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Prioritization of Potential Mates' History of Sexual Fidelity During a Conjoint Ranking Task

Justin K. Mogilski[1], T. Joel Wade[2], and Lisa L. M. Welling[1]

Abstract

This series of studies is the first to use conjoint analysis to examine how individuals make trade-offs during mate selection when provided information about a partner's history of sexual infidelity. Across three studies, participants ranked profiles of potential mates, with each profile varying across five attributes: financial stability, physical attractiveness, sexual fidelity, emotional investment, and similarity. They also rated each attribute separately for importance in an ideal mate. Overall, we found that for a long-term mate, participants prioritized a potential partner's history of sexual fidelity over other attributes when profiles were ranked conjointly. For a short-term mate, sexual fidelity, physical attractiveness, and financial stability were equally important, and each was more important than emotional investment and similarity. These patterns contrast with participants' self-reported importance ratings of each individual attribute. Our results are interpreted within the context of previous literature examining how making trade-offs affect mate selection.

Keywords

romantic relationships, judgment and decision making, relationship cognition, evolution

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The current research seeks to examine whether individuals will prioritize a potential partner's history of sexual fidelity—and whether the importance of sexual fidelity varies by the temporal context of the relationship sought—when forced to make trade-offs among partner fidelity and other relevant mate attributes. We address this question using a novel multivariate statistical test: conjoint analysis (CA). CA has been underutilized in mate preference research and may not be readily recognized or understood by researchers within this field. To this end, the current research reports novel findings pertaining to prioritization of a potential partner's history of sexual fidelity and describes what CA is and how it might be incorporated into future mate preference research.

Trade-Offs During Mate Selection

Human mate preferences follow patterns predicted by evolutionary theory across cultural, environmental, and situational contexts (Schmitt et al., 2012). These preferences vary across temporal contexts, such as age and level of relationship involvement (Buunk, Dijkstra, Fetchenhauer, & Kenrick, 2002), relationship context (i.e., long-term and short-term; Buss & Schmitt, 1993; Gangestad & Simpson, 2000), self-perceptions of mate value (Barkow, 1978; Kenrick, Groth, Trost, & Sadalla, 1993; Wade, 2000, 2003), and skewed population sex ratio (Schmitt, 2005; Stone, Shackelford, & Buss, 2007). Therefore, mate preferences are not inflexible, but can be moderated by the context in which they are evaluated (Buss, 2009; Buss & Schmitt, 1993; Kenrick, Li, & Butner, 2003).

One moderating factor that has recently received attention has been how being forced to choose (i.e., make trade-offs) between multiple traits in a potential partner affects participants' reported mate preferences. In particular, budget allocation and mate-screening paradigms have revealed how making trade-offs between traits affects how people prioritize the traits they seek in potential long- and short-term mates (Li, 2008; Li, Bailey, Kenrick, & Linsenmeier, 2002; Li, Valentine, & Patel, 2011). Li et al. (2002) asked participants to design ideal mates using a "mating budget" to allocate points to different traits. When given a low budget, men prioritized a partner's physical attractiveness more than women

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did and women prioritized status and earning potential more than men did. When given a high budget, these sex differences disappeared and participants more evenly allocated their mate dollars among other "luxury" attributes (e.g., kindness, liveliness, and creativity). Follow-up studies using a similar methodology (Li, 2007; Li et al., 2011) support this mate preference priority model, suggesting that individuals will prioritize traits in a potential mate that are evolutionarily predicted "necessities" (e.g., physical attractiveness for men, social status for women) when their options are constrained, but will more evenly prioritize "luxury" traits when sufficient levels of "necessity" traits can be acquired.

Few studies have systematically examined how these types of trade-offs affect preferences for whole individuals, as opposed to ratings or selections of specific mate attributes independently. Fletcher, Tither, Loughlin, Friesen, and Overall (2004) presented participants with pairs of hypothetical mates who varied across levels of warmth/trustworthiness, attractiveness/vitality, and status/resources. Participants were instructed to separately choose which in each pair they preferred for long-term and short-term relationship contexts. These mates were designed with opposing traits (e.g., high attractiveness/low warmth/high status versus low attractiveness/high warmth/low status) to force participants to make trade-offs. Overall, Fletcher et al. (2004) found that women prioritize warmth and status more than physical attractiveness relative to men, and men prioritize physical attractiveness over other traits relative to women, particularly in potential long-term partners. More recently, Li et al. (2013) found similar sex differences in preference when low versus moderate levels of partner attractiveness and social status were evaluated for a potential long-term relationship using both speed-dating events and constructed mate profiles. Specifically, when a mating pool includes people at the low end of social status and physical attractiveness, men choose mates based on physical attractiveness more than women do, whereas women choose mates based on social status more than men do. These studies demonstrate how an individual's preferences can be influenced by the availability of information about potential mates and emphasize the importance of examining mate preferences by having participants rate whole individuals rather than independent traits.

CA and Mate Selection

One common challenge to research asking participants to rate profiles rather than individual attributes is that researchers must usually control for extraneous mate attributes presented in these profiles that may influence evaluations of the attribute under investigation. For example, Li and colleagues (2013) evaluated the moderating role of physical attractiveness and social status in separate studies, controlling for whichever factor was currently not under investigation. Fletcher and colleagues (2004) presented partner descriptions in pairs only, reversing the desirability and undesirability of two attributes and keeping the third trait constant. By contrast, it may be ideal if participants were presented with multiple individuals at a time, with each individual possessing unique combinations of all attributes under investigation. Li and colleagues (2002) and Li and Kenrick (2006) first addressed this design challenge by presenting participants with 30 opposite-sex targets composed of five traits that were below average, average, or above average. Participants were given the option to uncover information about whether a target possessed low, average, or high levels of a trait. Which trait participants first decided to uncover was recorded and used to generate regression coefficients characterizing each trait's importance.

In the present studies, we utilized CA (Luce & Tukey, 1964) to extend the current literature, to provide a complementary means of studying trade-offs, and to provide a simple method for overcoming some of the common design challenges of studying relationship trade-offs. CA is a type of multivariate analysis that has gained popularity in marketing research (e.g., Gustafsson, Herrmann, & Huber, 2007; Lohrke, Holloway, & Woolley, 2010). It is often used to evaluate which product attributes are most important during consumer purchasing decisions by having consumers rank several versions of a product, each version composed of a unique combination of important product attributes. From these rankings, CA provides the researcher with "importance values" that indicate the relative contribution of each attribute to the overall evaluation of the product. The strength of this approach is that consumers are forced to make real-time decisions rather than report retrospective or imagined accounts of their preferences, and they rank whole products rather than independent attributes.

