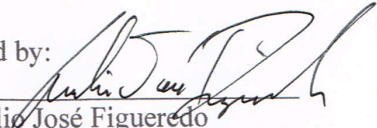


ROMANTIC PARTNER PREFERENCES
FOR FACIAL CUES
OF SYMMETRY AND MASCULINITY
BY
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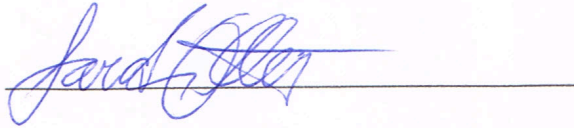
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A handwritten signature in blue ink is written over a horizontal line. The signature is cursive and appears to read "Jared Allen".

Abstract

In this quasi-experiment, the relations among life history (LH) strategy, facial symmetry, and facial masculinity were studied. Subject LH was self-reported, and the facial symmetry and masculinity of male images were experimentally manipulated. There are two extremes of LH speed: *slow* and *fast*. The goal was to determine what female participants find attractive: symmetry, masculinity, or a combination of both. Such traits are used to assess the quality of potential mates. The females found slow LH strategy males as well as the combination of slow LH strategy and masculine features to be more attractive. However, females that were themselves more attractive, based on self-reports, had lower ratings of attractiveness for the males overall. Health of the female participants also impacted their ratings of the males. Healthier females had generally higher ratings for the males. This study also supported the validity of a self-constructed survey (SRIF) to assess participant immunocompetence.

Romantic Partner Preferences for
Facial Cues of Symmetry and Masculinity

Introduction

During development, there are many environmental aspects that can influence the symmetry of an individual. One example of this is parasitic infections (Møller 1992), parasites can be viral, bacterial, protozoan, or metazoan (Folstad and Karter 1992). Potential individual hosts, who are less symmetrical or, in other words, have higher fluctuating asymmetry, are seen as less capable of fighting off disturbance during development and, therefore, are considered to have weaker immune systems (Møller & Swaddle 1997; Scheib, Gangestad, & Thornhill 1999). This is why symmetry can be used to assess the quality of potential mates. Thus symmetry is linked to attractiveness; individuals who are more symmetrical are seen as more attractive (Scheib et al. 1999; Grammer & Thornhill 1994). In this study, facial symmetry was studied and manipulated along with facial masculinity. Individuals use symmetry to assess the genes and, therefore, the immune system of potential mates. This notion is based on the good genes sexual selection theory. This concept states that humans have evolved over time to prefer certain traits, which reveal genes that will ensure the survival of offspring (Scheib et al. 1999). The idea is to produce offspring that have the best chance of survival, and one of the best ways to do this is to guarantee that they have good parasite resistant, because of the genes from the parents. The genes from the parents will, in an ideal situation, recombine to produce offspring with good immune responses to fight off environmental disturbances such as parasites.

Buss and Gangestad (1993) found support for the hypothesis that pathogen resistance has contributed significantly to variations in mate quality. Individuals do regard pathogen resistance when selecting mates based on quality, which in this case is symmetry. In this quasi-experiment, we want to determine if individuals with more symmetrical faces are seen as more attractive in order to show that our population is akin to previously studied populations. Attractiveness of the males to the females was estimated based on the ratings the females assigned to the males on the Mate Value Inventory (MVI). This is an indirect assessment of how desirable, as a romantic partner, the females find the males based on their ratings of the males on characteristics that are known to be sexually and socially desirable from a wide array of research in social and evolutionary psychology. We expect the health of the female participants will play a role in their mate preferences. We predict that healthy individuals will prefer partners who are also healthy. Healthy would be based on facial symmetry and masculinity for the males. The health of the females was estimated based on self-reports on two health surveys: the RAND 36-Item Health Survey (SF-36), and a self-reported Immune Function Survey (SRIF). The SRIF is a newly introduced, author-constructed scale, whose items were collected by conducting internet searches (of medical information sites) for functional symptoms that indicated a compromised immune system.

