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Assessing sex differences and similarities in mate preferences: Above and beyond demand characteristics

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ABSTRACT

Prior experiments documenting gender differences in mate preferences have relied on directive questions (e.g., "How important is physical attractiveness?"), which are susceptible to demand characteristics. To assess this potential confound, this study assessed mate preferences using indirect, open-ended questions, with anonymous computer administration and designated (same- or opposite-sex) targets. The frequency with which participants noted traits reflected key gender differences predicted by evolutionary accounts; evaluations of men focused more on ambitiousness, whereas evaluations of women focused more on attractiveness. The number of attractiveness comments was also greater, however, if the rated target was of the opposite sex. Kindness and intelligence comments did not show strong gender differences, although kindness-related comments were very frequent overall and particularly frequent from women participants.

KEY WORDS: demand characteristics • human mate preferences • human sex differences

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Among the broad conclusions from research on relationship partner preferences are the findings that, in general, men place greater emphasis on a potential mate's physical attractiveness than do women, whereas women place greater emphasis on a potential mate's resources than do men (Buss, 1989, 1994). In contrast, men and women emphasize traits such as kindness and intelligence about equally. A history of evolutionary sexual selection represents the most common explanation for these findings. Briefly, assuming that female physical attractiveness serves as a fairly reliable index of reproductive potential (e.g., youth, health, and fertility), the evolutionary process has selected the male mating psychology to weigh this cue more heavily in assessing attractiveness. On the other hand, male access to resources is a more reliable index of their potential reproductive contributions (e.g., ability to protect and provide for offspring), so the evolutionary process has selected the female mating psychology to weigh this cue more heavily in assessing male attractiveness (Trivers, 1972). In contrast, traits such as intelligence and kindness are important in potential mates regardless of gender.

Evolutionary explanations of human sex differences are controversial and have spawned alternative interpretations. For example, alternative explanations for sex differences in reactions to relationship infidelities (DeSteno, Bartlett, Braverman, & Salovey, 2002; DeSteno & Salovey, 1996) and the relative values placed on a number of traits for potential partners (Eagly, 1997; Wood & Eagly, 2002) – both predicted and found by evolutionary psychologists – have been reinterpreted from sociocultural perspectives. In many ways, such alternative explanations can be characterized as demand characteristics of various sorts. Demand characteristics are the "cues and mutual role expectations that inhere in a social context (e.g., a psychological experiment or therapy situation), which serve to influence the behavior and/or self-reported experiences of the research participant or patient" (Orne & Whitehouse, 2000, p. 469; see also Orne, 1962). At least two specific demand characteristics have been levied as potential causes of sex differences in mating situations.

First, the specific traits provided within questions may represent demand characteristics. Much of the research on mate preferences has used closed-ended, forced-choice responses that explicitly provide the traits of interest (e.g., "How important is it for your mate to have a lucrative career?" and "Would you choose a mate that was cold and beautiful over one that was warm and homely?"). These formats could implicitly guide respondents to consider certain traits over other possible traits and, thereby, may suggest certain patterns of responses. For instance, DeSteno and colleages (DeSteno et al., 2002; DeSteno & Salovey, 1996) argued that a reliable sex difference in reactions to different types of relationship infidelity is, in large part, an artifact of a forced-choice measurement technique. They point out that "decades of socialization and learning, both of which typically correlate with gender and, in the present case, possibly exert influences on aversion to sexual and emotional infidelity" (DeSteno et al., 2002, p. 1104). Moreover, some results using methodological variations support their assertion that

some gender differences can be eliminated when "measurement artifacts" (i.e., demand effects) are changed (see also Pietrzak, Laird, Stevens, & Thompson, 2002 for contrasting results). Such format differences can also affect the accuracy and types of responses given to other topics (Hall & Roggenbuck, 2002) and indicate that open-response formats tend to generate more accurate responses.

