What facial cues contribute to attractiveness?

Ever thought about what makes someone beautiful? A growing obsession of beauty in the western societies has now become a universal concept across all. Over the past years, psychologists have highlighted the phenomenon of facial cues to attractiveness. They have focused on the ability which makes the human mind process, extract and interpret information from another human's face. Growing use of social media, television and modern technology in general has made it easier for us to accept and detect an ' attractive' face. But how do we know when a face is beautiful? What features of a face makes us attracted to it and how does it affect and impact our gender and sexualities. Throughout, this review, we will explore how facial cues to attractiveness is conceptualized and measured, what are the casual origins and substrates of facial attractiveness and its most important psychological consequences to our everyday life.

What facial cues contribute to attractiveness? Various scholars have measured facial symmetry, averageness and non-average sexually dimorphic features such as hormone markers as cues to attractiveness.

Facial symmetry is measured by manipulating an original photo of a person, into a perfectly symmetric version of their face. The image is then presented to the participant alongside the original photo. The participants are then asked to indicate which face is more attractive. There are two theories behind facial symmetry, (1) evolutionary advantage theory and (2) the perceptual bias theory. The evolutionary advantage theory propose that symmetrical faces are seen to be more attractive because we link symmetry to good health. So, as we develop, grow, age and have infections or diseases, it will be visual by us having an asymmetric face. So, symmetrical

faces become an important indicator of good genes, attractiveness and help us choose our mate for the future. The perceptual bias theory suggests that the human visual system may be ‘ hard wired’ in a way, that makes it easier for us to process symmetrical stimuli than asymmetrical. If we can easily process symmetrical stimuli’s this will naturally cause us to prefer them over asymmetrical stimuli’s. Scheib, Gangestad and Thornhill (1999) found a relationship between women’s attractiveness ratings of face and symmetry even when the symmetry cues were removed. This was by representing only one side of the face either left or right. These results suggest that symmetry isn’t the only determent used to assess attractiveness. For example, sex hormones may influence the symmetry of growth (Thornhill and Gangestad, 1993) and chin shape, which independently affects attractiveness (Perrett et al. 1994). It could be that symmetry plays a part alongside other features to determine attractiveness. This could mean that the link between symmetry and attractiveness is easily perceived by the visual system than other perceptual cues are and that human preferences for facial symmetry is not the result of evolved psychological adaptations but the by-product of the perceptual systems design.

Another measure of attractiveness is averageness. Average trait preferences could have evolved over time, leading to them being heritable traits. Having average traits could denotes heterozygosity. Heterozygosity is “ when a person has inherited two different alleles for a particular trait”. Studies have shown that computer generated average faces are rated to be more attractive than the individual faces they are made from. Manipulating features from average faces can result in them becoming more attractive.

Studies such as Halberstadt and Rhobes (2000) found a strong relationship between averageness and attractiveness, along with non-face objects such as drawings of dogs, birds and watches. This could mean that the attractiveness to average traits could be a reflection of a more general propensity. Averageness being a contributing factor to attractiveness and representing an adaptation remains unclear.

Third measure that influences facial attractiveness is sexual dimorphism. Sexual dimorphism is known to be differences between individuals within the same species. Enhancing the sexual dimorphism of human faces should raise attractiveness by enhancing sex hormone related cues to youth and fertility in females (Barber, 1995) and to dominance and immunocompetence in males (Barber, 1995). Studies have used computer graphic techniques in order to make an average face of a male and female. They would then enhance the face to make it more masculine or feminine. Results from a study conducted by Perrett et al., (1998) showed that participants preferred feminized faces to the average shape of a female face. It was seen across two cultures, the UK and Japanese culture. The results from the study suggest there is a selection pressure that limits sexual dimorphism and encourages neoteny in humans (Perrett et al., (1998).

Furthermore, hormone changes have shown to contribute to preferences of attractiveness. During the menstrual cycle, females show a shift in preferences towards a more masculine male face (Penton-Voak et al., 1999). The trends in the data collected show that the change is influenced by a women’s relationship status. I. e. short-term relationship against a long-term relationship. Results have shown that being in a relationship causes a larger

shift than being single. This suggests an adaptive trade off in mate choice. Women prefer a more feminized face when unlikely to conceive yet prefer a more masculine face when it can lead to an offspring. The studies provide strong evidence for hormone mediated adaptive design. A female's attraction to testosterone markers on a male's face may be influenced by her own estrogen/progesterone ratio. This suggests that the levels of hormones circulating in the blood can cause sensitivity to the opinion women have towards male faces.

The question that arises from many of the studies is whether facial attractiveness is objective or subjective. It is largely debatable. However, empirical evidence more recently has led to supporting the notion that facial attractiveness is objective by measuring cross-cultural consistency (Perrett et al., 1994). Overlooking several research studies, the methodology seems to be the same. – that is using computers or software programs to conduct the research. Methods include encoding objective factors from a face to assess facial attractiveness. However, these elements are not investigated thoroughly due to improper feature extraction.

