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#### KEY POINTS

- Presented here are findings of self- and third-party ratings of female facial appearance for age, health and attractiveness across five ethnic groups.
- Implications of beliefs across the groups about the roles of given skin features are also discussed.

Bernhard Fink, Ph.D.

*Biosocial Science Information, Biedermannsdorf, Austria*

Rainer Voegeli and Remo Campiche, Ph.D.

*dsm-firmenich, Kaiseraugst, Switzerland*

Todd K. Shackelford, Ph.D.

*Oakland University, Rochester, USA*

Anthony V. Rawlings, Ph.D.

*AVR Consulting, Cheshire, United Kingdom*

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# Self Versus Third party Perceptions of Female Age, Health and Attractiveness — Plus the Role of Facial Skin Features Across Five Ethnic Groups



he human face communicates visual information that affects social communication and interaction.<sup>1,2</sup>

Within a fraction of a second, people form initial impressions of others<sup>3,4</sup> and use this information in social decisions,<sup>5</sup> including assessments of attractiveness<sup>6</sup> and trustworthiness.<sup>7</sup> According to evolutionary scientists, humans have evolved preferences for specific physical features that reflect adaptations to mating-related decisions.<sup>8,9</sup> Through this lens, healthy individuals are viewed as attractive because they demonstrate good physical condition.<sup>10</sup>

Particularly in women, a youthful appearance suggests high fecundity and thus reproductive potential.<sup>11,12</sup> It is not surprising, then, that research has focused on the face to assess age, health and attractiveness to quantify female “beauty.”

Recent research assessing female facial appearance within and between ethnic groups<sup>13</sup> documented cross-cultural variation (in addition to consistency). Using web-based software, female and male naïve assessors identifying with one of five ethnicities (Chinese, Japanese, French, Indian and South African) judged digital portraits of women within and across ethnicities for age, attractiveness and health.

Facial attractiveness



## Research has focused on the face to assess age, health and attractiveness to quantify female ‘beauty.’



● Figure 1. Sample images from five ethnic groups with the largest mean difference between self and third-party ratings, respectively (from L): Chinese, Japanese, French, Indian and South African

and health assessments were more varied across assessor ethnicities than were age assessments. These findings indicate variations in facial judgments, especially in terms of attractiveness and health,<sup>13</sup> corroborating reports of differential effects of skin features on ratings of age, health and attractiveness within and between ethnic groups.<sup>14-16</sup>

The present article considers connections between self-reported attractiveness and self-esteem. It also presents the results from a study exploring ethnic differences in self-reported versus third party assessments of age, health and attractiveness. Finally, it considers the implications of different beliefs across ethnic groups about the roles of given skin features.

### Self-reported Facial Attractiveness and Self-esteem

Previous studies of facial attractiveness from an evolutionary perspective have used third-party

ratings; typically a representative sample of naïve assessors who judge facial images for several attributes. Self-assessments are less commonly used, perhaps due to concerns regarding the accuracy of self-assessments.

Research comparing self-ratings with third-party ratings of facial photographs has found differences in the accuracy of self-perceived attractiveness between the sexes.<sup>17</sup> Assessments of attractiveness correlated positively and strongly for women but not for men — a finding interpreted with reference to the differential importance of physical appearance for women and men.

In another study,<sup>18</sup> women typically overestimated their attractiveness, and the most attractive women were most likely to self-deceive (defined by the authors as self-rating minus third-party rating). Women with less attractive faces were more realistic when rating their own appearance.

**Figure 1** shows sample images of female participants from five ethnic groups presented during the rating study. The mean differences between self-rated and third party-rated attractiveness were the largest for these women, respectively (from left to right): Chinese, Japanese, French, Indian and South African.

Deception (including self-deception) about

In a survey of 2,000 UK-based adults, 54% indicated “confidence in our appearance” to be the most important for building self-esteem.