Although popular in marketing, its uses are not limited to this field of research. For example, McMullen and Shepherd (2006) used CA to assess which factors affect whether untenured assistant professors take risks involved in attempting to publish findings that challenge the current consensus in their field. Guided by hypotheses derived from self-efficacy theory (Bandura, 1977), they developed scenarios consisting of combinations of attributes, such as blame, monetary reward, credit, time pressure, and research skill, that varied in magnitude (i.e., from low to high). They interviewed 54 untenured professors who indicated which scenarios would influence their decision to engage in research of varying success probabilities and publish consensus-challenging results. They found that increases in credit are more effective at encouraging consensus-challenging research when the professors believe they are highly competent in that line of research, whereas blame and time pressure are more discouraging.

No previous research has investigated mate preferences using CA; however, using a conjoint approach may be useful in characterizing how trade-offs between particular partner attributes affect mate selection. Moreover, CA may demonstrate differences in results by virtue of how data are collected from participants (i.e., importance of traits when

considered against a whole person versus independently rated attributes). Studies measuring mate preferences typically obtain both independent and dependent variables from participants and then use these variables to estimate a predictive model. This is referred to as a "compositional" model (Hair, Anderson, Tatham, & Black, 1995)). By contrast, CA uses a "decompositional" model, whereby researchers specify levels for each independent variable beforehand and present participants with profiles containing different combinations of these levels. Participants provide rankings of these profiles as dependent variables and then the researchers can create a predictive model by using CA to "decompose" these ratings into estimates of how important each attribute is to a participant's ranking decisions.

This decompositional approach has several inherent benefits for studying mate preferences and hypothetical mate selection decisions. First, participants are forced to make trade-offs in real time (Lohrke et al., 2010). As noted by Fletcher et al. (2004), retrospective or imagined scenarios can result in response revision based on social desirability, faulty memory, or inability to articulate decision-making processes (Shepherd & Zacharakis, 1997). In addition, it can be difficult for individuals to verbalize their internal preferences (Wilson & Dunn, 1986). CA avoids these problems by presenting profiles that participants must rate in real time. Second, rather than rating attributes independently, participants consider the importance of attributes relative to the other presented attributes. In this way, participants' hypothetical mate choices reflect their preferences for the whole individual as opposed to isolated features of the individual. Thus, CA forces participants to make trade-offs while ranking each profile, which can potentially affect mate selection decisions (Li et al., 2002; Scheib, 2001; Wayneforth, 2001). Finally, participants are presented with a limited number of potential partners to rank. When participants report ideal mate preferences, they may mentally sample from an unlimited pool of potential mates. Lenton, Fasolo, and Todd (2009) found that people seem to adopt a less time-consuming, noncompensatory strategy in which they use fewer, easily assessed cues, such as physical attractiveness (Kurzban & Weeden, 2005), and make fewer trade-offs when selecting a mate from a larger sample of options. Lenton and Stewart (2008) also found that participants were more likely to use a noncompensatory strategy when choosing from a large set of 64 web-dating profiles than from a small set of 4 profiles. This suggests that participants may use more or fewer mate attributes to select a mate when choosing from a limited versus unlimited pool of potential mates, respectively. Relatedly, participants may form preexisting assumptions about features not under investigation when the number and quality of attributes being investigated are not restricted. CA restricts the number of attributes evaluated by participants by using predefined levels for each attribute.

In our three studies, participants ranked series of individual profiles for how likely they would start a romantic relationship with that person. Potential mates were organized into profiles that were characterized by five attributes: (a) financial stability, (b) physical attractiveness, (c) history of sexual fidelity, (d) emotional investment in a relationship, and (e) similarity to the participant with respect to personality, intelligence, and preferences for leisure activities. These rankings were then analyzed using conjoint procedures to evaluate how important each of the five individual characteristics was to participants' hypothetical mate choices. To compare CA of mate preferences with traditional measures, participants also rated each of the five attributes for its importance in an ideal mate.

Sexual Fidelity and Trade-Offs

The five attributes used in these studies have been implicated as factors important to both sexes in long-term and short-term intimate relationships (Buss, 1985, 1989; Buss, Shackelford, Kirkpatrick, & Larsen, 2001; Lucas, Wendorf, & Imamoglu, 2004; Lutz-Zois, Bradley, Mihalik, & Moorman-Eavers, 2006; Minervini & McAndrew, 2006), with the importance of each varying across sex (Buss & Schmitt, 1993) and according to an individual's mating strategy (Gangestad & Simpson, 2000). Yet, no study to date has examined hypothetical mate selection using CA, nor have previous studies investigated how prior knowledge of a potential mate's history of sexual fidelity influences these trade-off decisions.

Partner infidelity presents risks for both men and women (Buss, 2002; Gangestad & Thornhill, 1997; Geary & Byrd-Craven, 2004; Symons, 1979). As such, humans are sensitive to cues to infidelity (Schützwohl, 2005; Schützwohl & Koch, 2004; Shackelford & Buss, 1997; Starratt, McKibbin, & Shackelford, 2013), adaptively respond emotionally (Buss & Haselton, 2005), and adjust their mate guarding behaviors according to perceived threat of infidelity (Goetz & Shackelford, 2009; Kaighobadi et al., 2009; McKibbin, Starratt, Shackelford, & Goetz, 2011). Although this body of research typically studies infidelity cues within the context of an established relationship, recent studies have found that individuals may use physiological cues (e.g., voice pitch) to predict the sexual fidelity of unfamiliar potential mates (O'Connor, Pisanski, Tigue, Fraccaro, & Feinberg, 2014; O'Connor, Re, & Feinberg, 2011; Rhodes, Morley, & Simmons, 2013), suggesting that it is a prominent concern during relationship formation. Moreover, sexual fidelity is deemed highly desirable in a long-term mate (Minervini & McAndrew, 2006; Thiessen, Young, & Burroughs, 1993). In the present studies, we contribute to this body of research by using CA to examine whether individuals prioritize a potential mate's sexual fidelity when asked to make trade-offs among sexual fidelity and four other important mate characteristics in long- and short-term potential mates. All procedures were approved by the local Institutional Review Board.

Study 1

We first examined whether individuals prioritize a potential partner's history of sexual fidelity within the context of a long-term relationship. Men and women should prioritize physical attractiveness and financial stability to the extent that an individual can benefit from these traits within a long-term relationship, such as via increased genetic quality of offspring and resource acquisition, respectively (see, for example, Buss & Schmitt, 1993; Gangestad & Simpson, 2000). Yet, if a potential long-term partner is likely to be unfaithful, this may signal unreliable access to these benefits, prompting both men and women to prioritize sexual fidelity above all other traits. Therefore, we predicted that when asked to rank profiles conjointly, sexual fidelity would be prioritized above all other mate attributes for both men and women. Participants were also asked to rate each of the five individual attributes, but, because rating attributes does not force participants to make trade-offs, we did not predict that history of sexual fidelity would be rated as more important than all other attributes.

Method

Participants. Heterosexual participants (n = 193, 81 female; age: M = 31.92 years, SD = 10.28; range = 20-64) were recruited using Mechanical Turk (MTurk), a crowd-sourcing program developed by Amazon (Buhrmester, Kwang, & Gosling, 2011). MTurk allows "requesters" to post tasks (HITs) that are completed by "workers" in return for small amounts of monetary compensation. Participants in this study were compensated $0.25 on completion.

