Preferred and actual relative height are related to sex, sexual orientation, and dominance: Evidence from Brazil and the Czech Republic

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Abstract

Height and dominance influence mate preferences and choices. We explored preferred relative height (PRH) among ideal partners and actual relative height (ARH) among long-term partners in heterosexual and non-heterosexual men and women from Brazil and the Czech Republic. Furthermore, we tested whether PRH and ARH are influenced by own height, and submissiveness-dominance in relationship and sexual activities. In a sample of 1709 respondents (379 heterosexual men, 311 non-heterosexual men, 853 heterosexual women, and 166 non-heterosexual women) heterosexual individuals showed the 'male-taller-pattern' preferences and choices, while non-heterosexuals preferred and chose partners of a height similar to themselves; an 'equal-height-pattern'. Regression analyses further showed that own height positively predicted both PRH and ARH in all four groups of participants. Moreover, non-heterosexual men and women who preferred to be dominant in sexual activities and heterosexual men who preferred to be dominant in relationships preferred to be taller than their partner. Thus, in Western populations, preferences for relative height differ between heterosexual and non-heterosexual individuals, but in both cases they relate to dyadic submissiveness-dominance and own height. Preferences for relative height and dominance can work as a guide to actual mate choices enhancing ancestral fitness, although they differ from actual choices in modern humans.

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1. Introduction

Human body height, as an evolved sexually dimorphic trait, strongly influences mate preferences and actual choices of men and women (Salska et al., 2008). The high heritability of human height means that few environmental factors are responsible for individual differences in this trait (Silventoinen et al., 2003). However, the very low heritability of the variation in the actual mate choices that people make in relation to height (Zietsch, Verweij, Heath, & Martin, 2011) indicates that environmental factors crucially influence individual variation. Therefore, search for factors that modulate mate choice and also preferences, is relevant for evolutionary-based research.

Studies have shown that a preference for males being taller than their female partners is widespread in Western populations (e.g., Fink, Neave, Brewer, & Pawlowski, 2007; Pawlowski, 2003). Male height is associated with intra-sexual dominance, which leads to a higher resource acquisition (Stulp & Barrett, 2014). Thus, female preferences for taller men are suggested to be adaptive, because they direct them to better resource providers. Preferences for relative height are, however, systematically modulated by several factors, such as population, individuals own height, self-esteem and personality characteristics. Preferences for the 'male-taller-pattern' were not supported in several studies of non-Western populations. For example, Datoga men and women from Tanzania preferred extreme height differences where a woman would be much shorter or much taller than a man (Sorokowski & Butovskaya, 2012). The present study included samples from two historically, culturally and ethnically diverse Western populations: Brazil and the Czech Republic.

Further, recent research suggests that individuals might adaptively adjust their preferences for relative height in accordance with their own height. It was, for example, shown, that in Western countries taller men and shorter women tend to prefer larger partner height differences than shorter men and taller women (Pawlowski, 2003; Stulp, Buunk, & Pollet, 2013). Moreover, inter-personal dominance as another sexually dimorphic trait was shown to be positively connected to individual height (Stulp, Buunk, Verhulst, & Pollet, 2015). Both own height and dominance might thus similarly moderate individual differences in preferences for relative height. Indeed, three recent studies showed that personality (Swami et al., 2008) and inter-personal characteristics, for example, dominance, influence relative
height preferences. More specifically, more dominant heterosexual women tend to prefer relatively shorter male partners than less dominant women (Sorokowski, Sabinevicz, & Sorokowska, 2015), while homosexual men who prefer to be more dominant also prefer to be taller than their partners (Valentova, Stulp, Trebický, & Havlíček, 2014).

