

Using Revealed Mate Preferences to Evaluate Market Force and Differential Preference Explanations for Mate Selection

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In this article the authors illustrate how *revealed preferences* (i.e., preferences inferred through an individual's differential attraction to multiple targets) can be used to investigate the nature of mate preferences. The authors describe how revealed preferences can be estimated and how the reliability of these estimates can be established. Revealed preference estimates were used to explore the level of consensus in judgments of who is and is not attractive and whether revealed preferences are systematically related to self-reported mate preferences and personality traits. Revealed preference estimates were created for over 4,000 participants by examining their attraction to 98 photographs. Participants of both genders showed substantial consensus in judgments of whom they found attractive and unattractive, although men showed higher consensus than women. Revealed preference estimates also showed relationships with corresponding self-rated preferences and with other dispositional characteristics such as personality traits and age. Although the findings demonstrate the existence of meaningful individual differences in preferences, they also indicate an important role for consensual preferences in mate selection processes.

Keywords: attraction, revealed preferences, mate preferences, mate selection, assortative mating

Considerable research has demonstrated that dating and married couples are more similar to one another than expected by chance on a broad range of characteristics, ranging from physical attractiveness to intelligence, education levels, personality traits, and values (e.g., Berscheid, 1985; Byrne, 1971; Watson et al., 2004). Given the ample evidence of assortative processes in mate selection, it is important to understand why people end up with similar mates on a range of characteristics.

In the broadest sense, there are two very distinct ways in which attraction may underlie assortative effects in relationships. The first and perhaps the most intuitive involves the operation of *differential preferences*, in which different people prefer and seek out different types of partners. Generally, this possibility is discussed in the more specific form of the hypothesis that individuals prefer partners who have characteristics similar to their own characteristics, or the hypothesis that “likes attract” (Buston & Emlen, 2003; Byrne, 1971; Klohnen & Luo, 2003). In the case of agreeableness, for instance, it is possible that agreeable individuals tend to prefer partners who are pleasant, whereas disagreeable individuals tend to prefer partners who are more rude and argumentative, leading individuals to seek out and select partners who match their own levels of agreeableness. Alternatively, similarity can result

through forces that relationship theorists refer to as *market forces*. In this scenario, dyadic similarity might be observed for a characteristic that is consensually desired, due to individuals with desirable characteristics having better access to others with desired characteristics (Buss & Barnes, 1986; Geary, Vigil, & Byrd-Craven, 2004). Returning to the example of agreeableness, if agreeableness is a characteristic that everyone finds highly desirable in a mate, then disagreeable individuals will be expected to attract fewer partners, forcing them to settle for less desirable mates (in this case, other disagreeable individuals).

Because dyadic similarity can occur through both differential and consensual preferences, a number of current researchers have begun to question the role of differential preferences for explaining assortative mating effects. Conceptual and mathematical models have illustrated how substantial dyadic similarity can emerge even if everyone has identical mate preferences (Becker, 1973; Kalick & Hamilton, 1986; Penke, Todd, Lenton, & Fasolo, 2007). Further, although individual differences in preferences can clearly be observed with self-report scales, current researchers have encountered difficulty in demonstrating that self-reported preferences for many characteristics have any bearing on variation in whom individuals find attractive in real-world situations (Eastwick & Finkel, 2008; Todd, Penke, Fasolo, & Lenton, 2007). This has been interpreted by some as suggesting that variation in stated preferences is perceptual noise around what are in fact relatively indistinguishable preferences across individuals (Kurzban & Weeden, 2005; Penke et al., 2007).

The most critical difference between differential preference and market force explanations of assortative mating involves contrasting assumptions about the degree of consensus that exists in mate preferences, or in other words, the extent to which men agree about which women are attractive and vice versa. If the level of consensus in judgments of which individuals are and are not attractive is

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low, this would strongly suggest that assortative mating will work predominantly through differential preferences where likes attract likes (e.g., Buston & Emlen, 2003; Byrne, 1971). In this situation we expect to see less benefit from being judged “most attractive” and relatively equal mating opportunities for most people. People will encounter minimal mate competition, as the potential mates one individual finds attractive will show little similarity to those judged attractive by other individuals. On the other hand, if the level of consensus is high, then mate assortment will likely work through market forces. In this scenario, there will be dramatic disparities in mating opportunities, which will ultimately result in individuals pairing with mates who are similarly desirable. This will also result in increased mate competition, as the mates whom one individual desires are very likely the mates whom most other individuals desire (Buss & Barnes, 1986).

Although knowing the degree of consensus in who is found attractive and unattractive is important for understanding the nature of the mating marketplace, this is a quantity that is not directly estimable through self-report preference measures. To illustrate, we might learn that two men state identical preferences but prefer somewhat different women in real situations. Conversely, the men may indicate very different preferences but then demonstrate being attracted to precisely the same women in real situations. The drawback of stated preferences is that one is unable to compare which *particular people* different individuals are actually attracted to or to document the extent to which a stated preference manifests itself in actual interactions. Consequently, in the current research we address predictions concerning the nature of preferences using an emerging approach to the measurement of preferences.

Measuring Preferences

Conceptualizing and Measuring Preferences as Within-Person Correlations

In considering how preferences can be alternatively assessed, it is important to consider the literal implications of having a preference: A preference for a characteristic in others indicates that the individual is more highly attracted to people who have this characteristic than to people who do not. Given this conceptualization of preferences, it becomes clear that we can quantify a preference as a correlation coefficient that is calculated within-person. For instance, if a woman states a preference for sensitive men, this implies a positive correlation between her attraction to various men and the men’s sensitivity levels. Because such preference estimates can be computed as within-person correlations, we denote an individual’s estimated revealed preference by the symbol r_w in the current article, and a mean revealed preference across a group of raters by the symbol \bar{r}_w . As individuals demonstrate their preferences for a characteristic by this method instead of simply stating it, we refer to these correlations as estimates of an individual’s *revealed preferences* (Eastwick & Finkel, 2008; Fisman, Iyengar, & Simonson, 2004; see also Kurzban & Weeden, 2005, 2007, and Todd et al., 2007, for similar methods of inferring preferences through the mean ratings of an individual’s desired mates).

In Table 1, we illustrate how revealed preferences can be estimated, where three women (Amy, Barbara, and Cecilia) have rated their level of attraction to 15 different men who vary in their level

Table 1
Example of Estimating Three Women’s Revealed Preference for Sensitive Men

Target	Target’s sensitivity	Attraction		
		Amy	Barbara	Cecilia
Data matrix				
John	5	3	1	4
Adam	10	6	4	2
Lyle	15	5	7	6
Michael	15	5	3	1
Taylor	30	6	7	2
Pascal	40	4	2	5
Karl	45	6	8	2
Bjorn	45	6	4	4
Xavier	55	7	9	1
Joey	65	4	6	1
Victor	70	7	5	2
Neil	75	6	8	1
Charlie	85	7	9	3
Benny	90	5	8	1
Evan	95	9	8	4
Associated correlation matrix				
<i>Targets’ sensitivity</i>		.55	.65	-.27
Amy’s attraction to targets		—	.62	-.11
Barbara’s attraction to targets			—	-.31
Cecilia’s attraction to targets				—

Note. All correlations greater than $|r| \geq .53$ are significant at the $p < .05$ level. Correlations between target sensitivity and ratings of the target by an individual are shown in italics.

of sensitivity (using a criterion such as the man’s self-ratings, or consensual judgments of the man by other raters). We can then correlate the women’s ratings of attraction to the male targets with the targets’ level of sensitivity. Here, we find that the first two women (Amy and Barbara) show positive associations between the targets’ sensitivity and their attraction to the target ($r_w \geq .55$), whereas it appears that Cecilia may instead prefer men who are not sensitive ($r_w = -.27$). In fact, because these women rated the same targets, we can determine that Amy and Barbara show significantly greater preference for sensitive men than does Cecilia via tests of dependent correlations ($z \geq 2.27$, $ps < .05$; Steiger, 1980).

As can be seen in this example, an advantage of revealed preference estimates for understanding the strength of general preferences is that revealed preference estimates exist on a readily interpretable correlational metric with a maximum range of -1 to $+1$. The zero-point ($r_w = 0$) indicates no preference, or it indicates that the rater fails to demonstrate a preference for targets who appear to have a characteristic versus targets who do not. If a person’s revealed preference for a particular characteristic approaches the limit of $r_w = 1$ or -1 , that can be interpreted as demonstrating that this is practically the only characteristic we need to consider to evaluate whether the person will find a particular target attractive or unattractive. As the revealed preferences are estimated as correlations, all other values of the scale are similarly interpretable. For instance, in Table 1, when Barbara is estimated to have a preference of $r_w = .65$ for sensitive men, this corresponds to a demonstration that every standard deviation in-

crease in a man's sensitivity corresponds to an average .65 standard deviation increase in Barbara's attraction to the man. In this sense, revealed preference estimates give us much more information about how the individual's preferences actually manifest themselves in attraction to real targets than is possible to learn from their own stated preferences.

Estimating the degree of consensus in attractiveness judgments. The use of revealed preferences offers the ability to address the level of consensus in attractiveness judgments in a way that cannot be done with self-report preference scales: by allowing the estimation of the overall degree of interrater agreement concerning which targets are found to be attractive and unattractive. Although we may correlate an individual's ratings of attraction to some attribute of the targets as described earlier, we may also choose to correlate the individual's attractiveness ratings to ratings of the same targets made by other individuals. Returning to the example in Table 1, we see that Amy and Barbara have a strong tendency to prefer the same male targets ($r_w = .62$) but that their attractiveness judgments are not significantly associated with Cecilia's judgments ($|r_{ws}| \leq .31$).

More generally, in large samples we can easily estimate the extent to which two different raters of the same targets agree, on average, in their judgments of who is and is not attractive. If the number of raters in the sample is sufficiently large, the reliability (α) of estimates of the average judged attractiveness of the rated targets approaches 1. Consequently, as shown in Figure 1, the average correlation between the attraction judgments of any two randomly selected raters from this sample becomes equivalent to the square of the average correlation between a single rater's attractiveness judgments of a group of targets with the entire sample's average judged attractiveness of the targets. We term this the *consensus correlation* (labeled r_{con} in Figure 1).¹

The mean consensus correlation (labeled \bar{r}_{con} in Figure 1) is of special importance to the study of attraction. As shown in Table 2, the consensus correlation can range from a minimum of 0 (no consensus) to a maximum of 1 (perfect consensus), and differential preference and market force explanations of assortative mating predict levels of consensus near these extremes, respectively. As described earlier, differential preference explanations for assortative mating suggest there is minimal consensus in attractiveness judgments (\bar{r}_{con} near zero; Hypothesis 1a), meaning that the targets that are judged attractive by one individual will not help us predict whom other individuals will find attractive. At the other extreme, market force explanations for assortative mating assume that there may be very high levels of consensus in whom different people find attractive (\bar{r}_{con} near 1; Hypothesis 1b), which would indicate that the targets one individual finds attractive will very closely parallel the targets other individuals tend to find attractive. As noted earlier, as consensus in attractiveness judgments increases, all of the phenomena described by market force accounts of assortative mating are also expected to increase (e.g., intrasexual competition for mates, disparities in mate opportunities among targets; see Buss & Barnes, 1986).