The reported racial composition was 74.6% Asian, 19.2% White, 2.6% Hispanic and Other, and 1% Black. Participants were also asked to report whether they were currently in a committed relationship (yes = 37.3%, no = 60.1%, unsure = 2.6%), whether they had ever been in a sexual relationship (yes = 77.7%, no = 20.7%), their sexual orientation, and whether they were currently using any form of hormone-based contraceptive (yes = 6.2%, no = 93.8%).

Procedures and materials. All experimental materials (See Appendix) were presented using Qualtrics, an online browser-based survey software program. Participants were told that they would be presented with 19 profiles, each depicting a different person. Within each profile was a set of five attributes describing that person. Those attributes were defined for the participants as follows:

Financial stability/wealth: Describes the extent to which this person possesses economic wealth and financial stability.

Physical attractiveness: Describes how physically attractive this person is according to what YOU find physically attractive.

Sexual fidelity: Describes this individual's history and tendency to be sexually unfaithful.

Emotional investment: Describes how much this individual emotionally invests into a relationship.

Similarity: Describes the extent to which you and this person are similar with respect to personality, intelligence, and preferences in leisure activities.

Each attribute had three potential levels intended to indicate undesirable, moderately desirable, and highly desirable amounts of that attribute. Financial stability/wealth included financially unstable, financially stable, and financially wealthy. Physical attractiveness included not very physically attractive, moderately physically attractive, and highly physically attractive. Sexual fidelity included has frequently been sexually unfaithful, has sometimes been sexually unfaithful, and has never been sexually unfaithful. Emotional investment in the relationship included hardly invests emotionally, adequately invests emotionally, and deeply invests emotionally. Similarity included not very similar to you, somewhat similar to you, very similar to you.

A fractional–factorial design was used to permit CA of the data (Hair et al., 1995). An orthogonal array of 16 profiles was generated using IBM SPSS 19, with each profile possessing a unique combination of the five variables. For example, a potential partner might be "financially stable, highly attractive, frequently unfaithful, hardly invests emotionally, is very similar to you." Three additional hold-out profiles (for a total of 19 profiles) were included to test the validity of the CA utility estimates. These hold-out profiles are not used when generating importance values and the predictive model. Rather, the predictive model is generated for each participant's conjoint rankings of the original 16 profiles. That model is then used to predict how these three hold-out profiles should be ranked by each participant. This provides a correlation coefficient (tau) that reflects how accurately the model predicted how participants ranked the 3 hold-out profiles in relation to the other 16. None of these hold-out profiles were duplicates of the 16 orthogonal profiles. Participants were instructed to rank the 19 profiles relative to one another according to their preference to start a long-term, committed relationship with each individual, with number 1 being most preferred and number 19 being least preferred.

Participants were also given a separate task in which they had to indicate how important the same five attributes would be in an ideal long-term partner using a 5-point scale (anchors: 1 = *unimportant*, 5 = *very important*). In addition to rating these attributes, they were asked how important it was that their ideal long-term partner had extra money to spend on nonessential purchases. This was included to assess qualitative differences in preference for financial stability versus excess wealth. The order that participants were asked to assess the 19 profiles and the self-report ratings was counterbalanced. Finally, participants provided their demographic information and were debriefed.

Table 1. Part-Worth Utility Regression Coefficients (β) for Each Mate Attribute.

			Study 3	
	Study 1	Study 2	Long term	Short term
Financial stability	0.882	0.731	1.060	0.972
Physical attractiveness	0.684	0.656	0.966	1.406
Sexual fidelity	2.508	—	1.932	1.049
Emotional investment	0.617	0.342	0.809	0.222
Similarity	0.697	0.406	0.953	1.448

Results

Conjoint measures of mate preferences. CA (see Hair et al., 1995) was performed to assess the relative importance of each of the five investigated attributes (financial stability, physical attractiveness, sexual fidelity, emotional investment, and similarity) in participants' profile ranking decisions. Hold-out profile rankings were compared with the predicted utility estimates using a tau test. Hold-out profile rankings were predicted accurately by the model estimates ($\tau = 1.00$). Regression coefficients (see Table 1) and mean importance values were calculated for each of the five mate attributes.

A 5 (mate attribute) × 2 (sex) mixed model ANOVA was performed to examine whether there were sex differences in importance values between mate attributes. There was a main effect for the type of mate attribute, $F(4, 764) = 61.23$, $p < .001$, $\eta^2 = .243$. Importance values for sexual fidelity ($M = 37.73$, $SD = 22.06$) were significantly higher than all other mate attributes: financial stability ($M = 17.09$, $SD = 15.67$, $p < .001$, 95% confidence interval [CI] = [13.86, 27.09], $d = 0.47$), physical attractiveness ($M = 15.01$, $SD = 12.60$, $p < .001$, 95% CI = [17.00, 29.06] $d = 0.53$), emotional investment ($M = 14.19$, $SD = 13.23$, $p < .001$, 95% CI = [17.41, 29.60] $d = 0.54$), and similarity ($M = 15.52$, $SD = 13.44$, $p < .001$, 95% CI = [16.05, 28.65] $d = 0.52$). Importance values were not significantly different between any other mate attributes.

Of particular importance to our hypotheses, there was no interaction between sex and mate attribute type, $F(4, 764) = 0.795$, $p = .529$. To further characterize pair-wise comparisons within this interaction, sex differences in importance values for each attribute were assessed using five independent t tests. There were no significant differences between men's and women's importance values for financial stability, physical attractiveness, sexual fidelity, and emotional investment, nor similarity, all $t(191) < 1.69$, all $p > .09$. There was also no main effect for sex, $F(1, 191) = 1.61$, $p = .207$.

Independent measures of mate preferences. A 6 (mate attribute) × 2 (sex) mixed model ANOVA was used to compare men's and women's importance ratings for the attributes. Similar to the conjoint measures, there was a main effect for mate attributes, $F(5, 955) = 64.579$, $p < .001$, $\eta^2 = .253$. After Bonferroni corrections, all significant comparisons (except between financial stability and physical attractiveness) were significant at the $p < .001$ level. Sexual fidelity ($M = 4.35$, $SD = 0.82$) and emotional investment ($M = 4.17$, $SD = 0.81$) were not significantly different from one another, but each was rated as significantly more important in an ideal, long-term mate than financial stability ($M = 3.67$, $SD = 1.02$), having extra money ($M = 2.93$, $SD = 1.07$), physical attractiveness ($M = 3.51$, $SD = 0.95$), and similarity ($M = 3.65$, $SD = 0.88$). A potential partner's financial stability ($M = 3.67$, $SD = 1.02$) was rated as more important than their having extra money ($M = 2.93$, $SD = 1.07$) and being physically attractive ($M = 3.51$, $SD = 0.95$, $p = .019$). Having extra money ($M = 2.93$, $SD = 1.07$) was also less important than physical attractiveness ($M = 3.51$, $SD = 0.95$) and similarity ($M = 3.65$, $SD = 0.88$).

