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Journal of Research in Personalityjournal homepage: www.elsevier.com/locate/jrp**Brief Report****Are sociable people more beautiful? A zero-acquaintance analysis of agreeableness, extraversion, and attractiveness**Brian P. Meier^{a,*}, Michael D. Robinson^b, Margaret S. Carter^a, Verlin B. Hinsz^b^a Gettysburg College, Gettysburg, PA, United States^b North Dakota State University, Fargo, ND, United States**ARTICLE INFO****Article history:**

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ABSTRACT

Stereotypes ascribe positive social traits to attractive individuals. Such stereotypes are viewed as erroneous. However, these stereotypes may have a kernel of truth if more sociable individuals present themselves in a manner that increases their attractiveness, a plausible idea given social engagement goals. To examine this idea, two studies involving 217 participants used a zero-acquaintance design in which unacquainted judges rated the attractiveness of participants in impromptu photographs. Participants high in the self-reported traits of agreeableness or extraversion, the two Big 5 traits most relevant to interpersonal behavior, were rated more attractive. Further results indicated that personality–attractiveness relationships were mediated by a well-groomed appearance. The results suggest a kernel of truth to the idea that sociable individuals are also attractive.

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1. Introduction

People often seem to assume, or perhaps “fall prey to”, the idea that positive interpersonal qualities and physical attractiveness are systematically linked (i.e., a “halo effect”). For example, Dion, Berscheid, and Walster (1972) found that attractive people were perceived to have desirable interpersonal qualities as well. Quite a few other studies of this type have subsequently been conducted and support such conclusions (Anderon & Petrie, 2008; Callan, Powell, & Ellard, 2007; Dion & Berscheid, 1974; Eagly, Ashmore, Makhijani, & Longo, 1991; Smith, McIntosh, & Bazzini, 1999).

Such inferences are typically labeled stereotypes (e.g., Eagly et al., 1991), which suggests that they are erroneous. Phrases such as “beauty is only skin deep” or “beauty is in the eye of the beholder” are used to potentially correct misperceptions of this type. There appears to be, however, a kernel of truth to such inferences (Goldman & Lewis, 1977). The strongest available conclusions come from the meta-analysis of Langlois et al. (2000) who found that observer inferences of attractiveness were correlated with observer reports of extraversion and social skills.

The conclusions of Langlois et al. (2000) are important, but they were based almost exclusively on observer ratings of personality and attractiveness. Just as we might question whether self-reports of both personality and attractiveness share method variance of an unwanted type, the same concerns can be raised when both ratings are based on observer reports. For example, observers are likely to

make personality inferences on the basis of appearance (Naumann, Vazire, Rentfrow, & Gosling, 2009). Thus, it is necessary to examine whether self-reports of one variable predict observer reports of the other in order to make the case for a personality–attractiveness relationship that transcends potential rater-related biases (Funder, 1995).

1.1. Overview of present studies

The present studies examine whether there is a kernel of truth to the idea that sociable people are attractive people. The studies assess personality tendencies as they are generally and perhaps best assessed – by self-report (John & Srivastava, 1999). In specific terms, participants were asked to report on their levels of agreeableness and extraversion, the two of the Big 5 traits of most relevance to social motivations and desirable interpersonal qualities (Wiggins & Trobst, 1997). Agreeable individuals are warm and friendly (Graziano, Jensen-Campbell, & Hair, 1996) and extraverted individuals are outgoing and sociable (McCrae & John, 1992). Attractiveness, on the other hand, is a quality of individuals perhaps best quantified in terms of the consensus perceptions of others’ opinions as it is necessarily a quality that is perceived by others (Rand & Hall, 1983).

We asked naïve judges to rate the attractiveness of photographed individuals. This zero-acquaintance procedure ensures that there is no opportunity for basing attractiveness ratings on actual social interactions, social behaviors, or dynamic displays. Such procedures have shown that naïve observers’ ratings of personality traits tend to agree with self-reported personality traits on a

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variety of dimensions (Beer & Watson, 2008; Naumann et al., 2009). This research, however, has typically focused on self-other agreement within the same dimensions (e.g., extraversion), but we use it to examine the relation between different variables assed by the self (i.e., agreeableness) and others (i.e., attractiveness).