Second, audience effects (i.e., conforming to audience social role expectations) can influence behaviors and self-reported experiences, including the production and reporting of gender-typed behaviors. For instance, men and women have different types of conversations depending on the gender of the audience (Mulac, Wiemann, Widdenmann, & Gibson, 1988). Females tend to talk more and to engage in more turn taking within same-sex dyads, when compared with opposite-sex dyads. Colley and Todd (2002) report that, when e-mailing about recent vacations, both male and female participants focused on shopping and night life when writing to a female audience, whereas participants focused on sights they saw and provided less personal information when corresponding with a male. On the specific topic of mate preferences, Eagly and colleagues (Eagly, 1997; Wood & Eagly, 2002) have found some support for an effect of social roles and expectations as an influence within cross-cultural patterns of mate preferences.

The current study adopts methodological techniques that address some of these demand characteristics. Specifically, data were collected from open-ended questions and essay responses to minimize demands that might stem from closed-ended trait-oriented, questions. Data were collected using a computer-administered survey, a technique comparable to – or perhaps slightly less reactive than – materials distributed and collected by experimenters (Booth-Kewley, Edwards, & Rosenfeld, 1992; Feigelson & Dwight, 2000; Richman, Kiesler, Weisb, & Drasgow, 1999; Skinner & Allen, 1983). The target of the judgment (i.e., male versus female) was manipulated to assess the degree to which it influenced responses. If traditional sex differences are dramatically reduced (or disappear) under these conditions, measurement demand characteristics can be ascribed a major role in previous findings. The specific traits selected for cross-sex comparisons in this study were chosen based on several criteria: (i) Those frequently studied in the past; (ii) those that generated fairly reliable results; and (iii) those that yielded all three possible predictions in terms of sex differences (i.e., females more than males, males more than females, and no difference). Using these criteria (e.g., Feingold, 1992; Khallad, 2005), we chose three sets of traits: Ambitiousness (women have consistently stressed this – and related terms such as resources and income – more than those of males); physical attractiveness (males have consistently stressed this characteristic more than females); and kindness and intelligence (both are generally equally important to males and females; Buss, 1989). Some research shows a greater emphasis on intelligence by females (Feingold, 1992; however, this sex difference, when found, is generally much smaller than for ambitiousness).

Method

Participants

This study involved 123 participants (61 males, 62 females) from a large, Midwestern university. The average ages were 18.77 for the males and 18.57 for the females, and all participants completed the study as part of their requirements for an introductory psychology class. Informed consent forms contained the only identifying information which was kept separate from participants' responses, making them transparently anonymous.

Materials and procedure

Participants were initially seated at a computer terminal displaying a consent form. Participant signatures, indicating consent, were provided on a separate sheet of paper (encouraging perceptions that participants' identities were dissociated from their responses).

The computer then presented participants with a cover story about how the business of Internet dating is in need of help in creating even better profiles to help more couples find love, be efficient, and so forth. The present study was described as attempting to develop a better understanding of how individuals perceive different dating profiles. Participants provided demographic information (i.e., gender, age, marital status, and sexual orientation) and were then instructed that they would evaluate a series of profiles. Instructions specified that the recipients of the participant's evaluations would be either: (i) A group of individuals who were considering the target as a potential date (i.e., an opposite-sex audience; males for female targets and females for male targets), or (ii) a group of "quality control judges" for the dating service, which were clearly identified as a same-sex audience as the target. After reading these instructions, participants proceeded to view, in random order, a series of dating profiles of both sexes (it was possible to move back a page within each profile, but otherwise it was not possible to go back and/or change responses after proceeding to a subsequent page).

There were two male and two female "dating profiles," all of which were fictional composites based on actual Internet dating profiles in terms of language use, topics covered, and personal presentation. The fictional dating profile individuals ("targets") were all 18–25 years old (the age range of most participants), and each target had an approximately equal number of positive and negative profile characteristics. Profile topics included name, age, hair color, eye color, height, weight, a local location, occupation, car, favorite food, favorite music, favorite book, and idea of a perfect date. Each profile also included a one-paragraph statement, ostensibly from the target, that discussed the work and leisure activities without directly addressing any of the personality traits of interest for the study. Target pictures came from a picture rating website (see http://www.hotornot.com/pages/privacy.html regarding use of these images), with all the target pictures rated between 7.5–8 on this site, indicating strong and equal attractiveness.