Source: CTPA





traits and abilities may facilitate self-enhancement. People rate their own faces as more physically attractive than is reported by third-party raters.<sup>19</sup> Research on deception about one's own facial attractiveness in the context of prospective dating showed that the willingness to lie about one's attractiveness was greater for more attractive potential dates.<sup>20</sup> Evolutionary psychologists have documented that women, in particular, enhance and exaggerate desirable physical traits (e.g., via cosmetics) in intrasexual selection to advertise high reproductive quality to men.<sup>21</sup>

Self-rated attractiveness correlates positively with self-esteem,<sup>22, 23</sup> perhaps because individuals who perceive themselves to be attractive also perceive themselves to be socially valued. Researchers have contended that self-esteem reflects the integrated sum of self-efficacy and self-respect; i.e., the subjective sense of personal worth.<sup>24</sup> Indeed, self-esteem is strongly correlated with self-assessments of quality of life.<sup>25</sup>

Self-esteem may have several facets and, therefore, disagreement persists over its conceptualization and measurement. In a study of sex differences in self-rated attractiveness and self-esteem, Wade<sup>26</sup> hypothesized that self-perception in young adults reflects experiences in intersexual and intrasexual selection.<sup>27</sup> Hence, our self-perceptions reflect how others perceive us, and self-awareness has evolved to facilitate successful competition for mates.

Wade found that women and men use the same reproductively relevant criteria in self-assessments that observers use.<sup>26</sup> This suggests that self-assessed attractiveness is not based exclusively on the feedback people receive from others.

Research on self-perceived attractiveness and self-esteem in the mating context supports the suggestion that self-esteem evolved to regulate interpersonal relationships, including mating relationships.<sup>28</sup> For example, women who regard themselves as highly attractive have

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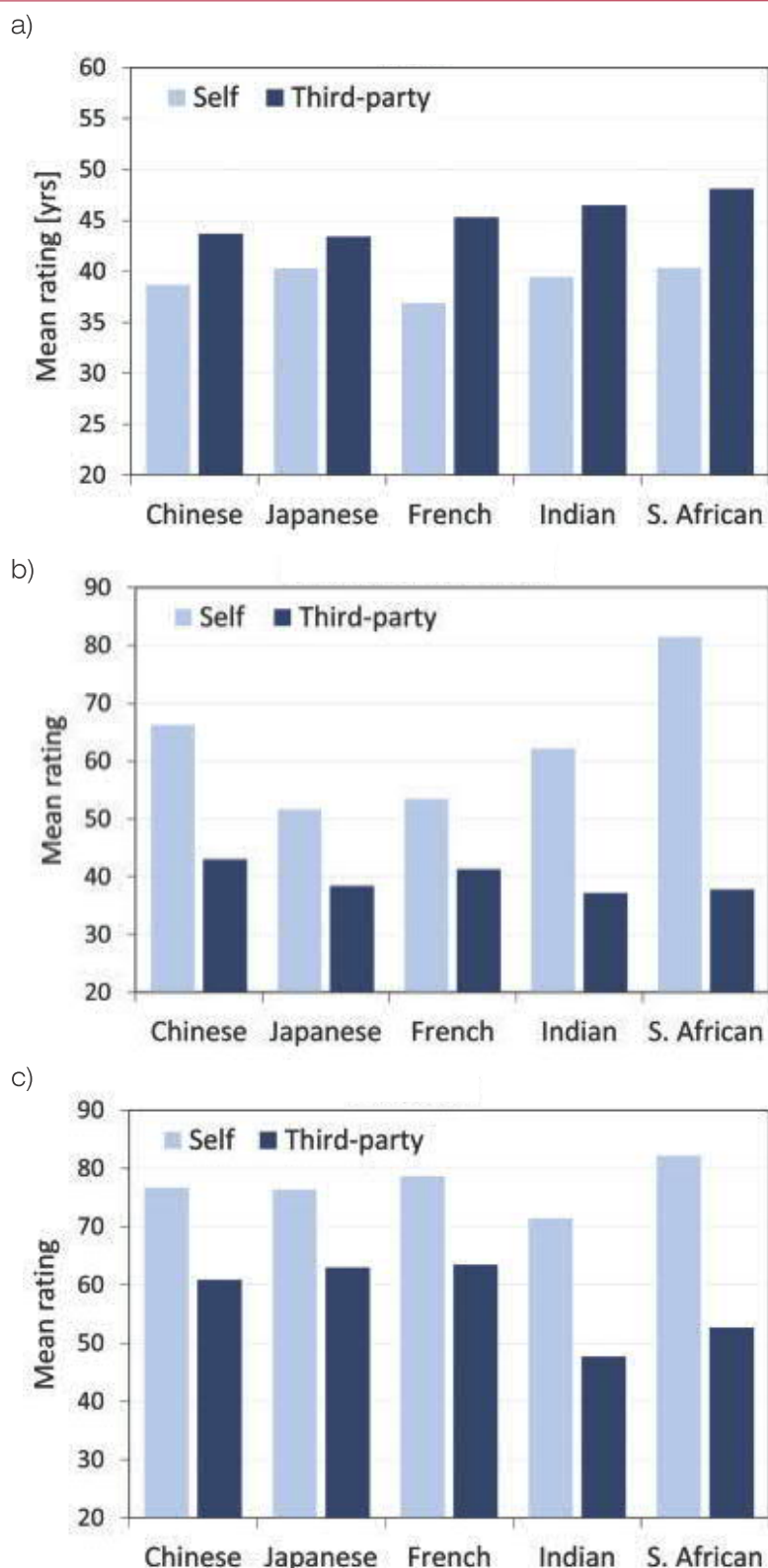
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● Figure 2. Self-ratings and third-party ratings of women's facial images for age (a), attractiveness (b) and health (c) by female and male assessors of five ethnic groups