In addition, though, we sought to uncover a reason for the potential link between sociable traits and attractiveness. Theoretical accounts propose mechanisms related to self-fulfilling prophecies or behavioral confirmations (e.g., Langlois et al., 2000; Snyder, Decker Tanke, & Berscheid, 1977; Zebrowitz, Collins, & Dutta, 1998). While such accounts may have some merit, we pursue an alternative mechanism in the present studies. Zero-acquaintance research (Beer & Watson, 2008; Borkenau & Liebler, 1992; Naumann et al., 2009; Zebrowitz & Collins, 1997) reveals that observers can determine the personality traits of strangers with some degree of accuracy even when only viewing photographs. This work suggests that people modify their appearance in spontaneous ways that coincide with their personality (e.g., extraverts may smile more). Thus, it might be that people who desire positive social interactions (i.e., people high in extraversion or agreeableness) present themselves in ways that make them appear more attractive, which would increase the social engagement they receive from others and validate the stereotype.

Accordingly, we asked naïve observers to rate the appearance of target participants on two dimensions that have been associated with attractiveness and personality, smiling and grooming (Boor, Wartman, & Reuben, 1983; Brown, Cash, & Noles, 1986; Naumann et al., 2009; Reis et al., 1990). If people who desire positive social contact present themselves in ways that enhance their attractiveness, they are likely to do so on dimensions that can be modified by the self. Smiling and grooming (e.g., neatness of clothing and hair) are two dimensions that can be adjusted by the individual unlike fixed dimensions such as facial symmetry (Fink & Penton-Voak, 2002). Thus, we examine the idea that extraverted or agreeable people are perceived to be more attractive because they engage in behaviors that make their appearance more pleasing.

2. Study 1

2.1. Method

2.1.1. Participants

Participants were 84 North Dakota State University (NDSU) undergraduates (38 males; 46 females) with an average age of 19.63 ($SD = 1.69$) years.

2.1.2. Procedures

Participants were told that photographs were being taken in the context of a vaguely-described personality study. No participant declined to be photographed. The experimenter digitally photographed each participant immediately outside of the laboratory and did so from the waist up with the same non-descript wall as a background for all participants.

Participants then entered the laboratory and reported on their tendencies toward agreeableness and extraversion. They did so using Goldberg's (1999) Abridged Big Five Circumplex items from the International Personality Item Pool, which are reliable and valid 10-item scales. Agreeableness was assessed by items reflective of interpersonal concern (e.g., "take time out for others"; $\alpha = .78$) and extraversion was assessed by items reflective of interpersonal engagement (e.g., "start conversations"; $\alpha = .91$).¹

¹ Neuroticism was also assessed in both studies. Neuroticism did not significantly correlate with attractiveness (Study 1: $r = -.06$, $p = .58$; Study 2: $r = -.02$, $p = .83$), well-groomed (Study 1: $r = -.08$, $p = .50$; Study 2: $r = -.01$, $p = .94$), or smiling (Study 1: $r = -.08$, $p = .48$; Study 2: $r = .07$, $p = .41$) in either study.

Several months later, computer programs were created to collect observer ratings. In each program, pictures of the target individuals served as stimuli and randomized orders were used. Ten graduate students from NDSU (five males and five females) were asked to rate the attractiveness of each participant (1 = not at all; 7 = extremely). Ratings of this type are commonly used in the interpersonal attraction literature (Greitemeyer, 2007; Mehu, Little, & Dunbar, 2008; Townsend & Levy, 1990).

We assessed the potential mediator variables in a subsequent data collection effort involving undergraduate students from NDSU some months later. Eighteen raters (nine females and nine males) were asked to report on the extent to which each participant was smiling (1 = not at all; 7 = a lot) and 16 raters (six females and ten males) were asked to report on the extent to which each participant was well-groomed (1 = not at all; 7 = a lot). All rater groups constituted different individuals and all were blind to hypotheses. We averaged across raters for each rating type. Raters agreed on the extent to which participants were attractive ($\alpha = .89$), smiling ($\alpha = .98$), and well-groomed ($\alpha = .78$).

3. Results and discussion

Descriptive statistics for both studies are presented in Table 1. Participant sex did not interact with personality-attractiveness relations in either study (all $p > .12$) so we collapsed across this variable. The correlations between personality traits and judged attractiveness, smiling, and well-groomed for both studies are reported in Table 2. Consistent with our hypotheses, we found that judged attractiveness was significantly and positively related to individuals self-reported scores on the traits of agreeableness and extraversion.

