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Predicting Romantic Interest and Decisions in the Very Early Stages of Mate Selection: Standards, Accuracy, and Sex Differences

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Abstract

In the current study, opposite-sex strangers had 10-min conversations with a possible further date in mind. Based on judgments from partners and observers, three main findings were produced. First, judgments of attractiveness/vitality perceptions (compared with warmth/trustworthiness and status/resources) were the most accurate and were predominant in influencing romantic interest and decisions about further contact. Second, women were more cautious and choosy than men—women underestimated their partner's romantic interest, whereas men exaggerated it, and women were less likely to want further contact. Third, a mediational model found that women (compared with men) were less likely to want further contact because they perceived their partners as possessing less attractiveness/vitality and as falling shorter of their minimum standards of attractiveness/vitality, thus generating lower romantic interest. These novel results are discussed in terms of the mixed findings from prior research, evolutionary psychology, and the functionality of lay psychology in early mate-selection contexts.

Keywords

mate selection, standards, accuracy, sex differences

A spate of recent research on the very early stages of mate selection has produced some puzzling findings. Supporting theories drawn from evolutionary psychology, considerable evidence shows that men place more weight on physical attractiveness than women, and less on features linked to the possession of status and resources (Feingold, 1992; Geary, 2010). However, evidence of these gender differences is less evident in short, initial interactions, such as speed-dating contexts, when choosing mates (Eastwick & Finkel, 2008; Feingold, 1990) or reporting romantic interest (Luo & Zhang, 2009). Similarly, the consistency between what people report looking for in a mate and their perceptions of their current partners, including the importance given to physical attractiveness, warmth, and trustworthiness, predict outcomes in existing romantic relationships such as relationship happiness and dissolution (Eastwick, Finkel, & Eagly, 2011; Fletcher, Simpson, & Thomas, 2000). Yet, some studies have reported that the same kind of self-reports fail to predict choices or romantic interest in

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brief, initial interactions between heterosexual men and women (Eastwick & Finkel, 2008; Eastwick, Luchies, Finkel, & Hunt, 2013).

These latter null findings have attracted a range of explanations and interpretations, including claims that the sex differences in romantic relationships predicted by evolutionary psychology are wrong or exaggerated (e.g., Conley, Moors, Matsick, Ziegler, & Valentine, 2011), or that there may be something fundamentally flawed about lay theorizing in the context of early mate selection (e.g., Eastwick & Finkel, 2008). The current research addresses both issues, which we next discuss in detail.

Sex Differences in Selectivity

A fundamental theory exploited extensively in evolutionary psychology is parental investment theory (Trivers, 1972). This theory suggests that the way people select mates is linked to the amount and nature of investment in subsequent offspring. Because women invest somewhat more than men in bearing and raising offspring and can produce fewer progeny than men, in the early phases of mate selection, women should be generally more selective than men, and should be more focused than men on avoiding romantic partners looking for short-term sex.

Supporting parental investment theory, a finding often reported in the speed-dating literature shows that men choose more women to make further contact with than women choose men. However, Finkel and Eastwick (2009) argued that these findings could be an artifact based on the standard procedure used in which women are seated and men rotate round the group of prospective partners. When they manipulated the sex of the rotating group, the standard sex difference was produced when the men rotated, but disappeared when the women rotated. This finding was recently interpreted by Conley et al. (2011) as suggesting that choosiness in this context is a product of gendered social norms.

To clarify and quantify the empirical findings in this area, we carried out a (novel) meta-analysis of the 10 studies found using a literature search on speed-dating studies. The proportions of men and women saying yes to further contact were initially analyzed in SPSS to calculate effect sizes and these were then entered into a meta-analysis program (Comprehensive Meta-Analysis, version 2; Borenstein, Hedges, Higgins, & Rothstein, 2009). The results are shown in Figure 1. As can be seen, using a random effects analysis (which assumes the samples come from different populations), we found no evidence of any sex reversals and a substantial overall sex difference showing that women are more selective than men in this context (overall odds ratio = 1.66; z = 9.86, $p < .001$). Apart from Finkel and Eastwick (2009) two of these studies (Li, Sng, & Fletcher, 2013; Overbeek, Nelemans, Karremans, & Engels, 2013) manipulated the sex of the rotating group. Both the latter studies found that women were significantly choosier overall (see Figure 1), and neither study found that the rotation of gender moderated this effect (thus failing to replicate the earlier finding by Finkel and Eastwick, 2009).

Study name	Odds ratio	Lower limit	Upper limit	*Z* value	*p* value
Li, Sng, & Fletcher, 2013	1.962	1.191	3.231	2.646	.008
Asendorpf, Penke, & Back, 2011	1.214	0.842	1.750	1.040	.298
Overbeek, Nelemans, Karremans, & Engels, 2013	1.879	1.379	2.562	3.993	.000
Todd, Penke, Fasola, & Lenton, 2007	2.338	0.768	7.119	1.495	.135
Lenton & Francesconi, 2010	1.713	1.523	1.927	8.970	.000
Finkel & Eastwick, 2009 (info. supplied)	1.085	0.741	1.589	0.418	.676
Kurzban & Weeden, 2005	1.740	1.634	1.854	17.143	.000
Fisman, Iyengar, Kamenica, & Simonson, 2006 (info supplied)	1.544	1.079	2.211	2.373	.018
Luo & Zhang, 2009 (info supplied)	1.153	0.576	2.310	0.403	.687
McClure, Lydon, & Baccus, 2010 (info. supplied)	2.621	1.312	5.236	2.729	.006
	1.655	1.498	1.830	9.862	.000

