The Relationship Between the Degree of Beauty and Interpersonal Attractiveness
Based on a Moderated Chain Mediation Model

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Abstract. With the popularity of beauty applications, more and more people are trying to beautify their photos to gain more recognition and favor, but the effect of beauty seems unsatisfactory. In order to investigate the effect of face beauty on interpersonal attraction, this study constructs a chain mediator model in which face beauty acts on interpersonal attraction through perceptions of information authenticity and initial trust judgments. It explores the moderating role of facial attractiveness in this model. A total of 185 subjects were recruited from Lanzhou University to test the moderated chain mediation model using Bootstrap empirically. The study showed that: (1) perceived information truthfulness fully mediated the relationship between beauty and interpersonal attractiveness; (2) initial trust judgments partially mediated the positive effect of perceived information truthfulness on interpersonal attractiveness; (3) perceived information truthfulness and initial trust judgments partially mediated the relationship between beauty and interpersonal attractiveness; (4) facial attractiveness negatively moderated the positive effect of perceived information truthfulness on interpersonal attractiveness, while facial attractiveness negatively moderated the positive effect of perceived information truthfulness on interpersonal attractiveness; (5) facial attractiveness negatively moderates the positive effect of perceived information truthfulness on interpersonal attractiveness, i.e., the higher the facial attractiveness, the weaker the effect of perceived information truthfulness on interpersonal attractiveness.

Keywords: chain mediation model · interpersonal attractiveness · facial attractiveness · information truthfulness · initial trust

1 Introduction

In modern society, interactions between people are becoming increasingly frequent, and social interactions between strangers, in particular, are unavoidable. Photoshopped photos can lead to distorted information and affect the recipient's perception of the truthfulness of the information. The authenticity of information has an important impact on the initial interpersonal interaction, and it may directly influence the first impression of whether a particular forms trust in the person they are interacting with. Initial interpersonal trust plays a crucial role in our daily life, and good initial trust can enhance the security of both parties in the interaction and facilitate deeper interaction.

As an essential component of interpersonal relationships, the interpersonal attraction has also received much attention. Much of the existing domestic research on interpersonal attractiveness has focused on the psychological influences on interpersonal attractiveness, the role of interpersonal attractiveness, and the study of attractiveness in a particular occupational group. The factors that influence interpersonal attraction are complex. Psychologists have outlined three main categories of factors that influence interpersonal attraction: situational factors, personal trait factors, and similarity and complementarity factors. Contextual factors include spatial and temporal distance, frequency of interaction, grouping, and experience. The study of these factors found that the closer the spatial and temporal distance, the higher the frequency of interaction and the stronger the need for grouping. The better the emotional experience, the higher the judgment of interpersonal attraction towards each other. Personal attributes include physical appearance, talent, and personality qualities. A study of personal trait factors found that people with good looks and talent are more attractive. Personality qualities are more stable, persistent, and profound than other personal traits, and enthusiasm and sincerity can increase interpersonal attractiveness. Therefore, two variables, perceived information truthfulness and initial trust judgment were introduced to explore the mechanism of the effect of P-chart degree on interpersonal attractiveness.

By exploring the effect of the degree of beauty on interpersonal attractiveness, this study helps alleviate people's anxiety about their appearance in job search and dating scenarios and act more efficiently to enable people to understand better and accept themselves.

2 Theoretical Basis and Research Hypothesis

2.1 The Relationship Between the Degree of Beauty and Interpersonal Attractiveness

Facial enhancement is often seen as a way to improve the attractiveness of faces, and some studies have shown that it can increase the attractiveness of faces. However, beauty can also reduce the realism of a face, leading to a reduction in the initial trust in the face. Initial trust is a state of mind in which the trusting party trusts and is willing to rely on an unfamiliar or unfamiliar person at the beginning of an interpersonal relationship. Initial trust is usually established through an individual's initial impression of another person without sufficient information and direct knowledge of the other person. This trust established in the early stages of interpersonal interaction can influence individuals' behavioral decisions later on and the development and direction of relationships. Therefore, although beauty may enhance facial attractiveness to some extent and may help increase interpersonal attractiveness, a decrease in information veracity leads to a decrease in initial trust in faces and, thus, interpersonal attractiveness. Therefore, this study hypothesizes that the degree of beauty is not significantly related to interpersonal attractiveness (H0).

2.2 The Mediating Role of Perceived Information Authenticity

As the degree of beauty increases, the perceived information authenticity of the picture decreases, i.e., we hypothesize that the degree of beauty is negatively related to the

perceived information authenticity (H1). When a picture's perceived level of realism decreases, the picture's interpersonal attractiveness decreases. Therefore, we hypothesize that perceived information veracity positively affects interpersonal attractiveness (H2). Furthermore, perceived information veracity mediates the relationship between beauty and interpersonal attractiveness (H3).