Another factor that could influence relative height preferences is sexual orientation. Recent studies reported that, on average, non-heterosexual men (i.e., bisexual and homosexual) generally prefer rather masculine physical characteristics in their potential male partners (e.g., Zheng & Zheng, 2015), whereas non-heterosexual women, tend to prefer more feminine physical traits in their potential female partners (e.g., Bailey, Kim, Hills, & Linsenmeier, 1997; Cohen & Tannenbaum, 2001). However, these preferences are also modulated by individual factors, such as preferences of sex roles during sexual activities (Zheng & Zheng, 2015), participants’ own masculinity–femininity (Bailey et al., 1997), and relationship status (Valentova, Roberts, & Havlíček, 2013). To our knowledge, only one study has focused on relative height preferences in non-heterosexual men (although not non-heterosexual women), who generally preferred somewhat taller male partners — although a substantial proportion of men preferred partners of the same height and a smaller proportion preferred shorter partners (Valentova et al., 2014). Furthermore, taller men preferred relatively shorter partners, and men who preferred to be taller than their partners also preferred to be more dominant in relationship and sexual activities, and vice versa. However, this study did not compare preferences of non-heterosexual and heterosexual populations; this is one of the main goals of the current study.

Finally, most studies have focused on factors that influence preferences, rather than actual choices regarding relative height among partners. However, preferences and actual choices can differ to some degree, since people make many compromises when it comes to actual pairing (Todd, Penke, Fasolo, & Lenton, 2007). In respect to height, although both heterosexual men and women prefer the ‘male-taller-pattern’ in the Western populations, women prefer men much taller than themselves, whereas men prefer women only slightly shorter than themselves (Stulp, Buunk, Kurzban, & Verhulst, 2013). Consequently, actual height difference between partners is a compromise between preferences of both sexes (Townsend & Wasserman, 1998), resulting in relationships with bigger height difference among partners than men would prefer and smaller than women would prefer. Thus, it is important to study both preferences and actual choice in order to disentangle how preferred height was translated to actual height.

1.1. Aims of the current study

One of the main aims of this study was to explore and compare preferred and actual relative height in heterosexual and homosexual men and women, from two diverse populations, Brazil and the Czech Republic. Height was chosen as a model sexually dimorphic trait because it can be studied in both sexes, in contrast to other characteristics that are specific to only one sex (e.g., beard). Moreover, height was unambiguously shown to be linked to male dominance (Stulp et al., 2015). Thus, here we aimed to extend the previous study (Valentova et al., 2014) of associations between preferred and actual relative height and dyadic submissiveness-dominance.

2. Methods

2.1. Participants

The total sample consisted of 2195 participants from Brazil and the Czech Republic, recruited as a part of a larger study of ideal partner preferences and actual partner choice. For the subsequent analyses we included participants between 18 and 50 years of age, and for the analyses of actual partner choices we included non-heterosexual coupled participants who indicated that they were in a long-term relationship with a partner of the same sex, and heterosexual participants who indicated they were in a long-term relationship with members of the opposite sex. Thus, 1709 responses (mean age = 26.61 years, range 18–50, SD = 6.72) entered the final analyses, including 22.2% heterosexual men (n = 379), 18.2% non-heterosexual men (n = 311), 49.9% heterosexual women (n = 853), and 9.7% non-heterosexual women (n = 166). Non-heterosexual women were significantly younger than heterosexual women (p = .002), and there was no other age difference between the groups.

The participants were recruited via snowball sampling through the use of mailing-lists obtained from our previous studies, through posts on Facebook, and LGBT oriented web pages in both countries. Data were collected through an online questionnaire using Qualtrics platform (http://www.qualtrics.com). Participants gave their informed consent, which required a mouse-click to confirm their willingness to complete an approximately 40-min, anonymous survey.

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![Fig. 1. Illustration of the stimuli used for assessing preferred and actual relative height among partners. This version of the stimuli was presented only to non-heterosexual women; adequate versions were presented to other groups of participants. The question asked: ‘Indicate your preferred/actual height of your partner (white figure) compared to your own height (gray figure) — individuals in couple 5 are of the same height.’](image-url)
2.2. Procedure

Participants were presented with scale drawings of nine partner pairs (Fig. 1) with varying relative height, developed for a previous study (Valentova et al., 2014). The depicted couples were centered on a couple of equal height (picture nr. 5), while four pictures on the left side presented couples with respondent becoming gradually shorter than his/her partner, and four pictures on the right side of the scale presented couples with respondent becoming gradually taller than his/her partner. In other words, the smaller number of the scale the respondent chooses, the shorter he/she would be/ is relative to his/her partner. Participants were asked to select the drawing that depicted the preferred relative height (PRH) difference between them and their ideal partner, and in case they were actually in a long-term relationship, they were also asked to select the drawing that depicted the actual relative height (ARH) difference between them and their actual partner or the last ex partner.