Turning our attention to potential mediators, well-groomed and smiling individuals were judged to be more attractive (mediator-dependent variable associations). On the other hand, self-reported levels of agreeableness and extraversion significantly predicted observer perceptions of grooming, but not the extent to which such targets smiled in their pictures (independent-mediator associations). On the basis of such findings, which in fact were confirmed in Study 2 as well, only the grooming variable could mediate relations between the self-reported personality traits and observer ratings of attractiveness.

We used the mediation criteria of Baron and Kenny (1986), which suggest that mediation occurs when there are significant associations between (1) the predictor and criterion, (2) the predictor and mediator, and (3) the mediator and the criterion controlling for the predictor. In addition, (4) the relation between the predictor and criterion is no longer significant or is substantially reduced when controlling for the mediator. Table 2 reveals that criteria 1 and 2 are true for both agreeableness and extraversion. We also found that criteria 3 was true for agreeableness ($\beta = .64$, $p < .01$) and extraversion ($\beta = .63$, $p < .01$). Finally, criteria 4 was true for both agreeableness ($\beta = .11$, $p = .20$) and extraversion ($\beta = .13$, $p = .13$). In other words, the relationships between both personality traits and attractiveness were no longer significant when controlling for how well-groomed the participants appeared.²

In understanding the mediation results, it is suggested that because of their interpersonal motivations, individuals high in agreeableness or extraversion seek to present themselves in a way that is appealing to others. By maintaining a well-groomed appearance from day to day, they capitalize on an important criterion by which

² Sobel tests confirmed that the grooming mediator was a significant one in relation to the traits of agreeableness, $Z = 2.22$, $p = .03$, and extraversion, $Z = 2.58$, $p = .01$. Tendencies to smile in pictures did not mediate personality-attractiveness relationships for agreeableness, $Z = 1.22$, $p = .22$, or extraversion, $Z = 1.47$, $p = .14$.

Table 1
Means and standard deviations for the variables assessed in the studies.

Study	Variable	M	SD
1 (N = 84)	Extraversion	3.43	.85
	Agreeableness	3.98	.58
	Attractiveness	3.69	.93
	Smiling	2.42	1.57
	Well-groomed	3.86	.66
2 (N = 133)	Extraversion	3.39	.73
	Agreeableness	4.15	.50
	Attractiveness	4.01	.88
	Smiling	3.48	1.69
	Well-groomed	4.29	.78

Table 2
Correlations among variables, Study 1 (above the diagonal) and Study 2 (below the diagonal).

	Extraversion	Agreeableness	Attractiveness	Smiling	Well-groomed
Extraversion	–	.49**	.31**	.21	.29**
Agreeableness	.09	–	.27*	.15	.25*
Attractiveness	.20*	.21*	–	.30**	.66**
Smiling	.18*	.19*	.05	–	.51**
Well-groomed	.28**	.28**	.65**	.19*	–

* p < .05.

** p < .01.

attractiveness is judged and are viewed more attractive as a result. It is noteworthy that grooming is a predictor of attractiveness that can be voluntarily controlled to a much greater extent than physiological predictors of attractiveness such as height or weight.

4. Study 2

Raters and targets in Study 1 were likely unacquainted. On the other hand, because they were from the same institution, we cannot be sure they did not have interpersonal contact. The Study 2 procedures were designed to rule out such acquaintanceship influences as photographed targets and raters came from different states and institutions.

4.2. Method

4.2.1. Participants

Participants were 133 Gettysburg College undergraduates (52 males; 81 females) with an average age of 18.86 ($SD = 1.25$) years.

4.2.2. Procedures

We first photographed participants from the waist up using a digital camera with the same non-descript wall as a background for all participants. Subsequently, participants reported on their trait levels of agreeableness ($\alpha = .80$) and extraversion ($\alpha = .87$) using the same scales administered in Study 1.

Several months later, ten NDSU graduate students (five males and five females) rated the attractiveness (1 = not at all; 7 = extremely) of pictured individuals. In addition, 18 (nine females and nine males) NDSU undergraduates observers rated the extent to which targets appeared to be smiling (1 = not at all; 7 = a lot) and 16 (six females and ten males) NDSU undergraduates observers rated the extent to which targets were well-groomed (1 = not at all; 7 = a lot). Raters were blind to our hypotheses and different observer groups rated each perceived quality. Observer ratings were averaged to quantify attractiveness ($\alpha = .88$), smiling ($\alpha = .97$), and well-groomed ($\alpha = .84$).

