

ATTRACTIVE HUMAN FACE AS A COMMUNICATION TOOL: AGE AND GENDER SPECIFICS OF THE ATTRACTIVENESS OF SEXUALLY DIMORPHIC FEATURES IN FACIAL COMPOSITES

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ABSTRACT:

An attractive human face is a significant communication tool used in visual media. Due to various psychological mechanisms, a beautiful face is associated with additional characteristics; individuals with attractive faces are perceived as trustworthy, intelligent, and qualified, thereby increasing their impact on the perceiver. However, the question remains as to what constitutes an attractive human face and what parameters it should possess. One of the most influential characteristics associated with facial attractiveness is the presence of sexually dimorphic features. Since previous research has yielded conflicting findings, this study examines the influence of masculinity and femininity on the attractiveness of computer-generated facial composites, both generally and in the context of the age and gender of the evaluators, using a quasi-experimental approach. The study involved 2,159 participants (mean age = 24.18 years; SD = 10.167), with women comprising 59.6% of the sample. The results showed that while the femininity of facial features universally increases the attractiveness of female faces (most notably among younger men), the effect of sexually dimorphic features on the attractiveness of male faces is nonspecific. Therefore, for the universal utilisation of the attractive face effect on the evaluator (perceiver), it is recommended to employ a feminine female face. In the case of male faces, the attractiveness of masculine features may be contingent on additional circumstances/factors.

KEY WORDS:

age, attractiveness, femininity, gender, human face, masculinity, media

<https://doi.org/10.34135/communicationtoday.2023.Vol.14.No.2.7>

1 Introduction

One significant communication tool used in visual media is an attractive human face. Due to various psychological mechanisms, a beautiful face is associated with other characteristics, thereby significantly multiplying its impact on the perceiver. The halo effect¹ explains that the positive evaluation of one attribute (in this case, appearance) generalises also to other areas (such as positive personality features or moral qualities) without evidence of their interconnectedness, resulting in the attribution of multiple desirable attributes and characteristics to the individual.² Individuals with attractive faces are considered trustworthy,³ intelligent,⁴ qualified,⁵ and are generally judged more positively than unattractive ones.⁶ The halo effect is further strengthened by biases emphasising the importance of facial attractiveness for the overall person or situation evaluation, such as overgeneralisation effects,⁷ lookism,⁸ the ‘what is beautiful is good’ stereotype,⁹ or the primacy effect.¹⁰

The impression a communicator’s face evokes in the media is highly important. Unlike ordinary interpersonal interactions where the formation of an impression of another person evolves gradually,¹¹ in the case of advertising, news, education, or information dissemination, long-term interaction is not possible. Therefore, the media harness the effects of psychological mechanisms and enhance the impact of communicated information by increasing the impression of credibility, competence, intelligence, morality, or other qualities of the individual presenting the information. One mechanism of such influence is the appearance of the communicator, in which facial attractiveness plays a significant role. The use of attractive faces is highly effective since the process of impression formation from faces is triggered automatically,¹² requires very little time (less than 100 ms),¹³ and is often implicit (i.e., it can work despite, and even against, our conscious beliefs).¹⁴ Additionally, people often rely on their assessments based on another person’s facial features as facial information is more easily accessible than stable behavioural expressions.¹⁵

In the media space, the effect of attractive faces is predominantly utilised in two key domains – advertising and newscast. In the realm of advertising, attractive human faces enhance the appeal of the presented product or service; the impacts of the presence of attractive individuals in this context can be summarised by the

well-known media principle that ‘beauty sells’.¹⁶ In newscasts (whose influence is currently enormous),¹⁷ the reach of an attractive face extends further. It is founded upon the effects of the ‘halo effect’, whereby attractive individuals are perceived as not only attractive but also competent,¹⁸ intelligent,¹⁹ trustworthy,²⁰ and suitable for the positions they hold.²¹ This implies that perceivers will be considerably more inclined to consider information and news presented by attractive individuals as relevant, truthful, and accurate, and will place a higher degree of trust in them. Research on the attractiveness of human faces in media and marketing is extensive,²² however, the question remains as to what face can commonly be considered attractive.

