

# The More Attractive, the Less Deceptive? Effects of Female Facial Attractiveness on Perceived Deceptiveness

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## Abstract

We examined whether the facial attractiveness of females affects their perceived deceptiveness. We recorded three female models as they responded to 15 self-introductory interview questions while wearing makeup to make them look more and less attractive. The video clips were presented in high versus low attractiveness conditions to adolescent participants (both males and females), who rated the model's attractiveness and deceptiveness after her reply to each of the questions. Two of the models in the high attractiveness condition were rated as significantly more attractive. Two-way ANOVAs on the deceptiveness ratings of each reply revealed that deceptiveness was generally, but not strongly, lower in the high attractiveness condition than in the low attractiveness condition. The present technique of manipulating facial attractiveness is applicable to future research.

## Keywords

Facial Attractiveness, Perceived Deceptiveness, Attractiveness and Deception, Makeup, Adolescents

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## 1. Introduction

Facial attractiveness has been shown to be closely related to positive personality traits, creating a halo effect. The facial appearance heuristic (e.g., Vrij, 2004) leads humans to judge others whose faces are attractive as honest. Consequently, perceptions of deception in daily life may be easily biased by appearance. Past research has indeed suggested that facial appearance, including attractiveness,

affects the detection of deception (e.g., Aune, Levine, Ching, & Yoshimoto, 1993; Bond, Berry, & Omar, 1994; Bull, 2004; Bull & Rumsey, 1988; Masip, Garrido, & Herrero, 2004; Porter, Campbell, Stapleton, & Burt, 2002; Rowatt, Cunningham, & Druen, 1999; Zebrowitz, Voinescu, & Collins, 1996). For example, Porter et al. (2002) and Bull and Vine (2003) examined the effect of attractiveness of male and female models on judgments of lying/truth telling. Attractive models who were telling the truth were judged as more truthful. However, the attractive and unattractive models presented in the stimulus videos were different persons; thus deceptiveness judgments may have been affected by differences in the models. By contrast, Aune et al. (1993) created attractive and unattractive model stimuli by changing the appearance of a single female by altering her clothing, makeup, and hairstyle. The unattractive model was perceived as more deceptive than the attractive model, but only by male participants. However, the model's speech was prepared by the researchers and practiced by her for four hours before recording; thus the model did not speak spontaneously, and because her performance was manipulated to conform to stereotypical liar behavior, she may have behaved unnaturally.

The purpose of the present study was to address the limitations of previous research in examining whether or not more attractive people are perceived as less deceptive. We compared perceived deceptiveness between attractive and unattractive models by using the same three female models in both high and low attractiveness conditions. Each model's facial attractiveness was manipulated using makeup. To make the models' speech and behavior appear more natural, we instructed each model to choose her own words and manner of speaking in the stimulus videos. Each model prepared her own responses to a situation similar to the "video-dating service" scenario of Aune et al. (1993), in which a single female introduced herself to potential boyfriends. The models repeated the same responses in Japanese for both high attractiveness and low attractiveness conditions. We predicted that the more attractive females would be judged as less deceptive. In the design of this study, we controlled for sex to reduce the variance when conducting ANOVAs and used personality traits to get insights into future research.

## 2. Method

### 2.1. Stimulus Construction

Four females (age range 19 - 24), all native speakers of Japanese, volunteered to serve as models. Two were undergraduate students, one was a graduate student, and one was a teacher who had graduated from university a year earlier. Each model was asked to arrange her own makeup and hairstyle in order to present herself as attractively and unattractively as possible. Each model was presented with 15 questions in Japanese (translated into English in [Table 2](#)) and was asked to answer each question either truthfully or untruthfully, as she wished, and to respond as if she were introducing herself to potential dates or boyfriends. The

models were recorded responding to the questions while wearing first the unattractive makeup and then the attractive makeup. The videos of one of the four models were excluded because she had a general difficulty in performing responses. Thus videos from three models, Models A, B, and C, were included in the experimental stimuli. **Figure 1** shows the three models in attractive and unattractive makeup (models are not identified by letter in the figure for reasons of privacy).