a greater preference for markers of mating-related quality in a prospective partner (i.e., masculinity and symmetry).<sup>29</sup> Collectively, these studies on self-assessed attractiveness suggest an impact on self-esteem mediated by mate value.

### Self- Versus Third-party Assessments: A Multi-ethnic, Multi-center Study

Recently, the authors carried out a multi-ethnic and multi-center study of female facial appearance across five societies, securing ratings from age- and sex-matched naïve assessors of women's digital portraits, both within and between five ethnic groups.<sup>13, 16, 30</sup>

**Protocol:** Age-matched women (n = 180) 20-65 years were imaged in five locations (Guangzhou, Tokyo, Lyon, New Delhi and Cape Town), with identical equipment and following the same research protocol. Assessors identifying with one of five ethnicities (Chinese, Japanese, French, Indian and South African; n = 36 each) judged the women's faces for age, attractiveness and health. Each image was rated ~300 times, producing ~155,000 judgments total.

In addition to ratings from third-party assessors, self-assessments from the 180 women contributing the images were secured. At the time of their lab visit for facial imaging, the women were asked to assess their perceived age (in years), attractiveness and health, on scales ranging from 0 to 100, anchored by "not attractive" or "not healthy," and "attractive" or "healthy." These scores were



Image courtesy of LIGHTFIELD STUDIOS at Adobe Stock

## From the perspective of cosmetic science, an integrated approach to understanding consumer needs is particularly promising.

recorded using web-based software (as were third-party ratings).

Following are the results of the self-ratings and comparison with combined ratings of female and male assessors from the same ethnicity as the photographed women. The third-party ratings within and across ethnic groups have been presented elsewhere.<sup>13</sup>

**Findings:** Across ethnic groups, self-reported age was lower than the assessors' estimated age, and the opposite pattern was found for attractiveness and health (see **Figure 2a-c**). Kruskal-Wallis ANOVAs by ranks indicated ethnic differences for self-reported attractiveness ( $H = 51.32; p < .0001$ ) and health ( $H = 15.98; p < .01$ ) but not for age ( $H = 1.27; p = 0.87$ ). South African women rated themselves highest for attractiveness, followed by Chinese, French and Japanese women.

Self-rated health did not differ between ethnic groups, with the exception of Indian women scoring lower than other ethnic groups.

