

On the Borders of Harmful and Helpful Beauty Biases: The Biasing Effects of Physical Attractiveness Depend on Sex and Ethnicity

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Abstract

Research with European Caucasian samples demonstrates that attractiveness-based biases in social evaluation depend on the constellation of the sex of the evaluator and the sex of the target: Whereas people generally show positive biases toward attractive opposite-sex persons, they show less positive or even negative biases toward attractive same-sex persons. By examining these biases both within and between different ethnicities, the current studies provide new evidence for both the generalizability and the specificity of these attractiveness-based social perception biases. Examining within-ethnicity effects, Study 1 is the first to demonstrate that samples from diverse ethnic backgrounds parallel the finding of European Caucasian samples: The advantageous or adverse effects of attractiveness depend on the gender constellation of the evaluator and the evaluated person. Examining between-ethnicity effects, Study 2 found that these attractiveness-based biases emerge almost exclusively toward targets of the evaluator's own ethnic background; these biases were reduced or eliminated for cross-ethnicity evaluations and interaction intentions. We discuss these findings in light of evolutionary principles and reflect on potential interactions between culture and evolved cognitive mechanisms.

Keywords

physical attractiveness, cognitive bias, biological sex, ethnicity, social evaluation

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Imagine a manager evaluating a very attractive job applicant. Would the candidate's attractiveness give him or her an advantage in the job selection process? Most of the extant literature provides a clear answer to this question: Yes, it would. Attractiveness has been shown to exert powerful positive effects on social evaluation and decision-making (Langlois et al., 2000; Lema, Clark, & Greenberg, 2010).

However, recent research suggests that the manager's reaction to the candidate's attractiveness might depend on whether or not the manager and candidate are of the same sex. Although people tend to positively evaluate attractive members of the opposite sex, the same does not always hold true for evaluations of the same sex. Indeed, people often see attractive members of their own sex as a threat—both to their self-esteem and to their relationships and reproductive success (Gutierrez, Kenrick, & Partch, 1999). From an evolutionary perspective,

attractive same-sex persons may be perceived as rivals (Bleske & Shackelford, 2001; Buss, 1988, 1992, 1998; Maner, Gailliot, Rouby, & Miller, 2007), so that people might sometimes react negatively to them (Buss & Dedden, 1990; Buss, Shackelford,

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Choe, Buunk, & Dijkstra, 2000; Schmitt & Buss, 1996; Vaillancourt, 2013). Consequently, the manager might be inclined to derogate an attractive same-sex applicant (Agthe, Spörrle, & Maner, 2011).

But now imagine that the attractive same-sex candidate and the manager are of different ethnic groups. Would the manager still derogate the attractive same-sex applicant? Or, instead, might differences in their ethnicities change their social schema such that the applicant is no longer perceived as a threat? In the current article, we demonstrate that whether someone is evaluating an individual of the same versus a different ethnicity plays a critical role in whether attractiveness affects social judgment and decision-making. Examining the moderating effects of ethnicity provides a fruitful opportunity to investigate both the generalizability and the specificity of attractiveness-based social evaluation biases.

Positive and Negative Effects of Attractiveness on Social Evaluation

Across cultures, attractive persons receive favorable interpersonal evaluations (Chen, Shaffer, & Wu, 1997; Shaffer, Crepaz, & Sun, 2000; Wheeler & Kim, 1997). Such evaluations reflect people's desire to interact with good-looking persons because they represent social opportunities (e.g., as romantic partners; Lemay et al., 2010). From an evolutionary perspective, physical attractiveness is highly valued because it serves as a cue to the health, level of genetic fitness, and fertility of potential partners (Gangestad & Simpson, 2000; Kenrick & Keefe, 1992; Pflüger, Oberzaucher, Katina, Holzleitner, & Grammer, 2012; Rhodes, 2006). When mating goals are active, people tend to categorize opposite-sex persons on their level of physical attractiveness (Li & Kenrick, 2006) and react favorably to good-looking persons of the other sex (Maner & Ackerman, 2015; Maner et al., 2003).

Despite the generally positive effects of attractiveness, studies with European Caucasian samples also indicate negative effects of being attractive. People's preference for attractive mates may lead them to perceive attractive same-sex persons as intrasexual rivals, and the perception of such rivals is linked with the activation of mate-guarding motives (Maner & Ackerman, 2015; Maner, Miller, Moss, Leo, & Plant, 2012; Maner, Miller, Rouby, & Gailliot, 2009). This perception of attractive same-sex persons as potential rivals even occurs automatically and without awareness (Buunk, Massar, & Dijkstra, 2007; Massar & Buunk, 2010), thus pointing to an adaptive sensitivity to relevant social categories. Because attractive same-sex persons elicit unfavorable upward social comparisons (Jones & Buckingham, 2005) and serve as intrasexual rivals over relationship opportunities (Gutierrez et al., 1999), people tend to perceive attractive same-sex individuals as threats to self-esteem (Park & Maner, 2009) and relationships (Buss et al., 2000). Consequently, as soon as people reach sexual maturity (Agthe, Spörrle, Frey, Walper, & Maner, 2013), they tend to derogate (Försterling, Preikschas, & Agthe, 2007; Vaillancourt, 2013) and avoid (Agthe, Spörrle, & Försterling, 2008; Agthe et al., 2011) attractive

same-sex persons. In addition, women display heightened vigilance to attractive intrasexual rivals during the fertile phase of their menstrual cycle, the time during which the women's reproductive prospects are most salient (e.g., Fisher, 2004).

Negative responses to attractive same-sex persons have been found not only in romantic contexts (Maner, Gailliot, Rouby, Miller, et al., 2007; Maner et al., 2009) but also in organizational decision-making (Agthe, Spörrle, & Maner, 2010; Luxen & van de Vijver, 2006; Ruffle & Shtudiner, 2014). Thus, for European Caucasian samples confronted with same-ethnicity targets, the nature of attractiveness biases depends on whether one is evaluating a target of the same sex or the opposite sex.