Estimating the generality of preferences for particular characteristics. After estimating the level of consensus in raters' attractiveness judgments, it is obviously valuable to determine the sources of their consensus. It is important to note that the consensus correlation discussed earlier sets the upper bound for which any particular characteristic can be consensually desired. For in-

stance, if the consensus correlation for men rating women is a lowly .10, then this indicates that the average preference among men for any particular characteristic (e.g., skinniness, confidence, or sensitivity) cannot exceed $|\bar{r}_w| = .10$. Differential preference explanations for assortative mating for a given characteristic would be better supported if the general preference for the characteristic is weak (\bar{r}_w near 0; Hypothesis 2a), whereas market force explanations would suggest that there is a strong general preference for the characteristic (e.g., $\bar{r}_w = .40$; Hypothesis 2b). To again use agreeableness as an example, there may be significant individual differences in how important different people weigh agreeableness in their attractiveness judgments, but if this is qualified by a high consensual preference for this characteristic ($\bar{r}_w = .40$), then most of the heterogeneity will be on the side of individuals preferring agreeable mates to varying extents. In this case, some individuals may strongly prefer agreeable mates and others may only weakly prefer agreeable mates, but few people would actively prefer disagreeable mates.

The Current Investigation

Preferences were measured in the current study with the within-person correlational method described earlier. As in the example given in Table 1, participants rated the attractiveness of a large number of target photographs of the gender they reported being primarily attracted to, and their attraction ratings were then correlated with the consensually coded characteristics of these targets. We addressed four major questions concerning the nature of these revealed preference estimates. Our first question concerned the general level of consensus between raters in attractiveness ratings and the extent to which there were general, samplewide preferences demonstrated for particular characteristics. Our second question concerned whether revealed preference measures could be used to show differences in short-term and long-term revealed mate preferences. Our third question concerned the level of correspondence between revealed and self-reported preferences. Our fourth and final question to explore was whether revealed preferences were correlated with other dispositional variables in expected ways. We describe predictions associated with each of these questions in more detail in the sections that follow.

Level and sources of consensus in attractiveness judgments. As described earlier, the degree of consensus has important implications for the nature and experience of assortment in mating processes (e.g., Buss & Barnes, 1986; Penke et al., 2007). There are signs that at least moderate levels of consensus exist in judgments of who is and is not attractive. For instance, Hitsch, Hortacsu, and Ariely (2006) demonstrated that men and women who were judged from photographs to be physically attractive received two to four times as many e-mails in online dating services as

¹ In the case where the average ratings of the targets' attractiveness has been rated by a very large number of people and are thus extremely reliable (e.g., α is very close to 1), we can consider the mean profile to be a manifest latent variable. Because the average-rated attractiveness of the targets is the only source of dependency between the ratings made by random participants, the square of the consensus correlation is equal to the intraclass correlation, which is interpretable as the average similarity in attraction patterns that we would expect between two randomly selected participants in this sample.

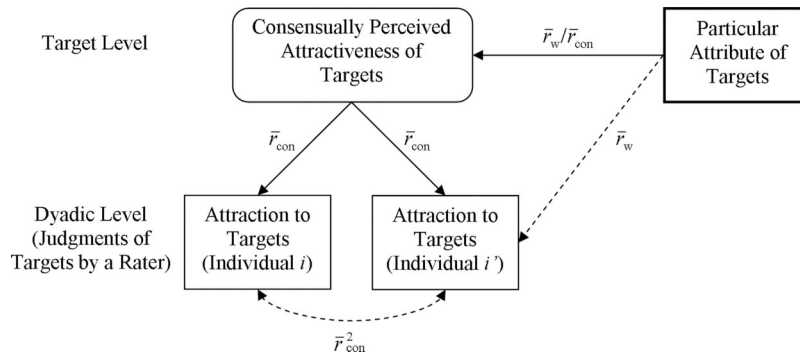


Figure 1. Mathematical relationships between mean ratings of target attractiveness made by a large number of participants and attributes of the targets (e.g., sensitivity).

individuals who were deemed less unattractive. Similarly, individuals who were coded as having attractive physical features were substantially more likely to have people desire to meet them again after participating in a speed-dating session (Eastwick & Finkel, 2008; Kurzban & Weeden, 2005). This indicates that there is at least a modest level of consensus in who is found desirable and suggests that this consensus is determined in part by physical characteristics.

To our awareness, no research has investigated whether there are differences in the level of consensus male and female raters have in their attractiveness judgments. If such differences exist, this would have implications for the different experiences and strategies that could be expected for men and women in the dating marketplace. For instance, if there is more consensus about whom men find attractive than there is among women, this would suggest that there is a greater disparity between women in potential mating opportunities than there is for men and that there are stronger

norms for women than for men to obtain or maintain characteristics that are generally found attractive by the opposite sex. Although no research has directly addressed the question of gender differences in consensus, there are a number of theoretical reasons to expect that differences exist. Evolutionary theorists suggest that men tend to have a default strategy of seeking the most physically attractive mates, whereas women have a more varied array of mating strategies (e.g., seeking the most physically attractive mate, the most committed mate, or the mate with the most resources; Penke et al., 2007). Consequently, women may have less consensus about which men they consider attractive than men have about which women are considered attractive.

In exploring gender differences in consensus, we also examined the level of consensus in attractiveness judgments made by homosexual raters. Research has indicated that apart from their attraction to members of the same sex versus the opposite sex, homosexuals otherwise resemble heterosexuals of their gender in the

Table 2

Key to Notation Used in Figure 1, and Summary of Major Hypotheses Associated With Market Force and Differential Preference Explanations for Mate Selection

Feature of revealed preferences			Relevant prediction from major perspective on mate selection	
Description	Notation	Maximum range	Differential preferences	Market forces
Average degree to which an individual's attractiveness judgments correspond to whom raters generally find attractive	\bar{r}_{con}	[0,1]	\bar{r}_{con} is low (near 0; H1a)	\bar{r}_{con} is high (near 1; H1b)
Average degree of interrater consensus in who is/is not attractive	\bar{r}_{con}^2	[0,1]	\bar{r}_{con}^2 is low (near 0; H1a)	\bar{r}_{con}^2 is high (near 1; H1b)
Degree to which a particular characteristic is consensually desired	\bar{r}_w	$[-\bar{r}_{con}, \bar{r}_{con}]$	\bar{r}_w is near 0; (H2a)	\bar{r}_w deviates from 0; (H2b)
Additional concerns				
Do people's stated preferences correspond to the preferences they reveal in their attractiveness ratings of targets? r (stated preference, revealed preference)			Preferences vary and people have some awareness of their own preferences ($r > 0$; H3a)	Variation around general preference represents noise ($r = 0$; H3b)
Do people prefer targets that have characteristics similar to their own? r (characteristic, revealed preference)			Preferences vary and people prefer others with attributes similar to their own ($r > 0$; H4a)	Variation around general preference represents noise ($r = 0$; H4b)

Note. H = hypothesis.

types of characteristics that they find attractive and in their goals and strategies in approaching close relationships. For instance, various researchers have found that homosexual men look largely similar to heterosexual men in their heightened preference for casual sex and concern for physical appearance, whereas homosexual women are similar to heterosexual women in their heightened preference for intimacy and for long-term relationships (Bailey, Gaulin, Agyei, & Gladue, 1994; Kenrick, Keefe, Bryan, Barr, & Brown, 1995). In the current study, we thus explored whether gender differences in preferences and consensus were paralleled across both heterosexual and homosexual participants.

Differences in short-term and long-term mate preferences. Relationship researchers have long suggested that people seek different characteristics in long-term versus short-term relationship partners. Research has indicated that individuals show heightened preference for characteristics indicating physical attractiveness and sexual availability for short-term relationships, whereas characteristics indicating commitment, fidelity, and trustworthiness become particularly desired when a person is seeking a long-term mate (Buss, 2003; Gangestad & Simpson, 2000; Li & Kenrick, 2006).

If revealed preference estimates are valid measures of preferences, we should be able to use them to recover some of the differences that have been identified in past research distinguishing between long-term and short-term preferences. Although we focused on asking participants how attractive they find targets in order to construct revealed preference estimates, we also asked a subset of participants to indicate the extent to which they might be interested in a possible dating relationship with the targets. Paralleling past research, we expected that asking individuals about their potential long-term interest in the targets would result in heightened preference for communal characteristics such as interpersonal sensitivity and lessened preference for physical characteristics.

Correspondence between self-reported and revealed preferences. If there is less than perfect consensus in revealed preferences, it is important to know what relates to individual differences in revealed preferences. The most obvious expectation is that individual differences in revealed preferences are related to an individual's own stated preferences for the same characteristics. Finding such parallels would represent important evidence that the observed variation in stated and indirectly estimated preferences reflects meaningful variation—the most basic condition necessary for differential preference explanations for assortative mating (Hypothesis 3a). Such a finding would also indicate that self-rated preferences have utility in predicting differences in how individuals will be attracted to targets they have never encountered and that people have some awareness of the preferences that they reveal in their behavior.

It is useful to note here that we are not the first researchers to attempt to estimate preferences through a person's attraction to real stimuli. A few recent investigators have noted the limitations of stated preferences and attempted to infer preferences through the patterns of attraction people display in more ecological settings, such as in online dating services (e.g., Hitsch et al., 2006) and speed dating situations (e.g., Eastwick & Finkel, 2008; Fisman et al., 2004; Kurzban & Weeden, 2005). A suggestion emerging from these investigations is that for many characteristics there may actually be *no* correspondence between most self-reported preferences and the preferences that individuals reveal or demonstrate in dating situations (Eastwick & Finkel, 2008; Todd et al., 2007). Although a variety of reasons for this may exist, we consider this finding to be consistent with market force

explanations for assortative mating; these explanations sometimes are built on the assumption that self-reported preferences might frequently represent unimportant noise around strongly consensual preferences (Hypothesis 3b; Kurzban & Weeden, 2005).

In contrast, we expect that individual differences in self-reported preferences will show at least modest correspondence with individual differences in revealed preferences. We believe that earlier investigations have failed to document significant relationships between self-reported and revealed preferences due in part to their use of unreliable estimates of revealed preferences. It is likely that individuals will need to rate the attractiveness of a large number of targets to reliably estimate their revealed preferences, even if their stated preferences for the same characteristics might be assessed quite reliably with single items. This is simply due to the fact that it takes many more observations to reliably assess differences in slopes and correlations than it does to estimate differences in means (Cohen, 1992). Earlier conclusions regarding the lack of correspondence between self-reported and revealed preferences have been reached using revealed preference estimates that were based on a person's ratings of about 25 targets or less (e.g., Eastwick & Finkel, 2008; Kurzban & Weeden, 2007). Correlations and slope estimates based on such a small number of observations will provide erratic estimates of the relationships they attempt to estimate due to sampling variation of the observations alone. Thus, in the current study we utilized a context in which it was possible to get a much larger number of attractiveness ratings for each participant in order to create more reliable estimates of revealed preferences than have been used in past research, and we explored how reliability may play a part in the low level of correspondence found in revealed and stated preferences.

