangestad, 2011).

Sexual shape dimorphism has been shown to be systematically associated with female attractiveness as well. Along with sex typicality, more feminine female faces are perceived as more attractive both within and between cultures (Dixson, Little, Dixson, & Brooks, 2017; Jones & Hill, 1993; Perrett et al., 1998; Rhodes, 2006; Scott, Swami, Josephson, & Penton-Voak, 2008). The association between sexual dimorphism and facial attractiveness, on the other hand, seems to vary across cultures and it has recently been suggested that it is an evolutionarily novel feature which emerged in urban Western societies (Scott et al., 2014). Moreover, the link between the degree of sexual dimorphism and attractiveness may be more complex due to various methodological issues in femininity/masculinity measurements (Mitteroecker, Windhager, Müller, & Schaefer, 2015).

Attractiveness research conducted predominantly in European populations led to a certain underestimation of the variation in skin color as an important marker of attractiveness. Nevertheless, skin color seems to be a crucial component of facial attractiveness in populations with a high variation of this trait, for instance, among Indian (Badaruddoza, 2007), Japanese (Hulse, 1967; Wagatsuma, 1967), Chinese (Dixson, Dixson, Li, & Anderson, 2007a), island communities in Vanuatu (Dixson et al., 2017), people of New Zealand and U.S.A. (Dixson, Dixson, Bishop, & Parish, 2010), and various African populations (Coetzee et al., 2012; Coetzee et al., 2014; Dixson, Dixson, Morgan, & Anderson, 2007b). Preference for lighter skin in women – but not men – has appeared independently (convergently) in Asia and Europe (Lie et al., 2008). This preference appears to predate colonialism and the introduction of Western standards of beauty (Wagatsuma, 1967). Irrespective of ethnicity, women after puberty have on average a lighter complexion than their male counterparts. This dimorphism in skin pigmentation has been interpreted as a result of sexual selection to facilitate male attraction to females (Van den Berghe & Frost, 1986). Skin color has been shown to be a marker of attractiveness and perceived current health status for both Europeans and Africans when judging faces from one's own population (Coetzee et al., 2012; Stephen, Coetzee, Smith, & Perrett, 2009).

Existing research brings compelling evidence that facial averageness, symmetry, sexual dimorphism, as well as skin color influence human mating preferences and most likely have an adaptive value (Danel, Dzedzic-Danel, & Kleisner, 2016; Jones & Hill, 1993; Little et al., 2007; Little et al., 2011; Rhodes, 2006; Swami et al., 2008; Thornhill & Gangestad, 1999, but see also Foo, Simmons, & Rhodes, 2017; Silva et al., 2012). Even so, a comparison with facial attractiveness perception among various African populations seems to be lacking. In this study, we investigate four facial markers such as fluctuating asymmetry, averageness, shape sexual dimorphism, and skin color controlled for BMI and age for female facial attractiveness assessment in two African populations as perceived by raters from Namibia, Cameroon, and the Czech Republic. Based on previous studies, we expect that male raters from all cultures will prefer more average and more feminine female faces with low levels of fluctuating asymmetry. We also hypothesize that African raters will be more sensitive to variation in skin color while Czech raters will not utilize skin color as a cue to attractiveness judgment.

2. Material and methods

2.1. Acquisition of facial images

We collected facial portraits of 102 Cameroonian participants (51 women: Mean Age \pm SD = 24.92 \pm 8.4, range: 17–54; 52 men: Mean Age \pm SD = 23.75 \pm 5.49, range 17–44) and 98 Namibian participants (50 women: Mean Age \pm SD = 23.28 \pm 3.87, range 18–30; 48 men: Mean Age \pm SD = 23.04 \pm 3.59, range 18–30). The Namibian sample consisted of a subset of 18 Owambo/Herero women

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