Sexual orientation was reported using a Kinsey scale: 0 = exclusively heterosexual, 3 = bisexual, and 6 = exclusively homosexual. Forty-three and a half percent of men (n = 300), and 55.8% of women (n = 569) reported that they were exclusively heterosexual; 8.8% of men (n = 61) and 24.4% of women indicated they were homosexual (n = 249); and 2.6% of men (n = 18) and 3.4% of women (n = 35) reported they were mostly homosexual. For the analyses we classified these three groups as ‘heterosexual individuals’ (Ht).

We treated men and women as ‘non-heterosexuals’ (NonHt), when they indicated they were bisexual (2.3% of men, n = 16; 4.6% of women, n = 49), somewhat homosexual (1.2% of men, n = 8; 1.9% of women, n = 19), mostly homosexual (9.4% of men, n = 65; 4.9% of women, n = 50) and exclusively homosexual (32.2% of men, n = 222; 4.7% of women, n = 48). These percentages are not representative of the studied populations because the sampling sought to recruit a sufficient number of NonHt individuals.

In total, 50.9% (n = 193) of Ht-men and 47.6% (n = 79) of NonHt-women reported being in a long-term relationship with a female partner at the time of the study, and 48.2% (n = 150) of NonHt-men and 66.2% (n = 565) of Ht-women reported being in a long-term relationship with a male partner.

In using 7-point scales (where 1 = very submissive and 7 = very dominant) each participant indicated his or her ideal preference for a submissive or dominant role (SD) in a relationship (“Please, indicate whether in a potential relationship you would prefer to be more submissive and obedient towards your partner, or more dominant, leading, and in control”) and in sexual activities (“Please, indicate whether in sexual activities with your ideal partner you would prefer to be more submissive and passive, or rather more dominant and active”). Respondents who reported being in a long-term relationship at the time of the study also indicated their SD in relationships and sexual activities with their actual partners or their last ex partners.

Each participant reported his/her own height (in cm), which was entered in subsequent regression models as a predictor variable.

3. Results

3.1. Group comparisons of preferred and actual relative height among partners

Univariate general linear model (GLM) with PRH as dependent variable, and country (Brazil X the Czech Republic) and participants grouped into Ht and NonHt men and women revealed a significant model (F (7; 1418) = 36.7, p < .001). Test of between-subject effects revealed that there was a significant effect of participants’ group (F (3; 1425) = 969.2, p < .001). Post-hoc tests with Bonferroni correction showed that all groups differed significantly from each other (all ps < .002); Ht-women preferred partners somewhat taller than themselves (mean = 1.68, SD = .88), followed by NonHt-men (mean = 3.98, SD = 1.76), and NonHt-women (mean = 4.53, SD = 1.68) who preferred partners of more similar height; Ht-men generally preferred partners shorter than themselves (mean = 6.90, SD = 1.98).

Similarly, univariate GLM showed a significant model for the actual choice based on relative height (F (7; 895) = 15.12, p < .001). Test of between-subject effects revealed a significant effect of participants’ group (F (3; 902) = 303.7, p < .001). Post-hoc tests with Bonferroni correction showed that with the exception of NonHt-men and NonHt-women, who did not differ from each other (p = 1.00), the groups differed significantly from each other (all p’s < .001). Ht-women described their male partners as taller than themselves (mean = 2.28, SD = 1.48), and differed significantly from both NonHt-men (mean = 4.78, SD = 2.48) and NonHt-women (mean = 4.65, SD = 2.24) who described their partners as being of a similar height, and all groups differed significantly from Ht-men who described their partners as shorter than themselves (mean = 7.19, SD = 2.23).

