



## Women want taller men more than men want shorter women

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### ABSTRACT

Physical characteristics, such as height, play an important role in human mate preferences. Satisfaction with one's own height and one's partner height seem likely to be related to these preferences. Using a student sample ( $N = 650$ ), we show that women are not only more selective, but also more consistent, than men, in their partner height preferences. Women prefer, on average, a larger height difference between themselves and their partner (i.e. males being much taller than themselves) than men do. This effect is even more pronounced when examining satisfaction with actual partner height: women are most satisfied when their partner was 21 cm taller, whereas men are most satisfied when they were 8 cm taller than their partner. Next, using data from our sample and that of a previously published study ( $N = 52,677$ ), we show that for men, height is more important to the expression of satisfaction with one's own height than it is for women. Furthermore, slightly above average height women and tall men are most satisfied with their heights. We conclude that satisfaction with one's own height is at least partly a consequence of the height preference of the opposite sex and satisfaction with one's partner height.

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### 1. Introduction

#### 1.1. Height in couples

Physical characteristics play an important role in human mate choice (Barber, 1995; Frederick, Hadji-Michael, Furnham, & Swami, 2010; Kurzban & Weeden, 2005), and human height was among the first of these physical characteristics to be studied. As early as 1903, Pearson and Lee observed in a British sample that heights between partners were more similar than heights between non-partners (Pearson & Lee, 1903). This pattern has been labeled assortative mating, i.e. the existence of a positive correlation between partner characteristics, and has been observed for height in many populations (see Spuhler, 1982 for review). Gillis and Avis (1980) were the first to document another non-random pattern with respect to partner heights, the male-taller norm: in married couples both from the UK and US, the woman was more frequently shorter than her husband than expected by chance.

#### 1.2. Preferences for romantic partner height

Observed mating patterns with respect to height are likely a consequence of mate preferences for stature within each sex

(Courtial, Raymond, Godelle, & Ferdy, 2010b). Indeed, much research has focussed on the role of height in partner preferences, and these preferences have been studied in a variety of settings, such as lab-based experiments (reviewed in Courtial et al., 2010b), responses to online advertisements (Pawlowski & Koziel, 2002), and speed-dating (Kurzban & Weeden, 2005). In line with findings on actual couples, these studies have consistently found that taller individuals prefer taller partners compared to shorter individuals (i.e. an assortative preference) and that both men and women prefer to be part of a couple where the man is taller than the woman (i.e. a male-taller preference) (Fink, Neave, Brewer, & Pawlowski, 2007; Pawlowski, 2003). These studies also suggest that women prefer men who are not too tall and that men prefer women who are not too short (Salska et al., 2008). The different preferences in men and women result in tall men, but not too tall, being most preferred by the opposite sex, whereas average height women are most preferred by men (Courtial et al., 2010b). Preferences for partner height differences are also dependent on one's own height. Pawlowski (2003) was the first to show that both shorter men and taller women tend to prefer smaller partner height differences than taller men and shorter women, who both prefer larger partner height differences. Reasons as to why height is preferred in a mate has been extensively discussed in the literature (Barber, 1995; Buunk, Park, Zurriaga, Klavina, & Massar, 2008; Courtial et al., 2010b; Fink et al., 2007; Salska et al., 2008; Stulp, Pollet, Verhulst, & Buunk, 2012; Stulp, Verhulst, Pollet, & Buunk, 2012; Swami et al., 2008).

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### 1.3. Satisfaction with height

Given the role of height in mate preferences and mate choice, one would expect that satisfaction with one's own height would at least be partly contingent on the preferences shown by the opposite sex, but surprisingly few studies have addressed whether this holds true. Perhaps the most extreme example of dissatisfaction with height is the existence of hormone therapies in order to either reduce or increase one's adult height. Whereas hormone therapies to increase height are used for both sexes (Allen, 2006), therapies to reduce growth are more common for women (Pyett et al., 2005). The choice for hormone therapy is often based on the decision of the parents or a physician rather than that of the child, and many hormonally treated tall women are dissatisfied with such a decision (Pyett et al., 2005). This is particularly remarkable when considering that tall untreated women are not necessarily dissatisfied with their height (Lever, Frederick, Laird, & Sadeghi-Azar, 2007). A more thorough understanding of how satisfaction with one's own height is affected by an individual's height is important in deciding whether hormone therapy, with its potentially grave side effects, should be considered.

