
Effects of Physical Attractiveness on Affect and Perceptual Judgments: When Social Comparison Overrides Social Reinforcement

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Earlier theorists assumed that exposure to physical attractiveness leads to pleasant affect. However, this relationship might hold only for judgments of the opposite sex. In this study, subjects exposed to opposite-sex photos showed a pattern consistent with the affect-attraction model: highest mood after attractive faces but lower mood if the series was interrupted by an average face. Those exposed to the same sex, however, showed lowered mood following attractive photos, whether or not an average face interrupted the attractive series. Further, judgments of the average target's attractiveness were independent of subjects' affective states but followed a pattern consistent with a contrast model—relatively lowest ratings if the target followed attractive faces, whether or not the photos were of the same or the opposite sex. This suggests that the cognitive appraisal of physical attractiveness in others can operate independently of the affective reaction they evoke.

What is the relationship between physical attractiveness and affect? The affect-attraction model (Byrne & Clore, 1970; Byrne, London, & Reeves, 1968; Lott & Lott, 1974) suggested a direct, positive relationship. For instance, in a list of various characteristics that might make another person a source of reward, Lott and Lott (1974) named physical attractiveness first. In line with this model, exposure to physically attractive others has been found to lead to a state of positive affect in the observer (Byrne & Clore, 1970; Byrne et al., 1968). One of the defining characteristics of a rewarding stimulus is that an

individual will work to obtain access to that stimulus, and other research suggests that physical attractiveness indeed functions as a social reinforcer. For instance, Dion (1977) found that children worked harder to view an attractive person than an unattractive person.

Despite the postulated importance of mood in the affect-attraction model and the general power of this model in the attraction area (Berscheid, 1985; Hendrick & Hendrick, 1983), researchers have paid surprisingly little attention to the affective consequences of exposure to physically attractive others. Although it makes intuitive sense that exposure to an attractive member of the opposite sex would lead to positive affect, there is reason to suspect that exposure to an attractive member of the same sex might not have the same effect. Other research suggests that when an individual perceives that another is superior on some dimension, the observer's self-image will suffer by comparison, particularly if the dimension is important to his or her self-definition (Tesser, 1988). Given its ubiquitous importance in social interaction, physical attractiveness is likely to be relevant to most people's self-evaluations. Consistent with this logic, exposure to physically attractive others has been found to

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lead to decreases in self-ratings. Cash, Cash, and Butters (1983) found a decrement in college females' self-ratings of attractiveness after exposure to photographs of other college women who were attractive. Similarly, Gutierrez and Kenrick (1979) found that exposure to attractive female models lowered self-esteem ratings for female college students, although self-ratings of attractiveness were not affected.

In addition, there is indirect evidence suggesting that attractiveness can sometimes have aversive consequences for interactions with members of the same sex (Krebs & Adinolfi, 1975; Reis et al., 1982). For instance, Krebs and Adinolfi (1975) found that highly physically attractive people were more likely than less attractive people to be rejected by peers of the same sex. As Krebs and Adinolfi noted, "If physical attractiveness is an attribute primarily employed to enhance relations with the opposite sex, it would not be expected to exert a positive effect on social relations among members of the same sex, who may perceive themselves as in competition with one another" (p. 251).

These studies thus support the idea that exposure to attractive people of the same sex might lead to negative, rather than positive, affect. However, none of these studies have directly investigated affective reactions.

DISTINGUISHING COGNITIVE AND AFFECTIVE REACTIONS TO PHYSICAL ATTRACTIVENESS

Affect-attraction models posited an isomorphic relationship between perceptions of and affective reactions to an attractive stimulus person (e.g., Byrne, 1971; Clore & Byrne, 1974; Kenrick & Cialdini, 1977). In the years since the development of the affect-attraction model, however, social psychological researchers have developed more sophisticated theories of the relationship between affect and cognition (Fiske & Taylor, 1991). For instance, there is evidence that, depending on circumstantial cues, individuals will sometimes consult and at other times disregard their feelings in making a judgment (Schwarz & Clore, 1988). Evidence from other areas of psychology further suggests that different aspects of a perceptual judgment may be controlled by different processes and that verbal judgments of a stimulus may operate quite independently of affective reactions (Tranel & Damasio, 1985; Zajonc, 1980).