Several studies indicate a relationship between neoteny,²³ or symmetry of the face²⁴ and its increased attractiveness, while others emphasise averageness.²⁵ One of the characteristics whose effect on facial attractiveness is strongly emphasised is the presence of sexually dimorphic features.²⁶ The reason is that masculine male and feminine female faces signal evolutionarily important characteristics (such as fertility,²⁷ health,²⁸ fitness or sperm quality),²⁹ creating strong pressure for their general preference. However, even in this case, the results of the research are not unequivocal.

Some studies challenge the universal validity of the relationship between attractiveness and sexually dimorphic facial features³⁰ or highlight factors that modify this relationship. For example, the perception of the attractiveness of masculinity in female raters may vary depending on contraceptive use,³¹ orientation towards long-term/short-term relationships,³² or the phase of the menstrual cycle.³³ Since the attractiveness of dimorphic features primarily stems from evolutionary principles, it can be assumed that its effect is also related to the age and gender of the perceiver. While some factors influencing the resulting impact of attractiveness are hard to consider in the media environment (as media usually lack information regarding, for example, a perceiver’s contraceptive use or relationship preferences), age and gender are variables that are commonly addressed when working with the target audience of recipients. Therefore, research exploring the relationship

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between age, gender, and the attractiveness of sexually dimorphic facial features has the potential to yield valuable findings and provide insights into possible reasons behind the previously conflicting findings.

2 Objectives and Methods

The main objective of this study is to examine the influence of the presence of sexually dimorphic facial features on the perceived attractiveness of male and female faces, while also exploring the relationship between the gender and age-specific characteristics of perceivers and the perceived attractiveness of faces. Concerning defined goals, research questions were formulated for both male and female faces:

Male Face

RQ1: Does the presence of masculinity in a male face have a statistically significant impact on the assessment of its attractiveness?

RQ2: Is the perception of the attractiveness of a masculine male face related to the gender and age of the rater?

Female Face

RQ3: Does the presence of femininity in a female face have a statistically significant impact on the assessment of its attractiveness?

RQ4: Is the perception of the attractiveness of a feminine female face related to the gender and age of the rater?

Procedure

Data collection was conducted using a convenience sampling method based on the availability and willingness of participants to take part in the research. Participants were approached personally by researchers in various types of secondary schools, universities, and companies, as well as directly on the streets (field collection). The questionnaire battery was in a paper-and-pencil format. In the beginning, participants were informed about the nature of the research, and the introductory section of the questionnaire battery included informed consent for participation in the study. Participants had the option to refuse participation or withdraw from the study at any point during questionnaire completion without any consequences. Data collection was anonymous and did not include any information that could identify individuals. The form and content of the collected information were approved by the Scientific Grant Agency of The Ministry of Education, Science, Research and Sport of the Slovak Republic and Slovak Academy of Science under code No. VEGA 1/0251/21.

Subjects

The study involved 2,302 participants, with 143 (6.2%) being excluded from the sample due to missing data. The final sample consisted of 2,159 subjects aged 15 – 84 years (mean age = 24.18 years; SD = 10.167), with women comprising 59.6% of the sample.

Instruments

Given that the main objective of the study is to examine the influence of the presence of sexually dimorphic facial features on the perceived attractiveness of male and female faces, a quasi-experimental research design was proposed to test the causal relationship. Participants were presented with two facial composites for each gender (Figure 1), differing only in the presence of sexually dimorphic features (feminine vs. masculine face). The task for participants was to indicate which facial composite they considered more attractive. This procedure ensured control over potentially confounding variables, and therefore, the selection of a specific facial composite can be unambiguously interpreted as the attractiveness of femininity or masculinity (presence of sexually dimorphic features). Computer-generated facial composites (morphs) were used to maximise control over intervening variables, as real faces differ not only in the degree of masculinity or femininity (i.e., presence of sexually dimorphic features) but also in other characteristics that may significantly influence the evaluation of facial attractiveness. In computer-generated faces, masculinity and femininity solely reflect the

degree of representation of feminine (e.g., gracile jaws and fuller lips, high eyebrows, small lower face, and relatively flat mid-face)³⁴ and masculine (e.g., wide faces with large and massive lower face, thin lips, wide inter-orbital distance, and wide nose, larger jawbones, more prominent cheekbones and thinner cheeks)³⁵ features.