### 1.4. This study

The present study expands previous research and theory in several ways. First, we aimed to replicate previous findings with respect to preferences for partner height differences (Courtial et al., 2010b; Fink et al., 2007; Pawlowski, 2003; Salska et al., 2008), using a more detailed series of questions, thereby enabling a more thorough understanding of how partner preferences for stature operate. Our second aim was to examine satisfaction with one's own height in both sexes, and we expected height to be more important with respect to explaining satisfaction with one's own height for men than for women – an assumption that has rarely been formally tested. Furthermore, we hypothesized that individuals would be most satisfied with their own height when this height was the one most preferred by the opposite sex. Our final aim was to investigate to what extent the height of one's partner influences one's satisfaction with his or her height, and we hypothesized that partner height will influence the satisfaction of women more than that of men. To our knowledge, this is the first study addressing satisfaction with one's partner height.

## 2. Method

### 2.1. Participants and protocol

All participants were first year psychology students from a large European university who participated in exchange for course credits ( $N = 693$ ). Participants first provided the following socio-demographic information: age, sex, height, weight, ethnicity and sexual orientation. Because most students were either Dutch or German, we coded Ethnicity as either Dutch ( $N = 405$ ), German ( $N = 201$ ) or other ( $N = 44$ ). Participants then answered a series of questions concerning their partner height preferences; we asked about their (i) ideally preferred, (ii) minimally acceptable, and (iii) maximally acceptable partner height (all in cm). We also asked about their relationship status (single or in a relationship). If the participants indicated that they had a romantic partner, they were then asked to report on (i) their partner's actual height, and (ii) their satisfaction with their partner's height. Last, all participants indicated the degree of satisfaction with their own height. Satisfaction was measured on a 100-point scale, anchored at 50.

We only included heterosexual participants and those that reported their own height, reducing our sample to 650 participants

(461 women). The 461 women in our sample reported an average height of 170.94 ( $\pm 5.926$ ) cm and age of 19.96 ( $\pm 2.778$ ) years, and the 189 men were on average 184.60 ( $\pm 7.960$ ) cm tall and 20.96 ( $\pm 2.751$ ) years old.

### 2.2. Statistical analysis

For all the independent sample *t*-tests we performed with respect to the preferences for partner height, we dealt with unequal variances, such that there was more variance in preferences among men than among women (all Levene's tests  $F \geq 8.99$ ;  $p \leq .003$ ). Cohen's *d* was determined by dividing the mean difference between groups by the pooled standard deviation. This method has been argued to be robust in cases where the differences of variances are not too large (Rosnow, Rosenthal, & Rubin, 2000), as is the case in our study. We also examined quadratic and cubic terms of height when examining satisfaction with one's own and one's partner height. In the electronic supplementary material we provide General Linear Model estimates for all interactions between sex and height (or height difference) on all variables examined. Controlling for age and ethnicity did not change any of our reported results (results not shown).

In order to investigate the validity of our results with respect to height satisfaction, we compared our findings to a sample reported in previous studies (Frederick, Peplau, & Lever, 2006; Lever et al., 2007). Frederick et al. (2006) examined satisfaction with one's own height (among others) in 52,677 heterosexual individuals ( $N = 26,963$  women) that completed a 'Sex and Body Image Survey' on either MSNBC.com or Elle.com. Individuals were asked: "How do you feel about your height?" and could respond with three options: "I wish I were taller", "I wish I were shorter", and "I feel okay about my height". We analyzed the data using a logistic regression, with the binary dependent variable coded as whether the participant felt okay or not about his or her height. All analyses were performed in SPSS 17.0.