Similarly, previous research on contrast effects and attractiveness leads us to expect that attractiveness judgments and affective reactions of the sort discussed above are not isomorphic. Exposure to attractive photographs reliably led to decremental ratings of an average target, whether or not the subjects were of the same sex as the target photographs (Kenrick & Gutierrez, 1980; Kenrick, Gutierrez, & Goldberg, 1989). In parallel with the de-

creases in attractiveness ratings, exposure to an average-looking person after a series of attractive individuals would perhaps lead to lower mood ratings in an opposite-sex observer (for whom the average-looking person terminates a pleasant experience). However, exposure to the average-looking person after a series of attractive people should lead to relative *increases* in the rated mood of a same-sex individual (for whom the average-looking person alleviates an unpleasant standard of self-comparison). In the case of same-sex raters, however, these increased mood ratings would not be paralleled by increased attractiveness ratings (because the latter are still lowered by contrast with the previous attractive series). Thus, the pattern we expect to find for mood ratings would not be expected for attractiveness ratings.

PREDICTIONS

Mood ratings. We expect that exposure to an attractive individual of the opposite sex will elicit positive affect. Exposure to an attractive person of the same sex, however, should elicit negative affect. If opposite-sex attractiveness elicits positive affect and same-sex attractiveness elicits negative affect, then two corollaries follow. An average-looking person who terminates a series of attractive individuals of the same sex should reduce the negative affect. Conversely, an average-looking person who terminates a series of attractive opposite-sex faces should reduce the positive affect.

Attractiveness ratings. We expect that attractiveness ratings of an average-looking target photograph will show a contrast effect—lowered ratings after exposure to other highly attractive faces. We expect this effect to occur whether the photographs are of the same or the opposite sex.

The finding of simultaneous but mirrored effects on affect and interpersonal judgment would run contrary to the parallelism assumption of the classic affect-attraction model.

METHOD

Overview

The study used a 2 (Sex of Subject) × 2 (Sex of Target Photo) × 4 (Order of Conditions) design. Subjects in the first of the four order conditions viewed six facial photos of average attractiveness, then viewed and rated an average-attractiveness target photo, and finally rated their mood. Subjects in the second condition rated their mood first, then viewed the six average-attractiveness facial photos, and finally rated the average target. Subjects in the third condition viewed six attractive photos, rated their mood, and finally rated the average target.

Subjects in the fourth condition viewed the six attractive photos, rated the average target, and rated their mood last. The two dependent variables were the subjects' mood ratings and their attractiveness ratings of the target photo.

Subjects

Eighty females and 80 males from a large university introductory psychology course participated as part of a course requirement. Subjects were run by a same-sex experimenter in same-sex groups of two to six individuals.

Materials

Stimulus slides were facial photographs of Caucasian females and males taken from several magazines. A group of 23 students (18 females, 5 males) who did not participate in the actual experiment prerated 50 photos on the dimension of physical attractiveness (from 1, *extremely unattractive*, to 7, *extremely attractive*). From this larger set of photos, an average female and an average male target photo were selected. The average female had a rating of 3.9, the average male 3.5. Six female photos with a mean rating of 3.9 and six male photos with a mean rating of 3.4 were selected for use in the two control conditions. Six female photos with a mean rating of 5.6 and six male photos with a mean rating of 5.2 were selected for use in the two experimental conditions. A slide projector flashed the photographs onto a wall facing the subjects.

Subjects rated their mood on the Mood Adjective Check List (MACL; Nowlis, 1970). This self-report mood scale asks subjects to "describe your feelings at the moment you read each word." Thirty-three mood adjectives are rated on 4-point scales ranging from *definitely describes* to *does not apply*. In addition, subjects responded to a bogus memory scale that asked them to indicate how many of the six stimulus faces had dark hair. Finally, subjects rated the target face on a 7-point scale ranging from *attractive* to *unattractive* (the second dependent variable). Two distractor items asked the subjects to rate the target along the dimensions "artistic-scientific" and "friendly-unfriendly."