In contrast to the conjoint measures, there was a significant interaction between sex and ratings of mate attributes, $F(5, 955) = 9.985$, $p < .001$, $\eta^2 = .050$. Post hoc independent samples t tests with Bonferroni corrections were performed to compare men's and women's ratings for each attribute. Financial stability, $t(191) = -4.26$, $p < .001$, 95% CI = [−0.89, −0.33], $d = 0.30$, and emotional investment, $t(191) = -2.76$, $p = .006$, 95% CI = [−0.55, −0.09], $d = 0.20$, were rated as significantly more important in an ideal long-term partner by women (financial stability: $M = 4.02$, $SD = 0.87$; emotional investment: $M = 4.36$, $SD = 0.68$) than by men (financial stability: $M = 3.42$, $SD = 1.05$; emotional investment: $M = 4.04$, $SD = 0.88$). In contrast, men rated physical attractiveness as significantly more important in an ideal long-term mate ($M = 3.75$, $SD = 0.85$) than did women ($M = 3.17$, $SD = 0.99$), $t(191) = 4.34$, $p < .001$, 95% CI = [0.32, 0.84], $d = 0.30$. There were no significant sex differences in importance ratings for extra money and sexual fidelity, nor similarity, all $t(191) < 1.31$, all $p > .19$. There was no main effect for sex, $F(1, 191) = 2.152$, $p = .144$.

Associations between measures of mate preference. To assess the degree to which conjoint importance values and independent ratings were related, Pearson correlations were performed for each attribute. The self-reported importance ratings and conjointly derived importance values were positively correlated for all traits (all $r \geq .246$, $p \leq .001$) except emotional investment ($r = .128$, $p = .076$). The importance rating of having extra money was also positively correlated with the conjoint importance value of financial stability ($r = .337$, $p < .001$).

Study 1 Discussion

In Study 1, potential long-term mates were presented as a combination of five important mate attributes (financial stability, physical attractiveness, history of sexual fidelity, emotional investment in relationships, and similarity to the

participant), and these same attributes were rated separately for importance in an ideal long-term mate. In line with our hypothesis, sexual fidelity was prioritized above each other attribute for both conjoint and self-report measures, although emotional investment was equally valued in self-report ratings. We also observed sex differences in self-report ratings; women rated financial stability and emotional investment as more important in an ideal long-term mate than did men, whereas men rated physical attractiveness as more important than did women. These findings are consistent with the body of literature suggesting that men and women have evolved different preferences for these two attributes (Buss, 1989; Gangestad & Simpson, 2000; Shackelford, Schmitt, & Buss, 2005) as predicted by differences in each sex's minimal investment in offspring (Trivers, 1974), where women more often seek partner investment and men place more importance on partner attractiveness (Buss, 2003). There were no sex differences in the rated importance of sexual fidelity and similarity. These attributes are likely important for either sex when engaging in a long-term mating strategy (Buss, 1985, 1989; Buss et al., 2001; Lucas et al., 2004; Lutz-Zois et al., 2006).

By contrast, there were no differences in men's and women's conjoint importance values. These results are similar to those of Eastwick and Finkel (2008) who found that participants demonstrated an evolutionarily predicted sex difference when reporting the importance of physical attractiveness and earning prospects in an ideal partner and in a speed-dating task, but that there was no sex difference in the association between these characteristics and romantic interest in real-life partners met during and outside of the speed-dating simulation. Yet, it is possible participants minimized the importance of the other four traits in favor of a desirable history of sexual fidelity, which may account for the lack of a sex difference in the conjoint ranking task. We therefore conducted a second study where history of sexual fidelity was removed.

Study 2

Method

Participants. Study 2 consisted of an additional, demographically similar 260 heterosexual individuals (112 females; age: M = 30.9 years, SD = 8.96; range = 19-62) also recruited using MTurk. The reported racial composition was 79.2% Asian, 15.4% White, 3.1% Hispanic and Other, and 2.3% Black. Participants also reported whether they were currently in a committed relationship (yes = 58.5%, no = 38.8%, unsure = 2.7%), whether they had ever been in a sexual relationship (yes = 68.5%, no = 31.2%), and whether they were currently using any form of hormone-based contraceptive (yes = 5.4%, no = 94.6%).

Procedures and materials. The experimental design was the same as in Study 1 except for three key changes. First, "history of sexual fidelity" was omitted from the profiles. This resulted in an orthogonal array of 12 profiles (9 + 3 hold-out profiles), each consisting of the remaining four attributes: financial stability, physical attractiveness, emotional investment, and similarity. Second, participants were not asked to report the importance of sexual fidelity in an ideal partner. Last, to provide a measure of test–retest reliability, participants were asked to rank the 12 profiles an additional time after rating the four attributes independently.

Results

Conjoint measures of mate preferences. CA was again used to assess the relative importance of each of the four attributes (financial stability, physical attractiveness, emotional investment, and similarity) in males' and females' ranking decisions. Hold-out profile rankings were predicted accurately by the model estimates (τ = 1.00). Regression coefficients (see Table 1) and mean importance values were calculated for each attribute.

A 4 (mate attribute) × 2 (sex) mixed model ANOVA was performed to examine sex differences in CA importance values between mate attributes. In contrast to Study 1, there was a significant interaction for sex and type of mate attribute, $F(3, 774) = 2.834$, $p = .037$, $\eta^2 = .011$. A post hoc analysis using four independent t tests with Bonferroni corrections indicated that there was a significant sex difference in importance values for physical attractiveness (men: M = 29.40, SD = 20.90, women: M = 23.66, SD = 17.75), $t(258) = -2.337$, $p = .020$, 95% CI = [−10.57, −0.90], $d = 0.15$, and a marginal difference for financial stability (men: M = 28.23, SD = 20.48, women: M = 33.09, SD = 20.72), $t(258) = 1.888$, $p = .060$, 95% CI = [−0.21, 9.94], $d = 0.12$. Men's and women's importance values did not differ for emotional investment, $t(258) = -0.655$, $p = .513$, nor similarity, $t(258) = 1.036$, $p = .301$.

There was also a main effect for the type of mate attribute, $F(3, 774) = 11.258$, $p < .001$, $\eta^2 = .042$. Importance values for financial stability (M = 30.32, SD = 20.69) were significantly higher than those for emotional investment (M = 22.83, SD = 17.71, $p < .001$, 95% CI = [2.82, 13.04], d = 0.19) and similarity (M = 19.92, SD = 17.92, $p < .001$, 95% CI = [5.16, 16.00], d = 0.26). Physical attractiveness (M = 26.93, SD = 19.77) was also significantly higher than similarity (M = 19.92, SD = 17.92, $p = .004$, 95% CI = [1.52, 11.38], $d = 0.18$). There was no main effect for sex, $F(1, 258) = 0.021$, $p = .885$.