## 3. Results

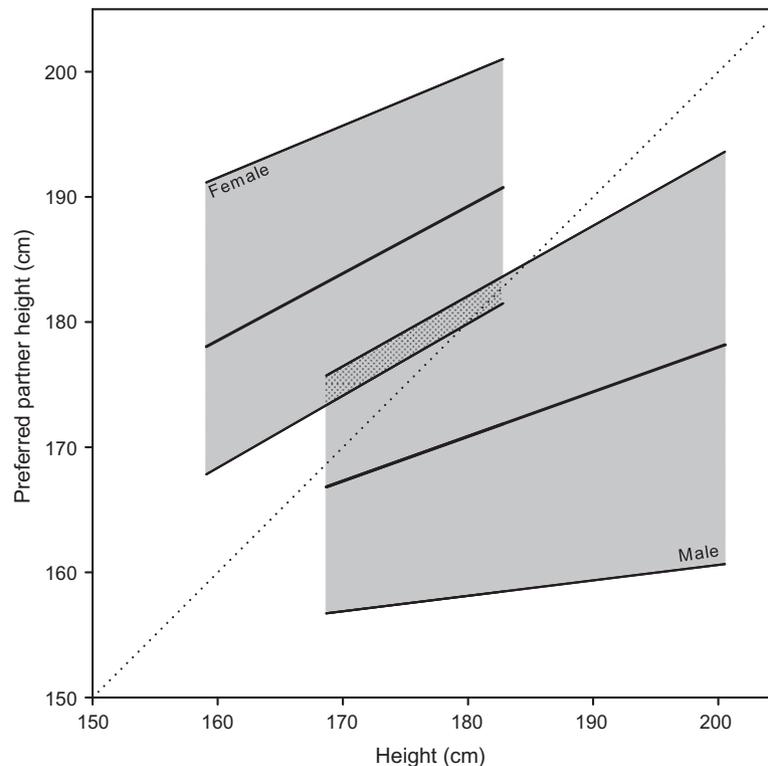
### 3.1. Preferences for partner height

#### 3.1.1. Preferred partner height

An individual's height correlated significantly and positively with preferred partner height in both men ( $r = .47$ ;  $p < .001$ ;  $N = 188$ ) and women ( $r = .54$ ;  $p < .001$ ;  $N = 461$ ): taller men and women preferred taller partners than shorter men and women (Fig. 1; ESM Table 1). Next, we calculated the preferred differences between one's own height and that of one's partner. We found that male height was positively correlated ( $r = .69$ ;  $p < .001$ ;  $N = 188$ ) and that female height was negatively correlated with preferred partner height difference ( $r = -.49$ ;  $p < .001$ ;  $N = 461$ ; ESM Table 2). Thus, taller men and shorter women preferred larger height differences, i.e. the male partner being much taller, whereas shorter men and taller women preferred smaller height differences, i.e. the male partner being only slightly taller (in line with Pawlowski (2003)). On average, women preferred a larger partner height difference ( $13.45 \pm 5.61$  cm) than men ( $12.11 \pm 7.44$ ;  $t(277.81) = 2.23$ ;  $p = .027$ ;  $d = .21$ ).

#### 3.1.2. Minimally and maximally acceptable partner height

Men and women differed significantly in the minimally acceptable partner height ( $t(277.20) = 6.37$ ;  $p < .0001$ ;  $d = 0.62$ ; Fig. 1). Women required on average a height difference of at least 3.72 ( $\pm 5.54$ ) cm, whereas men were willing to accept a virtually zero difference of  $-0.053$  ( $\pm 7.29$ ) cm. One sample *t*-tests revealed that women ( $460$ ) = 14.41;  $p < .0001$ ;  $d = 0.67$ ), but not men



**Fig. 1.** Regression lines for preferred (thick line), minimally accepted (lower line) and maximally accepted (upper line) partner height for males and females. Data are plotted for the range  $\pm 2$  SD.

