

Research Article

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Personality Traits and preference for Beardedness

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Abstract

Face perception plays a crucial role in social interaction. The sociological aspect of face perception is related to the availability of information from non-identity specific facial cues like facial hair (beard). The present study aimed to investigate the role of non-identity specific cues like facial hair e.g. beard on assessment of facial attractiveness along with understanding the personality traits of the individuals assessing the faces. A sample of (N = 155, age = 21.10 ± 1.924 years) students pursuing college education were administered the stimulus set comprising of bearded/non-bearded static real world facial images obtained and developed from a sample of 45 individuals. The participants were asked to rate the images on 7-point scale. Participants also filled up personality questionnaires of 16PF and NEO-FFI. Overall, preference for bearded images over non-bearded facial images and lighter skin pigmentation over darker skin pigmentation is indicated. Facets of Big 5 Personality theory were found to have a significant association with certain factors of 16PF. Regression analysis was used to predict whether personality traits of the respondents were responsible behind choosing a particular face as attractive (R-square = .979). Findings will have implications in domains of mate selection, interpersonal relationships and recognition of faces.

Keywords

beardedness;
facial attractiveness;
face perception;
skin tone variations.
Big- five
personality traits

1. Introduction

The human face is one the greatest social stimuli in our daily environment. It is an extremely powerful tool which gives us a variety of information both in its static and dynamic form (Rule, Garrett & Ambady, 2010). People often identify or define themselves on the basis of their facial features (Bhat et al., 2019). The first impression that people leave on others is often

based on their facial characteristics. These impressions are often based on external features of the face. These features include eyes, shape of nose, mouth, entire morphology of the human face, and also facial hair. Facial hair is a secondary sexual trait which is responsible for perceptions of socio-sexual traits in males (Dixson & Oldmeadow, 2016).

Evolutionary studies suggest that preferences for facial hair as attractive is not very consistent across varied time-span and cultures (Dixson & Vasey, 2012; Dixson et al., 2013).

The human beard is an androgen-dependent trait which differs significantly among men of all ages and generations (Randall, 2008). It is considered as one of the visually salient features of a male face (Dixson et al., 2005). Beard as a sign of masculinity is associated with higher mating and reproductive success (Rhodes, Simmons & Peters, 2005). It is also considered significant in the marriage market (Barber, 2001). It has been found to be linked with dominance and serum testosterone levels (Knussman & Christiansen, 1988). Presence of the beard has also been found to enhance a man's age, provide information about his sexual maturity, presence of dominance and aggression than in comparison to faces without any beard (Addison, 1989; Craig, Nelson, & Dixson, 2019; Dixson & Vasey, 2012; Neave & Shields, 2008; Saxton, Mackey, McCarty, & Neave, 2016). Earlier studies indicate that males with beards have greater feelings of masculinity (Wood, 1986); and show preference for higher masculine gender roles than in comparison to clean-shaven men (Oldmeadow & Dixson, 2016).

Despite this evidence, women's preferences for facial hair tend to vary and are usually mixed. (Rhodes, 2006). In certain instances facial masculinity has also been associated with reduced attractiveness (Perrett et al., 1998; Geniole et al., 2015). Based on this premise, it is interesting to note that beards are considered more attractive in regions of low occurrence and wherein clean shaved faces are more common (Janif, Brooks & Dixson, 2014). Beard has been found to have an augmenting effect on display of human aggression and social status. But cultural comparison studies have also found that bearded male faces are not found to be more attractive than clean shaved faces (Dixson & Vasey, 2012). These variations are often explained in terms of higher masculinity been associated with antisocial traits, less warmth, care and romance (Perrett et al., 1998, Kruger, 2006). This study is aimed to

explore these inconsistencies existing in the Indian sub-context using real-world static facial images. Also research in the area of beardedness and facial attractiveness on a global scale is based on Western judgments Asian studies in this domain are limited. In this study we have assessed both male and female preferences for bearded faces over clean-shaved faces.

