

Sex Differences in the Implications of Partner Physical Attractiveness for the Trajectory of Marital Satisfaction

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Do men value physical attractiveness in a mate more than women? Scientists in numerous disciplines believe that they do, but recent research using speed-dating paradigms suggests that males and females are equally influenced by physical attractiveness when choosing potential mates. Nevertheless, the premise of the current work is that sex differences in the importance of physical attractiveness are most likely to emerge in research on long-term relationships. Accordingly, the current work drew from 4 independent, longitudinal studies to examine sex differences in the implications of partner physical attractiveness for trajectories of marital satisfaction. In all 4 studies, both partners' physical attractiveness was objectively rated at baseline, and both partners reported their marital satisfaction up to 8 times over the first 4 years of marriage. Whereas husbands were more satisfied at the beginning of the marriage and remained more satisfied over the next 4 years to the extent that they had an attractive wife, wives were no more or less satisfied initially or over the next 4 years to the extent that they had an attractive husband. Most importantly, a direct test indicated that partner physical attractiveness played a larger role in predicting husbands' satisfaction than predicting wives' satisfaction. These findings strengthen support for the idea that sex differences in self-reported preferences for physical attractiveness do have implications for long-term relationship outcomes.

Keywords: sex differences, physical attractiveness, evolutionary psychology, marriage, mate preferences

Ugliness in a man doesn't matter, much. Ugliness in a woman is her life.

— Joyce Carol Oates, *Faithless*

In emphasizing differences in the importance of men and women's physical attractiveness, Joyce Carol Oates (2002) expresses a sentiment that scientists across numerous disciplines accept as fact. Biologists (e.g., Grammer, Fink, Møller, & Thornhill, 2003), psychologists (e.g., Buss, 1989; Buss & Kenrick, 1998; Buss & Schmitt, 1993; Feingold, 1990, 1992; Sprecher, Sullivan, & Hat-

field, 1994), sociologists (e.g., Howard, Blumstein, & Schwartz, 1987), and anthropologists (e.g., Greenlees & McGrew, 1994) all argue that the physical attractiveness of a romantic partner is more important to men than it is to women. If true, this sex difference suggests that partner physical attractiveness should affect men's relationship outcomes more strongly than it affects women's relationship outcomes.

Yet, despite long-standing consensus, this view has recently been challenged by research suggesting that partner physical attractiveness may be just as important to women as it is to men (Eastwick, Eagly, Finkel, & Johnson, 2011; Eastwick & Finkel, 2008; Fisman, Iyengar, Kamenica, & Simonson, 2006; Iyengar, Simonson, Fisman, & Mogilner, 2005; Kurzban & Weeden, 2005; Lykken & Tellegen, 1993). If this alternative perspective is true, then partner attractiveness should affect women's relationship outcomes just as strongly as it affects men's relationship outcomes.

The goal of the current research was to reconcile this disagreement. In pursuit of this goal, the rest of this introduction is divided into four sections. The first section reviews theoretical and empirical work suggesting that partner physical attractiveness is more important to men than it is to women. The second section describes recent research that questions this position. The third section distinguishes between sex differences in preferences for short-term versus long-term partners to more closely evaluate the data on sex differences in the implications of partner physical attractiveness for relationships. The final section summarizes the current research, which examined data from four independent 4-year, eight-

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wave longitudinal studies of newlywed couples to test the prediction that partner physical attractiveness more strongly predicts husbands' marital satisfaction than wives' marital satisfaction.

Sex Differences in Preferences for Partner Physical Attractiveness

Evolutionary psychologists were among the first to propose that men and women differ in their preference for physically attractive mates. Throughout human evolutionary history, male reproductive success should have been determined by men's ability to obtain female mates who were highly fertile. Because youth and physical appearance (e.g., large eyes, smooth skin, full lips—qualities that are perceived as highly attractive in today's society) are strong indicators of female fertility (Symons, 1979; Williams, 1975), men who were attracted to and able to obtain physically attractive female mates likely produced more surviving offspring than did men who did not prefer and seek out physically attractive female mates. Given that physical attractiveness was not a strong marker of male fertility, in contrast, women would not have benefited as much as men from mating with attractive partners and thus should not have evolved as strong a preference for physically attractive partners. As Buss (1989) put it, "male fertility, to the degree that it is valued by females, is less steeply age-graded from puberty on than is female fertility and therefore cannot be assessed as accurately from physical appearance" (p. 2). Thus, it follows that humans would have evolved such that partner physical attractiveness is more central to men's relationship preferences and evaluations than it is to women's.

Consistent with this idea, a robust body of empirical research demonstrates that, when asked about their ideal mate, heterosexual men indicate a stronger preference for physical attractiveness than do heterosexual women. For example, across a nationally representative United States sample, men stated stronger preferences for a physically attractive partner than did women (Sprecher et al., 1994). Moreover, Buss (1989) demonstrated that this sex difference generalized across 37 cultures. Providing the strongest evidence that men more strongly prefer a physically attractive partner than do women, Feingold (1990, 1992) reported that the sex difference held in meta-analyses using five different research paradigms.