( $t(186) = 0.10$ ;  $p = .92$ ;  $d = -0.007$ ), preferred to be in a couple in which the man is taller than the woman (i.e. the male-taller norm).

Men and women did not differ significantly in the maximally acceptable partner height ( $t(252.28) = 0.81$ ;  $p = .42$ ;  $d = 0.090$ ; Fig. 1). Women were, on average, willing to consider a maximally acceptable partner height difference of 25.15 ( $\pm 8.13$ ) cm compared to that of 25.94 ( $\pm 12.23$ ) cm for men, indicating a male-not-too-tall norm.

### 3.1.3. The acceptable height range

We examined whether men and women differed in their selectivity with respect to partner height, by investigating the acceptable partner height range (i.e. the difference between the maximally and minimally acceptable partner height). On average, men accepted a significantly larger height range (25.85 cm  $\pm$  12.55) than women (21.38  $\pm$  8.76;  $t(257.71) = 4.42$ ;  $p < .001$ ;  $d = 0.45$ ; Fig. 1).

Next, we investigated whether men and women were more tolerant towards heights above or below their preferred partner height. In order to do so, we examined the difference between the maximally acceptable and preferred partner height and the difference between the minimally acceptable height and preferred partner height. For men, the maximally acceptable height was, on average, 12.06 cm ( $\pm 5.76$ ) away from preferred partner height, whereas the minimally acceptable height was, on average, 13.79 cm ( $\pm 9.01$ ) away from preferred partner height, a significant difference (paired sample  $t$ -test:  $t(183) = 2.78$ ;  $p = .006$ ;  $d = 0.21$ ). In contrast, for women, the difference between the maximally acceptable height and preferred partner height was 11.67 ( $\pm 6.52$ ) cm, whereas the difference between minimally acceptable height and preferred partner height was 9.70 ( $\pm 4.48$ ) cm, again, a significant difference ( $t(457) = -6.06$ ;  $p < .0001$ ;  $d = 0.28$ ). Thus, women were more accepting of heights above their preferred partner height than to heights below their preferred partner height, whereas men showed the opposite pattern, and were more toler-

ant towards heights below, rather than above, their preferred height.

## 3.2. Satisfaction with one's own height

### 3.2.1. Our sample

Regression analyses revealed that both male and female height were curvilinearly related to satisfaction with one's own height (Table 1). From Fig. 2a, it is clear that satisfaction with male height increases until average height is reached, after which satisfaction remains constant with increasing height, with the optimum of the curve at a height of 193.74 cm (Table 1). For women, those of average height and slightly above average height appear more satisfied than those who are either shorter than average or tall (Fig. 2b), with the optimum at a height of 175.97 cm (Table 1). Actual height explained around four times as much of the variance in male satisfaction with their height than it did for females (32.0% versus 7.2%; Table 1; ESM Table 3; but note that the variation in male height was significantly larger than in female height).

### 3.2.2. An analysis of the sample from Frederick et al. (2006)

Very similar results were obtained when analyzing the sample from Frederick et al. (2006). Logistic regression revealed that height was curvilinearly related to the statement "I feel okay about my height" (Table 1), with men being most satisfied at a height of 195.28 cm and women at a height of 177.21 cm (Table 1). Again, satisfaction with one's own height was much more dependent on actual height for men than for women (by a factor of two; Table 1; ESM Table 4). Thus, using a much larger and non-student sample, we corroborated the results from our original sample.

