

What is smiling is beautiful and good

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Abstract

Although folk wisdom suggests that a smile may enhance physical attractiveness, most studies in the area have failed to consider or control this factor. The present study was intended to examine the impact of smiling on judgements of physical attractiveness and other characteristics stereotypically ascribed to attractive persons. Consistent with predictions, it was found that smiling increased rated attractiveness when compared to a non-smiling neutral expression. The necessity for controlling this factor in studies of attractiveness is therefore indicated. It was also demonstrated that smiling subjects were attributed greater degrees of sincerity, sociability, and competence, but lesser levels of independence and masculinity. Mediation analysis revealed that the effects of smiling on trait attribution were not due to increases in perceived attractiveness, suggesting that the impact of smiling on ratings of beauty and goodness occurs through independent processes. Potential explanations and implications of these processes were discussed.

INTRODUCTION

In the physical attractiveness literature, it is common to take photographs of a set of subjects for the purpose of rating their physical attractiveness. A closely related alternative involves the selection of photographs from an existing pool, such as yearbooks or professional photographers' files. In both cases, standardization is a central watchword, because experimenters realize that such contextual factors as lighting conditions and background may have substantial effects on the ratings that are obtained. Thus, in most studies, subjects are photographed under uniform conditions and from a constant perspective.

Given these cautions, it is surprising that one potentially important factor often is not controlled. That factor is smiling. While some people smile automatically when

photographed, others adopt a more neutral expression. In research, this factor may be even more variable than usual, because science implies a serious dispassionate demeanour to many persons. If smiling makes a difference in ratings of attractiveness and associated traits, then systematic error variance may be added to a data set if this factor is not controlled. To examine existing research practices, we reviewed all physical attractiveness studies cited in two leading social psychology textbooks (Baron and Byrne, 1984; Deaux and Wrightsman, 1984). Of the 24 studies in which attractiveness was assessed from photographs, only six mention controlling this factor (in all six cases, all subjects were smiling). Perhaps the remainder controlled this factor but did not mention it in the written report. Given the premium of careful methodological controls in the selection of journal articles for publication, however, it seems unlikely that more than a small handful would let this control slip by unmentioned.

The present study was concerned with two aspects of the impact of smiling on physical attractiveness judgements. The first dealt with these judgements themselves. Studies of facial physiognomy indicate that attractiveness of the oral region influences ratings of overall facial beauty substantially (e.g. Cunningham, 1986; Cunningham, Barbee and Pike, in press). These and related studies did not manipulate smiling, however, so it is unclear whether voluntary modification of the oral area affects attractiveness ratings. Certainly the folk wisdom implied in the typical photographer's instructions would suggest that it does.

Mueser, Grau, Sussman and Rosen (1984) found that facial expressions of subjects imagining happy and neutral ('imagine a blank wall') events were rated as more attractive than those of subjects recalling sad events. Note that happy and neutral ratings did not differ in their study. However, it is possible that the neutral and happy instructions elicited appropriate expressions only weakly for two reasons. First, as demonstrated by Kraut and Johnston (1979), smiles are more likely to occur as friendly, communicative acts to interaction partners than as spontaneous reactions to happy events. Second, Ekman and Friesen (1975) note that although smiles are generally associated with happiness, they are highly controllable, and as a result may be repressed during happiness, or may be used to mask emotions other than happiness. Consequently, it was decided to manipulate smiling directly herein. We hypothesized that *smiling faces would be rated more attractive than non-smiling faces*.

The second aspect of the present study concerned the impact of smiling on the perception of traits stereotypically attributed to attractive persons. The 'what is beautiful is good' stereotype, well-validated in many studies (see Berscheid and Walster, 1974, and Sorell and Nowak, 1981, for reviews) indicates that attractive persons are presumed to possess a wide variety of positive traits to a greater extent than unattractive persons do. If smiling persons are judged to be more attractive, then they ought to be ascribed relatively more positive traits. Lau (1982) demonstrated that a stimulus person was rated more likeable, positive, friendly, and intelligent when smiling than when not smiling. However, his study, conducted in Hong Kong, used only one stimulus person of each sex, and did not assess physical attractiveness. It therefore remains to be demonstrated how smiling affects the 'what is beautiful is good' stereotype. There are three important issues in this regard.

The first, and simplest, concerns the effect of smiling on the ascription of positive characteristics. Consistent with the hypothesis presented above, it was predicted that *stimulus persons would be perceived to possess more positive traits when smiling*

than when not smiling. Second, and more important, is the issue of whether increases in perceived attractiveness mediate this effect. That is, if beauty is perceived to be good and if smiling enhances beauty, then the smiling effect may be understood as mediated by attractiveness. However, it may also be the case that smiling produces person perception benefits independent of those associated with attractiveness, and therefore attributable to some other aspect of the social inference process.