Do Attractiveness-Based Social Evaluation Biases Generalize to Other Ethnic Groups?

The underlying adaptive social motives these attractiveness-based evaluation biases are designed to serve (cf. Neuberg, Kenrick, Maner, & Schaller, 2004; Kenrick, Delton, Robertson, Becker, & Neuberg, 2007) are relatively universal across cultures and ethnicities (Buss, 1989): Despite cultural differences in the importance of attractiveness (Anderson, Adams, & Plaut, 2008), persons from different cultures still regard attractiveness as a valuable criterion for mate choice (Buss, 1989; Chang, Wang, Shackelford, & Buss, 2011; Kamble, Shackelford, Pham, & Buss, 2014), so that across cultures, attractive opposite-sex persons tend to receive favorable social evaluations (Langlois et al., 2000).

However, this preference for attractive persons seems to be limited to opposite-sex targets (Li & Zhou, 2014). In many cultures, attractive same-sex targets are regarded with jealousy (Buss et al., 2000; Dijkstra & Buunk, 2002). Hence, it is likely that also in non-European Caucasian samples, people will perceive highly attractive members of their own sex and ethnicity as a threat and, consequently, will respond negatively toward them (e.g., derogate them). Thus, we predicted that, across different ethnicities, participants would positively evaluate attractive opposite-sex targets, but negatively evaluate attractive same-sex targets. We test this hypothesis in Study 1.

Do Attractiveness-Based Biases Generalize to Between-Ethnicity Evaluations?

Even though persons from different ethnicities and cultures tend to generally agree on whom they consider attractive (Coetzee, Greeff, Stephen, & Perrett, 2014; Cunningham, Roberts, Barbee, Druen, & Wu, 1995; Rhodes, 2006; Rhodes et al., 2001; Zebrowitz, Montepare, & Lee, 1993), we predict that attractiveness-based biases will be reduced or even eliminated for between-ethnicity evaluations. That is, although an individual may respond in a biased way to attractive members of their own ethnicity, such biases may not be as strong when members of a different ethnicity are evaluated.

There are three (not mutually exclusive) reasons for this prediction: First, members of other ethnic groups may be relatively less likely than same-ethnicity targets to be seen as

potential mates and romantic rivals (e.g., Eastwick, Richeson, Son, & Finkel, 2009; Feliciano, Robnett, & Komaie, 2009; McClintock, 2010). For instance, Stephen et al. (2012) found that people's ability to judge health cues (like natural skin color variation) for other-ethnicity targets is rather limited (compared with same-ethnicity targets). Thus, people might be more sensitive to mating-related cues in targets who share their own ethnicity. This might partially result from socialization, such as the perception that family acceptance for a partner of another ethnicity would be rather low (Mills, Daly, Longmore, & Kilbride, 1995; Wang, Kao, & Joyner, 2006). Yet, such intergroup biases (including preferences for same-ethnicity partners) may also be linked to adaptive motives such as greater caution and vigilance toward (particularly male) out-group members (Maner & Miller, 2013; Olsson, Ebert, Banaji, & Phelps, 2005). Already young children show favorable reactions toward those who belong to their own social category (for reviews, see Bigler & Liben, 2006; Hirschfeld, 1998; regarding ethnicity, see Aboud, 1988; Comer, 1989), and even though explicit ethnicity-related biases become more egalitarian across individual development, implicit attitudes favoring the in-group remain stable (Baron & Banaji, 2006; Dunham, Baron, & Banaji, 2006). Although it is unlikely that people have evolved to categorize others into racial or ethnic categories (see Cosmides, Tooby, & Kurzban, 2003), race and ethnicity serve as important group markers in modern cultural contexts. Accordingly, some studies find evidence for a potential (though not always strong and completely consistent) own-race preference in attractiveness judgments (Burke, Nolan, Hayward, Russell, & Sulikowski, 2013; Rhodes et al., 2001, 2005).

Second, a key feature of whether a target person is perceived as a potential mating rival involves the perceived likelihood that a potential mate (whom oneself desires) would be interested in the target person. Given that people typically prefer to date and mate within ethnicity (e.g., Hitsch, Hortaçsu, & Ariely, 2010; Lin & Lundquist, 2013; Robnett & Feliciano, 2011), one might perceive a relatively lower likelihood that a potential (or current) mate would view members of other ethnicities as desirable partners. That is, one might be relatively less likely to see same-sex members of other ethnicities (versus the same ethnicity) as rivals because they are less likely to be viewed as desirable by one's own romantic interests.

Third, other-ethnicity targets might be perceived as relatively less relevant for appearance-based social comparison because they appear to be less similar to the evaluator and are, thus, less likely to elicit self-other comparison (Tesser, 1988; Major, Testa, & Bylsma, 1991). That is, other-ethnicity targets are less likely to pose a threat to one's self-esteem and to be perceived as a potential object of social comparison. Accordingly, attractiveness-based biases are hypothesized to be stronger for targets of one's own ethnicity than for targets of another ethnicity. We test this hypothesis in Study 2.

Overview of the Current Research

Across cultures, adaptive mating-related motives may guide social perception (e.g., for Caucasian samples, see Maner,

Gailliot, Rouby, Miller, et al., 2007, and for Asian samples, see Li et al., 2015). Given that the social motives underlying attractiveness-based biases (e.g., mating, social comparison) are presumed to be relatively universal, we hypothesize that those biases will generalize to other-ethnicity samples evaluating targets of their own ethnic background (Study 1). With regard to between-group effects, we hypothesize that European Caucasians will display larger evaluative biases when judging members of their own ethnicity than members of other ethnicities (Study 2).

Study 1

Study 1 tests the hypothesis that, across samples from diverse non-Caucasian ethnic backgrounds (i.e., Asia [AS], Middle East [ME], Latin America [LA]), people will evaluate attractive same- and opposite-sex targets of their own ethnicity in biased ways (i.e., attractiveness will have a positive influence for opposite-sex constellations, and a negative influence for same-sex constellations). That is, paralleling the findings of Caucasian samples these biases should generalize to the within-ethnicity evaluations of non-Caucasian samples and be reflected in attributions as well as social interaction intentions.