## 3.3. Satisfaction with partner height and partner height differences

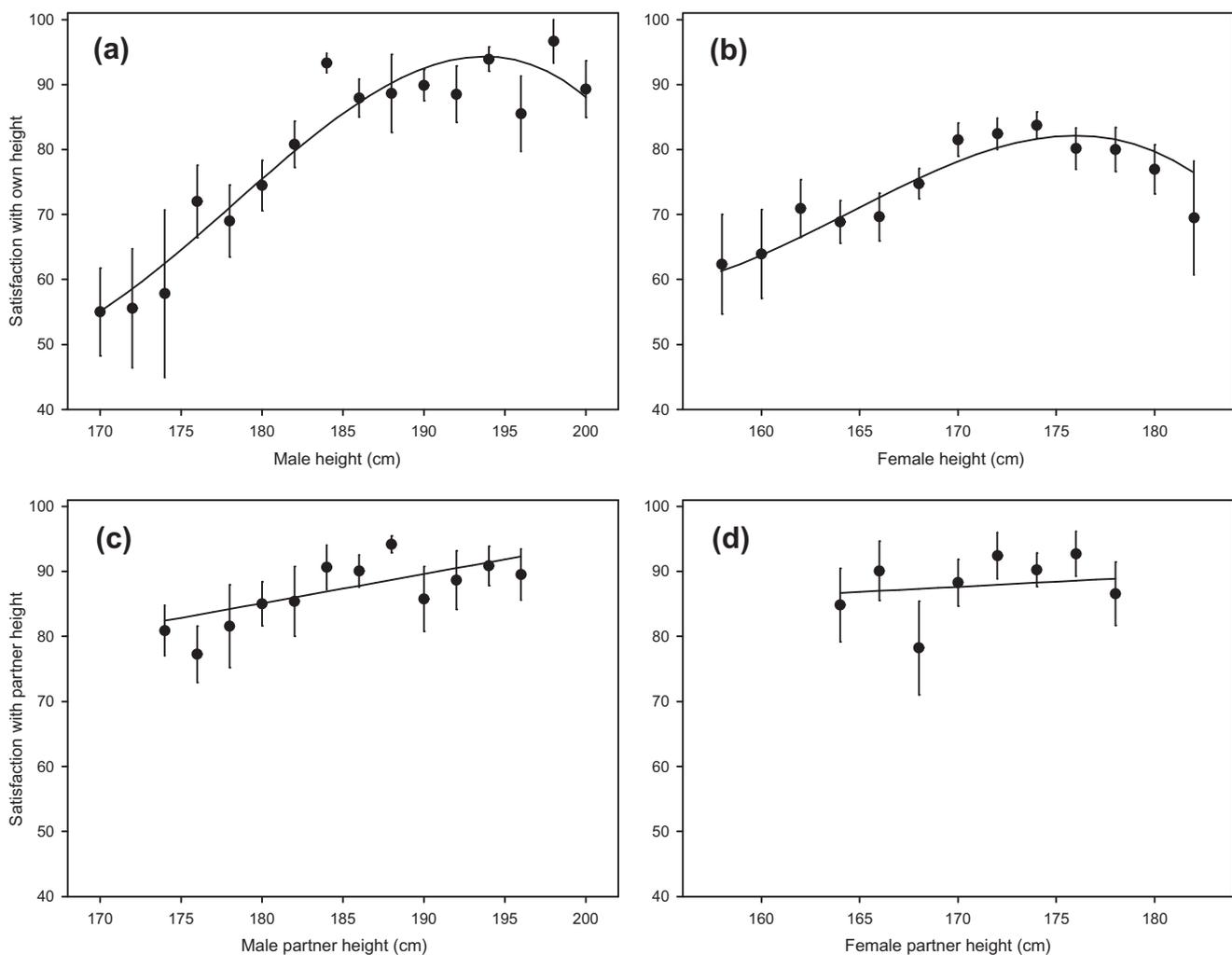
Eighty-five out of 189 men and 231 out of 461 women were in a relationship. Participant height correlated positively with reported

**Table 1**  
Parameter estimates ( $B \pm SE$ ;  $p$ -value in brackets) and betas ( $b$ ) for the effect of height (in cm; centered) on satisfaction with own height.