Dispositional characteristics and mate preferences. One of the usual predictions of differential preference explanations for assortative mating is that individuals show heightened preference for people who have characteristics similar to their own (Hypothesis 4a), and a fair body of evidence using self-reported preferences supports this idea (e.g., Botwin, Buss, & Shackelford, 1997; Buss & Barnes, 1986). For instance, extraverts report a heightened attraction to people who possess agentic characteristics such as confidence or sexual assertiveness, and agreeable and conscientious individuals report higher attraction to people who have communal characteristics, such as appearing sensitive, soft-hearted, and rule-abiding (e.g., Buss & Barnes, 1986).

As the validity of self-reported preferences to predict whom individuals will find attractive in real situations has been recently questioned, there is also reason to doubt conclusions regarding personality-preference relationships that have been reached with these self-report measures of preferences. If people's preferences do not truly vary meaningfully, as would be consistent with a market-force explanation, then shifting to revealed preferences should eliminate the observance of any systematic relationships between dispositional and preference measures (Hypothesis 4b). Thus, in the current study, we examined whether revealed preferences varied as a function of a person's level of Big Five traits, attachment styles, and age.

Method

Participants and Procedure

The survey was completed online at the website www.yourpersonality.net, an online site containing a number of surveys about

attachment and relationships. The survey was titled “The Online Attraction Test,” and participants were told that by completing it they would gain information about what they found attractive compared with the average person. The test was described as taking about 15 min to complete. Participants read a brief description of their rights as a participant before beginning the survey.

The survey consisted of a short demographic form where participants indicated whether they wanted to rate photographs of men or women and also reported their age, gender, and sexual orientation. They continued by completing short questionnaire measures of their personality traits and attachment style, and of their mate preferences. Finally, they rated the attractiveness of 98 photographs, and following this, they were given feedback on what it was that they found attractive, using the method of estimating preferences that will be described more fully in the sections that follow.

Individuals were included in the analyses only if they (a) rated either 97 or 98 of the possible 98 photographs (a frequency count indicated that about 5% of both male and female participants somehow failed to rate 1 of the 98 photographs; these individuals were included), (b) indicated that they had never answered the survey before, (c) indicated being 18 years or older, (d) varied their attractiveness ratings (i.e., they did not rate all pictures as a single value on the attractiveness scale), and (e) rated the gender of romantic interest as suggested by their reported sexual orientation. Concerning this last criterion, individuals were excluded from all analyses if they indicated that they were heterosexuals and rated photographs of their own gender, or if they indicated being homosexuals and rated photographs of the other gender. There were 1,371 heterosexual men in the study who met the criteria (mean age 27.8 years, $SD = 10.1$), 2,683 heterosexual women (mean age 26.4 years, $SD = 9.1$), 126 homosexual men (mean age = 30.1 years, $SD = 9.1$), and 128 homosexual women (mean age = 28.7 years, $SD = 10.4$). Overall, 73% of the sample indicated being Caucasian or White, 8% identified as Asian, 6% identified as Black, 5% identified as Latino, and 8% identified as a different ethnicity.

Materials

Direct preference measures. Participants completed self-report ratings of the extent to which they found various psychological, physical, or status-related attributes attractive. For preference for thin targets, participants were asked to indicate on a scale ranging from 1 (*not at all*) to 6 (*very much*) the extent to which they preferred individuals who were “thin.” For all other characteristics, participants were asked to “indicate how important the following characteristics are in how attractive people are to you,” using a scale ranging from 1 (*very important that they are not like this*), to 4 (*not a consideration*), to 7 (*very important that they are like this*). All ratings were rescaled to a percentage-of-maximum-possible metric (POMP; Cohen, Cohen, Aiken, & West, 1999) ranging from 0 to 100, with a neutral point indicating no preference at POMP = 50.

Personality and attachment measures. So that the survey would be short, participants were randomly assigned to rate either their Big Five personality traits or their attachment style. Participants who were assigned to complete a personality measure completed the Ten-Item Personality Inventory (TIPI; Gosling, Rent-

frow, & Swann, 2003). The TIPI was designed to maximize convergent correlations with the Big Five Inventory (BFI; John & Srivastava, 1999) as opposed to internal consistency, and TIPI scales have demonstrated correlations at or exceeding .65 with the BFI trait they were designed to measure (Gosling et al., 2003). A shortened, 10-item measure of the Experiences in Close Relationships—Revised (ECR-R; Fraley, Waller, & Brennan, 2000) was used to measure anxious and avoidant attachment styles ($\alpha \geq .81$). The item with the highest item-total correlation was “I often worry that my romantic partners don’t really care for me” for the ECR-R attachment anxiety subscale and “I usually discuss my problems and concerns with romantic partners” (reverse-scored) for the ECR-R attachment avoidance subscale.

Selection of target photographs. A total of 100 photographs of each gender were selected from www.hotornot.com, a website where people post pictures of themselves in order to have their attractiveness rated by other people. The photographs selected for this study were required to meet three criteria: (a) photographs showed at least the person’s head and torso, (b) the photographs were of a reasonably high quality (i.e., not blurry or unfocused), and (c) the photographs did not contain multiple individuals. Given that the majority of photographs on hotornot.com were of White or Caucasian individuals, photographs of non-White individuals were oversampled. All pictures were selected from the “aged 18 to 25” year range on the site. To ensure a random cross-section of pictures, we selected the first 100 pictures seen that met these criteria. After the coding of the target photographs (described in the next section), we determined that two of the selected photographs of female targets were of professional models or celebrities and thus we removed them. To make the number of male and female targets equivalent, we also removed the two photographs of male targets that were deemed the lowest photo quality. Consequently, the analyses that follow are based on preference measures created from ratings of the 98 photographs of each gender.

Coding of target photograph characteristics. Each photograph was rated by five raters (the first author and four undergraduate research assistants) on a variety of characteristics. The raters judged each photograph on the extent to which the target appeared deviant/countercultural, sensitive/soft-hearted, formal/classy, intelligent/smart, seductive/suggestive (vs. modest), well-groomed (vs. unkempt), confident, trendy/stylish/urban, masculine (vs. feminine), and toned (for male targets) or curvaceous (for female targets). Pictures were also rated for the extent to which the targets were smiling and whether they appeared thin (i.e., underweight vs. overweight). All coded characteristics showed decent reliabilities (all $\alpha \geq .66$), which corresponded to interrater correlations for the characteristics ranging from .28 to .83. The lowest interrater correlations (and consequently, the lowest reliabilities) were found for judgments of whether targets appeared intelligent ($r = .28$ in photographs of women and .34 for photographs of men) and sensitive ($r = .41$ for photographs of women and .30 for photographs of men). More observable characteristics showed greater interrater agreement and thus were coded more reliably; for instance, raters showed very high agreement in their ratings of how much targets were smiling ($r = .76$ in photographs of women and .83 for photographs of men) and for the perceived weight of the targets ($r = .62$ in photographs of men and women).

Revealed preference measures. Participants were presented with each of the 98 photographs in a random order that varied for

each participant. For each photograph, participants were asked, "How *attractive* do you find this person?" Participants were given a 10-point scale ranging from *not at all* to *very* (all values in between were unlabeled). A subset of participants also rated how much they would be interested in dating the people in the photographs. Immediately below the main attraction question, these participants were asked, "How interested would you be in *dating* this person?" on the same 10-point scale (*not at all* to *very*). As the inclusion of the second "dating interest" question added an additional 98 items to the survey, the question was eventually cut in order to shorten the length of the survey for participants.

For analyses, attractiveness and dating interest ratings were converted to a POMP scale (Cohen et al., 1999) such that 0 indicated the scale floor (not at all attractive) and 100 indicated the scale maximum (very attractive). We then correlated the participant's ratings of each photograph with our coded levels of different characteristics within the photograph. For instance, revealed preference for confident targets was estimated by correlating an individual's ratings of the attractiveness of each target with our ratings of the consensually rated confidence displayed by the target.²

Given the large number of target characteristics that were coded, we explored the extent to which revealed preferences for different characteristics correlated with one another. Two major clusters of revealed preferences were identified in both male and female raters among the characteristics that were coded. First, individuals who tended to prefer targets who appeared sexually suggestive also tended to prefer targets who appeared confident, toned, and masculine (for photographs of men) or confident, curvaceous, and feminine (for photographs of women; all $r_s \geq .52$). Self-evaluations of confidence-related traits and of physical attractiveness have been found to be associated with the agentic factor of personality traits and self-enhancement, which Paulhus and John (1998) labeled "alpha" characteristics. Following this labeling convention, we therefore consider these dimensions as indicating preferences for alpha or agentic characteristics.

Regarding the second dimension, in both genders, individuals who tended to prefer targets who appeared conventional (vs. deviant or countercultural) also tended to prefer targets who appeared soft-hearted, classy, and intelligent (all $r_s \geq .59$). Apart from intelligence, all of these characteristics have been found to be associated with the major cluster of personality traits or self-enhancement biases, which reflects communal or norm-adhering tendencies (Paulhus & John, 1998). Following the previous labeling convention, we therefore considered these dimensions as reflecting preferences for "gamma" or "communal" characteristics.

Revealed preferences for the remaining estimated dimensions (i.e., preferences for well-groomed, trendy, smiling, or thin targets) showed less systematic relationships with the other revealed preference dimensions and were considered separately.

Reliability of Revealed Preference Measures

Given the importance of reliability considerations toward our explanation of why past research has not observed expected relationships between revealed preferences and other individual differences, and given the relative lack of standardized ways to quantify reliabilities of individual correlations or regression slopes (see Fleeson, 2007), we used two different methods (described in

the following sections) to estimate the reliability of the revealed preferences.

Alpha from cross-products of standardized variables. The first method for estimating reliability takes advantage of the fact that correlations can be decomposed into products of z scores (Cohen, Cohen, West, & Aiken, 2003). An individual's revealed preference (r_w) for a characteristic can be decomposed into products of z scores as follows:

$$r_w = \frac{\sum_{i=1}^N Z_{Xi} Z_{Yi}}{N - 1} \quad (1)$$

In this equation, X corresponds to a participant's attractiveness rating of target i and Y corresponds to a rating of some characteristic of the target i (e.g., the coded sensitivity or intelligence of the target), and both variables X and Y are standardized within the set of photographs that the person rated. The cross-products of these z scores can then be used to estimate reliability via Cronbach's alpha in the same manner as using items of a scale to estimate internal consistency (i.e., alpha is computed using the 98 cross-product terms as the "items" in standard reliability analyses). The resulting alpha computed from these cross-product terms should be interpreted as the expected correlation between revealed preference estimates of the same dimension constructed from ratings of a new set of targets of equal size (here, 98 different photographs).³

With this method, the reliability of the revealed preference dimensions investigated in the current study ranged from .36 to .79 for male raters and from .40 to .78 for female raters (see Table 3). This result illustrates an important point: Even with a large number of photographs (98), these revealed preference estimates were expected to have only moderate correlations with estimates ob-

² The "within-person correlations" computed here are analogous to within-person slopes that can be computed using hierarchical linear modeling or linear mixed modeling techniques. Within-person correlations were used instead of regression coefficients in part because there were considerable individual differences in how the 10-point attraction scale was used by participants (e.g., some people varied their scores only across 2 or 3 scale points; others across all 10). As the 10-point scale is an arbitrary metric (i.e., the values or meanings of the particular scale points are not clearly defined; Blanton & Jaccard, 2006), these individual differences in scale variability were not judged to be of any substantive importance to understanding preferences. Presenting these in the unit of correlations also simplifies more complex applications of the estimates, such as estimating reliability, or understanding the meaning of consensual preferences, as depicted in Figure 1.