Third, we sought to determine whether smiling alters the relationship between attractiveness level and stereotypically ascribed traits, or whether it simply adds a constant bonus. This is analogous to asking whether attractiveness level and smiling produce two main effects, or whether there is an interaction. Because the presence of an interaction would qualify the results of existing studies, this issue is of considerable methodological importance. Namely, an interaction would indicate that the results of attractiveness studies depend upon whether subjects were smiling or not. Two main effects, on the other hand, would indicate that both variables have independent effects, a result that would not qualify the conclusions of prior studies. Of course, such a result would still be of methodological concern. If some subjects are rated more attractive because of a coincidental smile, while others are not, then error variance is added into the analysis, attenuating the likelihood that true relationships between attractiveness and other variables will be uncovered.

METHOD

Subjects and general overview

Fifteen male and 15 female college undergraduates served as stimulus persons. Each was photographed with a neutral facial expression and while smiling. One photograph of each person was shown to 50 male and 50 female college students, who rated each photograph on 20 trait adjectives.

Procedure

College undergraduates were randomly selected and approached in a Social Psychology class and in the student union. Virtually all persons who were approached agreed to be photographed. Twenty-five students of each sex were photographed against a neutral background. In the smiling condition, they were asked to smile as naturally and definitively as possible. In the non-smiling condition, subjects were requested to maintain a neutral pose. They were specifically asked not to frown, and none did. The order in which the smiling and neutral photographs were taken was varied randomly. All photographs were 3" by 5" and in colour, taken from armpit level to the top of the head.

In a group session, all photographs were independently rated by the authors for attractiveness. No discussion or communication took place. From these data, 30 stimulus persons were selected, five of each sex at each of three levels of physical attractiveness (high, medium and low). Deletions were based solely on disagreements about attractiveness level or because the person's expression (smiling or neutral) was ambiguous.

The photographs were then grouped into albums. First, either a smiling or neutral

picture of each stimulus person was randomly selected, and randomly ordered in a flip-file album. A second album was then created with persons placed in the identical order, except that smiling pictures were used for persons who had been neutral in the first album, and *vice versa*. The same procedure was then repeated, resulting in four albums. Every stimulus person was displayed in two serial positions, but these positions were constant across smiling conditions.

Experimenters approached potential raters at various locations on campus. All potential raters were alone, and they were not told that we were studying attractiveness or smiling. They were given one album and asked to rate each individual on all 20 trait adjectives. Raters were asked to note any stimulus persons whom they knew. Such ratings were excluded from all data analyses. Five raters who knew six or more stimulus persons were dropped from the study.

The twenty adjectives were based on those used by Dion, Berscheid, and Walster (1972). Fourteen adjectives were selected from their study: self-assertive, exciting, dependent, interesting, sensitive, sincere, sociable, competitive, kind, modest, strong, sexually warm, trustworthy, and attractive (as a manipulation check). Six adjectives were added: feminine, competent, likeable, intelligent, masculine, and nurturant. All adjectives were presented in 1-7 scales, with bipolar opposites serving as anchors. Positivity varied randomly, so that the socially desirable anchor appeared in the right-hand margin for 10 traits.

Generation of composites

Because the full set of adjectives included much redundancy, factor analysis was used to generate conceptually distinct composites. The adjective 'attractive' was omitted to preclude confounding. Because average ratings across all stimulus persons are potentially meaningless, and because the data set was too small to permit analysing one rating per judge, a two-tiered approach was used. First, principal components factor analysis with orthogonal rotation was conducted on all data, treating each set of ratings as a unique case. In that this strategy violates the assumption of independence by including raters and stimulus persons repetitively, individual analyses were conducted to confirm these results. Subsets of the data corresponding approximately to the number of judges were randomly selected four different times. Although the ratio of variables to cases (approximately 6/1) is small, it corrects for repetitive use of single persons in the full factor analysis, in which the ratio is 133/1.

Using an eigenvalue of 1.00 and rotated factor loadings of 0.40 as cutoffs, all of these analyses produced very similar results. A five-factor solution described the data: (1) modest, sensitive, kind, sincere, trustworthy, nurturant, cooperative, and likeable; (2) interesting, sexually warm, exciting, sociable; (3) strong, independent, self-assured; (4) intelligent, competent; and (5) masculine, feminine (scored negatively). For convenience, the five factors will be labelled: sincere, sociable, independent, competent, and sex-role. Composites were created by simple unweighted sums.

RESULTS

Because we were interested in how persons were perceived as a function of smiling, the unit of analysis was the stimulus person (Rosenthal and DePaulo, 1980). Judges'

ratings were averaged for each stimulus person, separately within smile and rater sex condition. All analyses were 3 (attractiveness level) \times 2 (stimulus person sex) \times 2 (smile/no-smile) \times 2 (rater sex) analyses of variance, with the latter two factors treated as repeated measures.