	Our sample <sup>a</sup>				Sample from Frederick et al. (2006) <sup>b</sup>	
	Men		Women		Men	Women
	$B \pm SE$	$b$	$B \pm SE$	$B$	$B \pm SE$	$B \pm SE$
Intercept	84.80 $\pm$ 1.44 ( $<.0001$ )		79.23 $\pm$ 1.13 ( $<.0001$ )		.587 $\pm$ 0.018 ( $<.0001$ )	.692 $\pm$ 0.017 ( $<.0001$ )
Height	1.83 $\pm$ 0.25 ( $<.0001$ )	.754	1.06 $\pm$ 0.24 ( $<.0001$ )	.306	.243 $\pm$ 0.004 ( $<.0001$ )	.144 $\pm$ 0.004 ( $<.0001$ )
Height <sup>2</sup>	-0.058 $\pm$ 0.013 ( $<.0001$ )	-.268	-0.076 $\pm$ 0.019 ( $<.0001$ )	-.183	0.0003 $\pm$ 0.0003 (.3783)	-0.0009 $\pm$ 0.0003 (.0022)
Height <sup>3</sup>	-0.0030 $\pm$ 0.0011 (.0053)	-.291	-0.0039 $\pm$ 0.0018 (.0310)	-.155	-0.0005 $\pm$ 0.00002 ( $<.0001$ )	-0.0003 $\pm$ 0.00003 ( $<.0001$ )
$R^2$	.320		.072		.336	.147
Optimum (cm)	193.74		175.97		193.02	176.84

<sup>a</sup> Linear regression; adjusted  $R^2$ .

<sup>b</sup> Logistic regression; Nagelkerke  $R^2$ .



**Fig. 2.** Mean ( $\pm$  SE) satisfaction with own height for (a) men and (b) women and mean satisfaction with male partner height by women (c) and female partner height by men (d). Lines are OLS regressions.

height of their partner in both men ( $r = .19$ ;  $p = .081$ ;  $N = 84$ ) and women ( $r = .29$ ;  $p < .0001$ ;  $N = 231$ ; *ESM Table 5*). Thus, taller men tended to be paired with taller women. Partner height correlated with reported satisfaction with partner height in women ( $r = .19$ ;  $p = .004$ ;  $N = 231$ ; *Fig. 2c*), but not in men ( $r = .065$ ;  $N = 84$ ;  $p = .56$ ; *Fig. 2d*; *ESM Table 6*). That is, women with taller

partners reported higher satisfaction with the height of their partner, whereas the height of the partner did not explain satisfaction with that height in men. No quadratic or cubic effects were found (all  $p > .13$ ).

We also examined whether partner height differences predicted satisfaction with one's partner height. For both men and women,

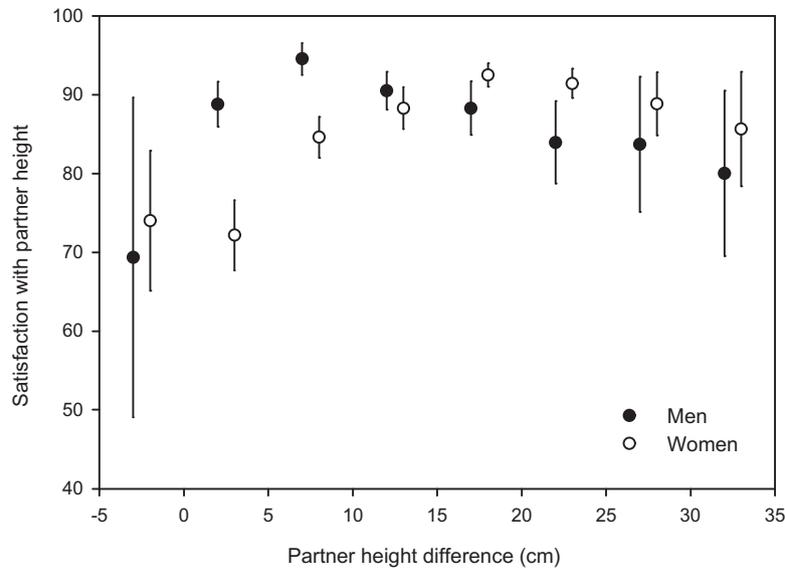


Fig. 3. Mean ( $\pm$ SE) satisfaction with partner height based on partner height differences.