The masculinity of facial features also plays a role in mate preference. Scheib et al. (1999) found that males with more masculine features are seen as more attractive. They also stated that masculine facial characteristics are more symmetrical, thus connecting masculinity to immune function. Masculine features are the result of increased testosterone. According to the immunocompetence handicap hypothesis, androgens, such as testosterone, are responsible for producing secondary sexual

characteristics. They also, however, suppress the immune system making individuals less able to combat parasites (Folstad et al. 1992). An individual with masculine features is taking the risk of not being able to combat environmental disturbances such as parasites. These individuals need to have a superior immune system to start off with in order to afford the risk of having more masculine features. Masculine features are what would be called an honest signal, which are features that are hard to maintain because they are costly, hard to fake, and they reveal underlying genetic information (Thornhill & Gangestad 2006). A person with masculine features must have a superior immune system since they are making themselves more vulnerable to parasites as a result of having such androgen-based features. This would constitute an honest signal because it would be too costly to have such features if they did not already have “good genes”. What are meant by the terms “good genes” are genes that confer resistance to whatever parasites are locally prevalent, because population densities of parasites may be unstable across space and time. Therefore, what constitutes a “good” or “bad” gene might vary quite a bit, because genes that are adaptive in one area may be detrimental in another, and what constitutes “good genes” is relative to the environment that a person lives in. This environmental instability could yield more genetic variety and this genetic variation could increase the aggregate fitness of offspring (Scheib et al. 1999).

Because an individual that is symmetrical and has masculine features is hard to come by, the combination of the two is an even better signal of the immune system’s effectiveness. A person with such a combination of features must have locally good genes because they are symmetrical despite being more vulnerable. It is also expected that my study will replicate the findings of Scheib et al. (1999): faces that are more symmetrical and masculine will be seen as more attractive. In this quasi-experiment we wanted to

determine if it is symmetry alone that results in the perception of attractiveness or if it is masculinity or a combination of both characteristics that women find attractive. To assess if it is symmetry, masculinity, or both that influence attractiveness, four images of male faces were manipulated on symmetry and masculinity, and then the females evaluated the males on three measures (see Methods section). We predicted that the female participants would see the symmetrical faces as more attractive, and that the combination of symmetry and masculinity would also be seen as more attractive.

Another aspect that was looked at in the study is life history (LH) strategy. There are two kinds: *slow* and *fast* LH strategy. Slow LH strategists have better mental and physical health, longer relationships, fewer sexual partners, fewer offspring, and they invest in the survival of those offspring (Figueredo & Wolf 2009). Slow strategists arise from environments that are stable, predictable, and that are “controllable by genetically influenced developmental processes with intrinsic sources of mortality” (Figueredo et al. 2009). On the other hand, fast LH strategists are less physically and mentally fit, have shorter relationships, more sexual partners, more offspring, and do not invest as much in their offspring (Figueredo et al. 2009). Fast LH is selected for in environments that are unstable, unpredictable, and uncontrollable by genetics, and face extrinsic sources of mortality. Slow strategists partake in more assortative pairing than fast, meaning that they tend to mate more with individuals who are like them. These individuals would generally have better physical and mental health, the traits of which can be passed on to offspring. It is considered safer for slow speed individuals to mate with other slow strategists since they will carry genes similar to theirs that encode for better health. These genes have been well adapted to the particular location, since the environment is stable and predictable this is not an issue (endogamy). By mating with similar individuals it

increases the probability that good genes will be passed on to the offspring and fewer offspring need to be produced to get good gene expression. Fast strategists are more concerned with diversification of their offspring so they would need to mate with dissimilar individuals. Slow strategists do not get the diversification of offspring. They are in fact reducing the diversity of their offspring, which would be disadvantageous if they lived in unpredictable environments (Figueredo et al. 2009). Slow strategists are ensuring ecologically suitable genes for their offspring. In this study, we wanted to establish if the female participants find the slow or fast LH strategists more attractive. We expected the slow LH strategy males to be seen as more attractive based on the characteristics of slow LH strategists.

Methods

Subjects

The participants were 50 females who were recruited from the University of Arizona through the Zona System. The system is designed to allow undergraduate students to fulfill their research participation credit. Participants received credit for their participation.