Revisiting Sex Differences in Preferences for Partner Physical Attractiveness

Despite the consistency of the literature on sex differences in mate preferences, recent research indicates that the physical attractiveness of a potential mate may not differentially affect men and women's actual mating behaviors (see Eastwick & Finkel, 2008; Fisman et al., 2006; Iyengar et al., 2005; Kurzban & Weeden, 2005; Lykken & Tellegen, 1993; Sprecher, 1989). For example, Eastwick and Finkel (2008) had male and female participants (a) self-report the importance of physical attractiveness in an ideal romantic partner, (b) attend a speed-dating session, and (c) indicate their romantic interest and steps toward relationship initiation with their speed-date matches (as well as other potential partners who they may have met outside of the speed-dating paradigm) up to 10 times following that speed-dating session. Results demonstrated that, although men and women consistently differed in their self-reported preferences for partner attractiveness, partner attractive-

ness did not differentially predict men and women's romantic interest or relationship initiation with actual mating prospects. Likewise, in an independent speed-dating study, individuals' self-reported mate preferences correlated poorly with their actual mate choices (r s ranged from .00 to .17; Iyengar et al., 2005). Moreover, Eastwick and colleagues (2011) demonstrated that although self-reported preferences for partner physical attractiveness predicted the extent to which participants were romantically interested in opposite-sex people depicted in photographs, they did not predict their romantic interest in real-life, opposite-sex speed-daters or confederates. Together, these recent studies suggest that conventional wisdom about sex differences in the importance of a mate's physical attractiveness is based on self-report data that does not predict how people behave when choosing an actual mate.

Why does this difference between self-reported mate preferences and real-world mate selection emerge? According to Eastwick and Finkel (2008), people's self-reported partner preferences, such as the sex-differentiated preference for partner physical attractiveness, may be only a weak indicator of what people actually want in a partner. Specifically, consistent with the idea that people frequently lack insight into their choices (Nisbett & Wilson, 1977), men and women may have different beliefs regarding the importance of partner attractiveness for their future romantic choices, but their beliefs may be based on poor insight and thus may not, in reality, influence their actual romantic choices. In the words of Eastwick and Finkel (2008), "even regarding such a consequential aspect of mental life as romantic-partner preferences, people may lack introspective awareness of what influences their judgments and behavior" (p. 245).

Reconciliation: Physical Attractiveness in Ongoing Romantic Relationships

Before we accept the conclusion that people do not understand something as fundamental about themselves as what they want in a partner, and before we dismiss conventional wisdom based on decades of evolutionary theory and research, we should consider alternative explanations for why self-report data on partner preferences may be inconsistent with behavioral data on relationship initiation. One such alternative is that the types of relationships intimates are considering when they self-report their preferences are not the same types of relationships for which they are choosing mates in speed-dating studies. The self-report studies that demonstrate sex differences in the importance of partner attractiveness frequently ask participants to report on their ideal partner for a long-term relationship. For example, Buss (1989) asked participants to rank characteristics "on their desirability in someone [they] might marry" (p. 5). Likewise, Sprecher and colleagues (1994) asked participants to rate the extent to which they would consider qualities when deciding whether "to marry someone" (p. 1076). The college-student participants in the speed-dating studies, in contrast, may have been looking for different types of relationships. Although some of them may have been seeking long-term mates, it is likely that many were seeking short-term mates. Indeed, Eastwick and Finkel (2008, p. 258) measured participants' desire for a "serious relationship" and explicitly pointed out that their sample demonstrated "healthy variability" on that variable.

Differences in the types of relationships participants were considering in these two lines of research may explain the different

results that have emerged across them. Theoretical perspectives (Buss, 1989; Buss & Schmitt, 1993; Gangestad & Simpson, 2000; Geary, 1998) and empirical research (Kenrick, Groth, Trost, & Sadalla, 1993; Kenrick & Keefe, 1992; Li, Bailey, Kenrick, & Linsenmeier, 2002; Li & Kenrick, 2006; Rhodes, Proffitt, Grady, & Sumich, 1998) strongly suggest that sex differences in the importance of partner physical attractiveness should only emerge with respect to preferences for and evaluations of partners in long-term relationships, whereas partner physical attractiveness appears to be equally important to men and women in the context of short-term relationships. In fact, Thornhill and Gangestad (1999) explicitly warn against evaluating sex differences in the implications of partner physical attractiveness in the context of short-term relationships. Given that speed-dating studies may attract volunteers who are disproportionately likely to be seeking short-term relationships, the tendency for those men and women to give equal weight to physical attractiveness when choosing partners may have driven the null sex difference in the impact of physical attractiveness on mate choice that emerged in those studies and obscured any differences between the men and women who were choosing long-term partners. Consistent with this possibility, Eastwick and Finkel (2008) reported a supplemental analysis that revealed evidence for the expected sex difference. Specifically, whereas women were more likely than men to rely on partner attractiveness when choosing partners for what they described as “one-night stands,” men were more likely than women to rely on physical attractiveness when choosing partners for what they described as a “serious relationship.” Thus, before we can accept the conclusion that sex differences in self-reported preferences for physical attractiveness are an inaccurate indicator of what people want in an actual relationship partner, we must examine the effects of partner physical attractiveness in the context in which sex differences are most likely to occur—long-term, established relationships.

How should research determine whether partner physical attractiveness is indeed differentially important to men and women in the context of their long-term relationships? The strongest test of this possibility would meet several methodological standards. First, it would use samples of young couples involved in long-term relationships. As noted above, evolutionary perspectives suggest that sex differences in the implications of physical attractiveness are most likely to emerge in the context of long-term relationships. Thus, any test of such differences must involve couples who are involved in long-term relationships. Moreover, evolutionary perspectives make the clearest predictions with respect to younger individuals. Because the aspects of physical attractiveness that reflect fertility (e.g., smooth skin and large eyes; see Zebrowitz, Olson, & Hoffman, 1993) decrease with age, the predicted sex difference may be less prominent in samples of older long-term couples.