Every individual is characterized by certain individual personality traits which are associated with certain other factors in their daily lives. It is an aspect which can be defined in various dimensions. Personality characteristics also influence a person's attractiveness in terms of his behavioural dispositions and overall demeanour. Existing research has already highlighted the fact that attractive people are generally considered to have positive personality characteristics (Tartaglia and Rollero, 2015). This is generally based on the stereotype that "what is beautiful is good" (Dion, Berschied & Walster, 1972). Personality is often described based on traits as explained by various models. A sought after model for this domain is the Big-Five personality theory which classifies people on the dimensions of Neuroticism, Extraversion, Openness, Agreeableness and Conscientiousness. This model has also shown a greater amount of cross-cultural applicability (Costa & McCrae, 1992). These dimensions have also proved to be effective for self-evaluation and also from the perspective of an observer (McCrae & Terracciano, 2005). Additionally 16PF based on Cattell's model of personality was also used for an in-depth analysis of personality traits of the observers rating the images. Both NEO-FFI and 16PF are based on the Five-Factor Model of Personality (Rossier, Stadelhofen and Berthoud, 2017). It is interesting to note that presence of hair is evaluated with enhanced positive remarks about personality than in people with absence of hair (Wade, Fisher & Burch, 2021). Additionally the study aimed to assess the role of personality traits behind choosing a bearded face or clean shaved face as attractive.

Present Study

Face perception is crucial in social interaction in terms of information which is visible in faces and the processes involved in extraction of this information (Little, Jones & DeBruine 2011). The seminal model of face recognition (Bruce & Young, 1986), proposes that face perception begins structural encoding of the human face, followed by activation of 'face recognition units' and 'identity-specific semantic codes'. Another set of operations, namely, identity-non specific information occurs in parallel which includes sex, age, emotional expression and facial attributes like skin colour, texture and symmetry (Quinn & Macrae, 2011). These non-specific information have a higher social relevance and act as a cue for perception of facial attractiveness (Carbon, Gruter & Gruter, 2013). This study would cater to the social aspects of face perception in terms of facial attractiveness with emphasis on non-specific identity cues. The aim of the study was two-fold. At first preferences for bearded or clean-shaved faces were to be assessed. The second objective was to examine whether personality traits of the subjects rating the images had any role behind the

selection of those faces considered as attractive over others.

2. Methods

Stimulus

Forty-five male college students (Mean age = 23.71 ± 2.039 years) of Indian origin and pursuing college education in Kolkata, West Bengal, India were photographed with a beard or clean shaved based upon subject preference. Individuals were instructed to maintain neutral facial expressions while being photographed to avoid providing any cues to the participants who would be rating the images. Smiling expressions are rated more positively and considered to be more attractive (Li et al., 2019). Photographs were taken under controlled lighting conditions in the laboratory set-up. The photos were then cropped into an oval frame from forehead to lower chin. Any form of jewellery, clothing, accessories and background of the image was not visible. The photos were then converted to the gray scale at uniform levels across all the images using Adobe Photoshop CC6 (Figure 1).

Figure 1: Static facial images depicting the presence of beards and clean shaved images as shown to the participants



Procedure

Preliminary study was done in the initial stages to finalize the stimuli. A pool of (N=20) bearded and non-bearded images were sent to students for their ratings. Based on those ratings, the two most attractive images and the two least attractive images were left out from the study to avoid

large-scale physical discrepancies (Luo, Rossion & Dzhelyova, 2019). Finally a sample of (N=16) images were finalized for the study. From this particular set of images, 7 photographs were selected randomly for each participant and that consisted of the stimulus set of facial images for each participant. Participants were asked to participate in the study over the Internet.

These photographs were then arranged in a questionnaire format and sent to the college students via Google forms.

In The order of images to be ranked was randomized between trials for each sample for each participant. Every randomized set had one bearded and one clean shaved image compulsorily. After completion of the first stimulus based task, the participants were asked to fill up the personality questionnaires for NEO-FFI and 16PF.