Procedure

Subjects were told that the experiment was an investigation of the connection between their memory and their ability to guess how others have judged characteristics of people. The experimenter suggested that people with good memories for faces should be good at guessing how individuals are judged by others. Subjects were told that they would see several slides of faces and that they should pay close attention to them because they would be asked a question designed to test their memory for faces. They were then told that the second part of the experiment involved viewing another slide that had been

judged by 100 introductory psychology students on several characteristics. The subjects' task was to guess how the target faces had been judged. Because feelings have been shown to influence the accuracy of memory, subjects were told, they would need to fill out a short questionnaire on their feelings at some point during the experiment.

Twenty females and 20 males were randomly assigned to each of the four conditions. Subjects in the first condition (*average/target/mood*) were shown six average stimulus faces in succession for 20 s each, after which they responded to the ruse memory scale. Next, they viewed the target face. As this face was being projected onto the wall, subjects rated the target's attractiveness, as well as two filler items consistent with the ruse that they were being asked to match population judgments. Finally, they filled out the mood scale. Subjects in the second condition (*mood/average/target*) rated their mood first, before viewing the average series and filling out the memory ruse and finally rating the target. Subjects in the third condition (*attractive/mood/target*) first viewed a series of six attractive faces, rated the memory ruse, and then rated their mood before rating the target. The fourth condition (*attractive/target/mood*) was identical to the third condition except that the order of rating mood and target person was reversed.

RESULTS

Mood Ratings

The primary dependent variable was a mood measure consisting of the sum of the elation, surgency, and social affection subscales of the MACL. Factor analysis (using varimax rotation) indicated that all three of these scales loaded over .50 on a factor with an eigenvalue of 2.29. The specific items included were *elation* (elated, overjoyed, pleased), *surgency* (carefree, playful, witty), and *social affection* (affectionate, kindly, warmhearted). The coefficient alpha for the combined nine-item scale was .82. The mood composite was analyzed in a 2 (Sex of Subject) \times 2 (Sex of Target) \times 4 (Order) analysis of variance. Although the three-way interaction did not approach significance ($F = 1.03$), the two-way interaction of photo sex and condition was significant, as predicted, $F(3, 144) = 2.90$, $p < .05$. No other interaction or main effect was significant.

Several one-tailed comparisons were conducted to test the a priori hypotheses. We did not expect exposure to average-looking faces of either sex to affect mood ratings. Therefore, the first comparison contrasted the mood control conditions, average/target/mood and mood/average/target. Subjects who viewed same-sex average faces before rating their mood ($M = 2.33$) did not significantly differ from those who rated their mood first

($M = 2.38$), $F(1, 144) = 0.06$. Likewise, subjects who viewed opposite-sex average faces before rating their mood ($M = 2.36$) did not significantly differ from those who rated their mood first ($M = 2.27$), $F(1, 144) = 0.20$. Thus, the positivity of mood was not affected by viewing a series of average faces, regardless of the sex of those faces.

Next, to determine the effects of viewing an uninterrupted series of attractive photos on mood, we conducted two analyses in which the relevant control conditions were combined and contrasted with the attractive/mood/target condition. When subjects had viewed attractive opposite-sex faces, mood was significantly more positive ($M = 2.69$) than it was for controls (who had viewed either average faces or no faces) ($M = 2.32$), $F(1, 144) = 5.43$, $p < .01$. When subjects had viewed attractive same-sex faces, however, mood was significantly less positive ($M = 2.07$) than it was for controls ($M = 2.36$), $F(1, 144) = 3.13$, $p < .05$. Thus, viewing attractive stimulus faces of the opposite sex led to a relatively positive mood, whereas viewing attractive stimulus faces of the same sex led to a relatively negative mood.

Finally, to determine the effects of interrupting the attractive series with an average face, the attractive/mood/target condition was contrasted with the attractive/target/mood condition. Subjects who viewed attractive opposite-sex faces showed less positive mood when it was rated after interruption by the average target ($M = 2.22$) than when it was not ($M = 2.69$), $F(1, 144) = 6.42$, $p < .005$. In contrast, subjects who viewed a series of attractive members of the same sex did not differ when they rated their mood before or after the average target slide ($M_s = 2.07$ and 2.09 , respectively), $F(1, 144) = 0.01$. In sum, viewing the average target face after viewing highly attractive stimulus faces of the opposite sex lowered mood positivity. However, viewing the average target face after viewing highly attractive stimulus faces of the same sex did not change the lowered mood.