Materials and Method

Participants

International students from LA ($n = 207$), the ME ($n = 181$), and AS ($n = 195$) staying at German language schools and universities for language courses participated in our study. Their mean age was 25.01 years ($SD = 6.56$). All participants had advanced German-language skills.

Design and Procedure

For each ethnic group (i.e., LA, ME, AS), Study 1 employed a 2 (participant sex) \times 2 (target sex) \times 2 (target attractiveness; highly attractive versus less attractive) between-subjects design.

Similar to prior studies (Agthe et al., 2008; Försterling et al., 2007), participants received a scenario describing the occupational history and success of a target person. It contained educational (e.g., education in home country), occupational (e.g., employed as a doctor in Germany), and social (e.g., family) background information about the target and highlighted the target's early career success. This information was constant across all experimental conditions. In addition, the materials included a passport-sized black and white facial photograph of the target, which portrayed a male or female, highly attractive or less attractive person of each of the three different ethnic groups. Photographs were pre-rated and selected for higher and lower attractiveness in an independent pretest: Across ethnicities, attractive targets were between 7.00 and 9.00 and less attractive targets were between 2.00 and 4.00 on a 10-point rating scale. Participants were randomly assigned to one of the

Table 1. Means and Standard Deviations (in Brackets) of Evaluative Attributions Across Ethnicities (Study 1).

Ethnicity and Sex of Participants	Sex of Target			
	Male		Female	
	Attractiveness of Target		Attractiveness of Target	
	Low	High	Low	High
Latin American participants				
Male participants	2.57 ^a (2.27)	0.42 ^b (2.96)	1.05 (2.80)	2.10 (2.79)
Female participants	1.80 (2.31)	2.31 (2.51)	3.45 ^a (2.11)	0.49 ^b (3.17)
Asian participants				
Male participants	1.23 (2.30)	0.33 (3.29)	0.96 (2.75)	1.78 (3.32)
Female participants	0.02 (2.48)	1.10 (2.61)	1.87 (2.53)	1.05 (2.72)
Middle East participants				
Male participants	0.80 (2.71)	2.26 (2.61)	0.45 ^a (3.19)	3.05 ^b (3.75)
Female participants	-0.25 ^a (2.63)	2.68 ^b (3.36)	1.85 (3.15)	0.52 (2.87)
All participants				
Male participants	1.52 (2.49)	0.92 (3.08)	0.83 ^a (2.88)	2.27 ^b (3.29)
Female participants	0.45 ^a (2.59)	2.15 ^b (2.93)	2.50 ^a (2.65)	0.63 ^b (2.96)

Note. Within each row and sex constellation of target and participant, means with different superscripts differ at $p < .05$ (based on independent t -tests). Higher means indicate more positive attributions.

four experimental conditions; all targets matched participants' ethnic groups (i.e., each participant only saw a stimulus person of his or her own ethnicity). After reading the scenario, participants responded to measures of social evaluation and desire for social interaction as well as a manipulation check. The methods of both studies were evaluated and approved by a university research ethics committee.

Measures

Explicit measures of social evaluation can elicit social desirability effects and other response biases. Thus, instead of asking people to explicitly evaluate each target, we used a more implicit attributional measure used in previous research to tap underlying biases in social judgment (Agthe et al., 2008; Försterling et al., 2007). Using 2 items (from 1 = *not important* to 10 = *very important*), participants attributed the target's early career success to ability as well as to luck. As in previous research, the difference score between these 2 items served as dependent variable reflecting the extent to which participants attributed the target's successes to internal versus external causes. Previous studies (Agthe et al., 2008; Försterling et al., 2007) have shown that positive social evaluations foster internal attributions of success (i.e., to ability), whereas negative evaluations promote external attributions (i.e., to luck).

Subsequently, participants provided measures of their desire for social interaction with the target: Participants reported the degree to which they would like to (a) work with the candidate and (b) become friends with the candidate (1 = *not at all*, 10 = *very much*). The two variables were highly correlated ($.60 \leq r \leq .75$ for the three samples) and were averaged to create a composite measure of desire for social interaction. As manipulation check, participants rated the target's attractiveness from 1 (*unattractive*) to 10 (*very attractive*).

Results

Manipulation Check

In all three ethnic samples, the attractive targets ($M_{\text{overall}} = 7.18$, $SD = 1.97$) were perceived as better looking than the less attractive targets ($M_{\text{overall}} = 5.39$, $SD = 2.17$), $ps < .005$, $ds > .45$.

Evaluative Attributions

First, we examined the hypothesized Participant Sex \times Target Sex \times Target Attractiveness three-way interaction. As we detected no significant influence of ethnicity on this interaction (i.e., the four-way interaction was not significant, $p > .40$), aggregating across ethnicities in order to develop an overall impression of the data seems justified.

A 2 (participant sex) \times 2 (target sex) \times 2 (target attractiveness) analysis of variance confirmed the hypothesized three-way interaction, $F(1, 573) = 34.34$, $p < .001$, $\eta^2 = .06$ (no further main or interaction effects reached significance; for overall mean values, see bottom of Table 1). In order to elucidate this three-way interaction, we decomposed it into two separate lower order two-way interactions for the two sexes of the respondents. These interactions were analyzed by means of simple main effects. We confirmed Target Sex \times Target Attractiveness interactions for female participants, $F(1, 306) = 31.32$, $p < .001$, and male participants, $F(1, 267) = 8.07$, $p < .005$. Women provided less positive attributions for attractive female targets compared with less attractive female targets, $p < .001$, but provided more positive attributions for attractive male targets compared with less attractive male targets, $p < .001$. Male participants only tended to prefer less attractive males compared to attractive males, but this tendency did not reach

Table 2. Means and Standard Deviations (in Brackets) of Desire for Social Interaction Across Ethnicities (Study 1).