Statistical Analysis

Analysis I included computation of basic descriptive statistics for the whole sample, across males and females and across bearded and clean-shaved images. This was followed by a comparison between the rankings of bearded and clean-shaved images and examining gender differences between these rankings. The computational software used is SPSS version 23.0. Analysis II comprised of selecting the items of the personality questionnaires which were of similar nature, so that the number of predictors under the domain of personality could be considerably reduced. For this chi-square was computed followed by odds ratio amongst those items reporting a significant chi-square association (NEO-FFI = 60 items and 16PF = 187 items) (Kwiecien, Kopp-Schneider & Blettner,

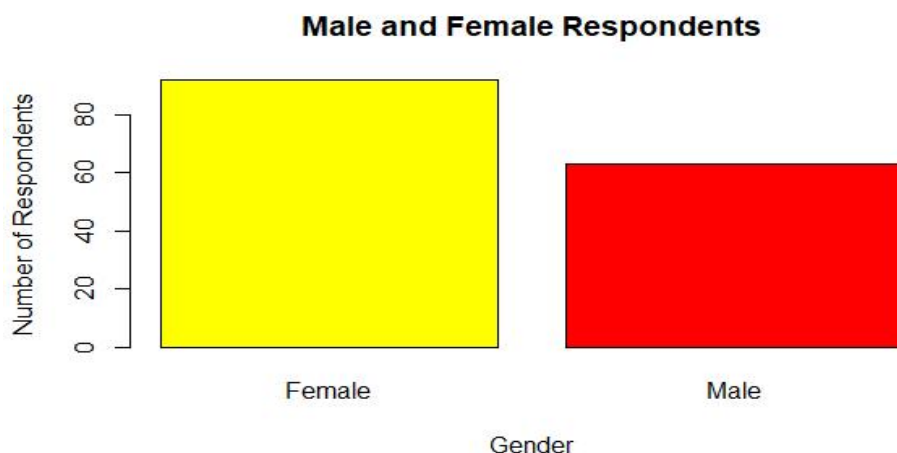
2011). This further reduced the items to (NEO-FFI = 42 and 16PF = 55 items). This was done on R-Studio.

In order to examine the role of personality factors as predictor of preferences for bearded or non-bearded faces the idea of binary logistic regression seemed to be appropriate. Finally, Logistic regression was computed followed by Stepwise Regression (Backward) to prepare a model consisting of personality factors that best predicts the likelihood of choosing a bearded face over a non-bearded face.

3. Results

The final sample size was (N = 155, age = 21.10 ± 1.924 years), males (N= 63, age = 21.25 ± 2.272 years); females (N = 92, age = 21 ± 1.651 years) (Figure 2). Bearded images received an average ranking of (males = 3.5661 ± .98165; females = 3.7267 ± .96654). Non-bearded (clean shaved) faces received an average ranking of (males = 4.55 ± 1.068; females = 4.34 ± 1.083). Wilcoxon Signed rank test indicated that significant differences exist between ranking of bearded and clean shaved images (Z = -4.675, p = .000). No significant gender differences were found between rankings on bearded and clean -shaved images (Mann Whitney -U Test: Z = -.809, p = .419).

Figure 2: Graphic representation of male and female participants



The mean rankings were computed for both bearded and non-bearded images as mentioned before. For the execution of logistic regression, preferences for bearded faces were coded as '0', N = 94, for participants who had Mean Ranking of Bearded images < Mean Ranking of Clean-shaved images and preference for clean-shaved face was coded as '1', N=45. The personality scales initially consisted of 60 items from NEO-FFI and 187 items of 16PF. After odds ratio was reduced to 42 from NEO-FFI and 55 from 16PF. Thus the total number of predictors used in the initial logistic regression is 97. In the initial stages the logistic regression model was computed using these items as the predictors of the model. The results obtained were as indicated a R-square value of .979. Classification of accuracy is 98.5%.

However a major problem of this model lies in the huge number of predictors used. Often including too many input variables can dilute true associations or identify spurious associations (Ranganathan, Pramesh and Aggarwal, 2017). This was followed by stepwise logistic regression (Backward Conditional) in order to obtain the best model for analysis. In this model, the predictors were reduced to (NEO-FFI = 22 items & 16PF = 26 items, total = 48 predictors). The classification accuracy value obtained was 98.6%. Thus, it can be concluded that the backward stepwise method shows a better result with potential of reduction in the large number of predictors by almost 50%.