Stimuli

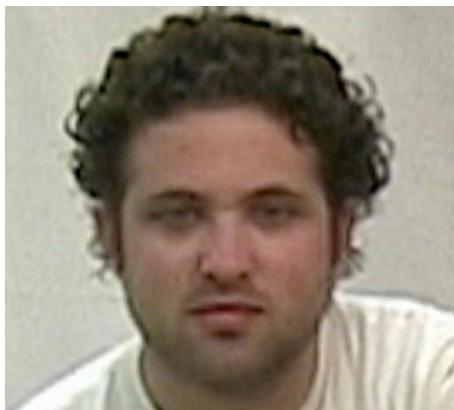
For part of this study, participants were asked to evaluate four manipulated male faces. The pictures of the males were obtained by taking screen shots of videos that had been used in a previous study. These males were used because data for them (TIPI, MINI-K, NEO) was available. Such data was necessary in order to see how participant evaluations varied based on the manipulations. The males were selected because they had either a low or high level of K, indicating slow LH, their faces were clearly visible (not wearing hats, etc.), and they had consented to having their data used in future research.

Each face was manipulated by the following methods: high symmetry, high masculinity; high symmetry, low masculinity; low symmetry, low masculinity; low symmetry, high masculinity. Psychomorph was used to do these manipulations (Yu & Tiddeman 2010). To achieve facial symmetry one half of the face was superimposed onto the other half of the face. Adjusting the width of the brow and jaw created masculine features. Examples of such manipulations can be seen in **Image Set 1**. Each of the four groups was assigned one of the manipulated faces of each male. Every group, in the end, saw all combinations of symmetry and masculinity, but not on the same face. They were not supposed to know that the faces were manipulated, which is why they did not see four version of the same face. An example of the images received by a group can be seen in **Image Set 2**. Accompanying each face was the TIPI, MVI, and MINI-K. The participants filled out these surveys based on what they thought the males would say or be like. Male A and male C have fast LH speed; male B and male D have slow LH speed.

Image Set 1. Examples of the facial manipulations.



High symmetry, Low masculinity



Low symmetry, Low masculinity



High symmetry, High masculinity



Low symmetry High masculinity

Image Set 2. Example of what Group 1 received.



High symmetry, Low masculinity



High symmetry, High masculinity



Low symmetry High masculinity



Low symmetry, Low masculinity

Procedure

Subjects volunteered to participate in this study through the Zona System. The only requirements were that they had to be female and a student at the University of Arizona. Participants signed up for time slots for part 1. This portion consisted of the Mate Value Inventory (MVI), the Mini-K (MINI-K), the TIPI, the RAND 36-Item Health Survey (SF-36), and a self-reported Immune Function Survey (SRIF). All the participants were assembled into a list in the order that they signed up for the study and assigned a UserID (001-120). At the time of the study, participants were sent a link to the survey with their UserID through Illume. This UserID was automatically linked to the data for each participant. On this link, a disclaimer is the first item participants see. Upon completion, each participant was randomly assigned to one of four groups by assigning a number, 1-4, by proceeding down the previously assembled list.

Once participants completed Part 1, they were informed that they could sign up for part 2. They were also given a group number and told to sign up for the corresponding times. Upon arrival, participants who forgot their UserID, were given a list containing email addresses and the UserID. The first thing participants needed to complete was the informed consent form for part 2. In this consent form they are given the option of having their picture destroyed at the end of the study or allowing it to be used for future research. Once they signed the form, participants were asked to evaluate four manipulated male faces on the MVI, MINI-K, and TIPI. Participants who came for part 2 were debriefed at the end of their session. Those participants that were not eligible for part 2, showed up for the debriefing at the end of the part 2 sessions.

Data Analysis

The data was analyzed using multiple regressions. The internal consistency reliabilities for the female self-reports were measured using Cronbach's Alpha. The results can be seen in **Table 1**. The internal consistency reliabilities were also measured for the male images that the females evaluated (**Table 2**). A hierarchal test of significance was conducted for predictors of the males mate value (M-MVI) based on what the females reported (**Table 3**). These values were then again evaluated using a standardized regression to obtain only significant values (**Table 4**).