Ethnicity and Sex of Participants	Sex of Target			
	Male		Female	
	Attractiveness of Target		Attractiveness of Target	
	Low	High	Low	High
Latin American participants				
Male participants	8.40 ^a (1.39)	6.27 ^b (1.92)	5.98 (2.10)	7.05 (2.00)
Female participants	7.80 (1.90)	7.83 (1.68)	8.34 ^a (1.45)	7.13 ^b (1.92)
Asian participants				
Male participants	7.19 (1.95)	6.83 (1.94)	6.91 (2.48)	7.48 (1.64)
Female participants	7.35 (1.92)	7.70 (1.71)	7.48 (1.89)	6.68 (1.66)
Middle East participants				
Male participants	7.63 (2.18)	7.15 (2.24)	5.95 ^a (2.12)	7.95 ^b (1.58)
Female participants	6.48 ^a (2.09)	8.29 ^b (1.62)	6.85 (2.32)	6.20 (1.71)
All participants				
Male participants	7.70 ^a (1.91)	6.74 ^b (2.03)	6.31 ^a (2.26)	7.49 ^b (1.75)
Female participants	7.23 ^a (2.00)	7.98 ^b (1.67)	7.65 ^a (1.94)	6.74 ^b (1.83)

Note. Within each row and sex constellation of target and participant, means with different superscripts differ at $p < .05$ (based on independent t-tests).

significance, $p = .22$. However, they provided more positive attributions for attractive females than for less attractive females, $p < .01$. These findings provide first evidence that the recently described three-way interaction between respondent sex, target sex, and target attractiveness found for European Caucasian samples generalizes to non-Caucasian samples.

Even though we detected no significant influence of ethnicity on the three-way interaction (see above), we conducted exploratory analyses for each ethnic group (i.e., LA, AS, and ME) to confirm that the expected pattern was present in each of the three ethnicities (see Table 1). For all three ethnicities, we detected the hypothesized three-way interaction, $F_s > 5.00$, $p_s < .05$, which predominantly (i.e., in 11 of 3 [ethnicity] \times 4 [respondent sex-target sex constellation]) = 12 conditions) was in line with the hypothesized response pattern (i.e., more positive evaluations for attractive targets in opposite-sex constellations and more negative evaluations for attractive targets in same-sex constellations, Table 1). The only exception was for males from the ME who unexpectedly tended to show a (insignificant) preference for attractive male targets, $p = .08$.

Desire for Social Interaction

As before, we examined the hypothesized Participant Sex \times Target Sex \times Target Attractiveness three-way interaction. Because we again detected no significant influence of ethnicity on this interaction (i.e., the four-way interaction was not significant, $p > .15$), we aggregated data across ethnicities.

A 2 (participant sex) \times 2 (target sex) \times 2 (target attractiveness) analysis of variance revealed significant main effects for participant sex, $p < .05$, as well as target sex, $p < .05$, indicating overall higher desire for social interaction intentions for female (compared to male) participants and concerning male (compared

to female) targets. More importantly, these lower order effects were qualified by the hypothesized three-way interaction, $F(1, 574) = 35.06$, $p < .001$, $\eta^2 = .06$ (for overall mean values, see bottom of Table 2). In order to elucidate this interaction, we followed the same analytical approach as before: Lower order two-way interactions confirmed Target Sex \times Target Attractiveness interactions for female participants, $F(1, 306) = 15.34$, $p < .001$, and male participants, $F(1, 268) = 19.38$, $p < .001$. Women expressed less desire to interact with attractive female targets compared to less attractive female targets, $p < .005$, but greater desire to interact with attractive male targets compared to less attractive male targets, $p < .05$. Similarly, male participants were less inclined to interact with attractive male targets compared to less attractive male targets, $p < .005$, whereas they expressed an increased desire to interact with attractive females compared to less attractive females, $p < .005$.

Even though we did not detect a four-way interaction (i.e., no effect of the ethnicities on the three-way interaction), we analyzed the three non-Caucasian samples separately. The hypothesized three-way interaction was (marginally) significant for each of the ethnic samples: LA, $F(1, 199) = 18.55$, $p < .001$; AS, $F(1, 186) = 3.46$, $p = .06$; and ME, $F(1, 173) = 17.23$, $p < .001$. In each case, the pattern was completely in line with the hypothesized response pattern (i.e., more positive evaluations for attractive targets in opposite-sex constellations and more negative evaluations for attractive targets in same-sex constellations, see Table 2).

Discussion

Findings from Study 1 provide some of the first empirical support for the hypothesis that attractiveness-based biases in social evaluation (which operate in opposite directions depending on

the sex constellation of respondent and target) generalize to non-Western samples. In 23 of the 24 (= 4 respondent sex-target sex combinations \times 3 ethnicities \times 2 depending variables) constellations, individuals positively evaluated attractive members of the opposite sex but negatively evaluated attractive (in comparison to less attractive) members of their own sex. These findings are in line with the notion that social comparison and adaptive mating-related motives (i.e., mate search and intrasexual competition)—which can be found cross-culturally—might contribute to the bias. That is, positive responses might reflect approach motivation (toward attractive opposite-sex targets as social opportunities; Lemay et al., 2010), whereas negative responses might reflect avoidance motivation (away from attractive same-sex targets as social threats; Agthe et al., 2011).

Interestingly, the biased response pattern for participants' desire for social interaction with same-ethnicity target persons was somewhat smaller in the AS sample, which hints at potential cultural variations of the bias. For instance, this corresponds to findings indicating that reactions toward a partner's imagined infidelity are somewhat less intense in AS samples compared to Western samples (Geary, Rumsey, Bow-Thomas, & Hoard, 1995), which might point to lower underlying rivalry. Yet, research with AS participants accords with Western findings that the preference for attractive persons seems to be limited to opposite-sex targets (Li & Zhou, 2014).