To see whether participants' rankings were consistent across time, Pearson correlations were run between importance values from the first and second set of conjoint rankings. There were significant positive correlations between each factor (all $r \geq .373$, all $p < .001$). All other significant associations were weaker and in the opposite direction.

Independent analyses of mate preferences. As in Study 1, a 5 (mate attribute) × 2 (sex) mixed model ANOVA was used to

compare men's and women's importance ratings for these attributes. There was a significant interaction between sex and the type of mate attribute, $F(4, 1032) = 6.056$, $p < .001$, $\eta^2 = .023$. Five post hoc independent samples t tests with Bonferroni corrections were performed to compare men's and women's ratings. Similar to Study 1, financial stability was rated as significantly more important in an ideal long-term partner by women ($M = 4.02$, $SD = 0.81$) than by men ($M = 3.63$, $SD = 1.10$), $t(258) = 3.169$, $p = .002$, 95% CI = [0.15, 0.63], $d = 0.20$, and men rated physical attractiveness as significantly more important ($M = 3.74$, $SD = 0.87$) than did women ($M = 3.50$, $SD = 0.87$), $t(258) = -2.238$, $p = .026$, 95% CI = [−0.46, −0.03], $d = 0.14$. There were no significant sex differences in importance ratings for extra money and emotional investment, nor similarity, all $t(258) < 1.83$, all $p \geq .07$.

There was a main effect for the type of mate attribute, $F(4, 1032) = 40.166$, $p < .001$, $\eta^2 = .135$. Similar to Study 1, an ideal long-term partner's emotional investment ($M = 4.07$, $SD = 0.80$) was rated as significantly more important than each other attribute: financial stability ($M = 3.80$, $SD = 1.00$, $p < .004$, CI = [0.05, 0.45], $d = 0.15$), having extra money ($M = 3.16$, $SD = 1.10$, $p < .001$, 95% CI = [0.66, 1.14], $d = 0.43$), physical attractiveness ($M = 3.64$, $SD = 0.87$, $p < .001$, 95% CI = [0.26, 0.65], $d = 0.25$), and similarity ($M = 3.77$, $SD = 0.90$ $p < .001$, 95% CI = [0.14, 0.50], $d = 0.17$). Having extra money was also significantly less important than a partner's financial stability ($M = 3.80$, $SD = 1.00$, $p < .001$, 95% CI = [−0.83, −0.46], $d = 0.29$), physical attractiveness ($M = 3.64$, $SD = 0.87$, 95% CI = [−0.66, −0.23], $d = 0.24$), and similarity ($M = 3.77$, $SD = 0.90$, $p < .001$, 95% CI = [−0.82, −0.34], $d = 0.29$). There was no main effect for sex, $F(1, 258) = 0.895$, $p = .345$.

Associations between measures of mate preference. To assess the degree to which conjoint importance values and independent ratings were related, Pearson correlations were performed between the conjoint importance values and the importance ratings for all attributes. Consistent with Study 1, these measures were positively correlated for financial stability ($r = .270$, $p < .001$), physical attractiveness ($r = .308$, $p < .001$), and similarity ($r = .128$, $p = .049$), but not for emotional investment ($r = .122$, $p = .076$). Having extra money was also positively correlated with financial stability ($r = .247$, $p < .001$).

Study 2 Discussion

Study 2 examined how having access to information about a potential mate's history of sexual fidelity may have affected participants' conjoint rankings in Study 1 by removing the "history of sexual fidelity" attribute from each profile. In addition, to check whether the way profiles were ranked was consistent, participants ranked the set of profiles twice. The importance values from each set were positively associated across attributes, suggesting that participants were consistent in their rankings.

Sex differences in self-report ratings were consistent between Study 1 and Study 2. First, men rated physical attractiveness as more important than did women and women rated financial stability as more important than did men. Second, independent of sex, participants rated emotional investment as more important in an ideal long-term mate than each other attribute. Third, these importance ratings were positively associated with the conjoint importance values across each attribute except emotional investment. In contrast to Study 1, there were sex differences in conjoint importance values for physical attractiveness and financial stability; men's importance values for physical attractiveness were higher than women's and women's importance values for financial stability were higher than men's, although this difference was marginally significant. Furthermore, both men's and women's importance values for financial stability were higher than those for emotional investment and similarity, but not for physical attractiveness. These findings suggest that excluding "history of sexual fidelity" may change how participants rank mating profiles during a conjoint ranking task, but not when rating the importance of each attribute independently.

Study 3

It is possible that the differences observed between Study 1 and Study 2 were statistical artifacts and/or due to individual differences between the two samples. To help address these possibilities, we conducted a third study to replicate and expand on our findings from Study 1 by identifying how prioritization of a potential partner's history of sexual infidelity differs depending on the context of the desired relationship (i.e., short- versus long-term mating goals), as an individual's mating goals should affect partner preference (Gangestad & Simpson, 2000). In comparison with long-term mates, we predicted that participants may not prioritize sexual fidelity above other traits, particularly physical attractiveness, when ranking short-term (i.e., purely sexual) mates. The reliability of access to a physically attractive and/or financially stable partner who is also sexually faithful may be less important when selecting a short-term mate with whom there is no ongoing need for investment. Furthermore, we added additional screening criteria during recruitment to control the composition of our sample.

Method

Participants. Heterosexual participants ($n = 208$, 80 female; age: $M = 32.27$ years, $SD = 10.87$; range = 20-68 years) were recruited using MTurk. Three screening criteria were used to control for the quality of participant responses. First, any respondent who completed the experiment in less than 5 min was excluded from analyses. Second, we embedded two

dummy questions asking participants to answer each question using a particular response. If either of these questions were incorrectly answered, the participant was excluded. Third, workers were unable to participate unless they had a 95% approval rate across at least 1,000 previous HITs. Participants in this study were compensated $0.25 on completion.

The reported ethnic composition was 77.4% Asian, 14.9% White, 2.4% Black, 0.5% Hispanic, and 4.8% "Other." Participants were also asked to report whether they were currently in a committed relationship (yes = 62%, no = 36.5%, unsure = 0.5%), whether they had ever been in a sexual relationship (yes = 77.4%, no = 22.6%), their sexual orientation, and whether they were currently using any form of hormone-based contraceptive (yes = 7.7%, no = 91.8%).