Second, the strongest test would involve relationship satisfaction as the outcome measure. According to interdependence theory (Thibaut & Kelley, 1959), people evaluate their relationships by comparing the outcomes of those relationships (e.g., partner qualities) with the outcomes they desire (e.g., ideals and preferences), such that they are satisfied with their relationships when their outcomes meet or exceed their needs and desires but less satisfied when their outcomes fall short of their needs and desires. Thus, if men desire physical attractiveness in their mates more than women do, research should demonstrate that the physical attractiveness of

a partner in a long-term relationship predicts men’s satisfaction with that relationship more than it predicts women’s satisfaction.

Third, the strongest test would obtain objective ratings of partner physical attractiveness, rather than self- or partner ratings, as self- and partner ratings are likely to be confounded with relationship satisfaction or variables that may be associated with satisfaction. For example, processes of sentiment override (Weiss, 1984) may lead more satisfied spouses to rate their partners as more attractive. If so, and if such processes operate equally as strongly among men and women, partner reports of attractiveness may be equally correlated with satisfaction for both men and women even if objective levels of partner attractiveness are themselves differentially important to men and women. Likewise, self-reports of partner attractiveness may be associated with individual-difference variables, such as self-esteem, dominance orientation, and self-presentational concerns, and any of these factors may be associated with satisfaction. In fact, factors such as self-esteem and dominance tend to be more important to women (Botwin, Buss, & Shackelford, 1997; Brase & Guy, 2004; Shackelford, 2001), which may lead self-reported partner physical attractiveness to appear more strongly associated with women’s satisfaction than with men’s satisfaction in any studies using such reports. Using objective ratings of physical attractiveness would minimize the influence of these confounds.

Fourth, the strongest test would contain and control for factors confounded with even objective ratings of attractiveness. Although using objective ratings of physical attractiveness helps minimize the influence of factors confounded with perceptions of attractiveness, it does not eliminate the influence of variables confounded with even objective ratings of physical attractiveness. Even people who are objectively more attractive—that is, have facial symmetry, strong jawline (for men), large eyes and full lips (for women)—have different qualities and experiences than less attractive people. For example, they are younger, have more financial resources, and are more socially skilled (Symons, 1979; Williams, 1975; for a review, see Langlois et al., 2000). These factors may account for any observed association between objective ratings of partner attractiveness and relationship satisfaction. For example, younger women are rated as more physically attractive (Symons, 1979; Williams, 1975), and men are more satisfied to the extent that they have a young partner (Swami, Stieger, Haubner, Voracek, & Furnham, 2009). Such effects of correlated variables must be statistically controlled to truly isolate the effects of objective ratings of physical attractiveness.

Fifth, the strongest test would use data from both members of the couple so that levels of own attractiveness could be controlled. There is some evidence that attractive men are less satisfied with their relationships, on average (McNulty, Neff, & Karney, 2008; Sheets & Ajmere, 2005). Given that partners’ levels of physical attractiveness tend to be positively correlated in established relationships (McNulty et al., 2008; for a review, see Takeuchi, 2006), any negative association between men’s own attractiveness and satisfaction may suppress the association between men’s partner attractiveness and satisfaction.

Finally, the strongest test would use longitudinal data. Partner attractiveness may be differentially associated with levels of men and women’s relationship satisfaction and/or with changes in their relationship satisfaction over time. Only studies involving multiple reports of relationship satisfaction from spouses over a substantial

period of time can clarify whether sex differences in the implications of partner attractiveness emerge on one or both of these components of the trajectory of relationship satisfaction.

A recent meta-analysis that meets some of these criteria provides suggestive evidence that physical attractiveness does not differentially affect men and women's satisfaction in their current relationships. Specifically, Eastwick, Luchies, Finkel and Hunt (2013) meta-analyzed 97 published and unpublished studies and reported no aggregate sex differences in the association between partner attractiveness and various indices of relationship quality. Nevertheless, several aspects of that meta-analysis limit the extent to which it adequately addresses the current question regarding sex differences in the impact of physical attractiveness in long-term, established relationships. First, only five of the 97 studies used samples of couples who were clearly involved in a long-term relationship (i.e., were married) and used third-party ratings of partner attractiveness.¹ Although Eastwick and colleagues did not report an analysis of those five studies alone, the weighted-average correlation between partner attractiveness and own satisfaction in those studies appears stronger among men than among women. The other 92 studies involved (a) either strangers or dating partners, (b) self-reported physical attractiveness, and/or (c) partner-reported physical attractiveness. As noted earlier, self- and partner reports of physical attractiveness are likely to be confounded with various factors that may cloud any sex differences in the impact of attractiveness on satisfaction, including satisfaction itself. Further, sex differences in the importance of partner attractiveness are most likely to emerge in established, long-term relationships, and it is not clear which of the partners in the dating studies that were included in the meta-analysis were involved in long-term versus short-term relationships. Second, two of the five studies involving third-party ratings of physical attractiveness of married individuals used ratings of physical attractiveness that were made by the study experimenters, judges who may have been biased by their extended interactions with both members of the couple. Third, another two of these five studies used older married couples rather than younger individuals; because aspects of physical attractiveness that reflect fertility decrease with age, the predicted sex difference may be less prominent in samples of older couples. Fourth, the meta-analysis did not control for own attractiveness and thus does not address the possibility that any negative effects of men's own attractiveness suppress any positive effects of their partner's attractiveness. Finally, the meta-analysis examined all effects cross-sectionally and thus did not examine or account for the extent to which satisfaction fluctuates and changes over time.