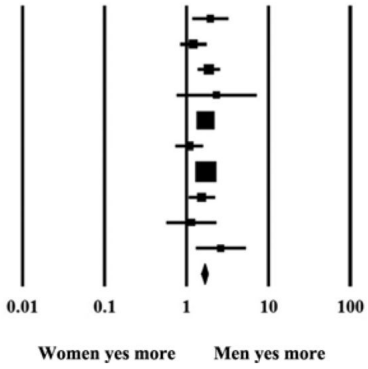

Figure 1. Statistics and forest plot of the meta-analysis (using random effects) showing the magnitude and direction of sex differences for selecting partners to make further contact in speed-dating studies. *Note*. For studies with "info. supplied" in brackets the relevant data were supplied by the authors.

Although these findings support evolutionary logic concerning the ultimate origins of the greater choosiness of women in early mate-selection contexts, little attention has been given to explaining why women might be choosier than men in terms of proximal-level mediators. In the current study, we not only expected to replicate the basic finding that women are more selective than men, but also investigated the role played by several proximal-level variables.

One explanation for sex differences in selectivity is provided by error management theory (Haselton & Buss, 2009), which posits that biased perceptions are often functional and may differ according to sex, consistent with the classic formulation of parental investment theory. For example, in early mate-selection contexts men may be unwilling to let the chance of a romantic liaison be missed, whereas women are more likely to be more cautiously focused on the risks of maintaining contact with a man who is feigning romantic interest. Provisional evidence for this thesis in a speed-dating context was obtained by Perilloux, Easton, and Buss (2012) showing that men exaggerated the sexual interest of their partners, whereas, women underestimated the sexual interest of their partners. One question raised by these authors was whether the same pattern of results would be obtained with judgments of romantic interest. Romantic interest may include sexual interest, but (as measured in the current study) also indicates the desire to get to know the partner better and go on a further date. We tested this possibility in the current research predicting that men would exaggerate the romantic interest of their potential partner, whereas women would underestimate it.

A second novel explanation tested in the current study involved a mediating model predicting why women are more selective than men in terms of three proximal-level mediating factors (shown in Figure 3). When individuals meet briefly for the first time in a mate-selection context, they are probably focused on assessing the extent to which the potential partner meets or surpasses some minimum standards required for expending the effort required to further explore the possibility of a romantic liaison (see Li, Yong, et al., 2013). Yet the published speed-dating studies do not measure prior mating standards in this fashion.

We propose that because women have higher minimum standards than men in very early mate-selection contexts, they should perceive their partners as failing to meet their minimum standards to a greater extent than men, and so develop less romantic interest. A lower level of romantic interest, in turn, should translate into a lower likelihood of deciding to make further contact than men. As can be seen in Figure 3, we also expected that perceptions of attractiveness and vitality would play the dominant role overall in predicting romantic interest and choices of potential partners (also see Li, Yong, et al., 2013). An explanation is given in the next section where we address the functionality and accuracy of perceptions in early mate-selection contexts.

Accuracy, Functionality, and Perceptions

To explain the lack of sex differences, and the apparent failure of self-reports of mating standards to predict choices or romantic interest in brief, initial interactions between men and women, Eastwick and Finkel (2008) applied Nisbett and Wilson's (1977)celebrated argument to argue that individuals may lack good introspective awareness of their romantic ideal preferences and instead base their judgments on flawed a priori theories. This refrain (lay theorizing in early mating contexts is badly flawed) has been picked up by others. For example, Luo and Zhang (2009) suggest that judgments and choices in real-world mate-selection contexts might be irrational and not in the best reproductive interests of the judge (p. 956), and Overbeek et al. (2013) concur that people may simply lack introspective awareness of the relevant factors.

We think this general argument is weak. Self-reports of mate ideals or standards are internally reliable and stable over time, and have evinced a solid pattern of convergent and discriminant correlations with other variables (Fletcher, Simpson, Thomas, & Giles, 1999). Research also shows they have a strong record of predictive validity, predicting relationship evaluations (Fletcher et al., 1999),

attempts to regulate partners (Overall, Fletcher, & Simpson, 2006), and relationship dissolution (Eastwick & Neff, 2012; Fletcher et al., 2000). It is not clear why such judgments should fall apart in speed-dating contexts simply because they are fallible or based on a priori theories, given that virtually all human judgments are fallible and based (in part) on a priori theories (see Fletcher, 1995; Newell & Shanks, in press). In addition, given the importance of mate-selection judgments in people's lives, and the long evolutionary history behind them, it seems to us implausible that they are especially dysfunctional or irrational. If judgments in early mating contexts are in fact functional and rational, rather than perverse or hopelessly awry, one way of finding supporting evidence is to examine more closely the accuracy of the perceptions of the participants.