To assess discrepancies between self-ratings and third-party ratings, the differences between the mean ratings for age, attractiveness and health were calculated for each ethnic group. Self-rated attractiveness and health were higher than third-party ratings for each ethnic group. The Kruskal-Wallis test revealed an effect for age ( $H = 16.01; p < .01$ ), attractiveness ( $H = 67.09; p < .0001$ ) and health ( $H = 20.30; p < .001$ ), indicating differences across ethnic groups in the discrepancies between self-ratings and third-party ratings.

French women showed the largest difference in age perception. The largest difference between self-rated and other rated attractiveness was observed for South African women,





followed by Chinese and Indian women; French and Japanese women showed the smallest differences. Differences in health assessments also were largest for South African women, and no significant differences were detected for other ethnic groups.

**Discussion:** These findings suggest larger divergences between self-assessments of facial appearance and third-party assessments for some ethnic groups. Considering the three attributes together, there was no coherent pattern of discrepancies between self-ratings and assessor ratings. However, the largest difference for age assessments in French women and for attractiveness in South African women, and the smallest difference for health in Indian women, may be noteworthy with reference to previous reports of third-party ratings<sup>13</sup> and their prediction from skin image analysis.<sup>16</sup>

Previous reports of age assessments of French women by French female assessors provided the youngest age estimations, compared

with assessors from other ethnic groups). This suggests that French women may be particularly concerned about aging.

Skin image analysis indicated the largest number of predictors for the (third-party) age ratings of French women. Thus, French women may be more sensitive than women of other ethnic groups to skin features that change with age – a speculation that would, however, fit French history and expertise in cosmetics.<sup>31</sup>

South African women rated themselves more attractive than did other members of their ethnic group, and Indian women were less positive about themselves regarding health than were other members of their ethnic group.

The apparent discrepancy with self-ratings is difficult to interpret but may be grounded in ethnic differences in perceptions of facial signs of aging. Skin image analysis showed that wrinkles and color (b\*) contribute to the prediction of third-party ratings of facial attractiveness in South African women; how-

Age	Wrinkles	Sagging	Roughness & dullness	Pores	Patchy skin tone	Dark spots	Dark eye circles & eye bags
Chinese	2	1	3	7	6	4	5
Japanese	2	1	5	7	6	3	4
French	2	1	5	7	6	4	3
Indian	2	1	6	5	4	7	3
South African	1	5	3	4	2	6	7
Grand Total	1	2	3	7	6	5	4

Attractiveness	Wrinkles	Sagging	Roughness & dullness	Pores	Patchy skin tone	Dark spots	Dark eye circles & eye bags
Chinese	3	1	2	7	6	5	4
Japanese	4	2	5	6	7	3	1
French	4	1	3	7	5	6	2
Indian	3	1	7	6	4	5	2
South African	1	6	5	2	3	7	4
Grand Total	3	1	4	6	7	5	2

Health	Wrinkles	Sagging	Roughness & dullness	Pores	Patchy skin tone	Dark spots	Dark eye circles & eye bags
Chinese	6	3	2	7	4	5	1
Japanese	6	4	2	7	3	5	1
French	6	4	2	7	3	5	1
Indian	3	1	6	7	5	4	2
South African	1	7	5	2	3	6	4
Grand Total	6	4	2	7	3	5	1

● Table 1. Rankings of assessors' reports of the significance of skin features in perceptions of facial appearance



*Skin roughness and dullness were ranked high in significance for health perception by Chinese, French and Japanese assessors. Image courtesy of Yaroslav Astakhov at Adobe Stock*

ever, compared with other ethnic groups, South African women may be less self-critical about signs of aging. Similarly, the finding of the smallest discrepancy between self-rated and assessor-rated health of Indian women may originate from cultural variation in standards of self-criticism,<sup>32</sup> in addition to ethnic differences in concerns about age-related skin changes.<sup>33</sup>

## Assessors' Beliefs About the Role of Facial Skin Features

Elsewhere, Voegeli et al.<sup>16</sup> reported differences between ethnic groups in the relative predictive utility of skin features in accounting for third-party ratings of female facial age, attractiveness and health. Facial wrinkling and sagging, for example, were the best predictors of facial age and attractiveness ratings, although differences between ethnic groups were observed in their relative contributions.