³ It is important that the 98 cross-product terms of the standardized variables are *not* weighted equally in the computation of alpha (i.e., that the cross-products are not themselves standardized). Because participants all rated the same stimuli, any stimulus that has a standardized value (z) near zero for the dimension of interest (i.e., any picture that was coded as having only the average level of the characteristic) is constrained to have almost no weight in the computation of the revealed preference correlation, whereas stimuli that have high standardized values (z s of -2 or $+2$) will have high weight in the computation. In this sense, the photographs that are highest and lowest on the dimension can be properly considered "highly weighted items" in how they are handled by computing the cross-product terms, and photographs with average levels of the dimension are essentially "unweighted items."

Table 3
Reliability of Revealed Preference Estimates

Preference dimension	Male raters			Female raters		
	Cross-product α	Split-half r	Split-quarter r	Cross-product α	Split-half r	Split-quarter r
Alpha						
Suggestive (vs. modest)	.65	.51	.33	.65	.50	.35
Curvaceous (F)/toned (M)	.66	.54	.34	.78	.68	.37
Confident	.62	.49	.30	.67	.55	.32
Feminine (F)/masculine (M)	.62	.50	.33	.78	.69	.34
Gamma						
Conventional (vs. countercultural)	.60	.44	.27	.69	.47	.27
Softhearted, sensitive	.53	.37	.22	.55	.34	.21
Formal, classy	.43	.29	.16	.40	.23	.17
Intelligent, smart	.57	.41	.23	.69	.51	.24
Miscellaneous						
Well-groomed (vs. unkempt)	.61	.46	.30	.59	.45	.31
Trendy, stylish, urban	.72	.58	.40	.58	.43	.41
Smile	.36	.20	.11	.43	.26	.10
Thin	.79	.68	.51	.74	.60	.51

Note. Crossproduct α shows the reliability of individual differences in revealed preferences by decomposing correlation into products of z scores. Split-half r shows average correlation between revealed preference estimates using random halves of the target ratings after 20 random trials (49 pictures). Split-quarter r shows the average correlation between revealed preference estimates constructed using 25% (either 24 or 25 pictures) of the target ratings after 20 random trials.

tained from a new sampling of photographs. Only 8 of the 12 dimensions showed alphas above .60 among male raters (mean $\alpha = .61$), and only 7 of 12 for female raters (mean $\alpha = .63$).

The differences in reliabilities across dimensions speak to the relative importance of the dimensions as sources of variation in attractiveness judgments, as a low reliability indicates less systematic individual differences in preferences for the dimension. Across ratings of both men and women, the lowest reliabilities were found for estimated revealed preferences of smiling and formal targets (all $\alpha \leq .43$). It is interesting that this result occurred despite the fact that degree of smiling was the single most reliably coded characteristic of the target photographs. This finding illustrates the difference between a characteristic that can be easily observed and a characteristic that reflects a major source of variation in what people find attractive. In contrast, the most reliable revealed preference estimates among men rating photographs of women were for women who appeared thin (.79) and trendy (.72), and the most reliable revealed preference estimates among women rating photographs of men were for men who appeared masculine (.78), toned (.78), and thin (.74).

Split-half reliability estimates. To estimate the levels of reliability that would be observed using smaller subsets of targets than the full 98 photographs, we used another method to estimate reliability. We constructed split-half reliability estimates by randomly assigning photographs into one of two sets of 49 photographs, estimating participants' revealed preferences separately for each half, and then correlating the resulting preference estimates from the two halves together (see Fleeson, 2001, for a similar procedure using scale means in experience sampling). We also constructed split-quarter reliability coefficients by correlating revealed preference estimates constructed using a quarter of the photographs (24 or 25 photographs) to examine the extent to which reliability was reduced by using even smaller subsets of photographs. As protection against spuriously high or low reliability

estimates, split-half and split-quarter reliability estimates were calculated 20 times for each dimension. The average split-half or split-quarter correlations across the 20 estimations are provided in Table 3.⁴

The split-half and split-quarter reliability coefficients illustrate how severely reliability was reduced by constructing revealed preferences through smaller sets of target photographs. The reliabilities of the revealed preferences using a quarter of the photographs were regularly half as large as the reliability estimates from the full photograph set, and no dimensions showed reliabilities above .60. As the square root of the reliability of a test is the expected upper limit for validity correlations (Cohen et al., 2003), the decrement in reliability that occurs through the use of smaller sets of targets supports our argument that failures to find expected correlations between revealed preference estimates and other individual difference variables in past research were due in part to

⁴ The cross-product alpha method of estimating reliability provides the correlation that would be expected between the observed revealed preference estimates based on 98 photographs and revealed preference estimates formed on a new set of 98 comparably sampled photographs, whereas the split-half method estimates the average correlation between revealed preference estimates created from halves or quarters of the full set of 98 photographs (either two sets of 49 or of about 25 photographs). Because the two methods thus estimate the alternate-form reliabilities of tests differing in length, the split-half and split-quarter reliability estimates provided in Table 3 can be used to form estimates of the reliability of a 98-item test by using the Spearman-Brown prophecy formula to project the reliability of a test that is twice or four times as long, respectively. It is reassuring that these projected reliabilities are very comparable in their absolute magnitude to the reliabilities estimated from the cross-product alpha methodology, indicating that the two methods for estimating reliability provided here converge on the same results.

the difficulty of forming reliable estimates of revealed preferences. We explore this in further detail in the next section.

Results

Level of Consensus in Attraction Judgments

We first examined the level of consensus in revealed preferences by correlating an individual's attraction to the targets with the mean ratings of the target's attractiveness across all raters. These analyses were done separately by gender and sexual orientation (e.g., the consensus correlation for heterosexual women was estimated by correlating a single heterosexual woman's attraction ratings to the mean rating made by all other heterosexual women). Consistent with the market force perspective on assortative mating (Hypothesis 1b), the consensus correlation was fairly high for both genders. For heterosexual male participants the mean consensus correlation was .62, and for heterosexual female participants the mean consensus correlation was .44. This corresponds to the finding that two heterosexual male participants agreed $r_w = .38$ on average in their attraction ratings of the target photographs (i.e., the square of the consensus correlation; see Figure 1), and two heterosexual female participants agreed $r_w = .19$ on average.

This finding also indicates that there is considerably more consensus among men about which women are attractive than there is consensus among women about which men are attractive ($d = -.85$; see Table 4).⁵ However, comparisons of the level of consensus in heterosexual male and female participants are complicated by the fact that gender differences in the level of consensus may be due either to the gender of the participants or to idiosyncratic random qualities of the target photographs sampled (e.g., perhaps photographs of men varied less in their attractiveness than the photographs of women). Consequently, the level of consensus observed between homosexual participants becomes of special interest because these participants rated the same photographs as heterosexual participants of the other gender. If the gender difference in consensus persists in the same direction among homosexual raters, this indicates that the observed difference in consensus is due to the gender of the raters, as opposed to properties of the two sets of photographs that were sampled. The attraction ratings of a single homosexual male participant correlated .57 with the mean attractiveness as rated across all homosexual men, and the corresponding correlation for homosexual women was .48. Comparing ratings made by men and women within the same set of photographs, we found that homosexual men showed greater consensus than heterosexual women in ratings of photographs of men ($d = -.59$) and that heterosexual men showed greater consensus than homosexual women in ratings of photographs of women ($d = -.64$). Thus, we found that regardless of sexual orientation, male raters showed higher consensus in what they found attractive than did female raters, indicating that the gender difference in consensus cannot be explained by properties of the sampled photographs.

It is also possible that women had lower agreement than men due to differences in how attractive they found all targets. As shown in Table 4, female raters also tended to evaluate the targets overall as being less attractive than did men. Whereas heterosexual men judged the attractiveness of the women in the photographs, on average, to be 40.9 (i.e., about 40% of the maximum possible scale

range; $SD = 15.0$), heterosexual women judged the attractiveness to be 25.8 ($SD = 13.9$). This indicates a large gender difference in mean attractiveness ratings ($d = -1.04$). Additionally, heterosexual men rated the attractiveness of female targets considerably higher than homosexual women rated the same targets ($d = -.66$), and homosexual men rated the attractiveness of male targets considerably higher than heterosexual women rated the same targets ($d = -.94$). This finding replicates the long theorized and well-documented tendency for women to be more selective than men in whom they find attractive (e.g., Buss & Schmitt, 1993; Trivers, 1972).

Given the fact that the attraction scores of female participants were clustered closer to the scale minimum, it is possible that men showed higher consensus than women due to a restriction of range artifact. In particular, when item means are near to the scale minimum or maximum, the variability is necessarily restricted, which should serve to shrink the potential range of correlations (Baird, Le, & Lucas, 2006; Cohen et al., 2003). To address this possibility, we conducted analyses in which we computed the mean and standard deviation of the attractiveness of each photograph, as rated by heterosexual and homosexual participants. If men truly have more consensus than women regarding who is attractive, then men should tend to show lower variability in how attractive they rate photographs that have been rated at the same mean level of attractiveness by women.

Figure 2 illustrates how the standard deviation in attractiveness ratings is linked to the mean attractiveness ratings of the photographs. The first graph shows the scatterplot for heterosexual men overlaid on the scatterplot for homosexual women in ratings of female targets; the second shows the scatterplot for homosexual men overlaid on the scatterplot for heterosexual women in ratings of male targets. To aid in interpretation, local area smoothing curves ("lowess"; Cleveland & Devlin, 1988) have been added to show the general trends. As should be expected, the graphs clearly show that variability in a target photograph's attractiveness becomes smaller as the target's mean attractiveness approaches the scale minimum or maximum and is largest when the mean attractiveness is at the middle of the scale range (i.e., $POMP = 50$). In both graphs, we found that men show noticeably lower variability than women in their attractiveness ratings for photographs that they had rated at the same level of attractiveness. These graphs indicate that the higher consensus in male attractiveness judgments cannot be explained simply as an artifact of women being harsher general raters of others' attractiveness than men.

Mean revealed preferences of heterosexual participants. After examining the general level of consensus between raters regarding who was found attractive, we next examined the means of the revealed preference estimates for particular characteristics. The extent to which the mean of a particular revealed preference deviates above or below zero can be interpreted as the extent to

⁵ All analyses looking at group differences in mean revealed preferences, or with correlates of revealed preferences, were done by first transforming the revealed preference estimates using Fisher's (1925) r -to- z transformation in order to normalize the distributions. However, all of the mean revealed preference estimates and standard deviations of revealed preference estimates reported in the tables are in the metric of correlations for ease of interpretation.