3.2. Frequencies of preferred and actual relative height among partners

Since there was no effect of country on PRH or ARH, we combined frequencies of these variables for both populations. As shown in Fig. 2a, the majority of Ht-men (81.3%, n = 253), preferred a partner who would be shorter than themselves (i.e., they selected drawings # 6–9 in Fig. 1); a small proportion (7.4%, n = 23) preferred a relationship in which partners would be of similar height (i.e., they selected a drawing # 5 in Fig. 1); and 11.3% (n = 35) preferred a partner who would be taller than themselves (i.e., they selected drawings # 1–4 in Fig. 1). In contrast, none of the Ht-women (Fig. 2a) chose drawings that depicted women with shorter male partners; 1.1% (n = 8) preferred a man of the same height; and a vast majority (98.9%, n = 303) of Ht-women preferred a man taller than themselves. Among NonHt-men (Fig. 2a), the majority (62.0%, n = 168) preferred a partner who would be taller than themselves, 19.9% (n = 54) preferred a relationship in which partners would be of similar height, and 18.0% (n = 49) preferred a partner shorter than themselves. Among NonHt-women (Fig. 2a), almost half (45.0%, n = 63) preferred a partner taller than themselves, 32.9% (n = 46) of women preferred partners with a similar height, and a smaller proportion (22.2%, n = 31) preferred a partner shorter than themselves.

Fig. 2b shows that 82% (n = 144) of Ht-men were in a relationship with women shorter than themselves, a small proportion (13.0%, n = 23) was in a relationship with taller women, and 5.1% (n = 9) indicated that their partner was of the same height. Similarly, the majority (90.9%, n = 469) of Ht-women (Fig. 2b) were in a relationship with taller men, 5% (n = 26) indicated relationship with a man of the same height, and 4.1% (n = 21) were in a relationship with a shorter man. Among NonHt-men (Fig. 2b), almost half (48.2%, n = 66) indicated being in a relationship with a taller man; 8.8% (n = 12) were dating a man of the same height; and a substantial proportion of men (43.1%, n = 59) were in a relationship with a shorter man. Among NonHt-women (Fig. 2b), the majority (52.8%, n = 39) was in a relationship with a taller woman; 16.2% (n = 12) were in relationships with women of the same height, and more than a quarter (31.2%, n = 23) were dating a shorter woman. Related-samples Wilcoxon Signed Rank test showed that there was no difference between PRH and ARH among Ht-men (W = 2,001,500, n = 152, p = .062) and NonHt-women (W = 625,000, n = 68, p = .699), but the preferences and actual choice differed among Ht-women (W = 20,340,000, n = 454, p < .001), and NonHt-men (W = 3,257,500, n = 123, p < .001). Both Ht-women and NonHt-men desired, on average, taller partners than they actually had.
3.3. Associations among partners’ dominance, sexual role, and relative height

For each group of participants, we performed two automatic linear regression models (ALM) (Yang, 2013), which allowed the entry of both continuous and categorical variables. The first model was designed to determine effects on participants’ preferred relative height (PRH) of the following variables: participant’s height, age, country, and preferred submissiveness-dominance (SD) in relationships and sexual activities. The second model tested whether participants’ height, country, and actual SD in relationships and sexual activities predicted actual relative height among partners (ARH). The coefficients presented are unstandardized regression coefficients.

In Ht-men, the regression model for PRH was significant ($R^2 = .08$, $F(2, 310) = 14.392, p < .001$). Own height and preferred SD in relationship positively predicted male’s PRH ($b = .07, t = 4.8, p < .001; b = .25, t = 2.4, p = .016$, respectively). Thus, the taller a man wants to be relative to his partner, the more dominant he wants to be in a relationship with her and the taller he is. Participants’ height was a significant predictor of ARH ($R^2 = .12, F(1, 175) = 25.5, p < .001; b = .11, t = 5.1$).