In a recent meta-analysis, Fletcher and Kerr (2010) found that individuals in ongoing romantic relationships track the qualities of their partner in a remarkably accurate fashion regardless of the nature of those judgments. Across 98 studies, the mean effect size linking partner and relationship judgments with a range of objective benchmarks was $r = .47$. However, in ongoing intimate relationships, individuals have a huge database of observations and experiences to work with. In contrast, initial interactions between strangers pose serious constraints on the extent to which traits can be quickly and accurately assessed.

A considerable amount of research has examined the accuracy of judgments among strangers in nonromantic contexts based on limited information. Funder's (1995) realistic accuracy model proposes that having the motivation and ability are not enough on their own to produce accurate judgments. The relevant cues need to be displayed, and they need to be readily accessible. Consistently, the best replicated findings from this research literature suggest that traits that are readily observable, such as physical attractiveness and extroversion, are assessed with higher accuracy by strangers than traits that are more complex, internal, and harder to judge like kindness, neuroticism, or intelligence (see Beer & Watson, 2008). However, no prior research to our knowledge has investigated the accuracy of such judgments in the early stages of mate selection. Given the difficulty and relatively nuanced nature of forming judgments about internal personality traits, and the fact that qualities like physical attractiveness and extroversion are readily observable, we predicted in the current study that perceptions of attractiveness/vitality would be more accurate than other judgment categories (such as sensitivity and ambition).

If the process of making decisions and judgments in early mate selection is functional and rational, we should also find that mate choices and romantic interests are primarily based on partner perceptions linked to observable traits like physical attractiveness, rather than on more abstruse, internal personality traits. That is, individuals should consciously or unconsciously weight information that is more easily and more accurately assessed. The speed-dating studies, using objective observer ratings of physical attractiveness, have uniformly reported that greater physical attractiveness is positively associated with opposite-sex partners being more romantically interested or saying yes to making further contact (e.g., Asendorpf, Penke, & Back, 2011; Luo & Zhang, 2009; McClure, Lydon, & Baccus, 2010; Overbeek et al., 2013). However, only 2 of the 10 studies listed in Figure 1 assessed the links between perceptions of physical attractiveness or other traits in their partners and romantic interest or choices (Finkel & Eastwick, 2009; Fisman, Iyengar, Kamenica, & Simonson, 2006). In both these studies, perceptions of physical attractiveness more strongly predicted romantic interest or mate choices than perceptions of other traits, such as earning prospects, intelligence, or ambition. We expected to replicate this finding here.

Current Study

In the current study, we randomly paired heterosexual men and women looking for a possible romantic relationship. These couples had 10-min conversations, which were taped. The tapes were rated by two observers on the same dimensions that the partners rated each other. This enabled us to assess tracking accuracy in three independent ways—the agreement between self-perceptions of the participant and the ratings of both their partner and observers, and the consensus attained between the judgments of the partner and the rater observers of the man and woman.

If judgments of partners in the very beginning stages of mate selection (including warmth, trustworthiness, attractiveness, vitality, status, and resources) are rational and functional, we should find that people put the most weight on exactly the same traits that they can most accurately judge. Thus, we predicted that perceptions specifically linked to physical attractiveness and vitality should be both more accurate and stronger predictors of both romantic interest and deciding to make further contact, than the other traits assessed (e.g., warmth, status, and so forth), and this should be true for both men and women.

We also made three predictions associated with sex differences. First, we predicted that men would exaggerate the actual romantic interest of their potential partner, whereas, women would underestimate it. Second, we expected to replicate the common finding that women would be choosier than men. Third, we tested a novel explanatory model for this sex difference specifying the proximal-level factors involved; namely that women should perceive their partners as failing to match their higher minimum standards more than men, thus generating lower romantic interest than men and, in turn, being less likely to decide to make further contact.

Method

Participants

One hundred heterosexual students (50 men and 50 women) were recruited from University of Canterbury, New Zealand. Participants were not currently in a romantic relationship and were 18 to 30 years of age ($M = 21.07$, $SD = 2.56$).[2]

Materials

All the scales attained good internal reliability, as can be seen in Table 1.

Table 1. Descriptive Statistics, Measurement Reliabilities, and Correlations Across Partners.

	Internal reliability	Correlation across partners	Male	Female
			M (*SD*)	*M* (*SD*)
Minimum standards				
Warmth/trustworthiness	.89	.18	5.57 (1.70)	6.45 (1.41)
Attractiveness/vitality	.83	.11	5.31 (1.63)	5.85 (1.31)*
Status/resources	.92	.02	4.50 (1.88)	5.37 (1.96)*
Perceptions of partner				
Warmth/trustworthiness	.80	−.07	5.42 (0.77)	5.43 (0.75)
Attractiveness/vitality	.81	−.21	4.92 (0.91)	4.18 (1.22)*
Status/resources	.80	−.10	5.21 (0.90)	5.02 (1.12)
Self-perceptions				
Warmth/trustworthiness	.87	.25	5.52 (1.21)	5.71 (0.88)
Attractiveness/vitality	.75	.05	4.57 (1.00)	4.64 (1.08)
Status/resources	.79	−.04	5.20 (1.03)	5.18 (0.96)
Perception-standards matching				
Warmth/trustworthiness	.87	−.13	5.04 (0.89)	4.95 (0.87)
Attractiveness/vitality	.85	−.10	4.77 (1.01)	4.28 (1.19)*
Status/resources	.87	−.13	4.88 (1.17)	5.08 (0.96)
Romantic interest				
Self in partner	.92	−.06	4.21 (1.39)	3.14 (1.54)*
Partner in self	.88	−.02	3.95 (1.22)	3.75 (1.20)
Choose to make contact	—	.00	0.72 (0.45)	0.36 (0.48)*
Observer ratings				
Warmth/trustworthiness	.32	.12	5.15 (0.71)	5.24 (0.71)
Attractiveness/vitality	.58	.11	3.89 (1.28)	4.70 (0.81)*
Status/resources	.69	.11	5.05 (7.65)	4.97 (0.63)