2.3 The Role of Chain Mediation Between Perceived Information Authenticity and Initial Trust Judgments

The above hypothesis portrays the pathway of the degree of beauty - perceived information authenticity - interpersonal attractiveness. However, according to existing research, the factors influencing interpersonal attractiveness are divided into three main categories: situational factors, personal trait factors, and similarity and complementarity factors. Personal traits include qualities such as honesty and enthusiasm. When perceived information authenticity is reduced, the initial trust in the picture is also affected, which in turn affects the interpersonal attractiveness of the picture. Therefore, we hypothesize that perceived information veracity positively affects initial trust (H4), and initial trust positively affects interpersonal attractiveness (H5). Initial trust judgments mediated between perceived information veracity and interpersonal attractiveness (H6). Perceived information veracity and initial trust judgments mediate the chain between the degree of beauty and interpersonal attractiveness (H7).

2.4 The Moderating Effect of Facial Attractiveness

Many studies have demonstrated the "beauty is good" effect. The importance of attractiveness as a selection criterion for mate choice has led to a higher relationship success rate for individuals with high attractiveness than for others. When facial attractiveness changes, we hypothesize that facial attractiveness negatively moderates the relationship between perceived information truthfulness and interpersonal attractiveness due to the beauty-is-good effect (H6) (Fig. 1).
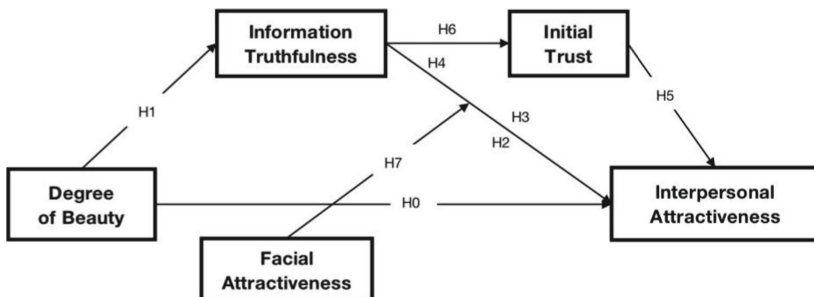

Fig. 1. Relationship model diagram

3   Research Design and Methodology

3.1   Study I

3.1.1   Purpose of the Study

To examine the effect of the degree of beauty on interpersonal attractiveness and the mediating effect of perceived information authenticity.

3.1.2   Test Subjects

92 (46 male, 46 female) school students were recruited at Lanzhou University, with subjects aged between. Two invalid questionnaires were excluded, and a total of 90 questionnaires were retained, of which 50% were male, and 50% were female, with a balanced gender ratio.

3.1.3   Experimental Materials

40 photos of attractive female faces were selected from the Chineseized Faces Emotion Picture System. Only female photos were used because, in real life, women use beauty software more frequently, while men rarely do. Only female photos were used in this study to ensure the ecological validity of the experiment. All photos were taken with attractive facial features, no obvious facial deformities, and any decorations such as glasses or earrings. All photographs were standard one-inch ID photographs, and all facial expressions were neutral in the mood. Thirty university students of each gender were recruited (none of them participated in the formal experiment), and after two pre-experiments, nine types of photos were obtained with no significant difference in face trustworthiness and high, medium, and low perceived information authenticity and high, medium and low facial attractiveness. Study I used three pictures with medium facial attractiveness and high, medium, and low perceived information veracity as experimental material.

3.1.4   Measurement of Variables

The questionnaire is based on a seven-point Likert scale, with the degree of beauty of "How beautiful do you think this face is?". Question. The perceived authenticity of the information was set to "How authentic do you think this face is?" Initial trust judgments were measured through a trust game. Interpersonal attractiveness was measured using a scale adapted by Lydon, Meana, and Mayman et al. (1999) from the Interpersonal Attractiveness Scale used by Johnson & Rusbult in 1989. Later in the citation process by Chinese scholars, it was found that the first eight channels had higher reliability. Therefore, this experiment used the first eight channels of the scale for attractiveness judgments.
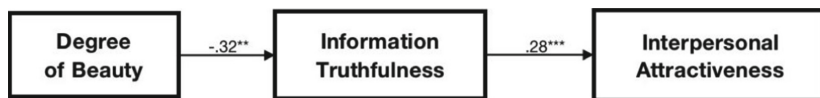
Fig. 2. Diagram of the Study I model

3.1.5 Study Design

The experiment used a one-way (high, medium, and low information truthfulness) between-group design with three groups of 15 men and 15 women each. The mediating variable was perceived information truthfulness, and the dependent variable was interpersonal attractiveness.