In NonHt-men, the regression model for PRH explained almost 20% of the total variance ($R^2 = .197$), and was overall significant ($F(3, 270) = 23.1, p < .001$). Own height and preferred SD in sex positively predicted NonHt-men’s PRH ($b = .09, t = 6.8, p < .001; b = .26, t = 3.3, p = .001$, respectively). Also, preferred SD in relationship nonsignificantly positively predicted PRH ($b = .19, t = 1.9, p = .053$). Thus, the taller a man wants to be relative to his partner, the more dominant he wants to be in sexual activities and the relationship, and the taller he is. Participants’ height significantly predicted ARH ($R^2 = .18, F(1, 136) = 30.9, p < .001; b = .13, t = 5.6, p < .001$).

In Ht-women, the models for PRH and ARH were significant; $R^2 = .01, F(1, 703) = 8.2, p = .004; R^2 = .12, F(2, 515) = 35.2, p < .001$, respectively, showing that only participants’ height predicted women’s preferences ($b = .01, t = 2.9, p = .004$) and choice ($b = .08, t = 8.4, p < .001$).

Fig. 2. a Frequencies of preferred relative height among partners b Frequencies of actual relative height among partners Figure note. The stimulus Nr. 1 depicts a couple where respondent is much shorter than his/her partner, stimulus Nr. 5 depicts couple of the same height and stimulus Nr. 9 depicts couple where respondent is much taller than his/her partner. The Error bars indicate 95% CI.
In NonHt-women, the regression model for PRH was significant ($R^2 = .16, F(2, 139) = 14.2, p < .001$). Own height and preferred SD in sex were significant positive predictors of non-heterosexual women’s PRH ($b = .10, t = 5.0, p < .001; b = .21, t = 2.2, p = .031$, respectively). Thus, the taller the woman wants to be relative to her partner the more dominant she wants to be in sex with her, and the taller she is. Participants’ height was a significant predictor of the ARH ($R^2 = .25, F(1, 73) = 24.8, p < .001; b = .17, t = 5.0, p < .001$).

Neither age nor nationality emerged as a significant predictor in any of the models.

4. Discussion

This study had two primary goals: (1) to test and compare preferred and actual relative height in Ht and NonHt-men and Ht and NonHt-women from two populations; (2) to examine whether relative height preferences and choice are influenced by preferred and actual submissiveness-dominance among partners. Our findings indicate that relative height preferences and choice seem to adaptively vary across both countries based on the following characteristics: participants’ sex, sexual orientation, and height. Furthermore, in all studied groups except for Ht-women, individuals who preferred to be taller in their relationship also preferred to be more dominant in relationships or sexual activities with their potential partners.

Our findings are consistent with previous studies in Western countries: Ht-men generally preferred and also chose female partners shorter than themselves, whereas Ht-women showed the opposite pattern (e.g., Fink et al., 2007; Pawlowski, 2003). Preferences and choice of NonHt-men and NonHt-women were located in the middle between the preferences of Ht-men and Ht-women, and thus closer to the middle point of our scale which depicts both partners of similar height. This is consistent with a previous study of Czech NonHt-men (Valentova et al., 2014). Relative height preferences and choice in NonHt-individuals were neither typically masculine, nor typically feminine, and thus cannot be simplified as gender-nonconforming. Rather, it seems that partner preferences and choice of NonHt-men and NonHt-women differ from both heterosexual men and women. Since there is no expected dimorphism in stature among same-sex partners, such variation can be highly adaptive, because it can broaden the pool of potential partners.

Importantly, PRH and ARH were similar in Brazil and the Czech Republic, despite the fact that Czechs tend to be taller than Brazilians (e.g., Varella, Valentova, Pereira, & Bussab, 2014). Thus, both populations seem to be similar in their preferences and choice of the ‘male-taller-pattern’ in heterosexual individuals, and ‘equal-height-pattern’ in non-heterosexual individuals. Because previous studies showed that the ‘male-taller-pattern’ in heterosexual individuals does not apply for different populations (e.g., Sorokowski, Sorokowska, Fink, & Mberia, 2012), future cross-cultural studies might also focus on PRH and ARH in NonHt-individuals in populations where a heterosexual ‘male-taller-pattern’ does not seem to be the rule.