Note. All measures are on 7-point scales, except the minimum standards (first four rows) which were on 10-point scales. None of the correlations across partners were significant at the $p < .05$ level. Choose to make contact is coded 1= *yes*, 0 = *no*. All other continuous variables are coded in a positive direction.
*Means across sex significantly different at $p < .05$ level, according to dependent *t* tests.

[2] The age range in this study is similar to other speed-dating studies carried out with student samples. However, to evaluate whether age discrepancies might be associated with romantic interest or saying yes to further contact, we tested if the interaction between the male and female ages predicted these variables using standard multiple regression approaches. In no case was there any hint of age discrepancies predicting these dependent variables for men or women—the p levels associated with the interactions terms ranged from .72 to .97.

Self and partner perceptions

Participants rated themselves and their conversation partners on scales adapted from the Partner Ideal Standards Scale (Fletcher et al., 1999). Each scale asked participants to indicate how accurately the item described themselves (and their interaction partner) from 1 (very inaccurate) to 7 (very accurate). The ideal standard dimensions were (a) warmth/trustworthiness (kind, considerate, sensitive, good listener), (b) attractiveness/vitality (sexy, attractive appearance, outgoing, adventurous), and (c) status/resources (successful, financially secure, well dressed, good job—followed by or potential to obtain in parentheses).

Minimum standards

The same 12 items as for the self/partner perceptions were used to assess minimum standards, along the same three ideal dimensions: warmth/trustworthiness, attractiveness/vitality, and status/resources. We used a similar method as used in prior research (e.g., Kenrick, Sadalla, Groth, & Trist, 1990; Li, Yong, et al., 2013, Study 2). For each item, participants were asked to imagine meeting a potential partner and to think in terms of a 10-point scale, where 1 = well below average, 5 =about average, and 10 = above average. They were then asked to indicate what the minimum quality this person would need to possess for them to be considered for a possible romantic relationship.

Perception-standards matching

For this measure, conversation partners were rated on the same 12 items as used in the perception and self scales, split into the same three categories: warmth/trustworthiness, attractiveness/vitality, and status/resources. For each item, participants were asked to rate the extent to which the partner fell short of or exceeded their minimum acceptable standard for going on a date. Ratings were made on a 7-point scale where 1= far short of minimum standard, 4 = about equal to minimum standard, and 7 = greatly exceeds minimum standard.

Factor analyses

Prior use of these scales in samples of people in ongoing romantic relationships has shown they possess good reliability and validity, and has also revealed a reliable 3-factor structure for the three categories of ideal standards (e.g., Fletcher, Tither, O'Loughlin, Friesen, & Overall, 2004; Overall et al., 2006). Given the independence of all these judgments across partners (see Table 1), we carried out both exploratory and confirmatory factor analyses for each set of scales using the full sample of 100 individuals. The results confirmed the same factorial structure reported in prior research. We also carried out some novel exploratory and confirmatory factor analyses, within each of the ideal standard categories (warmth/trustworthiness, attractiveness/vitality, and status/resources), but across the four kinds of judgments entered into the same model (self judgments, minimum standards, partner perceptions, and perception-standards matching). For example, we analyzed the extent to which the attractiveness/vitality judgments loaded independently on the four targets. Again, the results confirmed the four-factor structure, for each of the target judgments.

Although these results need to be treated cautiously given the relatively small sample size, they suggest that the constructs measured by the different scales are relatively independent and can be validly analyzed, for example, in mediation models. Full results of all these analyses are available from the first author.

Romantic interest

Judgments of a participant's romantic interest in his or her partner used three items: "I felt potential romantic chemistry with this person," "I am interested in getting to know this person," and "I would be interested in going on a date with this person." Ratings were made on a 7-point scale with strongly disagree and strongly agree as anchors. The same items were also used in a reworded form to assess the extent to which the conversation partner had romantic interest in them.

Procedure

Participants initially completed an online questionnaire battery, including the self perception and the minimum standards scales (as described previously), 4 to 10 days before coming into the lab for a 10-min interaction with an opposite-sex stranger. Participants were randomly paired. Their single status was confirmed and any pair of participants that were previously acquainted were split and rescheduled with different conversation partners.

The conversations were explicitly framed to the participants as providing an opportunity for making a romantic connection. The room was set up with a coffee table and two comfortable seats that were turned toward each other at a 90° angle. Two cameras were placed discretely in the room, one behind each participant, and positioned to record the face and body language of their conversation partner. Another camera was positioned for a wide-angle shot of both participants as they chatted. Participants were told to talk about whatever they liked, but that they would be asked afterwards to choose whether to share contact details with their partner. After the 10-min conversation, participants independently completed the following questionnaires in separate rooms as described above: perceptions of partner, perception-standards matching, and romantic interest. Finally, participants were invited to leave their name and contact details if they wanted to forward these to their conversation partner to make further contact. If both partners provided contact details, then these were provided to both partners.