3.1.6 Study Results

(1) *Reliability check*

Firstly, the reliability of each scale was checked by calculating the internal consistency coefficient of the scales. The results showed that Cronbach's alpha coefficient of the interpersonal attractiveness scale was 0.854, and the internal consistency coefficient was high.

(2) *Examination of the degree of beauty*

One-way ANOVA tested the degree of beauty with a significant difference across groups $F(2,90) = 8.09$, $p < 0.01$, $\eta p2 = 0.18$, consistent with the manipulated results.

(3) Test for main effects

The results of the hierarchical regressions show no significant relationship between the degree of beauty and interpersonal attractiveness. (Model 1, $\beta = 0.05$, $p > 0.05$) Furthermore, hypothesis H1 was verified.

(4) *Test of the mediating role of perceived information truthfulness*

The above mediating effects were validated using Process model 4. The indirect effect of perceived information truthfulness between the degree of beauty and interpersonal attractiveness was significant (indirect effect value of 0.09; confidence interval $[-0.17, -0.02]$, not including 0) (Fig. 2).

3.1.7 Summary

Based on Study I, we can find that the relationship between the degree of beauty and interpersonal attractiveness is insignificant, and H1 holds. The positive effect of the degree of beauty on interpersonal attractiveness, H2 was established. The mediating effect of perceived information truthfulness between the degree of beauty and interpersonal attractiveness is significant, and H3 was established.

3.2 Study II

3.2.1 Purpose of the Study

To test the existence of a chain mediating effect of perceived information veracity and initial trust judgments between the degree of beauty and interpersonal attractiveness versus the moderating effect of facial attractiveness between perceived information veracity and interpersonal attractiveness.

3.2.2 Test Subjects

93 current students (46 males and 47 females) were recruited from Lanzhou University. None of the subjects had participated in Study I and were aged between. Three invalid questionnaires were excluded, and a total of 90 questionnaires were retained, of which 50% were male, and 50% were female, with a balanced ratio of males to females.

3.2.3 Experimental Materials

In line with Study I, the experimental materials for Study II were obtained through two pre-experiments. Study II used six pictures with high, medium, and low levels of beauty under high facial attractiveness; and high, medium, and low degrees of beauty under low facial attractiveness as experimental materials.

3.2.4 Measurement of Variables

The questionnaire used a seven-point Likert scale to set up the interview situation, and the subjects were given the interviewer's identity in the questionnaire. The degree of beauty was set at "How beautiful do you think this face is?". The perceived truthfulness of the information was set to "How truthful do you think this face is?" Initial trust judgments were measured through a trust game. Interpersonal attractiveness was measured using a scale adapted by Lydon, Meana, and Mayman et al. (1999) from the Interpersonal Attractiveness Scale used by Johnson & Rusbult in 1989, with the first eight items used in this study. A more consistent approach to measuring facial attractiveness from previous studies has been to use the "consensus method", so the question "What do you think of the attractiveness of this face?" was used.

3.2.5 Research Design

A mixed design was used for a two-factor 3 (high, medium and low degree of beauty) × 2 (high and low facial attractiveness), with the degree of beauty being the between-group variable and facial attractiveness being the within-group variable. Subjects were divided into three groups of 15 men and women each. The mediating variables were perceived information truthfulness and initial trust judgment, and the dependent variable was interpersonal attractiveness.

3.2.6 Findings of the Study

(1) *Reliability test*

The reliability of each scale was tested by calculating the internal consistency coefficients of the scales. The results showed that Cronbach's alpha coefficient of the interpersonal attractiveness scale was 0.872, and the internal consistency coefficient was high.

(2) *The test of beauty degree and facial attractiveness*

The degree of beauty was tested by one-way ANOVA and was significantly different across groups $F(2,183) = 22.683$, $p < 0.001$, $\eta p2 = 0.18$, consistent with the manipulated results.

(3) *Testing the relationship between perceived information truthfulness and initial trust judgment, initial trust judgment, and interpersonal attractiveness*

The results of the hierarchical regressions indicate that perceived information truthfulness positively influences initial trust judgments. (Model 1, $\beta = 0.419$, $p < 0.001$), Moreover, hypothesis H4 was tested. Letter initial trust judgments positively influenced interpersonal attractiveness. (Model 2, $\beta = 0.262$, $p < 0.001$), H5 was tested.

(4) *Mediating role of initial trust judgments*

The above mediating effects were verified using Process model 4. The indirect effect of initial trust judgments between perceived information truthfulness and interpersonal attractiveness was significant (indirect effect value of 0.03; confidence interval [0.003, 0.074], not including 0), and H7 was established.