Procedures and materials. The experimental design was similar to that used in Study 1 except for two key changes. First, we standardized the affixes presented alongside each attribute within the partner profiles using "High," "Medium," and "Low." For example, a partner profile might read as follows: "Financial stability: Medium; Attractiveness: High; Sexual Fidelity: Low; Emotional Investment: High; Similarity: High." Second, participants ranked the 19 profiles twice according to their preference to start (a) a long-term relationship and (b) a short-term relationship with each individual. As in Study 1, participants also provided self-report importance ratings (anchors: 1 = *unimportant*, 5 = *very important*) for ideal long- and short-term partners for all five traits. Long- and short-term relationships were defined for participants as follows:

Long-term relationship: *You are looking for the type of person who would be attractive in a long-term relationship. Examples of this type of relationship would include someone you may want to move in with, someone you may consider leaving a current partner to be with, and someone you may, at some point, wish to marry (or enter into a relationship on similar grounds as marriage).*

Short-term relationship: *You are looking for the type of person who would be attractive in a short-term relationship. This implies that the relationship may not last a long time. Examples of this type of relationship would include a single date accepted on the spur of the moment, an affair within a long-term relationship, and the possibility of a one-night stand.*

The order in which participants were asked to assess the 19 profiles and complete the self-report ratings for long- and short-term relationships was counterbalanced.

Results

Conjoint measures of mate preferences. Two analyses were performed to describe overall short- and long-term conjoint rank preferences and calculate part-worth utility estimates. Hold-out profile rankings were compared with the predicted utility estimates using a tau test. Hold-out profile rankings were predicted accurately by the model estimates ($\tau = 1.00$) for both short- and long-term relationship contexts. Regression coefficients (see Table 1) and mean importance values (see Table 2) were calculated for each of the five mate attributes.

Table 2. Differences in Long- and Short-Term Importance Value Means Derived From Conjoint Analysis (CA) for Each Mate Attribute.

	Importance values					
	Long term		Short term			
	M	*SD*	*M*	*SD*	*p* value	Cohen's *d*
Financial stability	20.42	15.51	21.53	16.36	.402	
Physical attractiveness	18.07	13.66	23.14	17.66	<.001*	0.32
Sexual fidelity	27.56	20.26	24.38	18.77	.032*	0.16
Emotional investment	16.01	12.65	13.55	13.14	.036*	0.19
Similarity	17.94	12.81	17.17	12.60	.480	

*Significant difference.

A 2 (sex) × 2 (type of relationship) × 5 (mate attribute) mixed model ANOVA was performed to examine whether there were sex differences in conjointly derived importance values between mate attributes for long- and short-term rankings. There was a main effect of mate attribute, $F(4, 824) = 17.62$, $p < .001$, $\eta^2 = .079$, which was qualified by a significant interaction with type of relationship, $F(4, 824) = 5.68$, $p < .001$, $\eta^2 = .027$. Post hoc analysis using repeated measures *t* tests with Bonferroni corrections were used to assess differences between long- and short-term importance values for each mate attribute (see Table 2). Participants' importance values for physical attractiveness were significantly higher for short-term rankings than for long-term rankings, $t(207) = -3.54$, $p < .001$, 95% CI = [−7.89, −2.24], $d = .32$. By contrast, importance values for sexual fidelity, $t(207) = 2.16$, $p = .32$, 95% CI = [0.27, 6.09], $d = .16$, and emotional investment, $t(207) = 2.11$, $p = .36$, 95% CI = [0.16, 4.77], $d = .19$, were higher in long-term versus short-term rankings.

We also examined pair-wise comparisons of mean mate attribute importance values within participants' long- and short-term ratings. Similar to Study 1, for long-term rankings, importance values for sexual fidelity were significantly higher than importance values for each other attribute: financial stability ($p = .009$, 95% CI = [1.11, 13.17], $d = 0.40$), physical attractiveness, ($p < .001$, 95% CI = [3.84, 15.13], $d = 0.55$), emotional investment ($p < .001$, 95% CI = [6.37, 16.73], $d = 0.69$), and similarity ($p < .001$, 95% CI = [4.21, 15.03], $d = 0.57$). Importance values for financial stability were also significantly higher than those for emotional investment ($p = .045$, 95% CI = [0.06, 8.76], $d = 0.31$). For short-term rankings, there were no significant differences between sexuality fidelity, physical attractiveness, and financial stability.

Table 3. Differences in Long- and Short-Term Self-Report Importance Rating Means for Each Mate Attribute.

	Importance ratings					
	Long term		Short term			
	M	*SD*	*M*	*SD*	*p* value	Cohen's *d*
Financial stability	3.88	0.89	3.55	1.16	<.001*	0.32
Extra money	3.23	1.12	3.22	1.19	.859	
Physical attractiveness	3.75	0.92	4.03	0.86	<.001*	0.31
Sexual fidelity	4.24	0.92	3.80	1.05	<.001*	0.46
Emotional investment	4.26	0.86	3.38	1.05	<.001*	0.97
Similarity	3.86	0.89	3.46	0.95	<.001*	0.43

*Significant difference.

However, importance values for emotional investment were significantly lower than those for financial stability ($p < .001$, 95% CI = [−12.48, −3.48], $d = 0.53$), physical attractiveness ($p < .001$, 95% CI = [−14.48, −4.73], $d = 0.62$), and sexual fidelity ($p < .001$, 95% CI = [−15.74, −5.92], $d = 0.67$). Likewise, importance values for similarity were significantly lower than those for financial stability ($p = .038$, 95% CI = [−8.58, −0.137], $d = 0.30$), physical attractiveness ($p = .005$, 95% CI = [−10.75, −1.182], $d = .39$), and sexual fidelity ($p < .001$, 95% CI = [−12.18, −2.24], $d = 0.45$). There were no other significant main effects or interactions (all $F < 0.86$, all $p > .42$).

Independent measures of mate preferences. A 2 (sex) × 2 (type of relationship) × 6 (mate attribute) mixed model ANOVA was used to compare men's and women's self-reported long- and short-term importance ratings for each attribute. Similar to the conjoint measures, there was a main effect of mate attribute, $F(5, 1030) = 27.94$, $p < .001$, $\eta^2 = .119$, which was qualified by an interaction between mate attribute and type of relationship, $F(5, 1030) = 26.14$, $p < .001$, $\eta^2 = .113$. Post hoc analysis using paired-samples t tests with Bonferroni corrections was used to examine differences between long- and short-term ratings for each mate attribute (see Table 3). Participants rated financial stability, $t(207) = 4.23$, $p < .001$, 95% CI = [0.17, 0.47], $d = 0.32$; sexual fidelity, $t(207) = 5.38$, $p < .001$, 95% CI = [0.28, 0.60], $d = 0.46$; emotional investment, $t(207) = 9.67$, $p < .001$, 95% CI = [0.70, 1.05], $d = 0.97$; and similarity, $t(207) = 5.51$, $p < .001$, 95% CI = [0.26, 0.54], $d = 0.43$, as significantly more important in an ideal long-term (versus short-term) mate. By contrast, physical attractiveness was rated as significantly more important in an ideal short-term mate, $t(207) = -4.03$, $p < .001$, 95% CI = [−0.42, 0.14], $d = 0.31$. There was no difference in importance ratings of having extra money for nonessential purchases, $t(207) = 0.18$, $p = .859$.