Table 4
 Mean Revealed Preferences of Participants Rating Male and Female Targets, by Gender and Sexual Orientation

Preference dimension	Participants rating female targets <i>M</i> (<i>SD</i>)		Participants rating male targets <i>M</i> (<i>SD</i>)		Differences between rater groups (<i>d</i>)		
	Heterosexual men (<i>n</i> = 1,371)	Homosexual women (<i>n</i> = 128)	Heterosexual women (<i>n</i> = 2,680)	Homosexual men (<i>n</i> = 126)	Heterosexual men vs. heterosexual women	Heterosexual men vs. homosexual women	Homosexual men vs. heterosexual women
Alpha							
Suggestive (vs. modest)	.21 (.15)	.03 (.22)	.18 (.16)	.29 (.16)	-.19	-.96	-.69
Curvaceous (F)/toned (M)	.31 (.16)	.16 (.19)	.16 (.20)	.25 (.20)	—	-.85	-.45
Confident	.24 (.14)	.16 (.16)	.20 (.16)	.25 (.15)	-.27	-.53	-.32
Feminine (F)/masculine (M)	.35 (.15)	.15 (.20)	.06 (.21)	.11 (.22)	—	-1.13	-.23
Gamma							
Conventional (vs. countercultural)	.00 _{ns} (.14)	.04 (.18)	-.02 (.17)	-.08 (.16)	-.13	.25	.36
Softhearted, sensitive	.04 (.12)	.09 (.17)	.12 (.14)	.05 (.12)	.61	.34	.54
Formal, classy	.16 (.11)	.12 (.13)	.06 (.12)	-.02 _{ns} (.10)	-.87	-.33	.72
Intelligent, smart	.07 (.12)	.14 (.14)	.01 _{ns} (.16)	-.05 (.14)	-.42	.54	.40
Miscellaneous							
Well-groomed (vs. unkempt)	.28 (.14)	.22 (.17)	.20 (.14)	.20 (.13)	-.57	-.39	.00 _{ns}
Trendy, stylish, urban	.24 (.16)	.14 (.19)	.15 (.14)	.12 (.14)	-.60	-.57	.21
Smile	-.06 (.11)	-.01 _{ns} (.14)	.15 (.13)	.10 (.11)	1.74	.40	.42
Thin	.32 (.18)	.17 (.19)	.05 (.15)	.08 (.19)	-1.63	-.81	-.18
Other statistics							
Consensus correlation (\bar{r}_{con})	.62 (.23)	.48 (.21)	.44 (.19)	.57 (.25)	-.85	-.64	-.59
Mean rating (POMP)	40.9 (15.0)	31.1 (14.6)	25.8 (13.9)	38.9 (14.1)	-1.04	-.66	-.94

Note. Subscript “*ns*” indicates that the mean preference for this group does not differ significantly from zero; all other mean preferences and rater group differences differ significantly from zero ($p < .05$). The last three columns give Cohen’s *d* scores for the magnitude of differences on the characteristic for the compared groups. All *ds* are reported with positive scores indicating that the female group scored higher on this characteristic than the male group. Dashes (—) indicate that the result is not shown due to the comparison being across incommensurate dimensions across photograph sets.

which the characteristic is generally preferred by participants in this sample. It should be noted again that the consensus correlations discussed earlier set the upper limit for how highly any characteristic can be generally preferred by group members (see Figure 1 and Table 2). For instance, if the mean consensus correlation is only $\bar{r}_{con} = .10$ (indicating that there is almost no consensus in whom raters find attractive), then the upper limit for which any characteristic is generally preferred also cannot exceed $|\bar{r}_w| = .10$. As consensus was observed to be considerably higher for male raters than for female raters ($\bar{r}_{con} = .62$ vs. $.44$), it should be expected that men will show stronger general preferences for at least some characteristics than women.

Consistent with the market force perspective (Hypothesis 2b), there were a number of strong general preferences in men’s ratings of female targets. Men showed strong general preferences for female targets who were feminine, curvaceous, seductive, thin, well-groomed, trendy, and confident. All mean revealed preferences for these characteristics were between $\bar{r}_w = .21$ and $.35$, indicating that each standard deviation increase in a female target’s level of these characteristics corresponded to expected increases in the average man’s attraction to the target of a fifth to a third of a standard deviation. The strength of these general preferences becomes clearer when we consider them in combination with the variation in preferences across participants. As shown in Figure 3, whereas only 50% of individuals would be expected to be above or below a revealed preference of $\bar{r}_w = 0$ by chance if there were no general preference for a characteristic, a full 96% of men were estimated as having a preference for thinness at or above this level. Men also demonstrated small general preferences for female targets who looked sensitive, classy, and intelligent ($\bar{r}_{ws} \geq .04$), and a slight

general preference for women who were not smiling ($\bar{r}_w = -.06$). Only revealed preference for conventional versus countercultural female targets failed to show a significant general trend across male participants, indicating that the percentages of people who preferred conventional and unconventional targets are approximately equal (see Figure 3).

Consistent with the lower level of consensus among female participants, the magnitude of the general preferences observed from female participants was generally weaker than the general preferences observed from male participants. Women demonstrated the strongest general preferences for male targets who looked confident, seductive, well-groomed, and toned (all \bar{r}_{ws} s between $.16$ and $.20$), which corresponded to the expectation that a standard deviation increase in a man’s level of these characteristics was associated with an expected increase of about a fifth of a standard deviation in the average woman’s attraction to the man. It is interesting that even though confidence was the most consensually desired characteristic among female participants, 12% of the female participants were nonetheless estimated as having at least a slight negative preference for confident men (i.e., $r_w < 0$; Figure 3). There were smaller general preferences across raters for men who looked trendy and sensitive, and who were smiling (all $\bar{r}_{ws} \geq .12$). Women generally found male targets slightly more attractive if they looked classy and thin ($\bar{r}_{ws} \geq .05$) but also showed a very small general preference for targets who were not conventional ($\bar{r}_w = -.02$).

In comparing the strength of the general preferences of male and female participants, we found that male participants had considerably higher general preferences for targets who appeared classy, well-groomed, trendy, and thin (*ds* between -1.63 and $-.57$) and

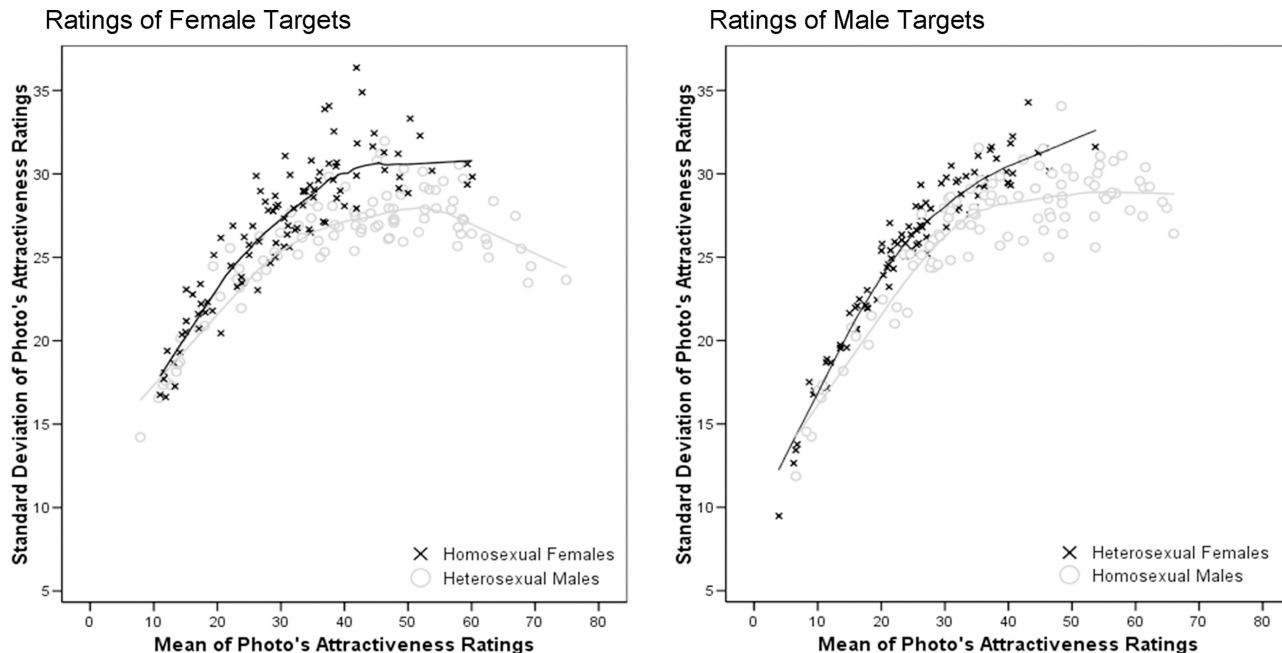


Figure 2. Relationship between means and standard deviations of attractiveness ratings by heterosexual and homosexual participants in ratings of male and female targets.

slightly higher preferences for targets who appeared confident, seductive, and intelligent (d s between $-.27$ and $-.13$). Female participants showed higher absolute preferences only for targets who appeared unconventional ($d = .13$) and sensitive ($d = .61$) and who were smiling ($d = 1.74$). Consistent with the finding of higher consensus in male participants, we found that men had higher general preferences for numerous characteristics—particularly those associated with agentic or physical qualities.

Mean revealed preferences of homosexual men and women. The mean revealed preferences of homosexual participants are also shown in Table 4. We focused on comparing the preferences of homosexual men and women with those of heterosexual women and men, respectively, because these pairings of participants rated the same sets of photographs.

These comparisons revealed a number of gender differences paralleling those discussed earlier for heterosexual participants. Homosexual men revealed stronger general preferences than heterosexual women for male targets with agentic qualities (sexually suggestive, toned, confident, and masculine; d s $\leq -.23$) and lower preferences for targets displaying communal qualities (sensitive, formal, intelligent, and conventional; d s $\geq .72$). Similarly, heterosexual men showed stronger general preferences than homosexual women for female targets with agentic qualities or qualities associated with physical attractiveness (sexually suggestive, curvaceous, thin, feminine, classy or well-groomed appearance; all d s $\leq -.25$), and homosexual women demonstrated significantly higher preferences for targets who appeared sensitive, conventional, and intelligent, and who were smiling (all d s $\geq .34$). These results indicate that regardless of sexual orientation, men appear to have stronger general preferences for agentic and physical characteristics than women but lower general preferences for communal characteristics. These findings correspond well to past research and theory concerning gender differences in

mate preferences using self-report measures (e.g., Buss & Schmitt, 1993; Penke et al., 2007).

Mean Revealed Preferences Using Attraction Versus Dating Interest Ratings

The characteristics that are found to be generally preferred should be expected to change somewhat on the basis of how the revealed preferences are assessed. If participants are asked how attractive targets are, revealed preferences may indicate higher preference for overt physical characteristics than if they are asked to indicate their potential interest in a relationship with the targets. To explore this, we compared the mean revealed preferences that emerged when we asked participants how *attractive* they found the photographs with how much they might be *interested in dating* the people in the photographs. The analyses were limited to the subset of 523 heterosexual male and 975 heterosexual female participants who had completed both the attraction and dating interest ratings of the same target photographs.