Study 2

To our knowledge, Study 1 is the first research that showed that attractiveness-based biases which depend on the sex constellation of respondent and target (i.e., consistent positive versus rather negative effects for opposite-sex versus same-sex target attractiveness) generalize to non-Caucasian ethnicities' within-group ratings. This has so far almost exclusively been documented for European Caucasian samples. Study 2 extends these findings by addressing corresponding between-ethnicity effects for the first time. Based on considerations that self-other comparison as well as mating-related motives tend to be less strong regarding other than one's own ethnicity, Study 2 tests the specificity of attractiveness-based social evaluation biases. We hypothesize that these biases would be replicated for a Caucasian sample evaluating Caucasian targets (which would be in line with former findings) but would be reduced or eliminated for Caucasian participants evaluating non-Caucasian (i.e., African, AS, LA, ME) targets (which so far has not been empirically examined).

Materials and Method

Participants

A total of $N = 2,557$ German participants of Caucasian ethnicity were recruited at several universities across Germany. Their mean age was 22.45 years ($SD = 3.55$).

Design and Procedure

Study 2 employed a 2 (participant sex) \times 2 (target sex) \times 2 (target attractiveness; highly attractive vs. less attractive) \times 5 (target ethnicity) between-subjects design.

The procedure was identical to that used in Study 1. Target ethnicities were: LA ($n = 479$), ME ($n = 629$), AS ($n = 469$), African ($n = 469$), and Caucasian ($n = 511$). However, unlike Study 1, the Caucasian-only sample of Study 2 provided evaluations of targets from their own as well as from other ethnicities. Thus, only in the case of Caucasian targets, participant and target were of the same ethnicity. In addition to the picture sets of Study 1 (i.e., pictures of LA, ME, and AS stimulus persons), pretested picture sets of African and Caucasian target persons (according to the same selection criteria as in Study 1) were used.

Measures

We used the same measures as in Study 1, that is, the difference scores of attributions to ability minus attributions to luck (concerning the target person's occupational success), the 2-item measure ($r = .68$) of desire for social interaction with the target person, and the manipulation check of target attractiveness.

Results

Manipulation Check

In all five target ethnicity samples, the attractive targets ($M_{\text{overall}} = 7.24$, $SD = 1.97$) were perceived as better looking than the less attractive targets ($M_{\text{overall}} = 4.84$, $SD = 1.97$), $ps < .005$. Same-ethnicity and other-ethnicity targets did not differ significantly in the attractiveness ratings they received, $p > .90$. Thus, for all target ethnicities, the Caucasian participants perceived attractive targets to be more attractive than less attractive targets.

Evaluative Attributions

We ran a 2 (participant sex) \times 2 (target sex) \times 2 (target attractiveness) \times 2 (ethnicity constellation: same [i.e., Caucasian] versus different [i.e., all else]) analysis of variance.

As hypothesized, we detected a significant four-way interaction, $F(1, 2541) = 18.06$, $p < .001$, $\eta^2 = .01$, confirming that the significant three-way interaction between respondent sex, target sex, and target attractiveness, $F(1, 2541) = 13.70$, $p < .001$, $\eta^2 = .01$, varied as a function of whether respondents provided answers regarding their own or a different ethnicity. To further elucidate this complex finding of a four-way interaction, we ran separate analyses for respondents evaluating their own ethnicity versus another ethnicity: A 2 (participant sex) \times 2 (target sex) \times 2 (target attractiveness) analysis of variance confirmed the hypothesized three-way interaction for European Caucasian participants evaluating Caucasian targets (i.e., targets of their own ethnicity), $F(1, 503) = 22.26$, $p < .001$, $\eta^2 = .04$. In line with Study 1 and prior research, women provided less positive

Table 3. Means and Standard Deviations (in Brackets) of Evaluative Attributions Across Target Ethnicities.

Ethnicity of Targets and Sex of Participants	Sex of Target			
	Male		Female	
	Attractiveness of Target		Attractiveness of Target	
	Low	High	Low	High
Latin American targets				
Male participants	1.53 (2.89)	0.98 (2.73)	2.20 ^a (2.79)	1.10 ^b (2.72)
Female participants	2.52 (2.31)	2.14 (2.61)	2.00 (2.42)	1.56 (2.84)
Asian targets				
Male participants	2.46 (2.70)	2.29 (2.66)	1.13 (3.06)	1.61 (2.85)
Female participants	2.32 (2.53)	2.28 (2.34)	2.05 (3.03)	2.77 (3.24)
Middle East targets				
Male participants	1.18 (2.19)	1.64 (2.18)	1.91 (2.53)	1.41 (2.69)
Female participants	2.49 (2.74)	2.34 (2.61)	2.42 (2.76)	2.36 (3.03)
African targets				
Male participants	1.95 (2.95)	1.33 (2.78)	1.90 (2.35)	0.97 (3.30)
Female participants	2.42 (3.01)	2.60 (2.49)	2.57 (2.85)	1.98 (3.05)
Caucasian targets				
Male participants	1.67 ^a (2.90)	-0.23 ^b (2.91)	0.59 (2.33)	1.08 (3.01)
Female participants	1.12 (2.02)	1.36 (2.33)	1.69 ^a (2.43)	-0.01 ^b (2.60)

Note. Within each row and sex constellation of target and participant, means with different superscripts differ at $p < .05$ (based on independent t -tests). Higher means indicate more positive attributions.

attributions for attractive female targets compared with less attractive female targets and tended to provide more positive attributions for attractive male targets compared to less attractive ones. In contrast, male participants provided less positive attributions for attractive male targets than for less attractive male targets, whereas they tended to provide more positive evaluations for attractive compared to less attractive female targets (for mean values, see Table 3 bottom row). This three-way interaction did not reach significance when participants evaluated targets from other (i.e., non-Caucasian) ethnicities, $F(1, 2038) = 0.37, p > .50$.