(5) *Chain mediating effect of perceived information authenticity and initial trust judgment*

Moreover, the mediating chain effect of perceived information veracity and initial trust judgment between beauty and interpersonal attractiveness was significant ($\beta = -0.013$, $p < 0.01$) with a 95% confidence interval of $[-0.037, -0.002]$ for Bootstrap $= 5000$, excluding 0. H6 was established.

(6) *Moderating effect of facial attractiveness*

The moderating effect of facial attractiveness was examined using Process model 5, and the perceived information veracity-facial attractiveness interaction term was significantly related to interpersonal attractiveness ($\beta = -0.071$, $p < 0.01$) with a 95% confidence interval of $[-0.122, -0.020]$ for Bootstrap $= 5000$. Facial attractiveness negatively moderated the relationship between perceived information veracity and interpersonal attractiveness. The relationship between perceived information veracity and interpersonal attractiveness became weaker when facial attractiveness was higher and H8 was established (Figs. 3 and 4).
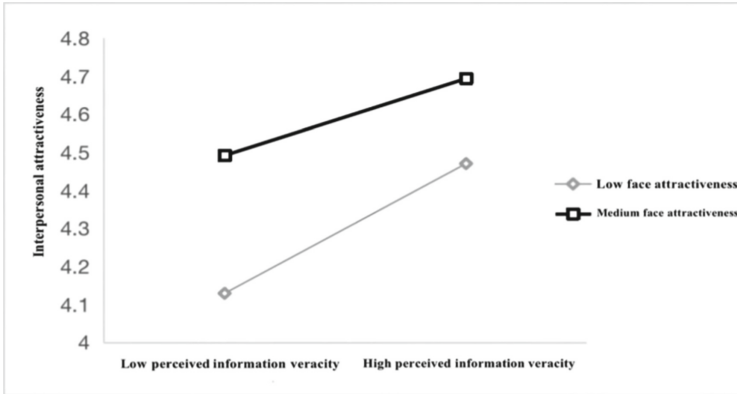
Fig. 3. The moderating effect of facial attractiveness on perceived information veracity and interpersonal attractiveness
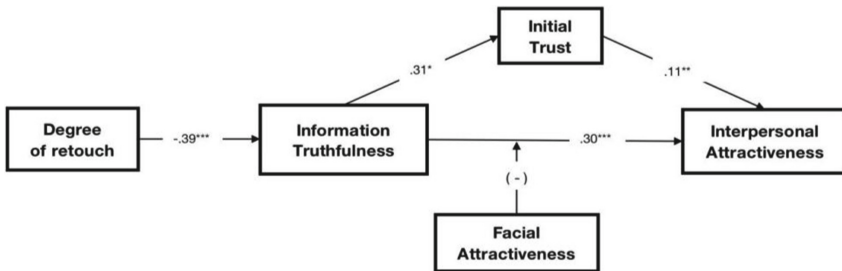

Fig. 4. General model diagram

4 Conclusions

4.1 Findings of the Study

The direct effect between the degree of beauty and interpersonal attractiveness was significant. However, the total effect was insignificant, as the direct effect was negatively and fully mediated by the perception of information veracity, indicating that beauty was ineffective in enhancing interpersonal attractiveness.

Perceived information truthfulness and initial trust judgments mediated the effect of beauty on interpersonal attractiveness: The degree of beauty negatively influences interpersonal attractiveness by reducing the perception of information veracity. An increase in the degree of beauty decreases the perceived authenticity of the face, thus reducing interpersonal attractiveness. Perceived information veracity positively influences interpersonal attractiveness by increasing initial trust judgments. When the perceived authenticity of information increases, the initial trust in the face also increases, which in turn increases the interpersonal attractiveness of the face, validating the 'truth is good' effect. There is a mediating chain effect between the perception of information authenticity and initial trust in the effect of face beauty on interpersonal attractiveness.

In modern society, interactions between people are becoming increasingly frequent, and social interactions between strangers, in particular, are unavoidable. In job hunting and spouse selection scenarios, many factors influence whether or not to interact further. Personal information (including appearance, talk, personal description, etc.) is the most accessible first-hand information to obtain in the early stages of interaction, providing a wealth of cue information for social interaction. The authenticity of personal information has an important impact on the initial interpersonal interaction. It may directly affect the individual's first impression of whether to form trust in the object of interaction.

In contrast, the level of trust determines whether the interaction will take the behavioral response of approach or avoidance. Many photo studios specialize in photofinishing and high-cost photojournalism, and getting a good photo can cost several times more than an ordinary photojournalism session. However, whether the retouched picture will improve interpersonal attractiveness and gain a favorable factor in situations such as job hunting has yet to be discovered.

This study supports the "beauty is good" effect by demonstrating that "real information is more likely to have high interpersonal attractiveness than embellished information. "It helps to alleviate anxiety about appearance in job search and dating scenarios, to act more efficiently, and to make people better understand and accept themselves.

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