Table 2

Linear regression parameter estimates ( $\pm$ SE;  $p$ -value in brackets) and betas ( $b$ ) for the effect of partner height differences (in cm) on satisfaction with partner height.

	Men		Women	
	B $\pm$ SE	$b$	B $\pm$ SE	$b$
Intercept	88.76 $\pm$ 3.06 ( $<.0001$ )		73.69 $\pm$ 2.44 ( $<.0001$ )	
Partner height difference	0.30 $\pm$ 0.32 (.341)	.188	0.86 $\pm$ 0.39 (.027)	.399
Partner height difference <sup>2</sup>	-0.018 $\pm$ 0.010 (.070)	-.360	0.060 $\pm$ 0.033 (.068)	.794
Partner height difference <sup>3</sup>	<sup>a</sup>		-0.0026 $\pm$ 0.0008 (.003)	-.989
Adjusted $R^2$	.029		.134	
Optimum (cm)	8.27		20.93	

<sup>a</sup> Non-significant ( $p = .558$ ).

partner height differences were curvilinearly related to satisfaction with one's partner height (Fig. 3; Table 2; although for men this relationship was marginally significant). Whereas the optimum of the curve for men was a partner that was 8.26 cm shorter (Table 2; Fig. 3), the optimum of the curve for women was a partner that was 20.93 cm taller. Thus, men were most satisfied when their partner was slightly shorter than themselves, whereas women were most satisfied when their partner was much taller than themselves. Partner height differences were more important in explaining partner height satisfaction in women than in men, accounting for more than four times as much of the explained variance (13.4% versus 2.9%; Table 2; ESM Table 7).

#### 4. Discussion

In line with previous studies (e.g. Courtiol et al., 2010b), we found support for positive assortative mating preferences for height: taller individuals preferred taller romantic partners. Additionally, both men and women preferred to be in a couple where the man was taller than the woman, but not too tall (similar to Salska et al., 2008). We extended these findings by showing that the preference for the male being taller than the female in a couple was most pronounced in women. Women, but not men, considered partner heights unacceptable if they resulted in the female partner

being taller than the male. This was also evident from the finding that women were more tolerant towards male partner heights that were above their preferred height than towards heights that were below their preferred height. Thus, our data suggest that the male-taller norm as observed in married couples in Western societies (Gillis & Avis, 1980; Sear, 2006; Stulp, Buunk, Pollet, Nettle, & Verhulst, 2013) is more likely to be driven by women rather than by men.

An additional conflict in preferences between the sexes is demonstrated by the fact that women preferred larger height differences than men did (in line with Courtiol et al., 2010b). Mutual mate choice thus likely results in couples where the height preferences of either the male partner, the female partner, or indeed both, are not optimally satisfied. And indeed, here we show for the first time, that among those partnered, men and women differed strongly with respect to the partner height difference they found most satisfactory: men were most satisfied with their partner's height when they were slightly taller than their female partner (i.e. 8 cm), whereas women were most satisfied with their partner height when they were substantially shorter than their male partner (i.e. 21 cm). Thus, men and women clearly do not agree on what constitutes the 'ideal' height difference.