When distinguishing between the different non-Caucasian ethnicities, no significant three-way interaction emerged for any of the non-Caucasian target ethnicities either, $F_s < 1.50, p_s > .22$. There was neither a consistent pattern of attractive same-sex target derogation nor systematic evidence of glorification of attractive opposite-sex targets (for mean values, see Table 3 first four rows).

Desire for Social Interaction

In line with the previous analysis, we ran a 2 (participant sex) \times 2 (target sex) \times 2 (target attractiveness) \times 2 (ethnicity constellation) analysis of variance.

As hypothesized, we detected a significant four-way interaction, $F(1, 2541) = 16.85, p < .001, \eta^2 = .01$, confirming that the three-way interaction between respondent sex, target sex, and target attractiveness, $F(1, 2541) = 32.81, p < .001, \eta^2 = .01$, varied as a function of whether respondents provided answers regarding their own or a different ethnicity. We again ran separate analyses for respondents evaluating their own ethnicity versus another ethnicity: When examining European

Caucasian participants evaluating only Caucasian targets, a 2 (participant sex) \times 2 (target sex) \times 2 (target attractiveness) analysis of variance confirmed the hypothesized three-way interaction, $F(1, 503) = 31.07, p < .001, \eta^2 = .05$. Women expressed less desire to socially interact with highly attractive female targets compared to less attractive female targets, whereas they indicated increased intentions to interact with attractive male targets compared with less attractive male targets. Male participants provided less interaction intentions for attractive male targets than for less attractive male targets, whereas they tended to provide more desire for interaction for attractive compared to less attractive female targets (for mean values, see Table 4 bottom row). In line with our hypotheses and the already confirmed four-way interaction, this three-way interaction was not observed when respondents provided responses regarding targets from other ethnicities, $F(1, 2,038) = 3.33, p = .068$ (for mean values, see Table 4 first four rows).

For explorative purposes, we ran separate analyses for the different ethnicities of the targets. We detected no three-way interaction for ME, $p > .30$; AS, $p > .22$; or African, $p > .24$, ethnicities. However, we found a significant three-way interaction with respect to LA targets, $F(1, 471) = 8.27, p < .005, \eta^2 = .02$. For LA targets, the Caucasian female participants responded in line with how they responded to Caucasian targets; however, providing a less consistent picture, the Caucasian male participants generally preferred attractive targets, although this preference was somewhat smaller when evaluating male targets. This three-way interaction regarding LA (i.e., other ethnicity) targets was significantly smaller than the previously described interaction observed for Caucasian (i.e., same-ethnicity) targets, $F(1, 974) = 4.16, p < .05$.

Table 4. Means and Standard Deviations (in Brackets) of Desire for Social Interaction Across Target Ethnicities.

Ethnicity of Targets and Sex of Participants	Sex of Target			
	Male		Female	
	Attractiveness of Target		Attractiveness of Target	
	Low	High	Low	High
Latin American targets				
Male participants	6.44 (1.54)	6.49 (1.93)	6.56 (1.68)	6.90 (1.94)
Female participants	6.59 (1.76)	6.98 (1.74)	7.58 ^a (1.41)	6.43 ^b (1.89)
Asian targets				
Male participants	6.09 (1.68)	6.57 (1.79)	5.83 (1.86)	5.86 (1.81)
Female participants	6.48 (1.62)	6.15 (1.49)	6.24 (1.93)	6.23 (1.77)
Middle East targets				
Male participants	6.24 (1.91)	6.43 (1.81)	6.00 (2.38)	6.21 (1.79)
Female participants	5.90 (2.18)	6.29 (2.02)	6.83 (1.79)	6.54 (2.21)
African targets				
Male participants	6.75 (1.81)	6.78 (1.89)	6.53 (1.73)	7.14 (1.93)
Female participants	7.90 (1.41)	7.95 (1.74)	7.64 (1.47)	7.57 (1.81)
Caucasian targets				
Male participants	5.62 (1.77)	5.58 (2.11)	5.34 (1.60)	5.72 (2.33)
Female participants	5.59 ^a (1.81)	6.84 ^b (1.92)	6.73 ^a (1.47)	4.58 ^b (1.89)

Note. Within each row and sex constellation of target and participant, means with different superscripts differ at $p < .05$ (based on independent *t*-tests).

Discussion

For European Caucasian participants, we observed an interaction such that they responded in a relatively negative way to attractive (in comparison to less attractive) same-sex targets but in a more positive way to attractive (in comparison to less attractive) opposite-sex targets which was consistent with hypotheses. Moreover, as hypothesized, this biased response pattern did not emerge for evaluations of other-ethnicity targets. The attractiveness-sex constellation had no effect on the overall evaluations of other-ethnicity targets, thereby pointing to the possibility that the latter might be relatively less relevant for the respondents. This is consistent with preferences to date same-ethnicity partners (Lin & Lundquist, 2013; Potârca & Mills, 2015) and findings of racial exclusion of other-ethnicity persons in mate search by different ethnic groups (e.g., AS, Caucasian, LA), particularly regarding the mate preferences of Whites (Herman & Campbell, 2012; Robnett & Feliciano, 2011). Moreover, persons from an ethnic group other than one's own are more readily associated with the presence of threat (compared with persons of one's own ethnicity; Olsson et al., 2005).

The only exception in the pattern found in this study pertained to responses to LA targets, such that desire for social interaction with LA targets varied as a function of their attractiveness. These results from the Caucasian sample suggesting that positive responses to attractive opposite-sex persons as well as negative reactions toward attractive same-sex persons emerged more strongly for European Caucasians and LAs than for targets from other ethnic backgrounds fit with findings

indicating that Caucasians seem to prefer Whites and LAs as potential partners (Feliciano et al., 2009), that mate poaching—which might enhance the sensitivity to rivalry—is more frequent in Europe and LA than in other (i.e., AS or African) cultures (Schmitt et al., 2004), and that LA students are more likely than other ethnic groups to date interculturally (Keels & Harris, 2014). Moreover, regarding partner preferences, the “Latino-White boundary” seems to be less rigid than other ethnic barriers: Latino Americans tend to prefer other Latinos or Caucasians as mates (Feliciano, Lee, & Robnett, 2011). This is in line with notions that mating rivalry is not completely limited to one's in-group (Klavina & Buunk, 2013). However, the overall pattern for LA targets was not the same as that for Caucasian targets, and the pattern did not generalize to social evaluations. Thus, on the whole, results suggest that attractiveness-based social evaluation biases did not generalize to between-ethnicity contexts.