As shown in Table 5, there were differences in how people completed the attraction and dating interest ratings. Both men and women provided lower ratings for their potential interest in dating the individuals than for their attraction to the individuals (d s $\leq -.48$), indicating that people had more stringent requirements when asked if the target was dateable than when asked if the person was attractive. In examining the revealed preferences that emerged using these ratings, both male and female participants deemphasized alpha characteristics when evaluating dating potential compared with when simply evaluating their attraction to the targets. For instance, sexual suggestiveness, body shape, confidence, and sex typicalness (femininity and masculinity) became less important when participants were assessing whether the target could be a potential dating partner than when

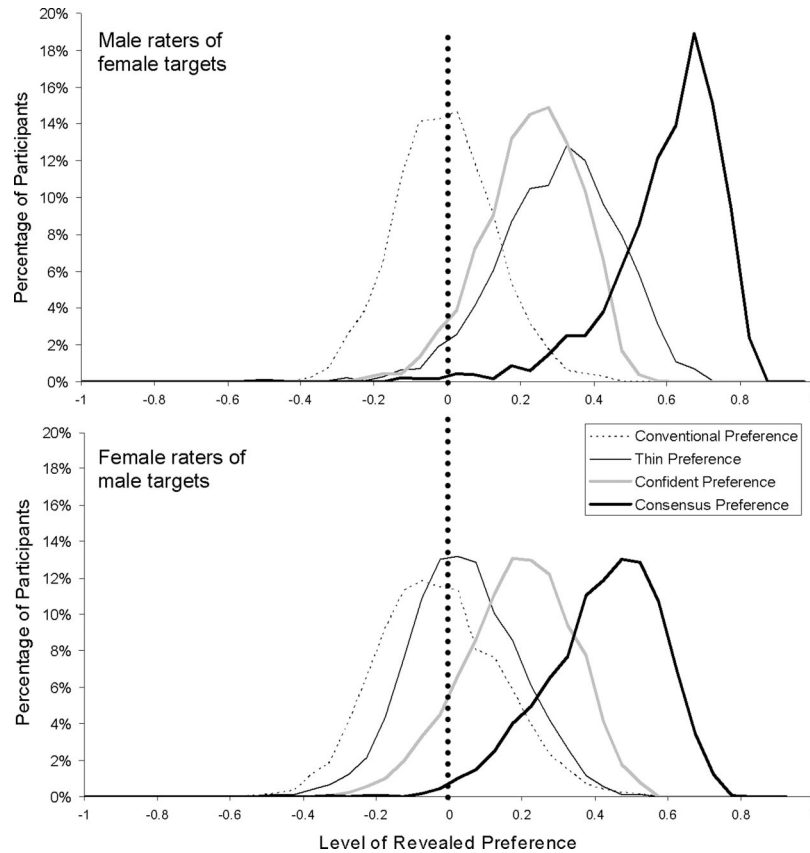


Figure 3. Density distributions (smoothed histograms) of revealed preferences for thinness, sensitivity, and confidence, and for consensually desired targets among male and female participants rating opposite sex targets. The dotted line indicates the value where revealed preference is estimated as zero ($r_w = 0$).

assessing whether they found the target attractive (all d s between $-.29$ and $-.64$). In this vein, both men and women placed lower importance on thinness, grooming, and being trendy or stylish when assessing whether the person was dateable than whether the person was attractive (d s $\leq -.15$). On the other hand, most gamma dimensions (conventionality, soft-heartedness, and intelligence) became somewhat more important for both genders when they assessed whether the person could be a potential dating partner (all d s $\geq .20$).

Both genders showed lower consensus in judgments of whom they were potentially interested in dating than in judgments of whom they found attractive, although men continued to show more consensus than women. By squaring the consensus correlations in Table 5, we see that the average correlation between attractiveness judgments made by different male participants in this subset was $.41$, and the average correlation of their dating interest ratings was $.34$. The average correlation between attractiveness judgments of different female raters in this subset of participants was $.21$, and the average correlation of their dating interest ratings was $.15$.

Relationships Between Revealed and Self-Rated Preferences

To further explore the validity of revealed preferences, we next examined the correlations between self-rated and revealed preference measures. As shown in Table 6, we found regular relation-

ships between what individuals reported being attracted to and the preferences they revealed through their attractiveness ratings of others. With few exceptions, the correlations between estimates of corresponding self-rated and revealed preferences ranged from approximately $r = .10$ to $r = .30$. Further, in most cases the highest correlate of a stated preference for a given characteristic was the estimated revealed preference for the same characteristic. For instance, a stated preference for intelligence correlated most highly with a revealed preference for intelligence in both men and women (r s = $.15$ for male participants and $.20$ for female participants) and less with other revealed preferences ($|r$ s| $\leq .08$ for male participants, $.18$ for female participants).

The strongest convergences across self-rated and revealed preferences were found for stated preferences for thinness ($r = .34$ for men, $.36$ for women) and for curvaceous or toned body shape ($r = .25$ for men, $.28$ for women). These findings suggest that the degree of correspondence between self-rated and revealed preferences is likely to be higher for characteristics that are more concrete, physical, and observable (e.g., weight and body shape) than for characteristics that are more abstract, internal, and psychological (e.g., sensitivity and intelligence). Nonetheless, even for these more abstract characteristics, significant (if modest) cross-method correspondence was invariably observed. These results point to the validity of both self-reported and revealed pref-

Table 5
Revealed Preference Estimates Using Ratings of Attraction and Ratings of Interest in Dating

Preference dimension	Male raters (<i>n</i> = 523)			Female raters (<i>n</i> = 975)		
	Attraction <i>M</i> (<i>SD</i>)	Dating <i>M</i> (<i>SD</i>)	<i>d</i>	Attraction <i>M</i> (<i>SD</i>)	Dating <i>M</i> (<i>SD</i>)	<i>d</i>
Alpha						
Suggestive (vs. modest)	.21 (.14)	.12 (.17)	-.55	.19 (.15)	.09 (.15)	-.64
Curvaceous (F)/toned (M)	.32 (.15)	.24 (.17)	-.56	.17 (.19)	.08 (.19)	-.47
Confident	.25 (.13)	.18 (.15)	-.55	.22 (.15)	.12 (.15)	-.60
Feminine (F)/masculine (M)	.37 (.14)	.30 (.16)	-.52	.06 (.20)	.00 _{ns} (.21)	-.29
Gamma						
Conventional (vs. countercultural)	.00 _{ns} (.13)	.04 (.15)	.29	-.03 (.16)	.03 (.17)	.38
Softhearted, sensitive	.04 (.12)	.08 (.15)	.30	.13 (.13)	.15 (.14)	.20
Formal, classy	.16 (.11)	.15 (.12)	-.09	.06 (.11)	.07 (.12)	.09
Intelligent, smart	.08 (.12)	.12 (.14)	.29	.02 (.15)	.06 (.16)	.30
Miscellaneous						
Well-groomed (vs. unkempt)	.30 (.14)	.24 (.15)	-.43	.21 (.14)	.15 (.14)	-.46
Trendy, stylish, urban	.25 (.15)	.17 (.17)	-.50	.17 (.13)	.11 (.14)	-.47
Smile	-.05 (.11)	-.03 (.12)	.23	.16 (.13)	.15 (.13)	-.07
Thin	.33 (.18)	.28 (.17)	-.30	.06 (.14)	.03 (.14)	-.15
Other statistics						
Consensus correlation (\bar{r}_{con})	.64 (.21)	.58 (.23)	-.43	.46 (.19)	.39 (.19)	-.42
Mean rating (POMP)	41.1 (15.4)	33.9 (14.8)	-.48	26.9 (14.6)	19.9 (13.3)	-.50

Note. Columns labeled *d* show the difference between attraction and dating columns in Cohen's *d* metric. The *d* scores are computed as if attraction and dating measures come from independent samples. Subscript *ns* indicates that the mean preference or *d* score for this variable does not differ significantly from zero; all others differ significantly from zero ($p < .05$). Columns labeled *Attraction* show mean revealed preference using ratings of target attractiveness; columns labeled *Dating* show mean revealed preference using ratings of potential interest in dating targets.

ferences, and demonstrate that even participants' self-perceived preferences for abstract qualities such as intelligence, confidence, and soft-heartedness can be inferred with some validity through their ratings of the attractiveness of photographs.

Given that we expected larger and more systematic correlations between stated and revealed preferences than have been found in previous research in part as a function of reliability, we also explored the extent to which the correspondence between stated and revealed preferences was reduced when smaller samples of randomly selected photographs were used to estimate revealed preferences. This was done by forming revealed preference estimates using either one half or one fourth of the photographs and then correlating these with stated preferences. We report the average correlation between the matching stated and revealed preferences across dimensions after repeating this with 10 different subsets of photographs.

When preferences were estimated using the full set of 98 photographs, the average correlation between corresponding revealed and stated preferences across dimensions was .18 and .17 for female and male raters, respectively (the average correlation in the diagonals of Table 6). If revealed preferences were instead calculated using half (49) of the photographs, this average correlation was reduced to .16 and .15, respectively, and if they were calculated using only a quarter (24 or 25) of the photographs, this average correlation was reduced further to .13 and .12, respectively. The results indicated that using only a quarter of the photographs resulted in correlations with stated preferences that were approximately 70% of the size of the correlations observed when revealed preferences were estimated with the full photograph set. It is important to note that the size of the relationships we observed between stated and revealed preferences still appeared to be somewhat higher than those reported in earlier investigations

even when the number of stimuli was more nearly equated (e.g., see Tables 4–6 in Eastwick & Finkel, 2008); we explore some reasons for this continued discrepancy in the general discussion.

Relationships Between Revealed Preferences and Dispositional Characteristics

We next examined how personality traits, attachment style, and age were related to revealed preferences; these findings are given in Table 7. Given the relatively small number of homosexual participants, only heterosexual participants were examined here. Significant effects are discussed for each trait in the sections that follow.

Extraversion. In ratings of photographs of both men and women, extraverts tended to show a higher preference for targets who appeared high on the agentic or alpha dimensions; extraverts showed a heightened preference for targets who looked seductive, shapely (curvaceous or toned), confident, and sex-typic (i.e., feminine female targets and masculine male targets). Further, extraverts showed a preference for targets who appeared well groomed. It is interesting that extraverts of both genders showed a lessened preference for targets who appeared thin or intelligent. Among men, extraversion was also associated with a heightened preference for women who appeared trendy, whereas among women extraversion was also associated with a heightened preference for men who were smiling and a lessened preference for men who looked formal or classy.