Manipulation check

Analysis of the adjective 'attractive' revealed a significant attractiveness level effect, $F(2,24) = 44.38, p < 0.001$. Means for low, medium and high attractiveness were 3.22, 3.60, and 4.87, respectively. Attractiveness level did not interact significantly with any of the other independent variables.

Hypothesis tests

The hypothesis that smiling persons would be perceived as more attractive than non-smiling persons was confirmed, $F(1,24) = 6.43, p < 0.02$. The mean attractiveness level of non-smiling stimulus persons was 3.77; when smiling, it was 4.02. The magnitude of this effect (d) was 0.46, equivalent to a medium effect size (Cohen, 1980). No other main effects or interactions were significant. Of particular interest, the expression \times attractiveness level interaction did not approach significance, $F(2,24) < 1$.

Our second hypothesis was that smiling subjects would be perceived more positively than non-smiling subjects. A multivariate analysis of variance (MANOVA) on the five composite indices revealed a significant multivariate smiling effect, $F(5,20) = 24.24, p < 0.0001$. Means and univariate F s are displayed in Table 1. Stimulus persons were seen as more sincere, sociable, and competent, and less independent and masculine, when they were smiling than when they were not smiling. No interactions involving the smiling/non-smiling variable were significant in either multivariate or follow-up univariate tests. The multivariate expression \times attractiveness level interaction did not approach significance, $F(10,40) < 1.00$.

Table 1. Trait perceptions as a function of smiling

Dimension	Not-smiling	Smiling	Univariate F
Sincere	3.99	4.58	88.06, $p < 0.0001$
Sociable	3.89	4.61	60.81, $p < 0.0001$
Independent	4.36	4.22	3.30, $p < 0.09$
Competent	4.31	4.53	10.30, $p < 0.005$
Sex-role	4.11	3.92	4.17, $p < 0.06$

$N = 15$ per cell. Higher numbers indicate more of that characteristic or greater perceived masculinity. All F s have 1,24 df .

As expected, attractiveness level revealed a significant multivariate effect, $F(10,40) = 3.79, p < 0.002$. Follow-up univariate tests indicated that attractive subjects were perceived to be more sociable, $F(2,24) = 23.87, p < 0.001$, more independent, $F(2,24) = 6.91, p < 0.005$, more competent, $F(2,24) = 7.37, p < 0.005$, and somewhat more feminine, $F(2,24) = 2.96, p < 0.08$. The effect for sincere did not approach significance. In addition to replicating the standard attractiveness effect,

it is noteworthy that the mean difference for independence was *opposite* in direction to the earlier smiling effect. We return to this point later.

Attractiveness level also yielded several interactions. A significant multivariate attractiveness \times stimulus person sex effect emerged, $F(10,40) = 3.69$, $p < 0.005$, stemming solely from the sex-role and competence dimensions. Attractiveness enhanced the perceived masculinity of males and femininity of females, $F(2,24) = 9.02$, $p < 0.002$. Beauty also produced a larger increment in competence for males than it did for females, $F(2,24) = 5.01$, $p < 0.02$. A significant multivariate rater sex \times attractiveness interaction was also obtained, $F(10,40) = 4.62$, $p < 0.001$, primarily because male raters' judgements of competence were affected by attractiveness level to a greater extent than were the judgements of female raters, $F(2,24) = 4.59$, $p < 0.05$.

The Pearson product-moment correlation, which corrects for mean and standard deviation differences, between attractiveness ratings based on smiling and non-smiling photographs of the same persons, was 0.81.

Simple effects analysis

Although the attractiveness \times expression effect was not significant, the importance of determining whether these variables influence rated attractiveness irrespective of each other suggested a simple effects analysis. Accordingly, multivariate analyses were conducted on the same five dimensions as above. Smiling produced a significant effect (all $ps < 0.001$) at each level of attractiveness, yielding effect sizes (d) of 0.35, 0.56 and 0.50 for low, medium and high attractiveness respectively. Similarly, attractiveness led to more positive ratings of sociability, independence, and competence within the subset of smiling ($ps < 0.005$) and non-smiling ($p < 0.01$) pictures. Therefore, the relative effects of attractiveness on impressions did not depend on whether subjects were smiling or not. Another way to assess invariance is to compare the correlations between attractiveness and the factor composites in the smiling and non-smiling conditions. In no instance did the difference between correlations approach significance.