Each dating profile was followed by an open-ended question section and then a series of trait-specific Likert-scaled questions about the daters. The open-ended section asked simply "What do you think of this dater?"

followed by an open block for text. There was no length or time requirement, though the computer program required participants write something (i.e., the section could not be left completely blank). This allowed participants to express their opinions openly without constraints of length, topic, or time. Following this section were 14 questions about different traits taken from Buss's (1989) cross-cultural study (ambitious, attractive face, kind, smart, physically attractive, trustworthy, would make my friends jealous, dependable, emotionally stable, good dresser, popular, spiritual, date-able, and financially successful). These all appeared in the form of, "How _____ do you find the dater?" or similar format, and were scored on a 1–6 scale (items were randomly ordered across participants, and half were reverse scored). Note that these items did not ask for the *importance* of the trait; only how the participant rated the target on each trait. This list included female-emphasized, male-emphasized, and neutral traits. Thus, these closed format items served simply as primes as to what types of characteristics might be topical, without suggesting that any particular trait was favored. Pilot research indicated that without these primes, open-ended responses were much shorter and therefore provided less data.

After completing all four profiles, participants were informed that they had completed the study and to notify the experimenter. The experimenter probed for questions or concerns about the study and provided debriefing information.

Open-ended responses were coded by searching for keywords (targets and synonyms) associated with four target characteristics: Ambitiousness, attractiveness, kindness and intelligence (e.g., for ambitiousness, the following terms and their variants were counted: Ambitious, ambition, goal, driven, motivated, go-getter, plans, and potential). A small number of irrelevant keywords (e.g., "I like his plans for a perfect date") were removed by the researchers' mutual agreement. Researchers were blind to all conditions during this culling process. Finally, the numbers of comments on each trait were summed for each participant, across the two male and across the two female targets. It is worth noting that this process includes both positive and negative comments about each trait, as either type of comment indicates an importance of that trait as an evaluative element.

Results

Frequencies of specific traits identified in the open-responses were analyzed with a series of $2 \times 2 \times 2$ ANOVAs (gender of target $\times$ gender of participant $\times$ gender of audience). Means are provided in Table 1. As predicted, more comments on ambitiousness were made when discussing men ($F(1, 119) = 19.16$, $p < 0.001$, $\eta^2 = 0.14$). Neither the main effects for participant gender or audience gender, nor any interactions were statistically significant.

Concerning attractiveness, as predicted, more comments were made when discussing female targets ($F(1, 119) = 7.21$, $p < 0.01$, $\eta^2 = 0.06$). There was also a significant crossover interaction for attractiveness ratings between

TABLE 1
Frequency of comments about traits of ambitiousness (a), attractiveness (b), kindness (c), and intelligence (d), comparing participants of different genders who evaluated targets of different genders, for audiences of different genders (within each cell, numbers show opposite-sex/same-sex audiences)

		Participant gender				Participant gender	
(a) Ambitiousness		**Male**	**Female**	**(b) Attractiveness**		**Male**	**Female**
Target gender	*Male*	.53/.61	.77/.71	Target gender	*Male*	.43/.32	.87/.68
	Female	.42/.20	.16/.26		*Female*	.97/1.00	.42/.81
		Participant gender				**Participant gender**	
(c) Kindness		**Male**	**Female**	**(d) Intelligence**		**Male**	**Female**
Target gender	*Male*	.97/.81	1.39/1.42	Target gender	*Male*	.27/.23	.32/.13
	Female	.74/1.03	.84/1.19		*Female*	.23/.33	.13/.19

target sex and participant sex ($F(1, 119) = 21.48, p < 0.001, \eta^2 = 0.15$). Specifically, male participants were more likely to mention the attractiveness of female targets, whereas females were more likely to mention the attractiveness of male targets. Again there was no effect of the audience gender.

Comments about kindness did not differ by target gender; however, there was a main effect for participant gender ($F(1, 119) = 4.83, p = 0.03, \eta^2 = 0.04$). The target by participant gender interaction neared, but did not reach, significance ($F(1, 119) = 3.32, p = 0.07, \eta^2 = 0.03$). Female participants talked more about kindness, and did so in particular when discussing male targets.

Comments about intelligence did not vary across conditions. None of the main or interactions effects were statistically significant.

It is possible that, although many demand effects were eliminated by our method, the simple act of measuring certain traits could have influenced written responses. Such effects would have to occur even though the questions focused on target ratings (rather than rating the importance of the traits). Moreover, such effects would have to occur despite rating all the models on all the traits. Such effects could only occur if participants divined which traits were predicted in this research to be differentially commented upon, and participants also tailored their responses accordingly.