Overview of the Current Study

Given evolutionary theories that argue for notable sex differences in the importance of partner physical attractiveness in romantic relationships, and given recent data questioning that hypothesis, the goal of this study was to examine associations between partner physical attractiveness and relationship outcomes in the context in which sex differences are most likely to emerge—long-term relationships. In pursuit of this goal, we drew upon data from four independent, longitudinal studies of newlywed couples. All four studies obtained objective ratings of both partners' physical attractiveness shortly after the wedding and both partners' reports of marital satisfaction every 6 months for the first 4 years

of the marriage. To measure attractiveness, groups of objective raters evaluated each spouse's facial attractiveness, independent of their partner. Given the parallel designs of all four studies, data from each were combined and analyzed simultaneously with growth curve modeling.

Sex differences in the implications of partner physical attractiveness could emerge in two ways in these longitudinal studies. First, partner physical attractiveness could be more strongly associated with men's initial satisfaction with their relationship than with women's initial satisfaction with their relationship—that is, sex differences could emerge in the effects of partner attractiveness on spouses' initial levels of marital satisfaction. Second, partner physical attractiveness could additionally (or alternatively) be more strongly associated with changes in men's satisfaction over the course of the relationship than with changes in women's satisfaction over the course of the relationship—that is, sex differences could emerge in the effects of partner attractiveness on the slopes of spouses' trajectories of marital satisfaction. On the basis of theories and empirical data suggesting that men have evolved to prioritize the physical attractiveness of a long-term partner more than have women, and because individuals should be most satisfied in their long-term, established relationships to the extent that their partner meets their standards, we predicted that spouses' physical attractiveness should play a larger role in predicting husbands' marital satisfaction than in predicting wives' marital satisfaction. We made no predictions regarding whether such effects would emerge on initial levels of and/or changes in satisfaction.

Method

Participants

Data were drawn from four existing independent, 4-year, multiwave longitudinal studies of newlyweds. Participants in Study 1² were 82 newlywed couples, and participants in Study 2 were 169 newlywed couples, both recruited from a Northern Florida community surrounding a major state university; participants in Study 3 were 72 newlywed couples recruited from a Northern Ohio community surrounding a regional campus of a major state university; and participants in Study 4 were 135 newlywed couples recruited from an East Tennessee community surrounding a major state university. Couples in all four studies were recruited using two methods. The first was to place advertisements in community newspapers and bridal shops, offering payment to couples willing to participate in a study of newlyweds. The second was to send invitations to eligible couples who had completed marriage license

¹ Two of these studies are described in the current article. Nevertheless, Eastwick et al. (2013) used a different measure of the attractiveness of the 169 couples involved in Study 2 than the measure used in the current analysis. Whereas Eastwick et al.'s analysis was based on experimenter ratings of spouses' physical attractiveness that were made after a 3-hr laboratory session that involved both members of the couple, the ratings used in the current analysis were based on the average ratings made by three judges who rated the husband and wife independently based on still frames from videos. These two codes of attractiveness were moderately correlated (for husbands, $r = .42$; for wives, $r = .61$).

² The attractiveness data from the couples in this study, and the extent to which they correlate with initial levels of own satisfaction and partner satisfaction, were also described in McNulty et al. (2008).

applications in counties near each study location. All couples responding to either solicitation were screened for eligibility in an initial telephone interview. Inclusion required that (a) this was the first marriage for each partner, (b) the couple had been married less than 6 months, (c) each partner was at least 18 years of age, (d) each partner spoke English and had completed at least 10 years of education (to ensure comprehension of the questionnaires), and (e) couples did not have children and wives were not older than 35 in Studies 1, 2, and 4 (to allow a similar probability of transitioning to first parenthood for all couples, as part of the larger aims of the studies; Study 3 did not have this criterion). Eligible couples were scheduled for an initial laboratory session.

Descriptive statistics for each sample are presented in Table 1. As the table reveals, participants were of comparable age across all four samples, with both spouses in their mid-20s and husbands being slightly older than wives on average. Reflecting the education level of the communities, participants in Studies 1, 2, and 4 reported relatively high levels of education, on average, whereas participants in Study 3 reported lower levels of education, on average, $t(3) = 8.65, p < .001$. Further, a large proportion of participants in Studies 1 and 2 were full-time students at the baseline assessment, whereas a large proportion of participants in Studies 3 and 4 were employed full time at the baseline assessment. The median income in all four studies, combined across spouses, was between \$5K and \$40K. Across all samples, the majority of participants (> 75%) self-identified as Caucasian.

Procedure

Procedures were nearly identical in all four studies. Before their initial laboratory session, participants were mailed a packet of questionnaires to complete at home and bring with them to their appointment. This packet included self-report measures of demographics, several individual-difference measures, a measure of marital satisfaction, and a letter instructing spouses to complete all questionnaires independently of one another. As part of a subsequent laboratory session, all spouses viewed and signed a letter of consent approved by the local Institutional Review Board. Additionally, spouses in Studies 1, 2, and 3 participated in a videotaped

discussion, whereas spouses in Study 4 had their photograph taken, which provided objective information regarding the physical attractiveness of each person (as described in the next section). Couples were paid for participating in this first phase of the study (Study 1 = \$50; Study 2 = \$70; Study 3 = \$80; Study 4 = \$80).

At approximately 6-month intervals subsequent to the initial assessment, couples were recontacted by phone and again mailed marital satisfaction questionnaires, along with postage-paid return envelopes and a letter of instruction reminding couples to complete the questionnaires independently of one another. This procedure was used at all follow-up procedures except Time 5 in Studies 1–2 and Time 6 in Study 4; those sessions resembled the baseline assessment. After completing each phase, couples were mailed a check for participating (Study 1 = \$40; Study 2 = \$40–\$50; Studies 3 and 4 = \$50).