We also examined pair-wise comparisons of mate attribute importance ratings within long- and short-term ratings. After Bonferroni corrections, all significant comparisons were significant at the $p < .001$ level. As in Study 1, sexual fidelity and emotional investment importance ratings were not significantly different for ideal long-term partners, but both were rated significantly higher than each other attribute. Ratings of financial stability, physical attractiveness, and similarity were not significantly different from one another, but having extra money was rated as significantly less important than each other attribute. For ideal short-term partners, physical attractiveness ratings were significantly higher than ratings for each other attribute, except sexual fidelity. Sexual fidelity ratings were significantly higher than ratings of emotional investment, similarity, and having extra money. Financial stability ratings were also significantly higher than ratings of having extra money.

There was a main effect for relationship type, $F(1, 206) = 47.303$, $p < .001$, and a significant interaction between sex and type of mate attribute, $F(5, 1030) = 2.71$, $p = .019$, $\eta^2 = .013$, but these differences in averaged long- and short-term attribute ratings were meaningless and unrelated to our hypotheses. There were no other significant main effects or interactions (all $F < 0.92$, all $p > .42$).

Associations between measures of mate preference. To assess the degree to which conjoint importance rankings and self-report importance ratings were related, Pearson correlations were performed for each attribute. The self-reported importance ratings and conjointly derived importance values were positively correlated for both long- and short-term relationship contexts for all traits (all $r \geq .191$, all $p \leq .006$) except emotional investment (long-term: $r = -.107$, $p = .124$; short-term: $r = .113$, $p = .105$). The importance rating of having extra money was also positively correlated with the conjoint importance value of financial stability (long-term: $r = .197$, $p = .005$; short-term: $r = .197$, $p = .004$).

General Discussion

Partner Sexual Fidelity Using CA

In Study 3, participants ranked the 19 profiles twice: once by their preference to start a long-term, committed relationship and once by their preference to start a short-term, uncommitted relationship. In support of our hypotheses, we found that participants valued sexual fidelity more than financial stability, physical attractiveness, emotional investment, and similarity when ranking potential long-term mates (Studies 1 and 3). Both men and women find sexual fidelity and faithfulness to be important in a potential long-term partner (Buss & Schmitt, 1993; Minervini & McAndrew, 2006; Thiessen et al., 1993), and self-promoting one's sexual exclusivity and derogating a competitor's sexual exclusivity are rated as effective tactics during mate competition within the context of a long-term, romantic relationship (Schmitt & Buss, 1996). Although previous studies describe men's and women's preferences for sexual fidelity in a partner, this is the first study to examine how knowledge of a potential partner's history of

sexual infidelity affects mate choice decisions while being forced to make trade-offs among several attributes. Our findings suggest that people will prioritize a potential long-term partner's sexual fidelity above other important mate characteristics, such as financial stability.

We also investigated which attributes participants prioritize when ranking short-term mates. Unlike for long-term mates, Study 3 participants prioritized physical attractiveness, sexual fidelity, and financial stability equally for short-term mates. This is noteworthy, as it suggests that sexual fidelity is valued even in a short-term mate. Yet, history of sexual fidelity may not be valued in a short-term partner for the same reasons it is in a long-term partner. Participants might assume that potential short-term mates who have a history of sexual infidelity may risk becoming involved with someone else while currently in a relationship, which may introduce unwanted risks inherent to poaching another person's mate (Buss, 2000; Davies, Shackelford, & Hass, 2010; Schmitt & Buss, 2001). A history of sexual infidelity may cause participants to more negatively evaluate a potential mate's other personality or mate attributes (Schmitt, 2004). Alternatively, it may increase disgust toward those who were unfaithful due to a violation of cultural norms and/or an increase in the perceived risk of sexually transmitted infections (i.e., moral and pathogen disgust; Tybur, Lieberman, & Griskevicius, 2009). To clarify why this pattern exists, future studies should investigate how individuals perceive potential short-term mates who have a history of sexual infidelity and whether a history of sexual infidelity introduces a perceived greater number of risks, negative personality attributes, and/or feelings of disgust for those seeking a short-term mate.

As predicted, we also found that sexual fidelity and emotional investment were valued more in a potential long-term mate, whereas physical attractiveness was valued more in a potential short-term mate. This is consistent with a pluralistic mating strategy (Gangestad & Simpson, 2000), whereby sexual fidelity and emotional investment are valued in a long-term partner as signals of relationship stability and investment. By contrast, physical attractiveness may signal heritable immunocompetence that may be passed on to potential offspring and should thus be prioritized when seeking a short-term (i.e., purely sexual) partner. These findings are also consistent with women's (Little, Jones, Penton-Voak, Burt, & Perrett, 2002) and men's (Burriss, Welling, & Puts, 2011) increased preferences for sexual dimorphism (i.e., masculinity in males and femininity in females) in opposite-sex faces, a putative cue to underlying immunocompetence (Gangestad & Simpson, 2000; Thornhill & Gangestad, 2006), when judging attractiveness for a short-term versus long-term relationship.

It is important to note that explicit information about a potential mate's history of sexual infidelity was given to our participants, which may not typically be available when screening a potential mate. Research has identified cues men and women use to detect infidelity in current long-term partners (Shackelford & Buss, 1997). However, little research has been dedicated to the cues men and women use to predict the probability of future infidelity in potential mates, although some physiological cues may predict the sexual fidelity of unfamiliar potential mates (O'Connor et al., 2014; O'Connor et al., 2011; Rhodes, Morley, & Simmons, 2013). For example, O'Connor et al. (2011) found that men and women attribute higher infidelity risk to more sexually dimorphic opposite-sex voices (i.e., lower pitch male voices, higher pitch female voices). They hypothesize that this reflects underlying trait levels of testosterone and estrogen, which are associated with greater likelihood of adulterous behaviors in men and women, respectively (Durante & Li, 2009; Fisher et al., 2009; Hughes, Dispenza, & Gallup, 2004). Perhaps individuals are more likely to prioritize a potential partner's sexual infidelity when that information is made available or becomes more salient. Future studies should investigate how important assessing a potential mate's likelihood of sexual fidelity is and should further investigate the cues used to assess this likelihood during the mate selection process.

We found inconsistent differences in how men and women prioritize and rate attributes for long- and short-term relationships. For attributes such as similarity and emotional investment, one might expect men's and women's preferences to be similar (Buss & Barnes, 1986; Buss & Schmitt, 1993; Shackelford et al., 2005). Why inconsistent sex differences were observed across our three studies in preference for financial stability and physical attractiveness, particularly for self-report measures (see also Schmitt et al., 2012), is unclear. For conjoint importance values, perhaps participants' prioritization of a partner's history of sexual fidelity forced men and women to allocate less importance to physical attractiveness and financial stability, respectively, equalizing each sex's valuation of these attributes. Such a mate preference priority model (Li et al., 2002; Li & Kenrick, 2006) is consistent with the results of Study 2, but does not explain why sex differences were not observed for self-report measures in Study 3. Our sample size was similar to previous investigations that observed sex differences in mate selection trade-offs (Fletcher et al., 2004). Furthermore, a post hoc power analysis revealed that for an effect to be observed as significant at the alpha = .05 level, a sample size of approximately 220 would be needed to obtain statistical power at the recommended .80 level (Cohen, 1988), suggesting our sample size was appropriate.