Nevertheless, one way to assess the potential biasing of listed traits is to analyze only the first written comments by each participant – before that participant had viewed the rating scale items. This analysis has much less statistical power (effectively changing to a between-subjects design, with a quarter of the sample size) but many of the previous results still held (see Table 2). More comments on ambitiousness were made when discussing men ($F(1, 115) = 5.82, p = 0.017, \eta^2 = 0.048$), although a three-way interaction was found for these initial comments ($F(1, 115) = 4.94, p < 0.05, \eta^2 = 0.04$). Males rating other males for a female audience rarely brought up the topic of ambition.

TABLE 2
For only the first open-ended essays, the frequency of comments about traits of ambitiousness (a), attractiveness (b), kindness (c), and intelligence (d), comparing participants of different genders who evaluated targets of different genders, for audiences of different genders (within each cell, numbers show opposite-sex/same-sex audiences)

		Participant gender				Participant gender	
(a) Ambitiousness		**Male**	**Female**	**(b) Attractiveness**		**Male**	**Female**
Target gender	*Male*	.07/.71	.59/.87	Target gender	*Male*	.40/.21	.59/.60
	Female	.41/.12	.20/.33		*Female*	.71/.63	.73/.44
		Participant gender				**Participant gender**	
(c) Kindness		**Male**	**Female**	**(d) Intelligence**		**Male**	**Female**
Target gender	*Male*	.60/.57	.91/1.13	Target gender	*Male*	.20/.21	.09/.33
	Female	.65/.31	.80/.56		*Female*	.12/.13	.12/.111

More comments were made about attractiveness when discussing female targets ($F(1, 115) = 2.51$, $p < 0.12$, $\eta^2 = 0.021$). There was the same interaction pattern for the male participants as before, but this did not reach significance with the reduced power ($F(1, 115) = 2.71$, $p = 0.10$, $\eta^2 = 0.02$).

Comments about kindness did not produce a statistically significant difference for target gender ($F(1, 115) = 2.47$, $p = 0.12$, $\eta^2 = 0.02$). There was, however, a main effect of participant gender ($F(1, 115) = 4.90$, $p < 0.05$, $\eta^2 = 0.04$). As was true with the entire data set, female participants mentioned kindness to a greater extent than did men.

Again, there were no significant effects for comments about intelligence. None of the main or interaction effects were significant.

Discussion

The purpose of this study was to evaluate the potential for demand characteristics as an explanation for sex differences in relationship partner traits. To that end, we employed a minimally directive methodology that used open-ended survey items, anonymous computer data collection, systematically-controlled target audiences, and asked only for ratings of traits (rather than bringing up the issue of desirability of traits). Nevertheless, men more than women were evaluated based on ambitiousness and women more than men were evaluated based on attractiveness. Indeed, even when only the first comments were analyzed – to eliminate any possible carryover effects of closed-ended items – the patterns and most of the statistically significant results remained.

These results established that potential demand effects do not appear to underlie the sex difference findings typical of mate selection preference

studies. In particular, the closed-ended questions typical of many mate characteristic ratings studies – questions that prompt participants to consider particular target trait characteristics – do not appear to bias responses. Thus there is no support, at least within this particular arena, for the notion that sex differences in the realm of mating attitudes and preferences are an "artifact of measurement" (DeSteno et al., 2002). It is certainly possible that different measurement techniques yield clearer and more focused responses, thereby yielding clearer results, but this is a different issue from that of methodological artifacts.

There was also no support for the claim that audience effects underlie these results; for none of the traits assessed were there systematic effects of the intended audience. Although previous results have shown that intended audience can encourage behaviors and self-reports that are conforming to audience social role expectations (Colley & Todd, 2002; Mulac et al., 1988), the present findings suggest that this effect may not be as powerful when the audience is not physically present or is a class or category of persons rather than a specific person.

Several of our other results are worthy of note. First, comments about attractiveness were most common when evaluating opposite-sex targets (i.e., women said more about men's attractiveness and men said more about women's attractiveness). This interaction appears to be in addition to the sex of target main effect, rather than a case of a spurious main effect, and it is likely due to people feeling more comfortable discussing the attractiveness of people of the opposite sex. This pattern was observable starting with even the initial responses for the male participants.