Materials

Physical attractiveness. For each study, a group of trained research assistants (for Study 1, $N = 6$; for Study 2, $N = 3$; for Studies 3 and 4, $N = 5$) rated the facial attractiveness of each spouse on a scale ranging from 1 to 10, where higher ratings indicated more physically attractive faces. Facial attractiveness is a commonly used measure of overall physical attractiveness (Brown, Cash, & Noles, 1986; McNulty et al., 2008; Mueser, Grau, Sussman, & Rosen, 1984) and has been shown to be an equal or stronger predictor than body attractiveness of overall physical attractiveness (Currie & Little, 2009). Attractiveness ratings for spouses in Studies 1, 2, and 3 were made using videotapes of the couples engaging in a discussion, whereas attractiveness ratings for spouses in Study 4 were made using photographs taken of each spouse. The spouse's face was centered in the videos and photos, and raters were instructed to rate only the facial attractiveness of each person. To maximize the objectivity of the ratings from the videos, coders rated the first neutral still frame from within the first 60 s of the partners' discussion in Study 1 and the first 15 s of the discussion in Studies 2 and 3. To ensure the ratings of each spouse's attractiveness were made independent of the other partner's attractiveness, coders rated each spouse independently by covering the face of one spouse at a time in Studies 1, 2, and 3 and only viewing one photograph at a time in Study 4, and by rating all the wives first

Table 1
Sample Demographics

Spouse	Age		Years of education		Full-time employed (%)	Full-time student (%)	Income group (\$)		Caucasian (%)
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			<i>Mdn.</i>	<i>SD</i>	
Study 1 ($N = 82$)									
Husband	25.12	3.32	16.43	2.22	40	54	5K–10K	4.83K	83
Wife	23.67	2.77	16.35	1.77	39	50	5K–10K	4.41K	89
Study 2 ($N = 169$)									
Husband	25.53	4.13	16.48	2.33	59	35	5K–10K	7.21K	94
Wife	23.84	3.60	16.32	2.01	45	43	0K–5K	5.41K	86
Study 3 ($N = 72$)									
Husband	24.92	4.39	14.15	2.48	74	11	15K–20K	4.83K	93
Wife	23.54	3.85	14.72	2.24	49	26	15K–20K	4.41K	96
Study 4 ($N = 135$)									
Husband	25.90	4.57	15.69	2.38	70	26	20K–25K	7.21K	91
Wife	24.21	3.59	18.14	1.88	56	28	10K–15K	5.41K	93

in each study followed by all the husbands. Consistent with findings that people within and across cultures show very high levels of agreement about who is attractive (Langlois et al., 2000), the reliability of our coders was adequate across all studies (in Study 1, $ICC = .90$ for husbands and $ICC = .93$ for wives; in Study 2, $ICC = .78$ for husbands and $ICC = .81$ for wives; in Study 3, $ICC = .85$ for husbands and $ICC = .92$ for wives; in Study 4, $ICC = .85$ for husbands and $ICC = .93$ for wives). To assess levels of attractiveness, in each study, we computed the mean attractiveness rating across raters for each spouse.

Marital satisfaction. In all studies, spouses' global marital satisfaction was assessed using the Quality Marriage Index (QMI; Norton, 1983). The QMI is a six-item scale asking spouses to report the extent to which they agree or disagree with general statements about their marriage (e.g., "We have a good marriage" and "My relationship with my partner makes me happy"). Five items ask spouses to respond according to a 7-point scale, whereas one item asks spouses to respond according to a 10-point scale, yielding scores from 6 to 45. Higher scores reflect more positive satisfaction with the relationship. Internal consistency of this measure was high (across all phases of all studies, Cronbach's alpha was at least .89 for both husbands and wives).

Covariates. To ensure that partner physical attractiveness did not appear to be associated with marital satisfaction only because it is associated with related factors, several covariates were assessed and controlled. Specifically, to ensure that partner physical attractiveness did not appear to be associated with marital satisfaction only because it is related to the ability to offer other resources to the spouse, we assessed and controlled two indices of the ability to offer resources to the spouse that may be correlated with physical attractiveness: age and years of education. Also, because physical attractiveness is positively associated with social skill/extraversion (Langlois et al., 2000; Meier, Robinson, Carter, & Hinsz, 2010), which itself is associated with relationship satisfaction (Barelds, 2005), we assessed and controlled for spouses' extraversion using the Extraversion subscale of the Big Five Personality Inventory short form (Goldberg, 1999). This subscale consists of 10 statements with which participants indicate their extent of agreement on a scale ranging from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*). Items were averaged such that higher scores reflect higher levels of extraversion.

Results

Preliminary Analyses

Table 2 presents the descriptive statistics for and correlations among husbands and wives' physical attractiveness levels in each study. In all four studies, husbands and wives' mean attractiveness levels fell near the midpoint of the scale, and husbands' attractiveness did not differ significantly from wives' attractiveness: in Study 1, $t(81) = 0.88$, ns ; in Study 2, $t(167) = -1.43$, ns ; in Study 3, $t(70) = 0.47$, ns ; in Study 4, $t(132) = -0.58$, ns . Notably, as has been true in other samples of couples (e.g., McNulty et al., 2008; Sheets & Ajmere, 2005), husbands and wives' physical attractiveness were significantly positively associated with each other in all four studies.

Table 2
Descriptive Statistics and Correlations for Physical Attractiveness Measured at Time 1

Variable	Husbands		Wives		<i>r</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Study 1	4.47 _a	1.02	4.33 _a	1.24	.24*
Study 2	5.21 _a	1.07	5.36 _a	1.20	.32***
Study 3	4.68 _a	1.15	4.60 _a	1.52	.47***
Study 4	4.73 _a	1.11	4.80 _a	1.43	.44***

Note. Values with the same subscripts are not significantly different.
* $p < .05$. *** $p < .001$.