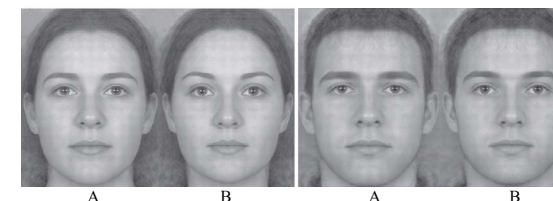


Figure 1: Masculine (A) and feminine (B) facial composites

Source: LITTLE, A. C. et al.: *What Is Good Is Beautiful: Face Preference Reflects Desired Personality. In Personality and Individual Differences*, 2006, Vol. 41, No. 6, p. 1642.

Data Analysis

Data analysis was performed using the computer software SPSS version 28. The significance level (α) for determining statistical significance was set at the standard level of 0.05. Due to the distributional characteristics of the age variable, non-parametric tests were used in the calculations.

3 Results

Male Face

Based on the results of the Chi-Square Test (Table 1), it can be concluded that participants did not perceive a male face with masculine features as significantly more attractive than a male face with feminine features. Therefore, the presence of masculinity in a male face does not have a statistically significant impact ($p > 0.05$) on the evaluation of its attractiveness.

Table 1: Chi-Square test for the attractiveness of masculine vs. feminine male face

Choice of attractive face	Observed N	Expected N	Residual	Chi-Square	Asymp. Sig.
Masculine	1 048	1 079.5	-31.5	1.831	0.175
Feminine	1 111	1 079.5	31.5		
Total	2 159				

Source: Own processing

In the context of RQ2, the gender and age-specific aspects of the attractiveness of masculinity/femininity in male faces were examined. From the values of Pearson's correlation coefficient and its significance (Table 2), it is evident that the attractiveness of a masculine or feminine male face is not related to the gender of the evaluator – neither men nor women significantly prefer a masculine or feminine male face.

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Table 2: Correlation for the attractiveness of male facial composite and gender

Choice of attractive face	Gender			Chi-Square Test	
	Men	Women	Total	Pearson Value	Asymp. Sig.
Masculine	429	619	1 048	0.211	0.646
Feminine	444	667	1 111		
Total	873	1286	2 159		

Source: Own processing

Similarly, no differences in age were identified among individuals based on which male face they labelled as attractive. The Mann-Whitney U Test did not reveal significant differences ($U = 580,053.50$; $p = 0.882$) in the age of the group preferring a masculine male face (Mean Rank = 1,082.01) compared to the group preferring a feminine male face (Mean Rank = 1,078.10), neither when the age difference was examined separately for male evaluators ($U_M = 95,878.50$; $p_M = 0.862$), nor for female evaluators ($U_F = 202,593.50$; $p_F = 0.595$).

Female Face

In contrast to the male face, the attractiveness of the feminine female face significantly surpasses that of the masculine female face (see Table 3). A significantly higher number of participants ($p < 0.001$) rated the feminine female facial composite as attractive compared to the masculine one.

Table 3: Chi-Square test for the attractiveness of masculine vs. feminine female face

Choice of attractive face	Observed N	Expected N	Residual	Chi-Square	Asymp. Sig.
Masculine	450	1 078.5	-628.5	732.522	0.001
Feminine	1 707	1 078.5	628.5		
Total	2 157				

Source: Own processing

Similarly to the evaluation of male facial composites, there were no differences in rating attractive faces based on gender when evaluating female faces (Table 4). Both men and women rated feminine female faces as more attractive.

Table 4: Correlation for the attractiveness of female facial composite and gender

Choice of attractive face	Gender			Chi-Square Test	
	Men	Women	Total	Pearson Value	Asymp. Sig.
Masculine	197	253	450	2.727	0.099
Feminine	674	1 033	1 707		
Total	871	1 286	2 157		

Source: Own processing

Although the attractiveness of feminine female faces appears to be universal, age and gender-specific differences can be observed within it. The trend of preferring feminine faces is more pronounced among younger participants – Mann-Whitney U Test revealed that the age of participants who rated feminine female faces as attractive is significantly ($U = 118,476.50$, $p = 0.019$) lower (Mean Rank = 1,054.33) compared to the age of participants who preferred masculine female faces (Mean Rank = 1,172.59).