An alternative set of contrasts compared mood ratings of those who viewed same- versus opposite-sex photos within each of the four order conditions. Subjects who viewed an uninterrupted series of attractive photos rated their mood significantly lower after viewing same-sex than opposite-sex photos, $F(1, 144) = 11.08$, $p < .001$. There were no differences when subjects rated their mood before observing any photos or after viewing only average photos (both $F_s < 1$). Nor were there differences when comparing the uninterrupted attractive series with the attractive series interrupted by the average photo ($F < 1$).

Attractiveness Ratings

A robust contrast effect was found in examining the attractiveness rating of the average target photo. After viewing highly attractive stimulus faces (combining the

attractive/mood/target and attractive/target/mood conditions), subjects rated the target as significantly less attractive ($M = 3.52$) than subjects who viewed either of the two series of average stimulus faces ($M = 4.16$), $F(1, 156) = 16.59$, $p < .001$. The target's attractiveness ratings did not differ significantly as a function of subject sex, photo sex, or any of the possible interactions.

A comparison of subjects' attractiveness ratings made within the two control conditions did not reach significance ($M_s = 3.97$ vs. 4.32), $F(1, 156) = 2.60$, nor did a similar comparison of the two experimental conditions ($M_s = 3.63$ vs. 3.42), $F(1, 156) = 0.85$. Thus, viewing highly attractive faces decreased the apparent attractiveness of an average face whether the raters were of the same sex as the target photos or of the opposite sex. In contrast, the effects of highly attractive faces on mood ratings depended on whether the rater and the photographs were of the same or the opposite sex.

DISCUSSION

The most interesting aspect of the present findings is the indication that affective and cognitive responses to physically attractive faces are distinct processes. Subjects' mood following exposure to members of the opposite sex did fit with an affect-attraction model—higher mood following a series of attractive faces, unless the series was interrupted by a less attractive face. However, mood following exposure to members of the same sex was more consistent with expectations based on a social comparison/self-esteem model—lower mood following a series of attractive faces. Perceptual responses to the faces did not parallel the affective responses. Subjects exposed to attractive faces rated an average-looking face lower than controls, whether the target photographs were of members of the subjects' sex or the opposite sex.

The fact that attractive members of the same sex have a negative effect on mood is certainly not inconsistent with the classic affect-attraction model if one simply assumes that such individuals are unlikely to be associated with reward for the target. The present data, however, are inconsistent with the idea that affective and judgmental responses to attractiveness are the products of a simple global mechanism. These data are more consistent with the notion of separate processing for different response modalities. As such, they are compatible with findings suggesting separate processing nodes in a number of modalities (e.g., Gazzaniga & Smylie, 1983; Sherry & Schacter, 1987; Tranel & Damasio, 1985). Zajonc (1980) reviewed a number of findings suggesting that it may be possible to separate certain aspects of affective and cognitive responses to social stimuli in general and to facial stimuli in particular. In this regard, studies of brain-damaged patients suggest that some

individuals can fail to recognize a familiar face and yet show an emotional reaction to that face. If shown faces of unfamiliar and familiar persons (including their close relatives and even themselves), patients with a disorder known as prosopagnosia are unable to report accurately whose face they are looking at (Damasio, Damasio, & Van Hoesen, 1982). However, the patients do show reliably higher galvanic skin responses for familiar faces (Tranel & Damasio, 1985). This finding suggests that different responses to faces may be processed by several independent cognitive mechanisms. The findings in the study we report here, of independent affective and perceptual reactions to attractive photographs, are thus consistent with a wider literature suggesting parallel, and sometimes independent, processing of facial stimuli along different dimensions.

Our findings are compatible with the assumption that the negative affective reactions to attractive same-sex individuals are a function of unfavorable comparisons with the self. If this assumption is correct, it has a number of other empirical implications. For instance, affective reactions to same-sex individuals should be influenced by individual differences in the relevance of or the centrality of physical attractiveness to the self-concept. Such reactions should also be sensitive to salience manipulations. For instance, anticipation of upcoming interactions with the opposite sex, sitting in front of a mirror, or recently having rated one's own physical attractiveness should exacerbate these effects.

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