Two trained raters watched each recorded interaction and independently rated each individual using exactly the same rating scales as the participants. These ratings were reliable across raters (see Table 1). They were thus summed to produce one observer rating for each of the three judgment categories.

Results

Descriptive Results

The descriptive results are shown in Table 1. As can be seen, all the scales attained good internal reliability (Cronbach's α). The correlations for all the measures across partners were close to zero and nonsignificant, which is not surprising given that partners were randomly paired. There were several significant gender differences. As predicted, women (36%) were much less likely than men (72%) to say they wanted further contact with their partner. Women (compared with men) also (a) reported higher minimum standards prior to the interaction, which were significant for warmth/trustworthiness and status/resources; (b) perceived their partners as possessing less attractiveness/vitality; (c) perceived their partners as matching their minimum standards on attractiveness/vitality to a lesser extent; and (d) expressed less romantic interest in their partners. Of the 50 couples, 13 were matched on desiring further contact. Follow-up by the researchers revealed that of this latter group, 90% of the men and 80% of the women actually contacted their matched partner.

Associations Among Perceptions, Standards, and Romantic Interest

We next tested our hypothesis that perceptions of attractiveness/vitality and the extent to which perceptions match minimum standards should dominate in predicting romantic interest. To control for possible shared variance across the male and female ratings, and to carry out tests for gender differences, we used an interdependence model using Structural Equation Modeling (SEM). For example, we set up a model in which the male and female perceptions of attractiveness/vitality, and the extent to which perceptions match minimum standards, were the independent variables. These independent variables were linked by double-headed arrows to control for shared variance, and included paths from the independent variables to perceptions of romantic interest of the males and females, respectively. The existence of gender differences across these paths was tested by setting the paths to equality and checking if the loss of variance was significant. None of the paths across gender

were even close to significantly different, and thus were left as pooled (which increases the power of the analysis).

The results are shown in Table 2. We carried out two sets of analyses. First, we analyzed each model within each of the three ideal categories. Next, to counter possible halo effects, we analyzed an overall model in which all the independent variables across all three ideal categories were entered simultaneously. As we expected (see Table 2), attractiveness/vitality was clearly the principal factor associated with romantic interest, rather than the remaining two categories of warmth/trustworthiness and status/resources. Moreover, both more positive perceptions and a better match between perceptions and minimum standards independently predicted more romantic interest, and this was true for both men and women. When we added the judgments of minimum standards that were assessed prior to the interactions (see method section) as an additional independent variable into any of the models, with perceptions and the match between perceptions and minimum standards already present as independent variables, the results were unchanged.[3]

Table 2. Pooled Paths Across Sex From Partner Perceptions and Perception-Standards Matching to Romantic Interest as the Dependent Variable Using an Interdependence Model.

	Perceptions and P-s matching entered simultaneously separately for each category				Perceptions and P-s matching entered simultaneously including all three categories			
	Perceptions of partner		P-s matching		Perceptions of partner		P-s matching	
	M	F	M	F	M	F	M	F
Warmth/trustworthiness	.07	.07	.30*	.27*	.07	.07	−.04	−.04
Attractiveness/vitality	.42*	.53*	.29*	.32*	.39*	.50*	.36*	.40*
Status/resources	.21	.17	.22*	.25*	.00	.00	−.06	−.07

Note. All paths are standardized regression coefficients. Paths were pooled across sex, but may vary slightly because they were forced to equality at the unstandardized level. P-s matching = perceptions of the partner as matching or exceeding minimum standards. M = males; F = females.
*$p < .05$.

Bias and Accuracy of Judgments

Three indices of accuracy were calculated. To assess tracking accuracy, observer and partner perceptions were each correlated with the self-perceptions of the target. Consensus between observer and partner judgments of the target was also assessed using a correlation coefficient. All three correlations were calculated for each judgment category for male and female targets independently. Note that these correlations were calculated across the male and female samples for each given variable (they were not within-couple profile correlations). The results were very similar for each sex, so mean correlations were calculated across the male and female targets. The findings are depicted in Table 3.

[3] We also used a multiple regression approach to test the extent to which minimum standards (assessed 4–10 days previously) moderated the link between perceptions and romantic interest. Because the variables involved were only weakly associated across partners (see Table 1), for this analysis, we treated the sample as a set of individuals (50 men and 50 women). In no case, for any of the three judgment categories (attractiveness/vitality, warmth/trustworthiness, and status/resources), was a significant interaction produced nor did any moderating effect vary as a function of sex. These results replicate prior research on speed dating using an approach which tests moderation effects for continuous-level predictors. We think there are two reasons for this. First, the variance in the targets may be truncated because of the nature of the sample. For example, distinctly unattractive individuals may avoid attending speed-dating events, and studies using college students or urban professionals will have limited variance on the possession of social status (see Li, Yong, et al., 2013). Second, moderating analyses using continuous passive variables are notoriously conservative because (unlike experimental designs) they typically have small numbers of extreme individuals driving the size of the interaction effect (McClelland & Judd, 1993).