This trend is more pronounced in separate analyses for males and females. While the significance of age differences between the group of participants rating feminine female faces as attractive and the group rating masculine female faces reaches a value of 0.006 among men (Mann-Whitney $U = 58,039$), for women, it is only 0.019 (Mann-Whitney $U = 118,476.50$). Feminine female faces are most attractive to younger men.

4 Discussion

General Discussion

The presented data did not demonstrate a clear attractiveness of masculine features in male faces. This finding can be interpreted in the context of evolutionary and subsequently social psychology. Characteristics associated with male masculinity include a higher level of assertiveness, independence, self-reliance, willingness to take risks,³⁶ dominance, or aggression,³⁷ as well as greater muscularity or a more robust body structure, mainly due to higher levels of testosterone.³⁸ Thus, a masculine male face signals to male raters the presence of an individual whose characteristics they appreciate but also view as potential competition in natural and sexual selection situations. Therefore, a masculine male face may be considered attractive by a portion of individuals (in our case, 49.14%) as it represents individuals with valued traits, while for the rest of the population (in our case, 50.86%), it may evoke negative reactions due to the perceived presence of unwanted competition. It can be hypothesised that men with high status and self-confidence will react more positively to masculine faces compared to individuals who struggle for their positions, feel threatened, or have lower self-esteem. However, these assumptions would need to be empirically verified. Nevertheless, the evaluation of male facial attractiveness is influenced by additional variables among men. These factors can be explored not only within the domain of evolutionary psychology (gene preservation, mating) but also within the realm of social psychology. Individuals may consider the evaluated face in the context of potential cooperation or competition, focus on the aesthetic aspects of a perceived unrealistic object, or assess it in the context of the real situation in which they currently find themselves. Furthermore, the obtained results indicate that the age of the rater is not among the significant factors influencing the perception of male facial attractiveness.

When targeting women as the intended audience, it is also not possible to determine definitively whether a masculine (48.13%) or feminine (51.87% in our research sample) male face will be considered attractive. Evolutionary psychology explains this phenomenon through the employment of a dual mating strategy used by women. On one hand, women seek a ‘donor of good genes’, a masculine partner with physical strength, social assertiveness, and fighting ability, who will provide dominant genes and overall fitness to their offspring.³⁹ On the other hand, they also seek a ‘caring father’ characterised by warmth, faithfulness, and a willingness to help, which are traits associated with femininity.⁴⁰ As women alternate between these two strategies depending on

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37 TAJIMA-POZO, K. et al.: Correlation between Personality Traits and Testosterone Concentrations in Healthy Population. In *Indian Journal of Psychological Medicine*, 2015, Vol. 37, No. 3, p. 317.

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39 CLARKSON, T. R. et al.: A Multivariate Analysis of Women's Mating Strategies and Sexual Selection on Men's Facial Morphology. In *Royal Society Open Science*, 2020, Vol. 7, No. 1, p. 3.

40 GANGESTAD, S. W. et al.: Changes in Women's Mate Preferences across the Ovulatory Cycle. In *Journal of Personality and Social Psychology*, 2007, Vol. 92, No. 1, p. 157.

various factors such as menstrual cycle, preferred relationship type,⁴¹ or environmental quality,⁴² there was no tendency observed to prefer a specific type of male face based on the age of the female perceiver. Once again, the context in which women evaluate a male face can be considered. If the evaluation pertains to situations related to family, child-rearing, household, security, or stability, it can be assumed that women would rate men with feminine features as attractive.

The attractiveness of the female face is evaluated much more unequivocally, as both men and women perceive a feminine female face as attractive. These findings have been consistently reported in previous research⁴³ and indicate clear tendencies in the evaluation of female attractiveness. Attractive feminine female faces are associated with the overall health of the bearer,⁴⁴ her fertility,⁴⁵ maternal tendencies,⁴⁶ as well as characteristics such as warmth, honesty, cooperativeness, quality as a parent, nurturance, gentleness, empathy, trustworthiness, helpfulness, vulnerability, and submissiveness.⁴⁷ For men, a feminine female face is attractive because it signals a suitable partner in various respects, while for women, it represents an individual who is likely to be more pleasant, helpful, and cooperative in mutual interactions. Therefore, it is beneficial for both genders to seek out and prefer (and thus rate with higher attractiveness) women with feminine traits in many aspects. The tendencies to label a feminine female face as attractive have been found to be most pronounced among younger men. This is understandable, as both evolutionary and social mechanisms influence men's evaluations of women, with the evolutionary mechanism being particularly relevant in mating behaviour, which is more frequent and important at a younger age.