Two series of video stimuli were created, one that included only video clips of the models in the attractive makeup (high attractiveness condition), and the other that included models in the unattractive makeup (low attractiveness condition). A total of 45 stimuli (15 stimuli for each model) were arranged in random order and presented in each condition.

## 2.2. Participants

In order to estimate appropriate sample size, we conducted a power analysis. Our pilot research indicated that manipulation of attractiveness may sometimes fail because young female models without makeup or with “unattractive” makeup may sometimes be regarded as attractive solely because of their youth. Thus we predicted only a moderate effect size for attractiveness ( $d = 0.5$ , Cohen’s index; Cohen, 1992). Assuming  $\alpha = 0.05$  and  $(1 - \beta) = 0.80$ , we determined that 64 participants were required for each condition. A total of 133 Japanese university students volunteered to participate (54 males and 79 females); each was randomly assigned to one of the two conditions in a between-participants design (high attractiveness: 28 males and 44 females; low attractiveness: 26 males and 35 females).



**Figure 1.** Three models in two attractiveness conditions: high attractiveness (left column) and low attractiveness (right column).

## 2.3. Procedure

The experiment was administered to groups of participants in a classroom setting. Participants responded to a series of items printed on a questionnaire after watching each video clip. After all stimuli were presented, participants were asked to provide demographic information (sex, age, university faculty, department, and year) and to respond to several personality scales. The experiment lasted approximately 30 minutes.

## 2.4. Measures

The Perceived Deceptiveness Scale consisted of three items: “Deceptive”, “Straightforward”, and “Trying to show oneself in the best light”. Participants indicated their impression of the model in the video clip by responding to each item using a five-point scale ranging from 1 (strongly disagree) to 5 (strongly agree).

The Perceived Attractiveness Scale comprised five bipolar adjective sets: “Like-Dislike”, “Bad impression-Good impression”, “Adorable-Not adorable”, “Unattractive face-Attractive face”, and “Beautiful-Not beautiful”. Participants indicated their impression of the model in the video clip by responding to each adjective set using a five-point scale.

Participants also responded to a Yes or No question asking whether they were acquainted with the model in the video clip. The data of participants who either answered Yes or failed to respond were excluded from analyses of that model; 2 participants were excluded for Model A, 3 for Model B, and 2 for Model C.

After responding to the 45 video stimuli, participants were administered the Japanese version of the Ten Item Personality Inventory for Big Five Personality (TIPI-J; Oshio et al., 2012), the General Trust Scale (Yamagishi & Yamagishi, 1994), the Tendency to fall in love with looks and Tendency to fall in love with personality scales (Ochi, 2015), and the Visual Analogue Scale (VAS). The horizontal VAS was used, which was anchored on one end of the scale with “Put a high value on looks” and on the other end with “Put a high value on personality”. Except for the VAS, participants indicated their agreement with each item on a five-point scale ranging from 1 (strongly disagree) to 5 (strongly agree).

## 2.5. Human Research Ethics

Ethical approval by the research ethics board of Bunkyo Gakuin University was obtained prior to the experiment.

## 3. Results and Discussion

### 3.1. Scale Reliability

Cronbach’s alphas for the three items of the Perceived Deceptiveness Scale ranged from 0.44 to 0.80. We removed the item with the lowest alpha, “Trying to show oneself in the best light”, for all stimuli. Alphas for the remaining items improved to around 0.80. A deceptiveness score was then calculated by sum-

ming the “Deceptive” and “Straightforward” scores, with ratings for the item “Straightforward” reverse-scored. Higher scores thus indicated higher deceptiveness.

Cronbach’s alphas for the Perceived Attractiveness Scale ranged from 0.70 to 0.80 for all models. An attractiveness score was calculated by summing the ratings of all five items, with ratings for “Bad impression-Good impression” and “Unattractive face-Attractive face” reverse-scored. Higher scores thus indicated higher attractiveness.

Cronbach’s alphas for the Ten Item Personality Inventory were low for all five subscales, ranging from 0.04 to 0.52. Cronbach’s alphas for the General Trust Scale, Tendency to fall in love with looks scale, and Tendency to fall in love with personality scale were 0.82, 0.82, and 0.75, respectively.