We further extended previous research by showing that women were more restrictive with respect to the preferred stature of their

partner than men were, and more generally that women placed a greater value on their partner's height than men do. First, women displayed less variation across all the measures of partner preference that we investigated compared to men, suggesting that among women there is greater consensus with respect to preferred partner height than among men. Second, women were much more restrictive in their range of acceptable heights compared to men. That is, women were more likely to rule out certain heights as completely unacceptable. The notion that women are more selective in terms of partner height is also supported by the finding that partner height explained substantially more variance in satisfaction with partner height for women than men. Women were found to report more satisfaction when they were partnered with taller rather than shorter men. No such effects were observed in men, suggesting that their partner's height was less important to them.

Given that women place more value on partner height than men do, it is not surprising that we also found, using data from two samples, that height was much more important in explaining satisfaction with one's own height for men than for women. Furthermore, men who were taller than average reported the highest level of satisfaction with their own height, whereas shorter men reported the least amount of satisfaction. The finding that shorter men were least satisfied with their height can be understood from our findings on mate preferences: women preferred greater height differences and were most satisfied with their partner's height when he was tall. The increased satisfaction with their own height among taller men is also in line with studies indicating that tall men have higher self-esteem (Judge & Cable, 2004), display less jealousy towards other men (Buunk et al., 2008), and display higher levels of subjective well-being (Carrieri & De Paola, 2012).

In women, we found that those of average height and those of above average height were the most satisfied with their own height. This curvilinear effect of height on satisfaction with respect to one's own stature is in line with previous research suggesting that women of average height are least jealous (Buunk et al., 2008), and least competitive towards other women (Buunk, Pollet, Klavina, Figueredo, & Dijkstra, 2009). The finding that shorter, rather than taller, women are less satisfied with their height (Lever et al., 2007) may reflect the finding that men were most satisfied with their partner's height when she was only slightly shorter, rather than being much shorter. This finding is obviously pertinent when considering the decision to administer growth suppression treatments to girls who are exceptionally tall for their age.

An obvious limitation of our study is that we used a sample of predominantly White European psychology undergraduates. Although previous studies from a number of Western societies and using a wide range of methodologies and samples (Courtiol et al., 2010b; Fink et al., 2007; Pawlowski & Koziel, 2002; Re & Perrett, 2012; Salska et al., 2008; Swami et al., 2008) have all yielded the same consistent mate preferences with respect to height, studies from non-Western samples suggest that preferences and choice for partner height are not universal (Sear, 2006; Sorokowski & Butovskaya, 2012; Sorokowski, Sorokowska, Fink, & Mberira, 2011). Thus, although it is likely that our results can be generalized to Western populations, they may not necessarily apply to non-Western populations.

Another potential limitation is the methodology of relying on self-report with respect to height. Self-reported measures of height have been shown to be very reliable ( $r > .90$ ) (Spencer, Appleby, Davey, & Key, 2002). Both men and women are, however, likely to overestimate their height, and men slightly more so than women. Because the overestimation is marginal and the fact that the bias is less pronounced in men and women below the age of fifty, these biases are unlikely to qualitatively affect our results (Spencer et al., 2002). People may furthermore not be very accurate at assessing height and they are also likely to round their responses

to questions of this kind: indeed, in our sample, 71% reported their ideal partner height with a 'rounded' number (i.e. a number ending with a zero or a five). These problems are, however, much more likely to result in statistical noise, rather than to generate a systematic bias with respect to height preferences. Another limitation is that we have assumed that preferences for partner height translate into mate choice in the real world. Mating preferences are only one element in the process of mate choice and pair formation, and many other factors also play a role (Courtiol, Picq, Godelle, Raymond, & Ferdy, 2010a; Stulp et al., 2013).

Despite these caveats, we have shown quite clearly that men and women differ in their views of what constitutes the 'ideal' partner height difference and that satisfaction with one's own height is contingent on the preference for partner height expressed by the opposite sex, suggesting that, to at least some degree, mating preferences are expressed in actual choice and pairing.

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### Appendix A. Supplementary data

Supplementary data associated with this article can be found, in the online version, at <http://dx.doi.org/10.1016/j.paid.2012.12.019>.

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