Agreeableness. In both genders, agreeableness was associated with heightened preference for communal targets. Agreeable individuals also showed heightened preference for members of the opposite sex who were smiling and lessened preference for targets who were thin. Further, among men, agreeableness was associated

Table 6
Relationships Between Stated and Revealed Preferences

Stated preferences: "How important is it to you that [women/men] are..."	M	SD	Revealed preferences											
			1	2	3	4	5	6	7	8	9	10	11	12
Men														
1. Sexually suggestive/seductive?	70.8	21.9	.22	.20	.15	.08	-.16	-.18	-.10	-.22	.05	.09	-.07	-.02
2. Curvaceous?	72.9	19.6	.11	.25	.11	.07	.03	.00	.04	-.14	.16	.05	.02	-.17
3. Confident?	76.3	18.8	.01	.07	.09	.00	.03	.03	.03	-.01	.09	.04	.09	-.06
4. Feminine?	78.4	18.5	.04	.13	.06	.12	.09	.07	.12	-.03	.15	.04	.08	-.03
5. Traditional/conventional?	51.2	24.3	-.13	.02	-.03	.02	.22	.19	.15	.00	.13	-.09	.16	-.10
6. Soft-hearted/sensitive?	78.4	18.8	-.07	-.03	-.04	-.01	.08	.10	.07	.06	.04	-.06	.07	-.06
7. Classy/formal?	60.9	22.4	-.01	.10	.10	.10	.12	.11	.16	.04	.18	.06	.12	-.03
8. Intelligent/intellectual?	82.5	17.4	-.08	-.06	.00	-.04	.03	.08	.03	.15	-.02	-.01	.07	-.02
9. Well-groomed?	80.4	19.0	.07	.17	.15	.10	.02	.02	.05	-.08	.18	.11	.08	-.06
10. Trendy, stylish, or urban?	56.1	24.5	.10	.10	.15	.04	-.10	-.09	-.05	-.10	.08	.12	-.01	.00
11. Very upbeat?	70.2	20.5	.01	.11	.15	.04	.04	.07	.06	-.02	.16	.08	.14	-.05
12. Thin? ^a	74.2	23.1	.05	-.07	.07	.08	-.12	-.11	-.03	.07	-.04	.07	-.07	.34
Women														
1. Sexually suggestive/seductive?	64.6	26.0	.19	.14	.12	.13	-.20	-.25	-.20	-.26	-.01	.09	-.13	-.07
2. Muscular/toned?	64.9	20.4	.26	.28	.27	.24	-.05	-.18	-.10	-.21	.18	.10	.07	-.03
3. Confident?	82.9	17.5	.06	.10	.08	.10	.03	-.07	.00	-.06	.08	.01	.03	-.05
4. Masculine?	76.7	20.6	.15	.27	.20	.30	.05	-.15	-.08	-.18	.14	-.06	.06	-.23
5. Traditional/conventional?	51.8	25.5	.02	.17	.13	.21	.18	-.03	.04	-.06	.16	-.13	.13	-.20
6. Soft-hearted/sensitive?	76.2	20.4	-.09	-.10	-.09	-.10	.10	.11	.10	.13	.00	-.04	.04	.03
7. Classy/formal?	58.1	23.0	.01	.03	.05	.03	.12	.01	.11	.03	.13	.02	.07	.04
8. Intelligent/intellectual?	84.3	17.6	-.09	-.15	-.11	-.18	.07	.14	.13	.20	-.03	.05	.02	.18
9. Well-groomed?	81.3	19.7	.09	.16	.14	.17	.09	-.08	.02	-.10	.18	-.01	.08	-.11
10. Trendy, stylish, or urban?	57.6	25.0	.13	.05	.08	.02	-.15	-.16	-.08	-.17	.04	.17	-.04	.09
11. Very upbeat?	70.0	21.6	.11	.16	.14	.15	-.04	-.09	-.08	-.13	.08	.04	.04	-.08
12. Thin? ^a	55.2	29.0	-.06	-.24	-.14	-.30	-.12	.10	.02	.12	-.13	.12	-.07	.36

Note. For women, all $r_s \geq .1959$ and all $|r_{sl}| \geq .05$ are significant ($p \leq .05$). For men, all $r_s \geq .0994$ and all $|r_{sl}| \geq .07$ are significant ($p < .05$). Correlations between stated and revealed preferences with the highest content similarity are shown in italics and bold.

^a Self-reported preference for thinness was asked on a different scale than self-reported preferences for other characteristics, as described in the Method section.

Table 7
Relationships Between Revealed Preferences and Dispositional Characteristics

Preference dimension	TIPI (<i>n</i> = 594/1,280)					ECR-R (<i>n</i> = 582/1,053)		Age (<i>n</i> = 1,371/2,680)
	E	A	C	ES	O	Avoidance	Anxiety	
Alpha								
Suggestive (vs. modest)	<i>.10/.12</i>	<i>-.16/-.05</i>	<i>-.04/-.01</i>	.01/.03	.05/.01	<i>.12/.00</i>	.08/.02	<i>-.12/-.10</i>
Curvaceous (F)/toned (M)	<i>.19/.14</i>	<i>-.07/.01</i>	<i>.08/.10</i>	<i>.05/.07</i>	<i>-.01/-.05</i>	<i>.09/-.07</i>	<i>-.02/-.03</i>	.01/.00
Confident	<i>.19/.13</i>	<i>-.10/.00</i>	<i>.04/.07</i>	<i>.07/.06</i>	<i>.06/-.03</i>	<i>.10/-.04</i>	<i>-.06/-.04</i>	<i>-.04/-.04</i>
Feminine (F)/masculine (M)	<i>.10/.13</i>	<i>-.05/-.01</i>	<i>.07/.12</i>	<i>.08/.07</i>	<i>.04/-.07</i>	.01/.05	<i>-.02/-.03</i>	.03/.05
Gamma								
Conventional (vs. countercultural)	<i>-.02/-.01</i>	<i>.19/.14</i>	<i>.15/.18</i>	<i>.08/.08</i>	<i>-.09/-.08</i>	<i>-.10/-.10</i>	<i>-.14/-.09</i>	<i>.21/.34</i>
Softhearted, sensitive	.00/.05	<i>.17/.11</i>	<i>.12/.05</i>	<i>.09/.03</i>	<i>-.06/-.01</i>	<i>-.10/-.07</i>	<i>-.11/-.07</i>	<i>.16/.16</i>
Formal, classy	<i>.04/-.09</i>	<i>.09/.10</i>	<i>.15/.08</i>	<i>.13/.07</i>	<i>-.01/.01</i>	<i>-.06/-.06</i>	<i>-.11/-.09</i>	<i>.15/.26</i>
Intelligent, smart	<i>-.12/-.14</i>	<i>.10/.08</i>	<i>-.03/.00</i>	.04/.01	.04/.00	<i>-.12/-.02</i>	<i>-.13/-.07</i>	<i>.09/.22</i>
Miscellaneous								
Well-groomed (vs. unkempt)	<i>.18/.06</i>	<i>-.01/.07</i>	<i>.17/.13</i>	<i>.11/.11</i>	<i>-.02/-.05</i>	<i>.04/-.10</i>	<i>-.13/-.09</i>	<i>.06/.17</i>
Trendy, stylish, urban	<i>.15/.00</i>	<i>-.14/-.02</i>	<i>.00/-.06</i>	.06/.05	<i>.10/.08</i>	.08/-.01	<i>-.06/-.03</i>	<i>-.10/-.15</i>
Smile	<i>.06/.10</i>	<i>.18/.11</i>	<i>.15/.15</i>	<i>.11/.06</i>	<i>-.09/-.04</i>	<i>-.02/-.07</i>	<i>-.12/-.10</i>	<i>.25/.15</i>
Thin	<i>-.09/-.13</i>	<i>-.09/-.07</i>	<i>-.09/-.12</i>	<i>.02/-.06</i>	<i>.09/.07</i>	<i>-.02/.06</i>	.01/.02	<i>-.02/-.19</i>

Note. In a given cell, correlations for men's ratings of female targets are given first, and correlations for women's ratings of male targets are given second. The numbers of participants used to compute each correlation are given at the top of the table. All significant relationships ($p < .05$) are in italics and bold. TIPI = Ten-Item Personality Inventory (Gosling, Rentfrow, & Swann, 2003); ECR-R = Experiences in Close Relationships—Revised (Fraley, Waller, & Brennan, 2000); E = extraversion; A = agreeableness; C = conscientiousness; ES = emotional stability; O = openness to experience.

with less preference for women who appeared sexually suggestive, confident, or trendy. Among women, agreeableness was associated with a slightly heightened preference for men who appeared well groomed.

Conscientiousness. We found that conscientiousness was also associated with heightened preference for targets who presented communal characteristics, but these results were less regular than those observed with agreeableness. Conscientiousness was associated with heightened preference for targets who were formal and conventional but was associated with preference for soft-hearted targets only in men rating women, and was not associated with preference for intelligent targets in either gender. In both genders, conscientiousness was also associated with a heightened preference for well-groomed and smiling targets, and with lessened preference for thin targets. No additional relationships were found relating conscientiousness to preferences in men rating female targets; however, among women rating male targets, conscientiousness was related to increased preference for men who appeared muscular and toned, confident, and masculine, and with lessened preference for men who looked trendy or stylish.

Emotional stability. Across both genders, emotional stability was related to heightened preference for people who looked classy and well groomed, and who were smiling. Among men, emotionally stability was additionally related to increased attraction to female targets who looked soft hearted. Among women, emotional stability was also associated with increased attraction to men who looked conventional, confident, masculine, and muscular or toned, and lessened preference for men who looked thin.

Openness to experience. Across both male and female participants, open individuals showed a higher preference for targets who appeared trendy and thin, and lower preference for targets who appeared conventional. Among men rating female targets, openness was associated with a lessened preference for women who were smiling. Among women rating male targets, openness was asso-

ciated with a lower preference for masculine men. Although openness often shows modest links with intelligence (e.g., Gignac, 2005), open individuals did not demonstrate a preference for targets who appeared intelligent for either gender.

Avoidant attachment style. There was relatively little similarity in the findings across men and women in how avoidant attachment style was associated with preferences. Avoidant participants of both genders showed lowered preference for targets who looked conventional and soft hearted, but all other effects differed across male and female participants. Avoidant men showed heightened attraction to women who appeared curvaceous, but avoidant women showed lessened attraction to men who appeared toned, thus indicating opposite patterns of how avoidance was related to importance of body shape in attractiveness judgments across genders. Avoidant men showed a heightened preference for female targets who appeared sexually suggestive and confident, and less preference for female targets who looked intelligent. Avoidant women showed lowered preference for male targets who appeared formal and well groomed and who were smiling, and showed a stronger preference for men who appeared thin.

Anxious attachment style. We found that anxious attachment showed virtually identical relationships with revealed preferences across male and female participants. Across both men and women, anxious attachment was associated with lessened preference for targets who appeared conventional, soft hearted, classy, intelligent, and well groomed, and who were smiling.

Age. Given the wide age range of participants who completed the study, we also explored how age was related to revealed preferences. It is interesting that age showed the strongest linkages with preferences of any of the dispositional characteristics considered in Table 7, and the preferences showed impressive similarity across both male and female participants. Older men and women both showed stronger attraction to targets who displayed communal characteristics; for both genders age was associated with

heightened preference for conventional, formal, sensitive, and intelligent-looking targets. Further, in both genders, age was associated with lower preference for seductive or trendy targets and with heightened preference for targets who were smiling. Finally, among female participants, increasing age was associated with greater preference for men who were well groomed and with lessened preference for thin men.