### 3.2. Attractiveness Manipulation Check

As indicated in **Table 1**, each model in the high attractiveness condition was rated as more attractive than her counterpart in the low attractiveness condition. This difference was significant for Model A,  $t(129) = 5.32, p < 0.01$ , and Model B,  $t(128) = 3.96, p < 0.01$ , but not for Model C,  $t(129) = 0.98, ns$ . This may be attributable to Model C’s frequent blinking in the videos, which participants may have found distracting.

### 3.3. Deceptiveness Analysis

For each model’s reply to each question, we conducted a 2 (condition: high vs. low attractiveness)  $\times$  2 (sex of participant) ANOVA on deceptiveness ratings. The results are presented in **Table 2**. Although there were relatively few significant differences in deceptiveness ratings, for all of the differences in condition that were significant (Model A: Questions 2 and 10; Model B: Question 13) and marginally significant (Model A: Questions 4, 13, 14; Model B: Question 3), deceptiveness was lower in the high attractiveness condition than in the low attractiveness condition. In general, deceptiveness ratings tended to support the hypothesis that more attractive people would be perceived as less deceptive, although the present effect was not strong.

### 3.4. Effects of Participants’ Sex and Personality Traits

As indicated in **Table 2**, sex of participants had little influence on responses to Models A and B, with only one significant effect for each model. However, six of the questions produced significant or marginally significant sex effects for Model

**Table 1.** Means (standard deviations) of attractiveness and results of t tests.

Model A		Model B		Model C	
High	Low	High	Low	High	Low
13.10 (3.04)	10.37 (2.76)	18.04 (3.28)	15.62 (3.68)	13.17 (3.23)	12.60 (3.44)
$t(129) = 5.32, p < 0.01$		$t(128) = 3.96, p < 0.01$		$t(129) = 0.98, ns$	

**Table 2.** Means (standard deviations) of deceptiveness ratings and results of ANOVAs.

	Model A		Model B		Model C	
Q1. What is your ideal job?	It would be ideal if I can make use of my knowledge and skills, and my work benefits somebody.		I want to get a job related to children, because I like little kids very much.		I hope I can find a job where I don't have to talk to anybody. This is because I'm not good at talking with others.	
condition means	High	Low	High	Low	High	Low
	5.57 (2.12)	5.54 (1.82)	4.60 (1.88)	4.22 (1.46)	3.06 (1.45)	3.43 (1.86)
ANOVA	condition: <i>ns</i> sex: <i>ns</i> interaction: $F(1, 127) = 3.46, p < 0.10$		condition: <i>ns</i> sex: <i>ns</i> interaction: <i>ns</i>		condition: <i>ns</i> sex: <i>ns</i> interaction: <i>ns</i>	
Q2. What would you say if you are late for a meeting because you overslept?	I'd say, "I'm sorry for being late. I couldn't get up on time. Thank you for waiting for me."		I'd honestly say I'm sorry. I'd apologize and ask for forgiveness.		I'd apologize, because it was all my fault.	
condition means	High	Low	High	Low	High	Low
	5.61 (2.36)	6.44 (1.99)	5.44 (2.35)	5.05 (1.77)	3.61 (1.66)	3.78 (1.86)
ANOVA	condition: $F(1, 127) = 4.66, p < 0.05$ sex: <i>ns</i> interaction: <i>ns</i>		condition: <i>ns</i> sex: <i>ns</i> interaction: <i>ns</i>		condition: <i>ns</i> sex: <i>ns</i> interaction: <i>ns</i>	
Q3. How do you refresh yourself when you have a lot of stress?	I do something relaxing, such as seeing a movie or taking a bath.		I go out shopping and sing karaoke. I do whatever I want to do until I am relaxed.		I sleep. I feel refreshed after sleeping.	
condition means	High	Low	High	Low	High	Low
	4.61 (1.94)	4.69 (1.81)	3.99 (1.83)	4.50 (1.57)	3.72 (1.74)	3.47 (1.75)
ANOVA	condition: <i>ns</i> sex: <i>ns</i> interaction: <i>ns</i>		condition: $F(1, 126) = 2.84, p < 0.10$ sex: <i>ns</i> interaction: <i>ns</i>		condition: <i>ns</i> sex: M>F, $F(1, 127) = 2.85, p < 0.10$ interaction: <i>ns</i>	
Q4. Where do you want to go on a date with the person you love?	I want to go to a place where my partner wants to go. So I can broaden my horizons, and learn more about him.		I like going to the sea, and going for a drive. I want to make a lot of memories with my partner.		I'd like to go shopping. I think we can enjoy this together.	
condition means	High	Low	High	Low	High	Low
	6.18 (1.98)	6.83 (1.97)	4.77 (1.83)	5.13 (1.89)	4.92 (1.87)	4.67 (1.72)
ANOVA	condition: $F(1, 127) = 3.50, p < 0.10$ sex: <i>ns</i> interaction: <i>ns</i>		condition: <i>ns</i> sex: <i>ns</i> interaction: <i>ns</i>		condition: <i>ns</i> sex: <i>ns</i> interaction: $F(1, 127) = 11.14, p < 0.01$	
Q5. What kind of person do you want your marriage partner to be?	I want my partner to be cheerful. Because a cheerful person can make people around him cheerful too.		I want my partner to be kind and reliable.		A person who does not interfere with me would be good. I want to have a relationship in which we each can do what we want to do.	
condition means	High	Low	High	Low	High	Low
	4.75 (1.98)	4.68 (1.79)	4.28 (1.73)	4.67 (1.81)	3.08 (1.32)	3.32 (1.76)
ANOVA	condition: <i>ns</i> sex: <i>ns</i> interaction: <i>ns</i>		condition: <i>ns</i> sex: <i>ns</i> interaction: <i>ns</i>		condition: <i>ns</i> sex: <i>ns</i> interaction: <i>ns</i>	