General Discussion

Physical attractiveness exerts powerful biases on social perception. Recent research suggests that the well-documented positive stereotypes about good-looking people reflect a desire for social interaction (Lemay et al., 2010) because attractiveness often represents the presence of desirable social opportunities. Conversely, negative social reactions may be directed toward attractive members of one's own sex who are perceived as threatening in the context of social relationships (Agthe et al., 2011). To date, this pattern has so far been documented almost exclusively in European Caucasian samples.

The current article contributes to the literature by demonstrating that (a) these biases generalize to samples from other ethnic backgrounds and (b) these biases do not apply when people are evaluating members of an ethnicity other than their own. The current findings thus provide new evidence for both the generalizability and the specificity of attractiveness-based biases in social perception.

Study 1 extends prior research by showing that attractiveness-based social evaluation biases are not restricted to Caucasian ethnicities from Western cultures. When evaluating members of their own ethnicity, AS, ME, and LA participants displayed positive biases toward attractive opposite-sex persons and negative biases toward attractive same-sex persons. The findings are consistent with evolutionarily inspired research (Buss, 1989; Buss et al., 2000), emphasizing the fact that, across many cultures, highly attractive individuals reflect both desirable mating opportunities (opposite-sex targets) as well as potential relationship threats (same-sex targets). Our findings support the notion that attractiveness biases might be based, at least in part, on universal adaptive motives linked to mating and related social comparison processes.

It is worth noting that explanations for attractiveness-based biases, which involve mate preferences and rivalry on the one hand, and social comparison as well as threats to one's self-esteem on the other hand, are not mutually exclusive. Because physical attractiveness represents a highly desirable criterion for mate choice across different cultures and ethnicities (Buss, 1989), it is likely also to be relevant for social comparison and self-esteem cross-culturally. As prior research suggests (Agthe et al., 2011; Maner, Gailliot, Rouby, Miller, et al., 2007), social judgment biases that emerge as a function of attractiveness are unlikely to be caused *merely* by concerns associated with self-esteem and social comparison. Rather, these processes may in part reflect proximate manifestations of underlying adaptive mating-related motives.

Interestingly, the attractiveness-based biases were found both in women and men. Although women generally compete more on the dimension of physical attractiveness than men do (Dijkstra & Buunk, 2002; Townsend & Levy, 1990), physical attractiveness is important for both sexes (e.g., Asendorpf, Penke, & Back, 2011; Luo & Zhang, 2009), particularly in young adulthood. Because women display a preference for good-looking men (e.g., Niesta Kayser, Agthe, & Maner, 2016), physical attractiveness also represents an important dimension of rivalry for men, although comparison dimensions such as status and dominance gain more and more importance for them with increasing age.

Study 2 contributes to the literature by demonstrating that attractiveness biases are stronger when one is evaluating a member of one's own ethnicity than when one is evaluating a member of a different ethnicity. European Caucasian participants showed no significant attractiveness bias toward African, AS, or ME targets, despite recognizing other-ethnicity targets as highly attractive. The only exception to this pattern emerged for LA targets: In line with the attractiveness stereotype, male and female participants wished to have contact with attractive

opposite-sex persons. In addition, female participants preferred to avoid attractive same-sex targets. However, these attractiveness-based biases did not extend to social evaluations and were significantly smaller in size compared to the biased response pattern regarding same-ethnicity targets. Attractiveness-based biases are presumed to be linked to mating-related motives and related social comparison processes (Agthe et al., 2011; Försterling et al., 2007; Luxen & van de Vijver, 2006). Thus, although individuals certainly form and maintain romantic relationships with members of other ethnicities, the current findings are in line with evidence suggesting that mating-related social evaluation biases may be observed most strongly when individuals are exposed to members of their own ethnicity (Eastwick et al., 2009; McClintock, 2010; see also Montoya, Horton, & Kirchner, 2008). Particularly regarding the first stage of contact (i.e., when initiating romantic interest), the degree of self-segregation is comparably higher than when reciprocating romantic interest (Lewis, 2013), so that a preference for persons of one's own ethnicity may dominate mate-searching behavior for both men and women (Lin & Lundquist, 2013).

Given that prior research has often documented negative biases toward ethnic out-group members, it is interesting that, in the case of attractiveness-based biases within specific sex-constellations, being of a different ethnicity might sometimes be beneficial. There were actually *less* negative reactions toward attractive same-sex persons when the person being evaluated was of a different ethnicity, arguably because reduced similarity and comparability might have lessened the perceived threat to one's relationships and self-esteem. The relatively smaller negative bias for out-group members can be contrasted with the numerous studies indicating strong negative biases toward out-group members (Plant, Goplen, & Kunstman, 2011; Trawalter, Todd, Baird, & Richeson, 2008; Unkelbach, Forgas, & Denson, 2008). The differences in findings likely derive from the fact that the types of threat denoted by out-group members in previous studies (e.g., threat to physical safety; Maner et al., 2005) are categorically different than the type of threat typically posed by attractive individuals (e.g., threats to one's romantic relationship).