4. Discussion

Preferences were found for bearded faces over clean-shaved faces. Both males and females preferred bearded faces over clean-shaved faces. However, no significant gender differences were indicated between males and females on the basis of their rankings on the facial images. Limited

studies exist in this domain with reference to the Indian Context. The findings in this aspect are consistent with recent studies with regard to the beard enhancing a male's attractiveness. They can be considered as a signal for intra-sexual formidability (Dixson et al., 2016) as indicating power or strength. In this study we found that both males (N=65.07 %) and females (N = 63.04%) had preferences for bearded faces over clean-shaved faces though the study was based on the premise that preferences for male facial hair is not unanimous throughout the globe. Beards have always found their way back to fashion, often based on the premise that single men are large in number in proportion to fewer women. It is largely used as a means of standing out. Studies as early as 1973 indicate that the amount of facial hair had direct associations with masculinity, maturity, dominance and courage (Pellergini, 1973). A fuller beard is considered to be indicative of a good fathering ability and keener to invest in offspring (Nicholson, 2016). This study being conducted in the Indian Context reiterates similar findings. In this regard, it is important to note that preferences for beardedness are mostly context-dependent (Dixson, Rantala & Brooks, 2019; Valentova et al., 2017).

The role of personality aspects in predicting preferences for facial attractiveness has been depicted using regression statistics. Existing research has already suggested that personality traits can be predicted with high precision from facial images. This study aimed to assess the personality traits of the observers of static facial images and explore whether these traits were responsible for the preferences of the observers. Initial studies in this domain have already highlighted positive traits like honesty and helpfulness are considered to be better looking than people with negative traits like rudeness and being unfair and biased (Sciencedaily, 2007).

Table 1: Items from NEO-FFI & 16PF indicated as significant predictors for Study 1 using Stepwise (Backward) Regression

Statements (NEO-FFI)	Statements (16PF)
<p>21. I often feel tense and jittery.</p> <p>26. Sometimes I feel completely worthless</p> <p>31. I rarely feel fearful or anxious.</p> <p>41. Too often, when things go wrong, I get discouraged and feel like giving up.</p> <p>56. At times I have been so ashamed I just wanted to hide.</p> <p>7. I laugh easily.</p> <p>42. I don't get much pleasure from chatting with people.</p> <p>52. I am a very active person.</p> <p>57. I would rather go my own way than be a leader of others.</p> <p>8. I think it's interesting to learn and develop new hobbies.</p> <p>13. I am intrigued by the patterns I find in art and nature.</p> <p>28. I would have difficulty just letting my mind wander without control or guidance.</p> <p>33. I seldom notice the moods or feelings that different environments produce.</p> <p>38. I experience a wide range of emotions and feelings.</p> <p>48. I have little interest in speculating on the nature of the universe or the human condition.</p> <p>58. I often enjoy playing with theories or abstract ideas.</p> <p>4. I try to be courteous to everyone I meet.</p> <p>14. Some people think I am selfish and egotistical.</p> <p>34. I tend to assume the best about people.</p> <p>5. I keep my belongings neat and clean.</p> <p>10. I'm pretty good about pacing myself so as to get things done on time.</p> <p>35. I work hard to accomplish my goals.</p>	<p>86. When I am in a small group, I am content to sit back and let others do most of the talking.</p> <p>130. I can work carefully on most things without being bothered by people</p> <p>55. I have been let down by my friends:</p> <p>117. If someone tells me something which I know is wrong, I am more likely to say to myself:</p> <p>133. I enjoy doing "daring"," foolhardy things", "just for fun".</p> <p>7. I make smart, sarcastic remarks to people if I think they deserve it.</p> <p>38. When I have been put in charge of something, I insist that my instructions are followed or else I resign.</p> <p>186. I am the energetic type who keeps busy.</p> <p>47. As a teenager, I joined in school sports.</p> <p>79. Some people seem to ignore or avoid me, although I don't know why.</p> <p>84. People sometimes call me careless, even though they think I am a likable person.</p> <p>15 . It would be good for everyone if vacations were longer and everyone had to take them.</p> <p>58. I like to go out to a show or entertainment</p> <p>41. I feel a need every now and then to engage in a tough physical activity.</p> <p>26. With the same hours and pay, it would be more interesting to be:</p> <p>122. In constructing something I would rather work:</p> <p>a. With a committee</p> <p>150. If people shout suggestions when I'm playing a game, it doesn't upset me.</p> <p>30. In my personal life I reach the goals I set, almost all the time.</p> <p>5. I feel a bit nervous of wild animals even when they are in strong cages</p> <p>57. When I get upset, I try hard to hide my feelings from others.</p> <p>40. When I make a commitment, I can always be counted on to follow through.</p> <p>4. I can find enough energy to face my difficulties</p> <p>9. If I saw two neighbours' children fighting I would.</p> <p>145. If a heated argument developed between other members taking part in a group discussion , I would:</p>