Overall, research has focused mainly on the analysis on one single feature and how it contributes to attractiveness. This is a limited approach as attractiveness cannot based on the analysis of only one feature. We should look closely at the multiple fitness hypothesis (Cunningham, Roberts, Wu, Barbee, and Druen, 1995) and the redundant-signal hypothesis (Maller & Promianowski, 1993) who show how each cue plays a part into attractiveness. The multiple fitness hypothesis states that attractiveness varies across multiple dimensions rather than a single dimension and that

each feature signals a different aspect of mate value. The redundant signal hypothesis suggests that each feature signals different aspects of mate quality and that the features are considered against each other in the evaluation. Support for the redundant signal hypothesis is shown by Grammer, Fink, Juette, Ronzal and Thornhill (2001) which explains how signals contribute to female attractiveness. Other studies such as Thornhill and Grammer (1999) are also supportive of the hypothesis. Thornhill and Grammer (1999) asked participants to judge the attractiveness of the same women in three poses and found significant positive correlation between the ratings for the three poses in Austrian and U. S participants. The poses linked to the face, back and front which relate to estrogen. It implies that women's faces, and bodies result into one aspect which is of honest mate value.

Moving on, biologically oriented theories have proposed to explain variations in gender. Evolutionary psychologists view gender differentiations as ancestrally programmed (Buss, 1995). Evolutionary psychologists analyze gender differences in terms of mate preferences, reproductive strategies, parental investment in offspring and the aggressive nature of males.

Women adapted to their role in reproduction and parenting by preferring fewer sexual partners and favoring those who would be long term providers. Men focused on maximizing the likelihood of paternity by reproducing with numerous of young and physically attractive females, suggesting high fertility. Due to physical appearance, men would resolve their problems through exercising their aggressive dominance over females. Coercive force enables males to control female's sexuality and to mate with many females (Smuts, 1992).

Although, facial attractiveness has widely been studied using biologically based preferences (Rhodes, 2006), it has also been presented that our preferences are products of our cultural experience (Etcoff, 1999). Evidence shown has challenged this view, as it has been noted that there is a cross cultural agreement on what we consider attractive (Perrett et al, 1998). However, evidence has also shown that our facial preferences have emerged at an early age (Samuels and Ewy, 1985).

Psychologists such as Holzleitner & Perrett, (2017) found that women are not performing a binary trade off, but a women's personal circumstances affect her preferences to different extents, depending on the men she has come across. This suggests that the environment around an individual contributes to making the decisions on whether females love feminine faces or masculinized faces.

Furthermore, a study investigated whether heterosexual men preferred femininized traits or masculinized traits for long or short-term relationships. Results showed that men in relationships were more likely to find a woman with feminine faces most attractive when thinking about a short-term relationship and vice versa was shown for women (Anthony et al., 2013).

Classic learning theories propose that higher levels of drive increase the probability of well learned behaviors (Hull, 1943). These theories suggest that higher level of desire should associate with higher sexual attraction. In heterosexual people, with high sexual desires should show higher attraction to the opposite sex and in homosexual people with high sexual desire, they should show higher attraction within the same sex (Lippa, 2006). Chivers,

Rieger, Latty, & Bailey (2004) found that heterosexual men find genital arousal through female sexual stimuli and homosexual and heterosexual women are aroused to both male and female sexual stimuli. This research supports that men have more defined sexual orientation than women.

Sexual dimorphism is as aspect of facial structure that can be considered sexually attractive (Scheib, 2001). Previous studies have associated masculinity and femininity with long term health in both men and women (Thornhill & Gangestad, 2006). Studies reported that heterosexual men's self-reported sexual desire was positively correlated with their preferences for feminized versions of women's face but not related to their judgement of men's faces (Jones, Little, Watkins, Welling and DeBruine (2011). This supports Lippa (2006) that sexual desire energizes heterosexual women's general sexual behaviors but energizes only dominant sexual behaviors in heterosexual men. Lisa et al., (2013) studies reported that homosexual men self-report sexual desire was positively related to their preferences for masculinity in male faces, but unrelated to their preference for sexually dimorphic traits in women's faces. This raises the question of how natural selection could have favored homosexuality, given that homosexual's produce fewer offspring's than heterosexual couples (Bell & Winberg, 1978).

Neural reward systems are associated with viewing attractive faces (Kampe, Frith, Dolan & Frith, 2001). It was more active when viewing preferred sex faces within homosexuals and heterosexuals compared to when viewing non-preferred sex faces (Ishai, 2007). This means that preferences for facial sexual dimorphism may differ between homo and heterosexual individuals. Bailey et al., 1997 found that homosexual men preferred men who were

described to be masculine more than they preferred men who were described to be feminine. Homosexual women, however showed no consistent bias in their preferences for masculine vs feminine women. However, this study used vignettes to describe behavioral masculinity than objective manipulations of sexually dimorphic characteristics. Resulting in, being unclear if the result impact face preferences.

In terms of facial symmetry there has been limited research on physiological that correlates.