Describing the Trajectory of Marital Satisfaction

Growth curve modeling (see Bryk & Raudenbush, 1987) was used to estimate within-person change in satisfaction over the first 4 years of marriage across the four studies (for trajectories of marital satisfaction in each study, see McNulty & Karney, 2004; McNulty & Russell, 2010; McNulty & Widman, in 2013; Neff & Karney, 2007). Specifically, we estimated the following first level of a two-level model, in which husbands and wives' parameters were estimated simultaneously using a multivariate technique suggested by Raudenbush, Brennan, and Barnett (1995):

$$\begin{aligned}
 Y_{ij}(\text{marital satisfaction}) = & \pi_{1ij}(\text{dummy code for husbands}) \\
 & + \pi_{2ij}(\text{dummy code for wives}) \\
 & + \pi_{3ij}(\text{husbands' time of assessment}) \\
 & + \pi_{4ij}(\text{wives' time of assessment}) \\
 & + e_{ij}, \quad (1)
 \end{aligned}$$

where time represents wave of assessment and was coded from 0 to 7 (so that the intercept represented initial marital satisfaction), and where the autocorrelation from repeated assessments was controlled in the second level of the analysis. We used restricted maximum likelihood estimation and placed no restrictions on the autoregressive error structures.

On average, wives tended to report marginally higher levels of initial marital satisfaction ($\pi = 41.78$, $SE = 0.21$) than did husbands ($\pi = 41.40$, $SE = 0.21$), $\chi^2(1) = 3.29$, $p = .066$. Also, although both husbands and wives tended to experience significant declines in marital satisfaction over time (for husbands, $\pi = -0.53$, $SE = 0.05$), $t(453) = -10.17$, $p < .001$ (for wives, $\pi = -0.62$, $SE = 0.06$), $t(453) = -10.77$, $p < .001$, wives experienced steeper declines than husbands, $\chi^2(1) = 5.79$, $p = .015$. Notably, according to the significant chi-square tests of the between-subjects variance, there was substantial between-subjects variability in all parameters of these trajectories: for husbands' initial satisfaction, $\chi^2(430) = 1167.46$, $p < .001$; for husbands' changes in satisfaction, $\chi^2(430) = 921.39$, $p < .001$; for wives' initial satisfaction, $\chi^2(430) = 1151.54$, $p < .001$; for wives' changes in satisfaction, $\chi^2(430) = 1213.61$, $p < .001$, suggesting that some spouses began the relationship with higher or lower levels of marital satisfaction than others and that some spouses experienced more or less change in their satisfaction than others. The primary

analysis examined whether partner attractiveness accounted for this variability, and whether it did so to a different degree for husbands and wives.

Does Partner Physical Attractiveness Differentially Predict Husbands and Wives' Marital Satisfaction?

On the basis of theories that men have evolved to prioritize partner attractiveness more than women have, and because individuals should be most satisfied in their long-term, established relationships to the extent that their partner meets their preferences, we predicted that partner physical attractiveness should play a larger role in predicting husbands' marital satisfaction than wives' marital satisfaction. To test this prediction, all parameters estimated in Equation 1 (i.e., husbands and wives' initial marital satisfaction and husbands and wives' changes in marital satisfaction) were regressed onto own and partner physical attractiveness in the second level of the model, controlling for (a) husbands and wives' age, husbands and wives' income, and husbands and wives' extraversion (all centered around the appropriate mean) at the Level 2 intercepts and slopes; and (b) any idiosyncratic differences between studies with dummy codes at the Level 2 intercepts.

The results of this analysis are presented in Table 3. As can be seen, objective ratings of wives' attractiveness were significantly positively associated with initial levels of husbands' satisfaction and not significantly associated with changes in husbands' satisfaction, indicating that husbands were more satisfied at the beginning of the marriage and remained that way over the first 4 years of marriage to the extent that they had a more attractive wife. Objective ratings of husbands' physical attractiveness, in contrast, were not significantly associated with either component of the trajectory of wives' marital satisfaction, indicating that wives were

not more or less satisfied initially or over time to the extent that they had a more attractive husband. None of these effects differed across the four studies (all $ps > .25$). Most importantly, consistent with the prediction that the association between partner attractiveness and satisfaction would be stronger among men than women, a direct test (using the hypothesis-testing option in the Hierarchical Linear Modeling 6.08 program; Bryk, Raudenbush, & Congdon, 2004) revealed that the significant association between wives' attractiveness and husbands' initial marital satisfaction was stronger than the nonsignificant association between husbands' attractiveness and wives' initial marital satisfaction, $\chi^2(1) = 3.86, p = .046$.

The effects of own attractiveness on marital satisfaction can also be seen in Table 3. One significant effect emerged: wives' attractiveness was positively associated with changes in their own satisfaction, indicating that more attractive wives experienced less steep declines in satisfaction over the first 4 years of marriage than relatively less attractive wives. Wives' attractiveness was not significantly associated with initial levels of wives' satisfaction, and husbands' attractiveness was not associated with either component of the trajectory of husbands' satisfaction, although a direct test revealed that the nonsignificant association between husbands' attractiveness and changes in husbands' marital satisfaction was not significantly weaker than the significant association between wives' attractiveness and changes in wives' marital satisfaction, $\chi^2(1) = 0.92, ns$. None of these effects were moderated by study (all $ps > .05$).