Discussion

Aspects of mate preferences help to determine many features of the mating marketplace, such as the level of intrasexual competition, mate-guarding, and similarity between partners (Buss & Barnes, 1986). However, research using self-reported preferences can only crudely point to some aspects of mate preferences, especially toward the degree of consensus existing between raters about which people are attractive or unattractive. In the current study, we explored the use of revealed preferences (preferences inferred through an individual's ratings of the desirability of multiple targets) as a novel method for exploring the nature of preferences.

The results of the current study demonstrate that there is considerable consensus in judgments of whom individuals find attractive. Across all subsamples of participants (i.e., heterosexual and homosexual men and women), it appeared that this consensus was largely defined by a widespread preference for targets displaying agentic or alpha characteristics, such as sexual suggestiveness, confidence, and desirable body shape. For these characteristics in particular, the results indicate that it may be best to interpret a moderate view between the more extreme differential preference and market force conceptions of how assortment occurs. Namely, we observed meaningful individual differences in the extent to which these characteristics were preferred, but this was qualified by the fact that almost all participants preferred these characteristics to a greater or lesser degree. Returning to Figure 3, we see that some participants showed a strong preference for confident-looking targets and others showed only slight preference for confident-looking targets, but there were very few participants of either gender who showed an active preference for targets who appeared unconfident. Findings such as this demonstrate that even when strong relationships are observed between an individual's characteristics and his or her mate preferences (e.g., Botwin et al., 1997), this does not necessarily support the more specific hypothesis that people prefer potential mates who share their own characteristics (the "likes attract" hypothesis; e.g., Buston & Emlen, 2003).

Given the novelty of research assessing preferences through the correlates of a person's attraction to others, we also established the validity of these revealed preferences through a variety of tests. First, we found that preference estimates varied in theoretically meaningful ways when they were constructed to differentially tap short-term and long-term preferences. In particular, when participants of both genders were asked to report their interest in dating targets instead of merely their attractiveness, they tended to place a lower premium on characteristics indicating physical attractiveness and sexual availability, and increased their emphasis on characteristics such as sensitivity and conventionality. Second, we found that revealed preferences showed modest but expected relationships with both stated preferences and other dispositional

measures. Concerning the latter, extraverts of both genders tended to have higher preference for targets who were confident, sexually forward, shapely, and well-groomed, and lower preference for intelligent and thin targets, whereas agreeable and conscientious individuals showed stronger preferences for targets who appeared conventional, sensitive, and formal, and who were smiling. The pattern of findings was remarkably similar across genders given that men and women rated entirely different sets of photographs. With the use of a methodology that moves beyond many of the limitations of stated preference measures, these findings provide some of the strongest evidence to date that personality traits are related to differences in how individuals judge the attractiveness of others.

Gender Differences in Mate Preferences

Although the relationships between revealed preferences and dispositional characteristics shown in Table 7 were very similar across male and female participants, there were nonetheless indications that men and women differed in two important ways in the nature of their preferences. First, male participants tended to generally rate targets as more attractive than did female participants—a finding that dovetails well with research and theory on the greater selectivity of women in mate selection (e.g., Buss & Schmitt, 1993; Kurzban & Weeden, 2005; Penke et al., 2007). Second, male participants appeared to agree with one another more about who is attractive and unattractive than did female participants—a gender difference that was observed for both heterosexual and homosexual participants. Given the inability of self-report measures to directly address questions of consensus, this finding is a novel contribution to the study of interpersonal attraction.

The finding that men show more consensus than women in attractiveness judgments suggests important differences in the constraints that men and women are likely to face in mating situations and the strategies they will tend to adopt in response. In particular, as consensus increases regarding which people are found attractive, the level of competition between individuals for mates is expected to increase (Buss & Barnes, 1986). Women, having less consensual preferences, and considered alongside their tendency to generally judge people as less attractive than men do, should be expected to encounter less competition from other women for the mates they find attractive. On the other hand, as men have much more consensual preference, men may find it necessary to invest more time and energy in attracting and then guarding their mates from other potential suitors, given that the mates they judge attractive are likely to be found attractive by many other men (Haselton & Gangestad, 2006).

It is also useful to speculate on how the degree of consensus found for one gender affects the constraints and strategies adopted by the opposite sex. As described by Penke and colleagues (2007), "the preferences of one sex become social constraints on the choices of the other," and consequently, as noted by Buss (1988, 2003), the preferences of one sex should affect the tactics that are adopted by the other. The stronger consensus of male participants was largely defined by preference for certain physical characteristics: women who appeared thin, feminine, and curvaceous were found to be considerably more attractive than those who did not for most male participants. Given the strong general preferences for these characteristics among men, this implies that women who do

not have these characteristics are likely to encounter many fewer interested suitors than women who do.

The strong consensual concern for physical characteristics among male raters may help to explain the forces underlying the greater prevalence of body image and eating disorders observed in heterosexual women than in heterosexual men (e.g., Muth & Cash, 1997; Zellner, Harner, & Adler, 1989). It is interesting that the situation is reversed for homosexuals: As men of either sexual orientation show a stronger consensual preference for physical appearance than do women, it is perhaps unsurprising that the prevalence of body image problems is lower among lesbians than among heterosexual women and higher among gay men than among heterosexual men (Conner, Johnson, & Grogan, 2004; Morrison, Morrison, & Sager, 2004). Future researchers may endeavor to more explicitly connect mate preferences of one group to experienced normative pressures for others, both at the group level discussed earlier (e.g., how the consensual preferences of one gender create pressures for the other) and at the dyadic level (e.g., how one partner's preferences in a romantic relationship create pressures for the other).

Limitations and Future Directions

We believe there are two major reasons why this investigation identified significant correspondence between an individual's self-reported and perceived preferences where other investigators generally have not done so (Eastwick & Finkel, 2008; Kurzban & Weeden, 2005; Todd et al., 2007). The first concerns differences in statistical reliability and power, and the second concerns differences in the methodologies or stimuli used to reveal preferences. In the current study, we focused more on the former than the latter. In particular, the unusually large number of targets used in this study likely afforded the ability to create more reliable estimates of revealed preferences than has been possible in past research, which in turn allowed for larger correlations with other variables (Cohen et al., 2003). The importance of reliability in estimating revealed preferences was clearly evident in the current study: Even after participants had rated nearly 100 photographs, the reliabilities of the revealed preference estimates created from these ratings were still modest for most dimensions (see Table 3). We hope that the results of the current study will help draw attention to the importance of establishing the reliability of revealed preferences (or of other individual difference variables measured as within-person correlations or regression slopes). Additionally, the ability to identify hypothesized relationships between revealed preferences and other variables was certainly aided by the large number of participants surveyed in the current study. A majority of the effects found here would have been statistically insignificant if the number of participants used had been comparable to those used in past research.

This said, we assume that reliability considerations are an incomplete explanation for why we found higher stated-revealed preference relationships than previous researchers did. We found somewhat larger relationships between revealed preferences and stated preferences even when the numbers of stimuli used to calculate revealed preferences were comparable with those used in previous research (e.g., Eastwick & Finkel, 2008; Todd et al., 2007). Future researchers will thus need to more critically examine how the choice of how to assess revealed preferences affects the

validity of the estimates, as different methods will offer different strengths and weaknesses. For instance, our use of photographs likely served to standardize the information seen by different participants more than the information gained from actual interactions such as speed-dating environments, where targets will inevitably present somewhat different sides of themselves to different raters. Further, past studies have frequently estimated revealed preferences using participant responses that could actually lead to future interactions with the targets (e.g., if both partners express interest, then a future date could be arranged; Eastwick & Finkel, 2008; Kurzban & Weeden, 2005; Todd et al., 2007). The fact that the attractiveness ratings of photographs used here involve no history of actual past interactions and could not influence the likelihood of future interactions with the targets might present some advantages for inferring preferences relative to attractiveness judgments that are more consequential. Individuals do not always pursue their most desired mates, and this is expected to occur most when they believe that an object of their desire is unlikely to reciprocate their interest (Penke et al., 2008). If an individual receives clear indications that a partner he or she has interacted with is not interested, the individual may indicate not wanting to see the partner again more as a function of the expectation of future rejection than of preferences. Tendencies to avoid rejection and to "settle" may result in the imperfect display of the individual's preferences in the most natural settings.

Although we identified significant relationships between stated and revealed preferences, we are in general agreement with the conclusion from past research that the relationships between stated and revealed preferences are surprisingly low. The relationships between corresponding stated and revealed preferences observed here ranged from .04 to .36 (Table 6). These low correlations can hardly be attributed to unreliability, as correcting for the remaining unreliability on the side of revealed preferences would be expected to further increase these correlations only slightly (i.e., predicted r s of .06 to .42 after correcting for the reliabilities reported in Table 3). Future investigators may thus explore conditions that further increase the level of correspondence between revealed and stated preferences. For instance, the fact that correspondence between stated and revealed preferences was higher for more observable characteristics (weight and body shape) than for more behavioral or psychological characteristics (confidence or sensitivity) suggests that higher correspondence for psychological characteristics might be documented in settings where behavioral markers of these characteristics are readily available, such as in speed-dating settings or in settings where targets are videotaped instead of merely photographed. Similarly, higher levels of correspondence should also be observed with more refined measures of stated preferences. For instance, somewhat higher relationships should be observed simply by using multi-item scales to assess stated preference dimensions.

Although we found that men had more consensus than women in attractiveness judgments, the generality of this finding should be investigated further. We feel the largest concern is that the use of still photographs may have made participants emphasize physical appearance information more than they would have in other settings. As men appear to care more about physical appearance than women, the gender difference in consensus might shift or even be reversed in settings where status, wealth, and other characteristics that are thought to be more preferred by women are made more

salient. Although we imagine such reversals may be constructed in carefully crafted studies (e.g., where only wealth and status information is available, and physical attractiveness information is unavailable), we suspect that a full reversal of the gender difference in consensus is unlikely in real-world situations, as any presence of physical attractiveness information will likely push for greater consensus in men than in women due to their heightened concern for this characteristic (Buss, 2003; Feingold, 1990). However this remains an important open question; a clear task of future research will be to document whether the greater consensus of men than women in attractiveness judgments persists in more naturalistic and consequential settings.

The current study demonstrates that there is much to be learned by an examination of the preferences that individuals reveal through their attraction to different people. The findings of the current study demonstrate that these revealed preferences show sensible relationships both with self-rated preferences and with other dispositional characteristics such as personality traits. The ability to estimate levels of consensus in attraction judgments through this methodology also suggests that although individual differences in preferences exist, they are regularly qualified by strong consensual preferences for certain characteristics. These findings indicate that market force explanations have a necessary role in explaining similarity in close relationships, especially for physical attractiveness and other agentic characteristics that are widely desired. The finding that men have considerably higher consensus about whom they find attractive also provides an important clue into why men and women may be compelled to adopt different mating strategies. Although the implications of this finding will need to be more fully explored in future research, the current study illustrates the value of using revealed preferences to address the role of preferences in mate selection.

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