It is possible that no sex difference was observed for prioritization of sexual infidelity because it was not defined separately from emotional fidelity. Men typically report greater distress in response to sexual infidelity, whereas women tend to report greater distress in response to emotional infidelity (Sagarin et al., 2012; Wade & Brown, 2012). Our measure of "emotional investment" provided participants with information about whether an individual invests in a relationship. However, a measure of "history of emotional fidelity" might include information about a potential mate's tendency to develop romantic connections with extra-pair individuals

while currently in a monogamous relationship. Including history of sexual and emotional fidelity as distinct measures in future studies may reveal a predicted sex difference for each type of infidelity.

Conjoint Versus Self-Report Measures

Study 3 participants also provided self-report ratings of how important each of the five investigated attributes would be in an ideal long- and short-term mate. Overall, long- and short-term differences for self-report ratings were similar to those observed for conjoint measures. Correlations between conjoint and self-report measures indicated that there was a small-to-modest association for each attribute except emotional investment. Nevertheless, there were some differences observed for self-report ratings of importance for a long- versus short-term relationship. In both Studies 1 and 3, participants rated both sexual infidelity and emotional investment as equally important in an ideal long-term mate. By contrast, sexual infidelity importance values were greater than each other attribute for conjoint measures. Furthermore, when comparing self-report importance ratings for each attribute between long- and short-term assessments, participants rated financial stability, sexual fidelity, emotional investment, and similarity as more important in an ideal long-term mate. However, only sexual fidelity and emotional investment conjoint importance values were greater for long-term rankings compared with short-term rankings. Therefore, it would appear that importance was placed on a fewer number of attributes when making long- versus short-term conjoint rankings as compared with long- versus short-term self-report importance ratings, suggesting that participants place more importance on certain traits when forced to make trade-offs.

Careful consideration of how importance values derived from CA differ from explicit reports of ideal mate attribute importance is essential in interpreting these differences. As mentioned, Hair et al. (1995) highlight that CA, unlike more traditional analyses, utilizes a "decompositional" design whereby participants rank composite profiles from which importance values are calculated for each attribute used in those profiles. Compared with self-report measures, this decompositional conjoint design provides several advantages for studying how participants make trade-offs when choosing potential mates (i.e., making trade-offs in real time; considering the importance of relevant attributes relative to other attributes; eliminating response revision based on social desirability, faulty memory, or inability to articulate decision-making processes; and avoiding the need for participants to verbalize their internal preferences; Lohrke et al., 2010; Shepherd & Zacharakis, 1997; Wilson & Dunn, 1986). In addition, similar to real mate selection, the number of potential mates that participants rank is limited, which can have an effect on what strategies individuals use to cognitively assess potential mates (Lenton et al., 2009; Lenton & Stewart, 2008). It is possible that the observed differences between self-report importance ratings and conjointly derived importance values are at least partially explained by one or more of these CA advantages. Perhaps when choices are restricted, such as for conjoint rankings, people prioritize attributes that are "necessities" and weigh "luxury" attributes as less important (Li et al., 2002). Conversely, when self-reporting the importance of individual attributes, participants are afforded more flexibility and may assume other attributes are held constant. Likewise, participants' decision-making processes (Lenton et al., 2009; Lenton & Stewart, 2008), but not underlying preferences, may differ when choosing mates using a conjoint versus self-report design. Future research should examine these possibilities.

Conclusions

Our findings demonstrate that sexual fidelity of a potential mate may be prioritized above other relevant mate characteristics when people are forced to make trade-offs among multiple characteristics. This emphasizes the importance of studying how and to what extent people will assess a potential mate's tendency toward sexual infidelity for either a short- or a long-term relationship. We also demonstrated a novel way of studying how humans make trade-offs during mate selection using CA. By rating individuals rather than attributes, participants choose mates in a more holistic fashion. Constraining the number of attributes allows researchers to manipulate and/or control which characteristics participants use to assess an individual, limiting preexisting assumptions about other mate characteristics. Last, limiting the mating pool also avoids issues with participants having unrealistic "limitless possibilities" and helps control for effects of having a large pool of potential mates.

Our data highlight the importance of exploring new methodologies, such as CA, that control for potentially confounding variables when investigating how people make trade-offs and mate choice decisions. Notably, there are several conceptual and technical limitations to using CA in examining mate preference and mate choice decisions. Conceptually, participants are presented with profiles that consist of a combination of fixed attributes that may not evoke the same visceral or emotional heuristics that participants use during real-life romantic encounters (Todd, Place, & Bowers, 2012). It would be important to cross-validate CA as a measure of trade-off decision-making processes by using it in combination with current, popular methodologies, such as speed dating (Eastwick & Finkel, 2008; Kurzban & Weeden, 2005), mate budget allocation, and mate-screening paradigms (Li, 2008; Li et al., 2002; Li et al., 2011). For instance, it may be useful to incorporate CA into speed dating or other studies in which participants must rank real people. For example, Li and colleagues (2013) studied live interactions between speed daters, but key traits were evaluated in separate studies that controlled for whichever factor was not currently under investigation. By comparison, CA could be used to allow for evaluation of each

trait under investigation within a single study. Nevertheless, this would require careful design consideration in that a major assumption of using CA is that participants are ranking profiles based solely on the attributes that have been predetermined and presented by the experimenter. Another limitation is that, by using a full-profile or fractional–factorial design, participants cannot be afforded information about all characteristics that may be important during mate choice. The total number of profiles required for CA must be orthogonal; therefore, as the number of attributes in each profile increases, the number of profiles that participants will need to rank also increases. Nonetheless, our study represents a novel investigation of how preferences for specific attributes as examined within a more complex personality profile can be explored and, as such, may potentially have higher external validity than other previous methods.

Other areas of mating research may also benefit from using CA. For instance, waist-to-hip and shoulder-to-hip ratios (Braun & Bryan, 2006; Singh, 1993), fluctuating bilateral asymmetry (Scheib, Gangestad, & Thornhill, 1999), facial testosterone markers (Johnston, Hagel, Franklin, Fink, & Grammer, 2001), and skin clarity and texture (Fink, Grammer, & Thornhill, 2001; Matts, Fink, Grammer, & Burquest, 2007), as well as voice quality (Hughes, Harrison, & Gallup, 2002) can contribute to an individual's evaluation of a potential mate. Future studies could create predetermined composites using several different attributes (e.g., a series of male faces that vary in their symmetry, skin clarity, and testosterone markers), have participants rank these composites for attractiveness, and then deconstruct importance values from these rankings using CA. This type of study would provide researchers information about which facial attributes may be the most important—and in which combinations—during potential mate evaluation. Indeed, incorporating CA in mate preference research may foster novel avenues of research design and analysis.

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