Application

An attractive face has the potential to increase the credibility and qualification of the presenter, thereby influencing the effects of information conveyed through visual media. This applies not only to reporters, or spokespersons but also to any individuals (scientists, experts, specialists, etc.) appearing in the media. For example, it has been shown that people report more interest in the research of scientists who appear attractive.⁴⁸ In the context of our research, an ambivalent attitude towards the attractiveness of sexually dimorphic features in male faces was observed. It is not possible to definitively determine from the selection of male facial composites whether it is more appropriate to use a masculine or feminine male face when employing the attractive face effect in the media. It can be considered that the context in which the face is presented shapes the attractiveness of its features. In the case of male evaluators, it is possible that in situations involving competitiveness and rivalry, a feminine male face will be perceived as more attractive, whereas in non-threatening, cooperation-implying situations, the opposite choice may be made – with more emphasis on the attractiveness of masculine male faces. The situation is the same for female evaluators – when judging a male face, additional variables come into play in determining its attractiveness, and it is not possible to universally recommend the use of a single type of face. The context, depending on which the attractiveness of

41 PAWLOWSKI, B., JASIENSKA, G.: Women's Preferences for Sexual Dimorphism in Height Depend on Menstrual Cycle Phase and Expected Duration of Relationship. In *Biological Psychology*, 2005, Vol. 70, No. 1, p. 38.

42 CLARKSON, T. R. et al.: A Multivariate Analysis of Women's Mating Strategies and Sexual Selection on Men's Facial Morphology. In *Royal Society Open Science*, 2020, Vol. 7, No. 1, p. 3.

43 See: MARCINKOWSKA, U. M. et al.: Cross-Cultural Variation in Men's Preference for Sexual Dimorphism in Women's Faces. In *Biology Letters*, 2014, Vol. 10, No. 4, p. 2; FOO, Y. Z.: Predictors of Facial Attractiveness and Health in Humans. In *Scientific Reports*, 2017, Vol. 7, No. 39731, p. 2. [online]. [2023-08-19]. Available at: <<https://doi.org/10.1038/srep39731>>; LI, Z. et al.: Attractiveness Evaluation and Identity of Self-Face: The Effect of Sexual Dimorphism. In *i-Perception*, 2021, Vol. 12, No. 6, p. 12.

44 GRAY, A. W., BOOTHROYD, L. G.: Female Facial Appearance and Health. In *Evolutionary Psychology: An International Journal of Evolutionary Approaches to Psychology and Behavior*, 2012, Vol. 10, No. 1, p. 66.

45 ROBERTS, S. C. et al.: Female Facial Attractiveness Increases during the Fertile Phase of the Menstrual Cycle. In *Proceedings. Biological Sciences*, 2004, Vol. 271, No. Suppl. 5, p. 270.

46 LAW SMITH, M. J. et al.: Maternal Tendencies in Women are Associated with Estrogen Levels and Facial Femininity. In *Hormones and Behavior*, 2012, Vol. 61, No. 1, p. 12.

47 OH, D. et al.: The Eye Wants What the Heart Wants: Female Face Preferences are Related to Partner Personality Preferences. In *Journal of Experimental Psychology: Human Perception and Performance*, 2020, Vol. 46, No. 1, p. 1330.