Skin tone and gloss had an additional role in facial health ratings.<sup>16</sup> In addition to ethnic differences in age-related skin changes due to variations in extrinsic and intrinsic factors, differences in the predictive utility of skin features may also be attributable to population-specific perceptions of specific skin features.

This multi-ethnic and multi-center study<sup>13, 16</sup> asked female and male assessors of the female portraits to rate the importance of specific skin

features for the perception of facial age, attractiveness and health. Thus, 120 assessors of each of the five ethnic groups were asked to indicate on a scale from 0 (“not important”) to 100 (“very important”) the significance of facial wrinkles, sagging, skin roughness and dullness, pores, patchy skin tone, dark spots, dark eye circles and eye bags. The individual scores were averaged for each skin feature and ethnicity, and rank-ordered (1 = very important, to 7 = not important; see **Table 1**).

Assessors' ratings indicated that facial wrinkles and sagging are particularly important predictors of perceptions of age and attractiveness. The significance of these features is observed across ethnic groups, with the exception of South African assessors, who scored age-related changes in skin topography lower than assessors of other ethnicities.

These findings are consistent with previous reports from the multi-ethnic and multi-center study,<sup>13, 16, 30</sup> indicating less concern with wrinkles and sagging reported by South African women, and with evidence on the relative importance of skin topography vs. skin coloration in lightly-pigmented women.<sup>34, 35</sup>

South African assessors report more concern about visible facial pores than assessors of other ethnic groups. According to assessors' reports across ethnic groups, a patchy skin tone and dark spots play an additional role in health perception,<sup>16</sup> especially dark eye circles and eye





bags. The latter feature affects perceptions of health across ethnic groups, with South African assessors again expressing less concern. Skin roughness and dullness were ranked high in significance for health perception by Chinese, French and Japanese assessors, but less so by Indian and South African assessors.

Collectively, the multi-ethnic, multi-center findings suggest that female and male assessors across ethnic groups are not equally concerned about the role of specific skin features in perceptions of female age, health and attractiveness. The finding of a strong role for wrinkles and sagging on perceptions of age and attractiveness corresponds with recent reports on the predictive role of these features by third-party ratings.<sup>16</sup>

From a cosmetics industry perspective, the variation across ethnic groups in perceptions suggests the importance of population-specific attention to assessors' beliefs about the role of facial skin features in order to provide desired cosmetic products.

## Conclusion

Third-party assessments of female facial appearance within and between ethnic groups<sup>13</sup> documented cross-cultural variation (in addition to consistency), and this is also found in women's self-ratings. A general finding is that independent of the type of rating, age assessments vary less than facial attractiveness and health judgments.

In this multi-ethnic and multi-center study,<sup>13, 16, 30</sup> there were positive correlations between self-assessments and third-party assessments of age but not of health or attractiveness. The latter finding is consistent with previous reports documenting low correlations between self-rated and other-rated attractiveness.<sup>18, 23</sup>

Self-ratings show stronger relationships with self-esteem and self-confidence than do other ratings. Although self-assessments are likely influenced by mating-related motives, they may provide less "accurate" information about an individual given the bias for positive self-appraisal and exaggeration of desirable physical traits. This bias is independent of ethnicity.

Together with ethnic diversity in face assessments due to variations in skin biology and environmental and sociocultural factors, cosmetic science is challenged by different

standards of assessing physical appearance in addition to ethnic variation in the attention to beliefs about the role of facial skin features in female perceptions. The use of self-ratings or third-party ratings, in addition to skin measurements and expert grading, may depend on the focus of a study.

From the perspective of cosmetic science, an integrated approach to understanding consumer needs is particularly promising given the population-specific and rater-specific assessments of facial appearance.

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