Table 3. Consensus Correlations Across Observer Raters and Partner Judgments and Accuracy Correlations With Self Judgments as the Benchmark.

	Consensus: observer ratings with partner judgments	Accuracy: observer ratings with self-perceptions	Accuracy: Partner judgments with self-perceptions
Warmth/trustworthiness	.30* (.57)	.07 (.13)	.06 (.07)
Attractiveness/vitality	.53* (.80)	.37* (.56)	.32* (.41)
Status/resources	.41* (.55)	−.05 (−.07)	.08 (.13)

Note. Correlations are mean correlations across sex of partner. Disattenuated correlations (adjusting for the reliability of the variables) are in parentheses.
*$p < .05$.

Perhaps not surprisingly, given that both the partners and the raters had access to essentially the same information, the strongest results were obtained for consensus across observers, with attractiveness/vitality leading the way, followed by status/resources and then warmth/trustworthiness. The accuracy correlations, using self-perceptions as the benchmark, revealed moderately high and significant accuracy for attractiveness/vitality, but weak nonsignificant accuracy for the other two categories. Thus, as we expected, the accuracy and consensus indices were stronger for attractiveness/vitality than either status/resources or warmth/trustworthiness. To check that the internal reliability of these measures was not an artifact in producing these results (see Table 1), we calculated disattenuated correlations that provide estimates assuming perfectly reliable measurement. As can be seen in Table 3, the same pattern of results was obtained.

On the basis of error management theory, we predicted that men would exaggerate the romantic interest of their female partners, but that women would underplay the romantic interest of their male partners. We analyzed these data with a 2 (sex of romantic interest reported by target) × 2 (sex of self-reported romantic interest in partner) ANOVA, using within-participant variables. The results revealed a significant interaction effect, $F(1, 49) = 2.65$, $p = .008$, $\eta^2 = .13$. As shown in Figure 2, the findings supported our prediction as previously outlined. Moreover, comparisons using *t* tests of the simple effects confirmed that the male perceiver judged the romantic interest of his female partner ($M = 3.95$, $SD = 1.22$) as significantly higher than was reported ($M = 3.14$, $SD = 1.53$), $t(49) = 3.03$, $p = .004$, Cohen's $d = .43$. In contrast the female perceiver judged the romantic interest of her male partner ($M = 3.75$) as significantly lower than was reported ($M = 4.21$, $SD = 1.39$), $t(49) = 2.02$, $p = .049$, Cohen's $d = .29$.

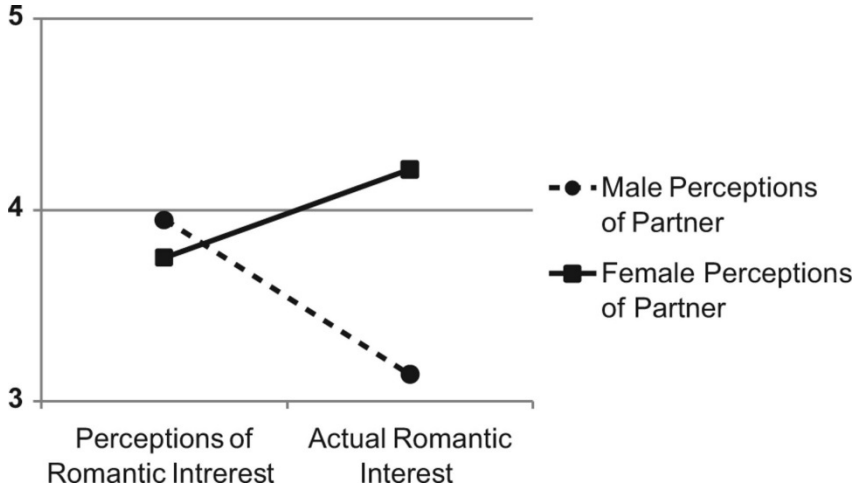

Figure 2. Interaction showing the extent of bias in perceiving romantic interest from the partner as a function of sex.

Note. Romantic interest is on a 7-point scale.

Explaining Sex Differences in Romantic Interest and Choosing to Make Further Contact

The results thus far (see Table 1) show that sex differences exist in both the levels of romantic interest and the desire to make further contact with the partner, along with the two variables that appear to be the main drivers of these two outcomes, namely, the perception of the partners' attractiveness/vitality and the extent to which the partner is perceived as matching or exceeding minimum standards of attractiveness/vitality. Given that the variables in this model were not correlated across partners (see Table 1) for this analysis, we set up the data as composed of 100 individuals (50 men and 50 women). We then tested the mediational causal model linking these variables as shown in Figure 3. In this model, we predicted that women would express less romantic interest than men because they had more negative perceptions of attractiveness/vitality and perceived their partner as falling short of their minimum standards of attractiveness/vitality to a greater extent. Women's lower level of romantic interest, in turn, should lead to them say no, more often, to making further contact.