48 GHEORGHU, A. I. et al.: Facial Appearance Affects Science Communication. In *Proceedings of the National Academy of Sciences of the United States of America*, 2017, Vol. 114, No. 23, p. 5970.

masculinity and femininity may vary, is tied to situations of care, comfort, security, and home – in such cases, opting for feminine male faces may be more effective in enhancing the impact of the conveyed information. Masculine male faces, on the other hand, may be attractive to women in situations where the selection of a potential mating partner becomes prominent. When it comes to information conveyed by individuals of the female gender, the recommendations are clear – both for women and men (and particularly for younger men), the most attractive female face is feminine. Therefore, to harness its effect, it is advisable to prefer faces with a high level of feminine sexually dimorphic features – i.e., faces characterised by a gracile structure with a smaller nose, mouth with fuller lips, bigger rounded eyes adorned by thinner brows, and smaller chin and nose.⁴⁹

Limitations

A large portion of the assumptions and interpretations of the findings is based on the principles of evolutionary psychology and their respective contexts. Since these principles are the result of selection pressures whose primary role is to ensure the propagation of one's genes, a significant portion of these mechanisms has evolved under mating conditions. These conditions assume mutual interaction between individuals, potentially leading to sexual reproduction. However, interpersonal contact often involves situations in which an individual's mindset is influenced by different frames or even rejects mating interactions with the opposite sex. Such situations may include an existing strong, enduring monogamous relationship, barriers resulting from negative (traumatic) experiences with previous romantic relationships, as well as non-dominant sexual orientations. Since we did not explore these factors in our research, it is possible that the results could be interpreted differently in their context. Another limitation of the study was its quasi-experimental design, which, while effectively controlling for possible confounding variables, was essentially an artificial situation. It is possible that in natural social situations, different factors overshadow the influence of femininity/masculinity on facial attractiveness. Therefore, it is questionable to what extent the demonstrated influence of femininity, for example, on the beauty of the female face, applies in real conditions.

Suggestions for Further Research

Given the identified limitations, proposals for further research could include the examination of additional variables, such as participants' sexual orientation, the type of relationship they are in, etc. We also suggest incorporating a broader range of facial composites in the study, which would not only represent extremes in the presence of sexually dimorphic features but would provide a smoother delineation between femininity and masculinity. Using five or more faces representing a more gradual transition between masculinity and femininity could yield interesting results in terms of the ability to perceive these traits at less salient levels and potentially identify the critical threshold for capturing these characteristics in the context of attractiveness. Lastly (although we acknowledge the methodological challenges involved), it would be appropriate to verify the perception of the attractiveness of sexually dimorphic features through real faces in advertisements and newscasts and subsequently compare the results. Another recommendation for further research, which could yield insights primarily applicable to the field of visual media, would be to conduct an experiment directly in the context of the impact of attractive faces on the perceived trustworthiness or competence of the individuals who possess them.

49 KLEISNER, K. et al.: How and Why Patterns of Sexual Dimorphism in Human Faces Vary across the World. In *Scientific Reports*, 2021, Vol. 11, No. 1, p. 7; LI, Z. et al.: Attractiveness Evaluation and Identity of Self-Face: The Effect of Sexual Dimorphism. In *i-Perception*, 2021, Vol. 12, No. 6, p. 12.

5 Conclusion

The attractive face represents a significant media tool – attractive individuals are regarded as intelligent, trustworthy, and qualified. These attributes markedly enhance an individual's credibility and, by extension, the credibility of the information they present within the media space. Consequently, it is advantageous to understand the characteristics that evoke such effects and what kind of features they should possess. In addition to universally acknowledged factors that augment facial attractiveness, such as averageness and symmetry, there are some whose impact on attractiveness remains unclear. Among these factors is sexual dimorphism characterised by masculinity or femininity. The results of conducted research suggest that highly feminine facial features are associated with attractiveness in female faces across all genders and age groups. It is noteworthy that the highest degree of attractiveness is observed in feminine female faces, particularly when assessed by younger males. However, in the case of male faces, the preference for masculinity does not consistently emerge as a universal factor contributing to increased attractiveness. The thesis that masculine men are considered attractive does not hold true – equally attractive are men displaying feminine traits. Consequently, if an individual's attractiveness is a pivotal factor within the media sphere, it follows that the factors of masculinity and femininity can only be reliably employed in relation to women. Masculine male faces will not be deemed attractive by a significant portion of the population.

Acknowledgment: This work was supported by the Scientific Grant Agency of The Ministry of Education, Science, Research and Sport of the Slovak Republic and Slovak Academy of Science under contract No. VEGA 1/0251/21.

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