5. Results and discussion

As shown in Table 2, we again found that judged attractiveness was significantly and positively related to individuals self-reported scores on the traits of agreeableness and extraversion. We also found that well-groomed was significantly and positively related to agreeableness, extraversion, and attractiveness, but smiling was only significantly and positively related to agreeableness and extraversion, but not attractiveness.

As in Study 1, we determined if well-groomed was a significant mediator according to the criteria of Baron and Kenny (1986). Table 2 reveals that criteria 1 and 2 are true for both agreeableness and extraversion. We also found that criteria 3 was true for agreeableness ($\beta = .64, p < .01$) and extraversion ($\beta = .64, p < .01$). Finally, criteria 4 was true for both agreeableness ($\beta = .05, p = .67$) and extraversion ($\beta = .03, p = .70$). Thus, the extent to which participants were well-groomed was a significant mediator of the relationships between agreeableness and attractiveness and extraversion and attractiveness.³

6. General discussion

People display a robust tendency to link positive social traits with attractiveness (Eagly et al., 1991). While such results are often explained in terms of a "halo effect", Langlois et al. (2000) found that observer ratings of extraversion and social skills predict observer ratings of attractiveness. Nevertheless, correlations of this type may be biased by a method variance (i.e., observers rate both variables). Furthermore, this research has been silent on potential mediators. In the present studies, we sought to examine the link between sociable traits and attractiveness by: (a) taking impromptu photographs of target individuals, (b) ensuring that attractiveness raters and targets were unacquainted, (c) collecting personality data from targets rather than raters, and (d) testing potential mediators. The results reveal that people higher in agreeableness or extraversion were rated as more attractive. Furthermore, the extent to which participants were well-groomed mediated such relations.

Our results are important for several reasons. First, they support the idea that there is a kernel of truth to the stereotype that suggests positive social traits coincide with attractiveness. Second, our findings contribute to the zero-acquaintance literature, which reveals that people make somewhat accurate personality inferences on the basis of brief information concerning targets (e.g., Beer & Watson, 2008; Naumann et al., 2009). Our findings add to this literature by showing that spontaneously collected photographs reveal valuable information concerning personality, and do so when the quality judged (i.e., attractiveness) differs from the self-reported personality characteristics assessed (i.e., agreeableness). Third, and most importantly, our findings provide a mechanism for why people high in agreeableness or extraversion are rated as more attractive by strangers. Research has shown that people who are better groomed are also considered more attractive (e.g., Boor et al., 1983; Brown et al., 1986). We found that interpersonally inclined individuals (i.e., people who score higher in agreeableness or extraversion) were judged more attractive because they have a well-groomed appearance. In understanding these results, it is suggested that because of their interpersonal motivations, individuals high in extraversion or agreeableness seek to present themselves in a way that is appealing to others. By maintaining a well-groomed appearance from day to day, they

³ Sobel tests confirmed that the grooming mediator was a significant one in relation to traits of agreeableness, $Z = 3.10, p < .01$, and extraversion, $Z = 3.12, p < .01$. Tendencies to smile in pictures did not mediate personality-attractiveness relationships for agreeableness, $Z = .09, p = .93$, or extraversion, $Z = .11, p = .91$.

capitalize on an important criterion by which attractiveness is judged and are viewed more attractive as a result.

It is noteworthy that grooming is a predictor of attractiveness that can be voluntarily controlled to a much greater extent than other predictors of attractiveness such as facial symmetry, a baby-faced appearance, or even a fit figure (Fink & Penton-Voak, 2002). Grooming is multi-faceted in nature, encompassing realms of dress, hairstyle, and cleanliness. It may be useful to disentangle these factors in future studies, particularly given the strong grooming-attractiveness relationships observed in the present studies. Regardless, we view personal grooming as a controllable factor in self-presentation relative to other appearance-related variables that are less easily controlled.

The current studies used correlational rather than experimental methods. For this reason, we cannot be sure that the causal arrow flows from personality to grooming to attractiveness, though the mediation results reported are at least consistent with this set of directional influences. Regardless, correlational designs of the present type are critical in linking personality traits to social perceptions. Indeed, it is not possible to randomly assign individuals to either personality tendencies or levels of physical attractiveness in a manner that is likely to be ecologically valid (Kenrick & Funder, 1988). On the basis of such considerations, our results should be viewed in terms of the personality–social perception interface as it naturally exists.

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