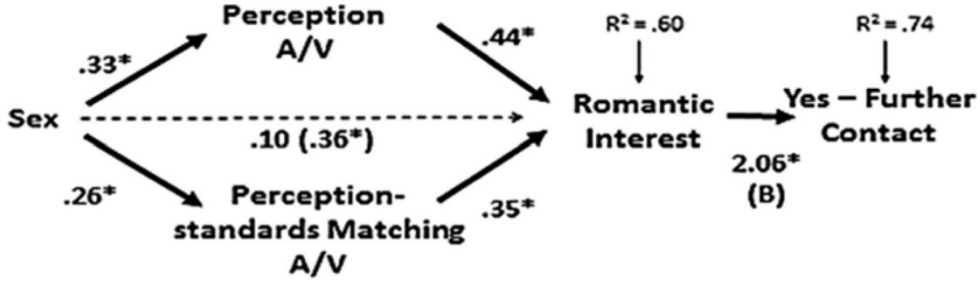

Figure 3. A two-stage mediation model linking sex differences to romantic interest, and yes to further contact (N = 50 men and 50 women).

Note. The error terms for Perception A/V and Perception-standards Matching A/V were correlated via a double-headed arrow (not shown in model). The final path is an unstandardized regression coefficient (from a logistic regression). A/V = attractiveness/vitality. Sex is coded as *men* = 1 and *women* =0. Yes to further contact is coded as *yes* = 1 and *no* =0. The other three continuous variables were coded in a positive direction.

*$p < .05$.

This model was tested in two stages. In the first stage, we used SEM to test our hypothesis that sex differences in romantic interest were mediated by both perceptions of attractiveness/vitality and perception-standards consistency. This part of the model was supported, as can be seen in Figure 3. All the mediating paths were significant and the indirect effect was large and significant (standardized indirect effect = .24, p <.01). This analysis indicates that women expressed less romantic interest than men as a function of women possessing less positive perceptions of the partners' attractiveness/vitality and simultaneously perceiving these qualities as falling short of their minimum standards to a greater extent. When the observer ratings of attractiveness/vitality were included as an additional independent variable, the results were unchanged.

In the second stage of the model, we used logistic regression to test the extent to which the final link from romantic interest to saying yes to further contact was mediated by both perceptions of attractiveness/vitality and perception-standards matching. To derive the appropriate equations for such an analysis, which has a categorical dependent variable and continuous independent variables (see MacKinnon & Dwyer, 1993), we used the website maintained by Nathaniel Herr (http://www.nrhpsych.com/mediation/logmed.html)

The results showed that both perceptions of attractiveness/vitality and perception-standards matching attained significant indirect effects according to Sobel's test (perception z = 3.00, p < .005; partner/standard comparison z = 2.68, p < .01). In all cases, the paths from sex, perceptions of attractiveness/vitality, and perception-standards matching were significant predictors of saying yes to further contact when the final mediating variable was omitted (romantic interest), but dropped to nonsignificant levels when romantic interest was included in the equation. The final path showed that expressing more romantic interest was associated with a higher chance of saying yes to further contact (B = 2.05; SE = .52), and women said no to further contact more than men as a function of having

lower romantic interest. Using the full model, 74% of the variance was explained (Nagelkerke R^2), with 87% of the sample being correctly assigned to either saying yes or no to further contact. When we included the observer ratings of attractiveness/vitality as an additional independent variable, the results were unchanged.

Discussion

This research replicates, clarifies, and extends prior research in several major ways. First, it suggests that lay psychology in the early stages of mate selection is both functional and rational. The very kinds of lay judgments (i.e., attractiveness/vitality) that dominated in influencing romantic interest and decisions about further contact, for both men and women, were also the most accurately perceived. Second, as predicted by parental investment theory, women were more cautious and choosy than men. Women underestimated their partner's romantic interest, whereas men exaggerated their partner's romantic interest, and women were also considerably less likely to want further contact. Third, a mediational model suggested that women (compared with men) were less likely to want further contact because they perceived their partners as less attractive and vital, and as falling shorter of their minimum standards on the same factor, thus producing lower romantic interest.

When we squeezed out halo effects in our analyses (see Table 2), the clear winner in terms of the influence wielded on judgments of romantic interest was the perception of attractiveness/vitality (compared with warmth/trustworthiness and status/resources), along with the extent to which such perceptions matched or exceeded minimum standards for attractiveness/vitality. This finding is consistent with other studies showing that objective measures of physical attractiveness tend to dominate in predicting romantic interest. Moreover, in the current study, attractiveness/vitality also attained the largest consensus across the partners and the observer raters (.53 compared with .30 and .41), and superior accuracy for the judges (partners and observer raters) treating the self-perceptions of the targets as the benchmark (.32 and .37 compared with −.05 to .08 for the other sets of traits). Given that attractiveness and vitality are more readily and accurately judged, presumably because these are surface traits that are easier to observe than more internal and complex personality variables, the weight that both men and women place on this factor in making decisions about whether to go beyond the first few minutes in pursuing a possible romantic relationship seems both rational and functional.

The functional nature of lay judgments in early mating contexts is underscored by our analysis of strong sex differences in the current study, showing that women underestimated their potential partner's romantic interest, whereas men exaggerated their partner's romantic interest, a finding which complements Perilloux et al. (2012), who found the same pattern with respect to the sexual interest of their chat partners. Both findings are consistent with error management theory (Haselton & Buss, 2009), which proposes that systematic biases in perceptions are often rooted in attention being given to the costs and consequences of making mistakes in conditions of uncertainty. In terms of parental investment theory, there are well-founded reasons for women to focus on avoiding male partners who are not sincere about their willingness to commit to a long-term relationship, and for men to focus on avoiding missing out on opportunities to have sex perhaps in a short-term context.