The emergence of different reactions to attractive opposite-sex and same-sex persons between and within ethnicities is consistent with the fundamental social motives framework (Kenrick, Neuberg, Griskevicius, & Schaller, 2010): Due to their centrality over the course of human evolutionary history, motivational states associated with survival and reproductive success are able to direct processing of social information in order to manage the relevant benefits and costs of social life (Kenrick, Neuberg, Griskevicius, Becker, & Schaller, 2010; Neel, Kenrick, White, & Neuberg, 2015). Mate search and intrasexual competition may functionally shape people's reactions to attractive other sex versus same-sex persons when the targets appear relevant in the respective context, activating motives designed to avoid negative outcomes by potential rivals and to gain access to potential mates. Accordingly, our findings are in line with evolutionarily inspired empirical findings suggesting that adaptive motives such as mate seeking,

mate retention, or self-protection can bias interpersonal perception of, attention to, and cognitions about individuals who differ in gender, physical attractiveness, and ethnicity (Li et al., 2015; Maner, Gailliot, & DeWall, 2007; Maner et al., 2005; Maner & Miller, 2013; Neuberg et al., 2004; Schaller, Park, & Mueller, 2003). Such effects often reflect adaptive biases meant to help individuals reap the benefits and avoid the costs associated with social living.

One interesting question for future research pertains to whether or not the reduced attractiveness-based biases regarding out-group members might be specific for European Caucasian respondents because individualistic (in comparison to collectivist) cultures generally show less inclination to devalue out-group members (Triandis & Gelfand, 2012).

Limitations and Future Directions

Limitations of the current research offer useful avenues for further investigation. One limitation is that Study 1's non-Caucasian participants were temporarily living in Germany (for a language course or a semester as an exchange student). Thus, the sample is relatively selective in that it only includes people who were able and willing to study abroad. Moreover, some acculturation may have occurred because, by attending language education in Germany, the other-ethnicity participants had already been heavily exposed to the influence of Western media and culture. Future research would benefit from examining different ethnic groups in their own immediate cultural context.

In Study 1, the biases were less pronounced for the AS sample compared to the LA and the ME sample, pointing to potential cultural differences in the strength of attractiveness-based biases. One factor to be examined in future studies regards the role attractiveness plays in mating choices within traditional societies; in traditional societies, mate choice is limited by family expectations and kinship rules (Yu & Shepard, 1998), so the extent of individual choice that is allowed in personal relationships may affect attractiveness-based biases (Adams, Anderson, & Adonu, 2004; Anderson et al., 2008). Therefore, differences could be expected between Western cultures and more traditional cultures and societies. Besides, social influence exerted by one's environment and social network (e.g., one's peer group) may affect perceptions of attractiveness even in very different surroundings, economic states, and political climates (Lehmiller, Graziano, & VanderDrift, 2014; Swami & Tovée, 2007). In addition, in organizational contexts (which are often also influenced by culture), the anticipated level of competition or cooperation with a new colleague (i.e., the perceived instrumentality to oneself) may influence whether a person's attractiveness and/or ethnicity (i.e., being of the same vs. another ethnic group) promotes negative versus positive reactions (Lee, Pitesa, Pillutla, & Thau, 2015; Lee, Pitesa, Thau, & Pillutla, 2015).

Moreover, other contextual factors like the target person's status and achievements (Agthe & Spörrle, 2009), as well as individual differences like people's social comparison orientation (Agthe, Spörrle, Frey, & Maner, 2014), their own level of

attractiveness (Agthe et al., 2010), their sexual preference (Försterling et al., 2007), sociosexual orientation (Simpson & Gangestad, 1992), or partnership status and commitment (Lydon, Fitzsimons, & Naidoo, 2003) may influence whether positive or negative attractiveness-based biases are likely to emerge toward an other-sex versus same-sex target person. Considering that our hypotheses referred to heterosexual participants, failing to measure sexual preference may have added noise to our current data, so it is important for future research to attend more carefully to people's partner preference (i.e., whether they feel attracted to other-sex versus same-sex persons). It might also be helpful to use more precise ethnic categories. For instance, people from AS are likely to differentiate somewhat better than European Caucasians whether a stimulus person from AS is Chinese, Japanese, or from another ASn country, and this may affect reactions to the target. Besides, there might be substantial variability in reaction pattern across populations (Heinrich, Heine, & Norenzayan, 2010).

Moreover, the tendency to stereotype on the basis of appearance when drawing characterological inferences may be weaker for people from collectivistic or interdependent cultures (e.g., East AS) because individuals might rely more on group-level attributes when evaluating others (Dion, Pak, & Dion, 1990; Markus, Mullally, & Kitayama, 1997). Such potential cultural influences on the nature of attractiveness-based biases could be profitably addressed in future research.

Although our results fall short of identifying the specific mechanisms underlying attractiveness biases within and between ethnicities, previous studies provide important clues. For instance, prior research has documented that the likelihood to have contact with the target person (Luxen & van de Vijver, 2006) and the desire to meet him or her (Agthe et al., 2011; Lemay et al., 2010) partly explain positive versus negative reactions toward attractive other-sex versus same-sex persons. Future studies investigating the potential underlying processes for attractiveness-based biases within and between ethnicities would move us toward a better understanding of the observed patterns. For instance, investigations might test more directly whether particular target persons who vary in attractiveness elicit perceptions of threat associated with either romantic rivalry or social comparison. Testing potential mechanisms should also control for participants' sexual preference, as the attention to the likely partner preferences might also explain why gay or lesbian participants might not show the same reaction patterns (Försterling et al., 2007).

Conclusion

The current studies are the first to show that positive (negative) biases toward attractive opposite-sex (same-sex) persons of the same ethnicity generalize across diverse ethnic backgrounds (within-group effects; Study 1) but emerge almost exclusively toward targets of the evaluator's own ethnic background (between-group effects; Study 2). At a broader conceptual level, this research provides support for the notion that the motives underlying biases in social evaluation—including

adaptive motives associated with mating and social comparison—seem to be manifested in relatively universal ways across human cultures. At the same time, findings provide evidence for important boundary conditions in how—and toward whom—those motives are expressed. Overall, our studies highlight the value of attending both to fundamental social motives shaped by natural selection as well as to possible cultural influences when exploring biases in social perception.

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