Mediation analysis

It was proposed earlier that smiling might enhance trait ratings simply because smiling persons are seen as more attractive. To examine whether attractiveness mediates the impact of smiling on the five trait dimensions, the effect of attractiveness was partialled out of the prior MANOVAs using a regression framework (Reis, 1982). In each instance, the percentage of variance accounted for was reduced minimally. Before partialling, the effect sizes (η^2) were 0.79, 0.72, 0.12, 0.30, and 0.15 for the five dimensions (computed as suggested by Rosenthal and Rosnow, 1984). After partialling, they were 0.74, 0.55, 0.12, 0.25, and 0.15, indicating no appreciable mediation effect for four of the five dimensions and a minimal effect for sociability. The impact of smiling on impressions is therefore largely independent of enhanced attractiveness.

How much is a smile worth?

On average, smiling increased perceptions of attractiveness by 0.25 units on a 1-7 scale, corresponding to 0.51 of a standard deviation. Another way to address this

question is to ask how much higher a person would rank on attractiveness if his/her smiling picture were included with non-smiling pictures of all other stimulus persons. On average, subjects moved up 2.3 rank order places out of 30. Twenty-six out of 30 stimulus persons improved their rank order, whereas only one ranking decreased.

DISCUSSION

To summarize our findings briefly, hypothesis 1 was confirmed. Stimulus persons were rated more attractive when they were smiling than when they were not. Hypothesis 2 was also supported, in that smiling persons were perceived to possess positive traits to a greater degree than non-smiling persons. This effect was demonstrated to be independent of enhanced attractiveness in a mediation analysis. Finally, simple effects analysis revealed that the impact of either attractiveness or smiling on trait ratings did not depend on levels of the other factor.

These findings have both methodological and conceptual implications. Concerning methodology, our results indicate that future studies of physical attractiveness should utilize uniform facial expressions for all subjects. The absence of an attractiveness \times smiling interaction implies that comparable effects will be obtained regardless of which expression is displayed. The need to decide which facial pose is more characteristic of the person's true attractiveness score is therefore obviated. However, it is clear that allowing some subjects to smile while others do not may substantially alter attractiveness scores and rank order within samples. Because such variance is likely to obscure obtained relationships, standardization with regard to smiling is clearly indicated.

More theoretically, the findings indicate that a smiling person is likely to be attributed greater levels of sincerity, sociability and competence, and somewhat lesser degrees of independence and masculinity. Thus, smiling must be added to the catalogue of physical characteristics that affect social inference. Although the general positivity of these impressions resembles the 'what-is-beautiful-is-good' stereotype, our results suggest that the processes responsible for these two effects are mostly distinct. Two lines of evidence support this separation. First, the mediation analysis revealed that the proportion of variance accounted for by smiling was not appreciably reduced when attractiveness was partialled (with the possible exception of sociability). However smiling affects trait ratings, therefore, it is not by means of increased attractiveness. Second, attractiveness and smiling produced opposing results in two instances. Whereas attractive persons were judged higher on independence, smiling persons received lower ratings on this dimension. Also, although smiling heightened rated femininity for both sexes, attractiveness had the opposite effect for males, increasing their rated masculinity. Most likely, this is because attractiveness is judged on sex-specific norms. However, because masculinity is traditionally associated with a dispassionate orientation, the warmth generated by a smile would have a negative effect for males. Therefore, whereas physical attractiveness leads to a generalized perception of positivity (Berscheid and Walster, 1974), the benefits of smiling may be more specific to enhancing perceived interpersonal relatedness.

Although our data do not speak to the question of why smiling persons were perceived to be more sincere and sociable, it may be useful to speculate briefly on

this result. It is typically acknowledged that smiling reflects the experience of happiness (Ekman and Friesen, 1975). If so, happy people may be attributed positive traits because it is assumed that these characteristics would naturally make anyone happy. Folklore suggests that more sociable and sincere people *ought* to be happier than their less sociable and sincere peers, and that is why they are smiling. Despite the appealing parsimony of this position, it does not account for the tendency of smiling people to be judged less independent and more feminine. A second explanation that does account for this result is suggested by Kraut and Johnston's (1979) finding that smiling was more closely associated with social interaction than with a positive emotional state. If perceivers are somehow aware of the association of smiling and interaction, they may infer that smiling persons are more closely connected with others. This would lead naturally to inferences of sociability and sincerity, and also to femininity and lesser independence, because femininity generally indicates a communal, connected relationship with others. This hypothesis is appealing, because recent theories stress the role of emotional expressions as communicative acts and not simply the passive display of internal states (e.g. Izard, 1977). Furthermore, it is consistent with primate research that interprets smiling as a contact-acknowledging or friendly response, rather than a sign of happiness (Van Hooff, 1972). Direct empirical comparisons of these two explanations are needed.

Regardless of the processes responsible for the smiling effect, it is clear that attractiveness researchers will need to contend explicitly with this factor in future studies.

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