Table 1. *Internal Consistency Reliabilities for Female Self-Reports*

Measure	Cronbach's Alpha
F-MINIK	.835
F-MVI	.770
F-SF36	.893
F-SRIF	.897
F-TIPI	.432

Table 2. *Internal Consistency Reliabilities for Female Reports on Male Images*

Measure	Group 1	Group 2	Group 3	Group 4
M-MINIK	.919	.908	.923	.932
M-MVI	.912	.923	.921	.939
M-TIPI	.766	.775	.692	.733

Table 3. *Hierarchical Tests of Significance for Predictors of Male Mate Value (M-MVI) as Estimated by Female Participants*

Measure	DF	F	p
K	1, 237	10.41	.001
S	1, 237	.03	.874
M	1, 237	1.07	.302
K*S	1, 237	1.48	.225
K*M	1, 237	25.59	<.0001
M*S	1, 237	.05	.817
K*S*M	1, 237	.01	.93
F-MVI	1, 237	9.13	.003
F-SRIF	1, 237	6.72	.01
F-SF36	1, 237	13.75	.0003
F-MINIK	1, 237	0	.969
F-TIPI	1, 237	.6	.439

Table 4. *Standardized Regression Weights for Significant Predictors of Male Mate Value (MMVI) as Estimated by Female Participants*

Measure	DF	t	p	β -weight
K	1, 248	2.87	.0044	.163
K*M	1, 248	5.44	<.0001	.314
F-MVI	1, 248	-3.96	<.0001	-.289
F-SRIF	1, 248	3.52	.005	.214
F-SF36	1, 248	3.92	.0001	.301

Results

Based on the data, high-K or slow LH males are assigned higher MVI ratings by females ($\beta = .163, p = .004$). The images of the high-K (slow LH) males with high M (manipulated masculinity) also have higher MVI ratings assigned to them by the females ($\beta = .314, p < .0001$). Females that were more attractive based on self-reported MVI values, assigned lower ratings to the males on the MVI ($\beta = -.289, p < .0001$). Females that are more immunocompetent, based on the SRIF, assigned generally higher scores on the MVI to the males ($\beta = .214, p = .005$). Females that are higher in physical and mental functioning, based on the SF36, also assigned generally higher scores to the males on the MVI ($\beta = .301, p = .0001$).

Discussion

The high-K (slow LH speed) males were seen as more attractive by the females as predicted. Slow LH strategists have better physical and mental health, which would mean that they would be able to develop more attractive features. The images of high-K males with high-M (manipulated masculinity) also had higher ratings given to them by the females. Slow LH strategy males with masculine features are seen as more attractive. The

values for the ratings of the symmetrical male faces were not significant. This would indicate that symmetry alone does not determine attractiveness. There are other factors that come into play. In this case, masculinity was needed in combination with symmetry to be deemed as attractive by the females. Symmetry may still, however, indicate the immune potential of an individual, but the feature by itself, based on this study, does not necessarily mean that the individual is rated as attractive. The two characteristics are separate (health and attractiveness).

One interesting finding was that the females who are more attractive based on self-reports of the MVI did not find the males as attractive overall. A possible explanation is that these females may be more critical of their potential partners because they can be, given that their high mate value puts them in high demand as partners. They would want to pick out the best possible partner with which to mate in order to give their offspring the best possible chance of survival.

Based on the SRIF, female participants who are more immunocompetent also found the males to be more attractive, as indicated by their ratings of the males on the MVI. Also, females with higher mental and physical health (SF36) found the males to be more attractive as well. For both the SRIF and SF36 healthier women find the males more attractive in general. We are not sure as to why that is, but one possible explanation might be that the perception of these women is different such that they view these males differently. The fact that healthier females, using the SF36 as an indicator of general phenotypic fitness, rated the males as more attractive supported the validity of the SRIF as an indicator of immunocompetence.

Limitations of Study

This study needs to be repeated with a larger sample of participants. There were some problems with the females' participation in the second part of the study. Most of the participants only completed Part 1. Because the MVI was used to assess participants' ratings of attractiveness for the males, participants should be asked more specific questions in further studies to assess how attractive they find the males. Examples of such questions would be: "Do you find this person attractive?" and "Would you date this person?"

Finally, there are also some variables that have yet to be assessed. Measures of female facial symmetry and masculinity were obtained, but not yet analyzed due to the small sample size. With larger samples, it would be interesting to see how such measures correlate with partner preferences. It would also be a good idea to incorporate how the females' own LH strategy impacts their preferences. The study did, however, provide insight into partner preferences and validity for the SRIF.

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