Women were also much more likely to say no to the possibility of further contact than men, a finding which replicates prior research. However, a novel aspect of the current study was to test and provide support for a mediational model, showing that women (compared with men) were less likely to want further contact because they perceived their partners as less attractive and vital and as falling short of their minimum standards to a greater extent on the same factor, thus generating lower romantic interest. This study thus identifies some critical self-reports of proximal-level variables that successfully predict both the romantic interest and behavioral decisions in early mate-selection domains, and in explaining the well-replicated sex differences on the same variables.

Intriguingly, the observer raters agreed with the participants' judgments that the women were better looking and more vibrant than the men, but were more or less equivalent in terms of the other traits

assessed (warmth/trustworthiness and status/resources; see Table 1). The paths in the mediation model linking gender with perceptions, minimum standards, romantic interest, and decisions on making further contact (see Figure 3) were, however, unchanged when the observer ratings of attractiveness/vitality were controlled for. These latter findings suggest that the perceptions and judgments of the participants are what count here, over and above objective differences in appearance and behavior.

It is possible that we unwittingly recruited an unusually homely set of men for our sample. However, findings (using objective measures) that women are more physically attractive than men are routinely reported across different settings, including interactional, nonromantic contexts (Marcus & Miller, 2003), speed-dating studies (Back et al., 2011; Overbeek et al., 2013), ratings of photographs posted online (Wood & Brumbaugh, 2009), and interviewer ratings of adolescents (Kanazawa, 2007). No systematic reviews of such gender differences have been carried out to our knowledge, so these scattered findings should be treated cautiously. Moreover, various explanations seem plausible, including the possibility that unattractive women are less likely to attend speed-dating events or volunteer to participate in research than unattractive men, because of the greater societal emphasis on physical appearance for women than men. Alternatively, it is possible that there is something basic about the prototypical appearance of women (compared with men) that leads to them being routinely perceived as more physically attractive (Kanazawa, 2007). Explaining the nature and origins of this effect is a task for further investigation.

Caveats and Conclusion

Asking participants to judge the extent to which perceptions matched or exceeded minimum standards required participants to fold both standards and perceptions into one response, which could be regarded as problematic. However, the results held up robustly when both perceptions and minimum standards were controlled for, which replicates the pattern of findings for the same kind of measure when used to predict relationship quality or regulation attempts in existing long-term relationships (Overall et al., 2006). These results suggest that people are capable of directly comparing their perceptions with their standards on traits that are central to mate selection and intimate relationships.

One explanation proffered by Eastwick et al. (2013) for the predictive successes of this kind of measure, that asks respondents to directly compare their standards with their perceptions of a specific person, we think, is on the right track:these items force the participant to think of each attribute in concrete terms as exhibited by the partner. In answering these items, the participant is not comparing the trait of a partner with an abstract, disembodied ideal, but is instead rating the extent to which the partner exhibits the trait in a way that the participant finds appealing. (p. 21)

This study is of course limited in terms of its sample size and its correlational nature. Moreover, there is prior evidence that both the nature of the methodology used (e.g., correlational vs. experimental) and relatively subtle nuances in the social context (e.g., nature of the sample, number and quality of individuals being assessed in a given mate-selection context) influence responses and related sex differences in early mate-selection contexts (see Li, Yong, et al., 2013).

The mediation model (see Figure 3) was fully supported. However, the key judgments were provided within a tight time frame. Thus, it is possible that romantic interest is formed very early on and causes perceptions and judgments of perception-standards matching, rather than constituting the effect. When we tested this latter mediational model it was not supported, because the link from romantic interest to decisions about a further meeting was not mediated at all via partner perceptions or perception-standards matching linked to attractiveness/vitality. However, more robust evidence concerning this model requires the use of experimental methods (i.e., the manipulation of perceptions or the match between perceptions and standards).

One difference between this study and the standard speed-dating paradigm is that participants in the current study had one interaction with a stranger (lasting 10 min) rather than a series of short 3-to-5-

min interactions with anywhere from 5 to 31 partners in the published speed-dating studies. Having only one interaction of this length in the current study probably increased the amount of information available to the participants, compared with the standard speed-dating study. However, the findings of the current study that were not novel were consistent with those found in other speed-dating studies, including the greater choosiness of the women, and the power wielded by (objectively measured) physical attractiveness over romantic interest and mate choices for both men and women. Moreover, having a single 10-min interaction with a potential partner arguably has as much or even more ecological validity compared with a series of rapid-fire, sequential interactions with a large group of potential partners.

Despite its limitations, this study also had considerable strengths. Given the centrality of mate-selection judgments in human lives and the long evolutionary history undergirding such judgments, it is perhaps no surprise that the way lay psychology works in this context is both functional and rational. In general terms, this research also adds to a considerable body of evidence that sex differences are alive and well in early mate-selection contexts (see Li, Yong, et al., 2013), the nature of which are consistent with plausible and well-established theories from evolutionary and social psychology.

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