Second, for initial comments about ambitiousness (looking only at each participants' first responses), males did not mention the ambitiousness of other males to a female audience. Third, women were more likely than men to make comments about kindness. In particular, women tended to talk more about males' kindness (a pattern evident even from only comments on the first target). The relatively high frequency of comments about kindness (by everyone), as well as the tendency toward greater emphasis by women, is consistent with the results of Li, Bailey, Kenrick, and Linsenmeier (2002), who found that kindness was a fundamentally important trait in a mate selection for both sexes, although on some measures women placed a slightly higher priority on kindness than did men.

In some ways it is surprising that consistent results can be obtained using such indirect measurements. At no point were participants asked to indicate the *importance* of characteristics, only to rate the existence of traits or simply discuss individuals generally. Furthermore, the participants were asked for comments on the target models that were – rather than being for their own use – to be given to either potential daters or quality control judges. Thus, even personal preferences that may be ingrained cultural norms were explicitly discouraged.

Directions for future research

We did not code comments for valience (i.e., as negative or positive). Such a practice may reveal further layers of results in future research. There are also intriguing issues, largely unexplored, about the extent to which men and women monitor same-sex individuals for traits that would make them rivals on the mating market (e.g., Brase, Caprar, & Voracek, 2004). Arguably, intrasexual competition on an important trait may be why males failed to comment on other males' ambitiousness when they were to be read by females.

Another potential approach for future research would be to assess the possibility of very strong demand effects – essentially the inverse of this study – on ratings of target model traits. For example, can an audience (e.g., a person sitting in the room with participants) with known, highly gender-normative views, alter participants' responses? Although methodologically the opposite of the present research, the findings of demand effects in such a scenario would actually bolster the importance of the present research.

The present study focused on a relatively small set of traits: Ambitiousness, attractiveness, intelligence, and kindness, and used only four profiles. Future research could utilize many other traits, and profiles. Potential traits include those that have been found to be emphasized more by females than males (e.g., social status, education level, humor production abilities, and creativity; see Bressler & Balshine, 2005; Buss, 1989, 1994; Haselton & Miller, 2006), traits emphasized more by males than females (e.g., youth and specifically physical aspects of attractiveness; see Buss, 1989, 1994; Kenrick & Keefe, 1992), and traits for which little or no difference would be expected. The present study's target model profiles were designed to be effectively neutral, with all models portrayed as moderately attractive, moderately ambitious, varying on personal taste dimensions (e.g., favorite food), but generally not inducing strong positive or negative reactions on the traits of interest. Future research could use profiles intentionally designed to induce particular trait inferences, and using larger numbers of profiles to generate more participant reactions. This last option, however (using a large number of profiles) runs again into an issue encountered in this study; the potential argument that previous profiles and questions/responses could create demand characteristics for subsequent responses. Although the results of this study indicate that this is not likely a strong substantive issue, it remains a legitimate caution.

Finally, critics may argue that social learning models can also account for these results. For example, Eagly and Wood (1999; see also Wood & Eagly, 2002) place the locus of human behavioral sex differences in the differing roles that men and women play in the social structural. By this explanation, individuals (both male and female) adopt different behavioral and cognitive styles because of the different roles they are cast into throughout their lives, and, importantly, these roles become internalized and self-reinforcing. These could also be considered a form of "demand characteristics," but of a pervasive and long-lasting nature that is not amenable to experimental manipulation.

REFERENCES

Booth-Kewley, S., Edwards, J. E., & Rosenfeld, P. (1992). Impression management, social desirability, and computer administration of attitude questionnaires: Does the computer make a difference? *Journal of Applied Psychology*, *77*, 562–56.

Brase, G. L., Caprar, D. V., & Voracek, M. (2004). Sex differences in responses to relationship threats in England and Romania. *Journal of Social and Personal Relationships*, *21*, 763–778.

Bressler, E. R., & Balshine, S. (2005). The influence of humor on desirability. *Evolution & Human Behavior*, *27*, 29–39.

Buss, D. M. (1989). Sex differences in human mate preferences: Evolutionary hypotheses tested in 37 cultures. *Behavioral and Brain Sciences*, *12*, 1–49.