Discussion

Study Rationale and Summary of Results

For several decades, researchers across numerous disciplines have assumed that partner physical attractiveness should play a

Table 3
Effects of Partner Physical Attractiveness on Husbands and Wives' Marital Satisfaction

Variable	Husbands			Wives		
	β	SE	Effect size r	β	SE	Effect size r
Initial satisfaction						
Husbands' age	0.05	0.07	.04	-0.05	0.07	.04
Wives' age	-0.04	0.07	.03	0.11	0.07	.08 [†]
Husbands' income	-0.22	0.11	.10*	-0.11	0.11	.05
Wives' income	-0.11	0.12	.04	-0.11	0.12	.04
Husbands' extraversion	0.57	0.30	.09 [†]	0.21	0.30	.03
Wives' extraversion	0.29	0.29	.05	1.05	0.29	.17***
Husbands' physical attractiveness	-0.17	0.21	.04	-0.21	0.21	.05
Wives' physical attractiveness	0.36	0.17	.10*	0.06	0.17	.02
Changes in satisfaction						
Husbands' age	-0.01	0.02	.04	-0.01	0.02	.02
Wives' age	0.08	0.02	.02	-0.00	0.02	.00
Husbands' income	0.00	0.02	.01	0.03	0.03	.05
Wives' income	0.00	0.03	.00	-0.00	0.03	.00
Husbands' extraversion	0.07	0.08	.04	0.01	0.09	.01
Wives' extraversion	0.05	0.07	.03	0.04	0.08	.03
Husbands' physical attractiveness	0.04	0.05	.03	-0.01	0.06	.01
Wives' physical attractiveness	0.03	0.04	.03	0.12	0.05	.11*

Note. Effects of the three dummy-coded study covariates are excluded for the sake of simplicity and brevity. β s are associations between variables and π s from Equation 1. Effect size r reported. For initial satisfaction, $df = 442$; for changes in satisfaction, $df = 445$.

[†] $p < .10$. * $p < .05$. *** $p < .001$.

stronger role in shaping men's romantic relationships than it plays in shaping women's romantic relationships (e.g., Buss, 1989; Buss & Kenrick, 1998; Feingold, 1990, 1992; Grammer et al., 2003; Greenlees & McGrew, 1994; Sprecher et al., 1994). Recent research has questioned this assumption, however, by demonstrating that men and women do not differentially choose more attractive partners over less attractive ones in speed-dating studies (e.g., Eastwick et al., 2011; Eastwick & Finkel, 2008; Fisman et al., 2006; Kurzban & Weeden, 2005). Nevertheless, given that these studies are likely to confound short-term and long-term dating preferences, and given that sex differences in the importance of partner physical attractiveness are expected to emerge only in the context of long-term relationships, we used data drawn from four independent 4-year, eight-wave longitudinal studies of new marriages to examine the implications of partner attractiveness for the trajectory of marital satisfaction. In all four studies, both partners' physical attractiveness was objectively rated at baseline, and both partners self-reported their marital satisfaction up to eight times over the first 4 years of marriage.

Results were consistent with evolutionary perspectives. Whereas husbands were more satisfied at the beginning of the marriage and remained that way over the first 4 years of marriage to the extent that they had a more attractive wife, wives were no more or less satisfied initially or over time to the extent that they had a more attractive husband. Most importantly, the significant effect of wives' attractiveness on husbands' satisfaction was significantly stronger than the nonsignificant effect of husbands' attractiveness on wives' satisfaction, indicating that partner physical attractiveness played a larger role in predicting husbands' marital satisfaction than it did in predicting wives' marital satisfaction. In other words, contrary to the conclusion that people do not know something as fundamental about themselves as what they want in a partner, the sex-differentiated preference for an attractive partner that men and women have stated in a robust literature spanning more than 20 years (e.g., Buss, 1989; Buss & Barnes, 1986; Eastwick & Finkel, 2008; Eastwick et al., 2011; Furnham, 2009; Howard et al., 1987; Hudson & Henze, 1969; Li et al., 2002; Li & Kenrick, 2006; Sprecher, 1989) affects their long-term relationships after all.

Notably, wives in the current studies remained more satisfied over the first 4 years of marriage to the extent that they themselves were more attractive. One possible explanation for this finding is that more attractive women are healthier and more resistant to illness (Hume & Montgomerie, 2001) and thus less prone to additional stressors that may negatively influence satisfaction over time (Burman & Margolin, 1992; Neff & Karney, 2004, 2007). Another possible explanation is that because husbands of more attractive women are more satisfied initially and stay more satisfied over time, they may treat those attractive wives better and thus those attractive women may be happier over time (see McNulty et al., 2008). Future research may benefit by better understanding why attractive wives remain more satisfied with their relationship over time.

Strengths and Limitations

Several strengths of the current research enhance our confidence in the results reported here. First, in contrast to using newly formed or hypothetical relationships or using participants interested in short-term relationships, the current study included participants

who were all young, married couples for whom the measured outcomes were real and consequential. Second, the effects emerged in four independent studies of married couples using objective ratings of partner attractiveness, helping to ensure that the results reported here were not idiosyncratic to a specific sample or group of raters of attractiveness. Third, analyses in the current study controlled several potential confounds—own attractiveness, age, income, and extraversion, decreasing the possibility that the results were spurious or suppressed due to associations with those variables. Fourth, because all spouses were newlyweds, these results are unlikely to be the product of unmeasured differences in marital duration. Fifth, the current longitudinal study used growth curve analyses that provided more reliable and valid estimates of within-person change than traditional two-wave longitudinal designs (Bryk & Raudenbush, 1987). Finally, whereas the average rate of retention in prior longitudinal research on marriage is 69% (Karney & Bradbury, 1995), analyses in the current study were able to use data from four complete samples, reducing the likelihood that the results may have been influenced by biases due to attrition.