## Continued

Q6. What do you want to do before you die?	Travel to all of 47 prefectures in Japan. I'd like to visit those places at least once a year.		I want to try skydiving.		Nothing. If there is something I want to do, I'll do it right away.	
condition means	High 4.32 (1.73)	Low 4.61 (1.87)	High 4.79 (2.05)	Low 4.88 (1.86)	High 3.49 (1.81)	Low 3.85 (1.96)
ANOVA	condition: <i>ns</i> sex: <i>ns</i> interaction: <i>ns</i>		condition: <i>ns</i> sex: <i>ns</i> interaction: <i>ns</i>		condition: <i>ns</i> sex: <i>ns</i> interaction: <i>ns</i>	
Q7. What do you do when you get a day off?	I like to make over my room. I have not done a makeover for three years, so it would be a refreshing change of pace.		I'd go to a spa and nail salon, and brush up my femininity.		I want to play my favorite video games, and sleep when I feel sleepy. That's a luxurious use of time to me.	
condition means	High 4.36 (1.89)	Low 4.61 (1.88)	High 7.10 (2.02)	Low 7.22 (2.27)	High 3.37 (1.59)	Low 3.55 (1.84)
ANOVA	condition: <i>ns</i> sex: <i>ns</i> interaction: <i>ns</i>		condition: <i>ns</i> sex: M < F, $F(1, 126) = 6.72, p < 0.05$ interaction: <i>ns</i>		condition: <i>ns</i> sex: M > F, $F(1, 127) = 5.86, p < 0.05$ interaction: <i>ns</i>	
Q8. Who is your favorite male celebrity?	Masaharu Fukuyama. His acting in dramas, and also his singing and guitar playing, I think are very cool.		I like Johnny's [Japanese pop idol group]. They're good at singing and dancing. They're cool and excellent.		Hiro Mizushima as an actor. I can't help but admire his performances.	
condition means	High 4.21 (1.60)	Low 4.27 (1.45)	High 4.78 (2.06)	Low 5.05 (2.23)	High 4.25 (1.66)	Low 4.33 (1.67)
ANOVA	condition: <i>ns</i> sex: <i>ns</i> interaction: <i>ns</i>		condition: <i>ns</i> sex: <i>ns</i> interaction: <i>ns</i>		condition: <i>ns</i> sex: <i>ns</i> interaction: <i>ns</i>	
Q9. What is your favorite phrase?	"Fortune is unpredictable and changeable." This means that bad and difficult events can also lead to a good outcome.		"Once-in-a-lifetime opportunity." I want to place importance on connecting with others.		"Let the sunshine in your heart." I keep remembering this phrase.	
condition means	High 4.78 (1.91)	Low 5.17 (1.79)	High 5.78 (2.09)	Low 5.45 (1.87)	High 5.85 (1.86)	Low 6.20 (2.03)
ANOVA	condition: <i>ns</i> sex: <i>ns</i> interaction: <i>ns</i>		condition: <i>ns</i> sex: <i>ns</i> interaction: <i>ns</i>		condition: <i>ns</i> sex: M > F, $F(1, 127) = 3.06, p < 0.10$ interaction: <i>ns</i>	
Q10. What kind of person do your friends say you are?	My friends say that I am a happy person, and they can be cheerful when they are with me.		My friends say that I brighten up the atmosphere with a charming smile. I am glad when I cheer them up.		My friends say that I am not afraid of a lot of things. I think that I only do what I want to do.	
condition means	High 5.89 (2.07)	Low 7.31 (1.61)	High 6.08 (2.02)	Low 5.67 (2.06)	High 4.15 (1.89)	Low 3.98 (2.00)
ANOVA	condition: $F(1, 126) = 18.17, p < 0.01$ sex: <i>ns</i> interaction: <i>ns</i>		condition: <i>ns</i> sex: <i>ns</i> interaction: <i>ns</i>		condition: <i>ns</i> sex: M > F, $F(1, 127) = 4.23, p < 0.05$ interaction: <i>ns</i>	