Cultural differences can change patterns in attractiveness. In an environment with high risk of pathogens, the probability of offspring survival and reproduction decreases. Thus, resulting in individuals not investing in an attractive partner but focusing on acquiring good genes for their offspring's. Studies such as Penton-Voak et al, (2004) found stronger preferences for male's masculinity in Jamaicans than in the UK and Japan. This suggested that there is a higher pathogen prevalence which may result in increased preferences for masculinity in male faces. Adding to that, another study found that poorer health was related to stronger female preferences for male masculinity (DeBruine et al., 2010).

Social learning can also influence human mate preferences (Little et al., 2011). Social transmission of preferences in human can result in a directional pressure on both traits and preferences within populations (For example, if a preference for large noses arose within a population, other members of that population would observe and learn that the trait is attractive (Laland, 1994).

Finally, the dimensions of facial cues to attractiveness impacts our every-day life. This ranges from mental health to broader society. The effects of facial attractiveness should be delivered to the public in order to make them aware of how their daily lives can be affected.

For example, Napoleon et al. (1980) found that mental patients were less attractive in high school before there were psychiatric hospitalized in which they interpreted that unattractiveness may precipitate mental illnesses. Further explanations provided consist of psychiatric patients having experienced severe emotional problems before they were hospitalized, and this was reflected in their facial expressions, resulting in lowered physical attractiveness in high school. Although, there is little positive evidence to prove this, it questions the theory that unattractiveness pre-disposes individuals to psychiatric illness (Farina et al., 1977) suggesting that unattractiveness itself may reflect poor emotional adjustment via unpleasant facial expressions. Just knowing that attractiveness can contribute to mental illnesses shows that we should care about the way we live our lives and the energy that we consume and release from each other and ourselves. There should be a growing importance on helping people maintain confidence from a very young age in order to avoid any disturbances. Furthermore, these references in facial attractiveness is consistent with Byrne- Qore (1970; Clore & Bryne, 1974) reinforcement affect model of interpersonal attraction which states that increases in positive affect will cause attraction towards any person who is present at the time and vice versa.

The feeling of love, does it affect our judgement on our partners facial attractiveness or does facial attractiveness effect the strength of our love?

Existing findings suggest that a romantic love relationship, may affect the self-evaluation of facial attractiveness. “ Love is blind bias” has been highlighted within psychology as one’s evaluation of a lover’s physical attractiveness being higher than one’s evaluation of one’s own attractiveness (Barelds- Dijkstra & Barelds, 2008; Hall & Taylor, 1976) even in homosexual relationships (Swami et al., 2009). These studies have shown an influence of the relationship in evaluating the lover’s facial attractiveness. However, to my knowledge, no study to date has explored this issue directly.

Moreover, males and females use facial attractiveness to find who they will date, mate and marry (Cunningham, 1986). The results in previous studies suggest that instead of focusing on natural selection, the focus is driven from sexual selection. However, there needs to be more studies conducted to verify this statement.

Sexual dimorphism in mate preferences has sex specific consequences for human endeavors such as marriage, child rearing, and divorce (Andersson, 1994). Sex-specific demands of gestation and breastfeeding has led to women looking for mates who are older and financial stable. In contrast, men find it harder to identify high fertile mates and knowing that fertility is likely to decline which age, men tend to prefer youth and physical attractiveness in long term relationships (Buss, 1987). This will create social issues such as pedophile if more attention is given to this explanation.

Furthermore, consistent results have shown that being more attractive, means you are viewed in a more positive light than when unattractive. If these people are favored it will affect their personality, according to the self-

fulfilling prophecy (Eagley et al. 1991). Studies carried out have been done so in real life setting which means that this will affect their everyday life. However, it is poorly recognized whether experimental effects of facial attractiveness correspond with real life permanent ones (Zebrowitz et al. 1998).

Cash et al. (1985) discovered that in mock interviews, attractive people are more likely to be hired than less attractive individuals. Does this mean our society is shifting its focus from employing someone based on their education and skills to how beautiful someone looks? Also, Sigall et al. (1975) study shows that attractive individuals can influence the judgements regarding serious committed crimes. This suggests that judges make their verdict, looking at how attractive someone is, instead of their crime leading to injustice.

Overall, facial cues to attractiveness has an impact on human sexuality but to some extent. As society is growing, more sexualities are awakening and there is not enough research to address them all. Research needs to be carried out on specific sexualities before being compared to one another. Studies have previously used computerized designs to carry out research for facial cues, developing perhaps a 3D face to analyze attractiveness may strengthen the results as 3D is closer to real life than 2D face images. Moreover, studies have looked at relationships in terms of love and marriage, more studies need to be carried out that look at whether facial attractiveness affects personal relationships such as families and friends. Are we selective when it comes to choosing friends? Does being facially attractive cause stereotypes and does it develop over time? However, when

thinking about future research, we need to consider the ethical issues which may arise. For example, studying stereotypes, may mean that we put our subjects out on social media which would be very unethical.

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