When we refer to Table 1, there are 22 items from NEO-FFI and 26 items from 16PF which may be considered as significant predictors. Considering NEO-FFI, it is seen that the maximum items are from the domain of Openness to Experience (7 items). This dimension is largely associated with willingness to new experiences, need for variety, easy adaptability and flexibility with better problem solving approaches (McCrae, 2004). This dimension is also linked with perceptions of trustworthiness in others, especially human-human trust. Initial studies have shown that facial attractiveness often acts as a shortcut cue in inference for trustworthiness (Gutiérrez-García, Beltran & Calvo, 2018). Bearded faces are perceived as more trustworthy than clean-shaved faces (Bakmazian, 2014). This may be a reason as to why this dimension is significant in inferring preferences for bearded faces. With regard to 16PF, the maximum numbers of items were representative of Factor C which is associated with emotional stability, adaptability and maturity. Beardedness is associated with high masculinity and social maturity (Neave & Shields, 2008). This finding highlights that bearded faces are referred to as more mature and adaptable.

On further analysis of items on NEO-FFI questionnaire, the next relevant domain with significant predictors was neuroticism. These items were mostly related to feelings of anxiousness, tension, tendency to give up and hide one's own feelings and emotions. Women are rather disturbed and distressed by presence of excessive body hair or facial hair and it acts as a great psychological burden for them (Lipton, Sherr, Elford, Rustin & Clayton, 2006). Almost 50.64% of respondents have reported high levels of neuroticism in this study. Inclination towards emotional instability is one of the characteristic features of neurotic individuals. Males with facial hair/ beard are often perceived as more confident and with a greater competence than males without facial hair). Often this aspect is considered as a sign of fitness by female suitors (Zahavi & Zahavi, 1997). Previous studies also suggest that men with facial hair are considered to be extraverted, independent and brave (Addison, 1989; Terry & Krantz, 1993). Often women tend

to evaluate their own selves based on the ability and competence of their partners. This may be a reason as to why women prefer men with beards. It enhances their self-evaluations when they are with partners whom they consider as more competent and capable than themselves.

Limitations and Future Directions

A major limitation of this study is the use of variations in facial images with beards. The results would have been more conclusive if the same image could be used as clean-shaved and with variations in beard. The stimuli comprised only of male images. It would be noteworthy to assess preferences using female facial images. The sample size could have been larger and the results would have had better applicability if the sample was mixed instead of being restricted to a specific community and context. The age limit is restricted to 18-25 years. It would be interesting to study if the same results are replicated across late adulthood and middle age individuals. To our knowledge, this study is first of its kind to assess whether personality traits play a role behind choosing a particular facial feature as attractive. This is an aspect which can be further explored and an in-depth analysis would be beneficial owing to individual variations in the personality. This can also be assessed across wider contexts and cultures. Research findings related to facial attractiveness are generally not unanimous universally. Similar studies can be conducted in different contexts and age groups for a greater understanding of the role of facial features, especially facial hair in varied samples and populations.

Conclusion

In conclusion, as per the results of our study, both males and females prefer bearded faces to clean-shaved-faces. No significant gender differences were found to exist for in terms of preferences for facial hair on male faces. Personality traits of the observers were found to have a significant effect on preferences for bearded/clean-shaved faces. To our knowledge, this study is the first of its kind to

assess the role of personality of the observers rating the images. Earlier studies have mostly focussed on the personality traits of the perceived image and not of the perceiver (Walker & Vetter, 2016; Penton-Voak, Pound, Little & Perrett, 2006; Kachur, et al., 2020). This study also adds to the existing research in the area of perceived facial attractiveness in the Asian context.

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