**Continued**

Q11. Do you have something to brag about?	I can fall asleep instantly in any place, such as small and noisy spaces.		I'm an earnest person. I would take very good care of a boyfriend.		I am good at narrating. I'm very particular about it.	
condition means	High	Low	High	Low	High	Low
	4.32 (1.88)	4.37 (1.89)	6.69 (2.10)	6.86 (2.19)	4.83 (1.88)	4.97 (1.67)
ANOVA	condition: <i>ns</i> sex: <i>ns</i> interaction: <i>ns</i>		condition: <i>ns</i> sex: <i>ns</i> interaction: <i>ns</i>		condition: <i>ns</i> sex: <i>ns</i> interaction: <i>ns</i>	
Q12. How do you want to be proposed to?	I want to be proposed to using simple words during a date or while traveling, and it doesn't need to be showy.		I want to be proposed to in front of Cinderella's Castle in the Tokyo Disneyland.		I want it to be casual, when I'm with him as usual.	
condition means	High	Low	High	Low	High	Low
	4.06 (1.59)	3.73 (1.26)	5.08 (1.98)	5.38 (2.24)	3.89 (1.69)	4.05 (1.75)
ANOVA	condition: <i>ns</i> sex: <i>ns</i> interaction: <i>ns</i>		condition: <i>ns</i> sex: <i>ns</i> interaction: <i>ns</i>		condition: <i>ns</i> sex: M > F, $F(1, 126) = 7.52, p < 0.01$ interaction: <i>ns</i>	
Q13. How do you dress when you go on a date?	I go with girlish culottes or skirts, but easy to move in.		I go in feminine clothes. I put full makeup on.		I wear clothes that seem suitable for public places. I'll not get fired up even if I'm going on a date.	
condition means	High	Low	High	Low	High	Low
	4.92 (1.84)	5.53 (1.92)	4.82 (1.75)	5.62 (2.15)	4.17 (1.96)	4.27 (2.10)
ANOVA	condition: $F(1, 127) = 3.73, p < 0.10$ sex: M > F, $F(1, 127) = 14.67, p < 0.01$ interaction: <i>ns</i>		condition: $F(1, 126) = 5.46, p < 0.05$ sex: <i>ns</i> interaction: <i>ns</i>		condition: <i>ns</i> sex: <i>ns</i> interaction: <i>ns</i>	
Q14. What has made you almost cry recently?	I read a novel and almost cried. The themes were love between parents and children and love of family. It warmed my heart very much.		I cried when a main character died in a traffic accident in a romantic picture.		I almost cried when I could not do well what I had to do.	
condition means	High	Low	High	Low	High	Low
	5.26 (2.01)	5.89 (1.84)	5.80 (2.33)	6.19 (2.34)	3.86 (1.65)	3.98 (1.67)
ANOVA	condition: $F(1, 127) = 3.43, p < 0.10$ sex: <i>ns</i> interaction: <i>ns</i>		condition: <i>ns</i> sex: <i>ns</i> interaction: <i>ns</i>		condition: <i>ns</i> sex: <i>ns</i> interaction: <i>ns</i>	
Q15. What are you hooked on these days?	I am hooked on collecting cat-related goods. I collect small things such as key rings and pens.		I am hooked on yoga. I feel my body is getting better toned day by day.		I'm hooked on playing puzzle games on a tablet device. When I have time to spare, I can't help doing it.	
condition means	High	Low	High	Low	High	Low
	4.67 (1.85)	4.85 (1.97)	6.24 (1.76)	6.12 (1.86)	3.30 (1.48)	3.62 (1.52)
ANOVA	condition: <i>ns</i> sex: <i>ns</i> interaction: <i>ns</i>		condition: <i>ns</i> sex: <i>ns</i> interaction: <i>ns</i>		condition: <i>ns</i> sex: M > F, $F(1, 127) = 10.19, p < 0.01$ interaction: <i>ns</i>	