Despite these strengths, several factors limit interpretations of the current findings until they can be replicated and extended. First, whereas the relative homogeneity of the four samples enhances our confidence in the pattern of associations that emerged, this lack of variability limits our ability to generalize these findings to other samples. Theoretically, however, these results should generalize to any sample of young people who are involved in long-term relationships. Moreover, given the current study's moderate variability in spouses' physical attractiveness, these results might be even stronger among samples in which the variance is wider (see Li et al., 2013). Future research may benefit from attempting to determine the extent to which this is true. Second, all of the data examined here are correlational and thus are unable to support strong causal conclusions. Though we were able to control some variables that could have been responsible for the associations observed here (age, income, extraversion), other potential third variables remained uncontrolled. Third, given that we did not assess spouses' ideals prior to their marriage, we are unable to examine the extent to which such ideals play a role in the current findings. There are two ways in which such partner ideals may differentially affect marital satisfaction: (a) individuals may be more satisfied to the extent that their partners match the absolute level of their ideals or (b) individuals may be more satisfied to the extent that their partners match the general pattern of their ideals (see Eastwick & Neff, 2012). Future research may benefit by exploring which of these mechanisms account for the apparent influence of men and women's different standards for partner attractiveness on their marital satisfaction. Finally, the fact that we only observed attractiveness at baseline limited our ability to examine interesting predictions regarding the changing role that attractiveness may play in marriage over time. For example, women's attractiveness declines more steeply over time than men's attractiveness (Jackson, 1992). Given the current evidence that partner physical attractiveness is indeed more important to men than women, changes in women's attractiveness may prove particularly important for the trajectory of men's relationship satisfaction (see Margolin & White, 1987).

Implications, Caveats, and Future Directions

Despite these limitations, in addition to verifying that partner attractiveness differentially affects men and women's relationship outcomes, these findings have implications for relationship research more broadly. For instance, the current study highlights the importance of using the most appropriate samples for testing specific predictions. If, for example, processes are expected to occur in short-term relationships, then such processes should be examined in samples composed exclusively of participants in short-term relationships. If, in contrast, processes are expected to occur in long-term relationships, then such processes should be examined in samples composed exclusively of participants in long-term relationships. Indeed, not only may people's goals, preferences, and behaviors differ in short- versus long-term mating contexts, so may the implications of such processes.

It is important to note, however, that the current findings do not undermine the speed-dating paradigm. Such a paradigm may provide a unique opportunity to bridge the gap between initial attraction research and research examining established close relationships (see Finkel, Eastwick, & Matthews, 2007), as long as researchers continue to assess and examine those close relationships formed at the speed-dating events. Indeed, following speed-daters over extended periods of time would allow researchers to use information from both partners prior to relationship formation to predict not only which relationships form but also how those relationships develop over time.

We would also be remiss if we did not comment on the implications these findings have for women. Specifically, given that partner physical attractiveness plays a stronger role in men's long-term relationship satisfaction than women's long-term relationship satisfaction, and given that women's own physical attractiveness plays a role in the trajectories of their long-term relationship satisfaction, women may experience increased pressures to maintain their physical attractiveness in order to successfully maintain a long-term relationship. Indeed, women are more likely than men to undergo extreme measures (e.g., elect for cosmetic surgery) to improve their physical attractiveness (Brown, Furnham, Glanville, & Swami, 2007; Swami et al., 2008). Nevertheless, it is important to note that partner physical attractiveness is not the only predictor of marital satisfaction. For example, recent research indicates that women's attitudes about their attractiveness, regardless of their actual attractiveness, positively predict both men and women's sexual and marital satisfaction (Meltzer & McNulty, 2010). Moreover, there are likely to be important moderators of the effects of partner attractiveness on relationship satisfaction. For example, in addition to desiring physically attractive partners, men also desire partners who are supportive, trustworthy, and/or warm (Fletcher, Simpson, Thomas, & Giles, 1999; Fletcher, Tither, O'Loughlin, Friesen, & Overall, 2004). Indeed, both men and women with partners who demonstrate these qualities tend to be more satisfied with their relationships (Davis & Oathout, 1987; Pasch & Bradbury, 1998). Accordingly, less attractive women who possess these qualities may not have less satisfied long-term relationship partners. Future research may benefit by examining these and other potential moderators of the current findings.

Finally, although the current research demonstrates that partner attractiveness had a stronger effect on the trajectory of men's

satisfaction over the first 4 years of marriage, it remains unclear whether partner attractiveness is always more important to men than it is to women. For example, it is possible that the sex differences in the implications of partner attractiveness may be attenuated by women's mating goals. Specifically, there is some evidence that women are more likely to evaluate men as short-term partners and value partner physical attractiveness as much as men when they are ovulating (Gangestad, Simpson, Cousins, Garver-Apgar, & Christenen, 2004; Penton-Voak et al., 1999). Accordingly, partner physical attractiveness may emerge as an equally strong predictor of men and women's satisfaction even in long-term, established relationships if those women are ovulating. Additionally, it is possible that the sex differences in the importance of physical attractiveness in a long-term relationship partner may change over time. Specifically, although it is possible that attractiveness may continue to be more important to men than it is to women even among older adults (see Thornhill & Gangestad, 1999), it is equally possible that, because men's sex drive declines over time (Bacon et al., 2003; Panser et al., 1995), their related desire to have an attractive partner may similarly decline. Future research may benefit by examining these and other issues regarding the extent to which the implications of partner attractiveness for long-term relationships may fluctuate and change over time.

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