Buss, D. M. (1994). *The evolution of desire: Strategies of human mating*. New York: Basic Books.

Colley, A., & Todd, Z. (2002). Gender-linked differences in the style and content of e-mails to friends. *Journal of Language & Social Psychology*, *21*, 380–392.

DeSteno, D., Bartlett, M. Y., Braverman, J., & Salovey, P. (2002). Sex differences in jealousy: Evolutionary mechanism or artifact of measurement? *Journal of Personality and Social Psychology*, *83*, 1103–1116.

DeSteno, D. A., & Salovey, P. (1996). Evolutionary origins of sex differences in jealousy? Questioning the "fitness" of the model. *Psychological Science*, *7*, 367–372.

Eagly, A. H. (1997). Sex differences in social behavior: Comparing social role theory and evolutionary psychology. *American Psychologist*, *52*, 1380–1383.

Eagly, A. H., & Wood, W. (1999). The origins of sex differences in human behavior: Evolved dispositions versus social roles. *American Psychologist*, *54*, 408–423.

Feigelson, M. E., & Dwight, S. A. (2000). Can asking questions by computer improve the candidness of responding? A meta-analytic perspective. *Consulting Psychology Journal: Practice & Research*, *52*, 248–255.

Feingold, A. (1992). Gender differences in mate selection preferences: A test of the parental investment model. *Psychological Bulletin*, *112*, 125–139.

Hall, T. E., & Roggenbuck, J. W. (2002). Response format effects in questions about norms: Implications for the reliability and validity of the normative approach. *Leisure Sciences*, *24*, 325–337.

Haselton, M. G., & Miller, G. F. (2006). Women's fertility across the cycle increases the short-term attractiveness of creative intelligence compared to wealth. *Human Nature*, *17*, 50–73.

Kenrick, D. T., & Keefe, R. C. (1992). Age preferences in mates reflect sex differences in reproductive strategies. *Behavioral and Brain Sciences*, *15*, 75–133.

Khallad, Y. (2005). Mate selection in Jordan: Effects of sex, socio-economic status, and culture. *Journal of Social and Personal Relationships*, *22*, 155–168.

Li, N. P., Bailey, J. M., Kenrick, D. T., & Linsenmeier, J. A. W. (2002). The necessities and luxuries of mate preferences: Testing the tradeoffs. *Journal of Personality and Social Psychology*, *82*, 947–955.

Mulac, A., Wiemann, J. M., Widenmann, S. J., & Gibson, T. W. (1988). Male/female language differences and effects in same-sex and mixed-sex dyads: The gender-linked language effect. *Communication Monographs*, *55*, 315–335.

Orne, M. T. (1962). On the social psychology of the psychological experiment: With particular reference to demand characteristics and their implications. *American Psychologist*, *17*, 776–783.

Orne, M. T., & Whitehouse, W. G. (2000). Demand characteristics. In A. E. Kazdin (Ed.), *Encyclopedia of psychology* (pp. 469–470). Washington, DC: American Psychological Association and Oxford University Press.

Pietrzak, R. H., Laird, J. D., Stevens, D. A., & Thompson, N. S. (2002). Sex differences in human jealousy: A coordinated study of forced-choice, continuous rating-scale, and physiological responses on the same subjects. *Evolution & Human Behavior*, *23*, 83–94.

Richman, W. L., Kiesler, S., Weisb, S., & Drasgow, F. (1999). A meta-analytic study of social desirability distortion in computer-administered questionnaires, traditional questionnaires, and interviews. *Journal of Applied Psychology*, *84*, 754–775.

Skinner, H. A., & Allen, B. A. (1983). Does the computer make a difference? Computerized versus face-to-face versus self-report assessment of alcohol, drug and tobacco use. *Journal of Consulting and Clinical Psychology*, *51*, 267–275.

Trivers, R. L. (1972). Parental investment and sexual selection. In B. Campbell (Ed.), *Sexual selection and the descent of man 1871–1971* (pp. 136–179). London: Aldine.

Wood, W., & Eagly, A. H. (2002). A cross-cultural analysis of the behavior of women and men: Implications for the origins of sex differences. *Psychological Bulletin*, *128*, 699–727.