Furthermore, we showed that in Ht-men and NonHt-women PRH did not differ from ARH — which suggested that preferences of Ht-men and NonHt-women, on average, translate into their actual choice. On the other hand, Ht-women and NonHt-men desired, on average, partners relatively taller than they actually had. This is in line with some previous studies showing differences between preferred and actual partners in BMI (Courtiol, Picc, Godelle, Raymond, & Ferdy, 2010), relative height (Valentova et al., 2014), and in other characteristics (e.g., Todd et al., 2007). It can be that some groups of people have higher expectations for their ideal partners which might be more difficult to fulfill. From the evolutionary perspective, more demanding preferences of Ht-women, in particular for a highly desired trait, such as male height, might be highly adaptive, since women’s preferences facilitate to choose the best partner possible. On the other hand, average preferences for relatively taller partners in NonHt-men might have been more difficult to fulfill, since the most available men in the population would be of a similar height.

Finally, we investigated whether preferred and actual dyadic submissiveness-dominance are linked to preferred and actual relative height. In line with a previous study (Valentova et al., 2014), NonHt-men who preferred to be more dominant in relationships and sexual activities preferred to be taller than their potential partner. Similar results applied for Ht-men and NonHt-women, whereas Ht-women did not show this association. Thus, in general, people who want to be more dominant towards their partners also want their ideal partners to be shorter, and conversely, suggesting that preferences for height are reflected in preferences for hierarchical position within the dyad. Interestingly, this relationship applied only to preferences, not actual relationships. Partner preferences for different traits (here relative height and dyadic dominance) can thus work coherently as an integrated guide to ancestral fitness enhancing choice, but because of current restrictions, such as partner availability or competition with rivals, they can differ from actual choice.

We did not find any link between preferred dyadic dominance and relative height in Ht-women — unlike a recent study by Sorokowski et al. (2015). Those authors found that dominance in Ht-women (but not Ht-men), as measured by the Ray Directiveness Scale (Ray, 1976), predicted PRH. Nevertheless, general dominance over others which is linked to male height (Stulp et al., 2015) can differ from tendencies to dominate romantic partners. Ht-women who prefer relatively taller men do not need to prefer men who would be dominant in a relationship, because such men can be aggressive towards the woman and her offspring.

Because the survey and recruitment was conducted online, only participants with access to the internet were able to participate, which might result in selection bias. Further, the relative height among actual partners was self-reported by the participants and not measured by the researchers. Future studies might thus focus on measuring of body height in both actual partners, and compare the measured relative height among partners with their preferences. Also, the actual dyadic dominance and relative height were reported by only one of the partners, and can be thus biased by his/her perception, which might differ from perception of the other partner. Furthermore, future studies might focus on other groups, such as individuals who prefer more extreme submissive or dominant roles during sexual activities (e.g., BDSM community), where the link between submissiveness-dominance in sex and relative height might be even more pronounced than in the general population.

5. Conclusion

The current cross-cultural findings expanded and supported previous research: both heterosexual preferences and actual pairings exhibited the ‘male-taller-pattern’. However, this pattern is not typical for NonHt-men and NonHt-women, who prefer and choose partners of a height similar to themselves, namely they show an ‘equal-height-pattern’ preference and actual pairing.

Preferences and actual choice of relative height among partners are conditional; sex, sexual orientation, participants’ height, and preferred dyadic dominance modulate these preferences and choices. Furthermore, although partner preferences may orient individuals towards choices that enhanced ancestral fitness, in modern conditions actual partner choices can differ from preferences — particularly in Ht-women and NonHt-men.

Studying partner preferences and choices, including samples from different populations and also sexual minorities is highly relevant for social and evolutionary psychology in the context of mating psychology, in particular mating intelligence, alternative reproductive strategies, and homosexual orientation. The research thus should take into account the complexity of mating, in order to better understand the human variation.
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