Note. blue:  $p < 0.01$ ; green:  $p < 0.05$ ; yellow:  $p < 0.10$ .

C, all with males producing higher deception ratings than females. This difference may be attributable to more frequent blinking by Model C, as noted above.

Correlations between deceptiveness and the various traits identified in the personality measures were generally low, with the highest correlation coefficient around 0.30 in absolute value. Personality traits of participants thus appeared to be unrelated to perception of deceptiveness when attractiveness factors were implicated.

#### 4. General Discussion

Unlike previous studies of the effects of attractiveness on deceptiveness perception, the present study employed attractive and unattractive female models who were actually the same person. Further, each model was able to speak in the stimulus video clips using her own words, rather than memorizing and rehearsing texts written by the experimenter. We obtained experimental evidence that more attractive females are perceived as less deceptive, in keeping with previous results by [Porter et al. \(2002\)](#) and [Bull and Vine \(2003\)](#).

Some limitations of our method should be noted. Although our models could produce their own speech during the recordings, slight differences in speech content and ways of speaking between conditions may have arisen, because it is difficult to say the same thing twice in identical ways. In order to make the speech content more equivalent across conditions, professional actors who can speak the same content twice in the same way without reading should be employed.

Our models did all of their makeup by themselves, and for this reason, the makeover in the low attractive condition was rather extreme. Future studies should employ a professional makeup artist who understands the objectives of the research. However, the present technique of manipulating a female adolescent's facial attractiveness is nevertheless applicable to future research.

Female attractiveness has many aspects, with facial attractiveness only one of them. Further, the application of cosmetics may have less effect than commonly assumed (e.g., [Jones & Kramer, 2015](#)). Future research should consider female attractiveness more broadly.

Studies which examine effects of males' facial attractiveness on females' perceptions of deceptiveness are clearly needed. In the present research, the stimulus persons were limited to females because we had no convenient way to manipulate a male's attractiveness using widely available cosmetic products. As past research has revealed that females are better lie detectors than males ([Vrij, 2008](#)), females' perception of deception in a between-sex context may well differ from that in the within-sex context of the present study.

We believe that this study provides basic information on the relationship between attractiveness and deceptiveness. The results advance research on the effects of facial attractiveness of females on perceived deceptiveness, but may also potentially contribute to the understanding of heterosexual relationships, espe-

cially adolescent males' perception of females and possible biases in this perception. In this way, this and similar studies may promote better relationships between males and females. It is suggested that theoretical explanations for the findings of this study should be explored in future studies (e.g., Maestripieri, Henry, & Nickels, 2017).

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### Author Note

Jun'ichiro Murai designed the experiment, conducted the experiment, analyzed the data, and wrote the paper. Izuru Nose designed the experiment and checked the draft of the paper. Yuuta Takiguchi created the experimental stimuli.

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