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Short Communication

Male height and marital status

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ABSTRACT

Using conscription data and follow ups from a large representative sample of Swedish men, and in accordance with earlier studies, we found a bell shaped association between male height and the hazard for not being unmarried. The shape of this association was not affected by indicators of health and socioeconomic status and it might, instead, be due to microeconomic factors such as supply and market value. A negative linear association between male height and the hazard for divorce once married was also found, and this association was accounted for by indicators of socioeconomic status.

1. Introduction

Studies have found that men with children are on average taller than childless men and that married men are on average taller than unmarried (Pawlowski, Dunbar, & Lipowicz, 2000), that there is a positive association between male height and number of long-term partners (Mueller & Mazur, 2001; Nettle, 2002), and that women in personal ads tend to state minimum rather than maximum height requirements of a potential male partner (Buss, 2003; Salska et al., 2008). One possible explanation for this association could be that women have acquired a preference for tall men because stature serves as an indicator of health (Silventoinen, Lahelma, & Rahkonen, 1999) and maybe also fighting/protective capacity (Carrier, 2011). That tall men tend to experience a higher level of socioeconomic success than their shorter peers (Judge & Cable, 2004) could also be a contributing factor behind this association.

However, Stulp, Pollet, Verhulst, and Buunk (2012) found a bell shaped association between male height and age of first marriage, as well as number of children, with men of average height experiencing higher reproductive success than either short or tall men. Both among men and women, there also seems to be a positive association between own height and preferred height in a partner, and also an association between own height and preferred sexual dimorphism in stature (SDS = male height/female height), with tall women and short men preferring a smaller SDS compared with short women and tall men (Pawlowski, 2003; Fink, Neave, Brewer, & Pawlowski, 2007; Salska et al., 2008; Courtiol, Raymond, Godelle, & Ferdy, 2010; Stulp, Buunk, Pollet, Nettle, & Verhulst, 2013).

So, a bell shaped association between male height and marital status has been demonstrated before. However, the need for validation of earlier research findings (Popper, 1959; Open Science Collaboration, 2015) and for high powered studies (Ioannidis, 2005; Button et al., 2013) has been acknowledged. Besides, the present study adds information about the association between male height and the likelihood for divorce once married and to what degree the association between male height and marital status can be accounted for by indicators of health and socioeconomic status.

2. Material and method

The height (M = 178.19 cm, SD = 6.36 cm, range 146–209 cm) of 48,904 Swedish men, born between 1949 and 1951, was measured at military conscription in 1969/70. At that time, only 2–3% of all Swedish men were exempted from conscription, in most cases owing to severe handicaps or congenital disorders. The following data was also available: (1) on between 38,741 (1974) and 35,538 (2008) of these men's marital status for the period 1974–2008; (2) on 42,405 of these men's fathers' occupational position in 1960, on a scale from 1 (= unskilled worker) to 5 (= non-manual employee at higher level); (3) on 48,494 of these men's self-rated health at the conscription, on a scale from 1 (= very bad) to 5 (= very good); (4) on 47,191 of these men's self-reported level of education in 1990 on a scale from 1 (= primary school less than nine years) to 7 (= postgraduate studies).

How many years it took for the marital status to be something else than unmarried (married, registered partner, divorced, or widower) was calculated for each man, and this was used as the time-variable in

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a Cox regression analysis. Those who never had a marital status other than unmarried ($n = 8097$) received a value of 36 on this time-variable. The time between the first recorded marriage during the period 1974–2008 and subsequent divorce, or the end of the time period, was used as the time-variable in a second Cox regression analysis. Of the 29,086 recorded first marriages, 9937 (34.2%) ended in divorce. Analyses were conducted with R 3.2.2 statistical software (R Core Team, 2015) using the survival package (Therneau, 2015).

3. Results

Descriptive statistics for, as well as correlations between, study variables is presented in Table 1. The hazard for not being unmarried has a significant ($Z = 12.80$, $p < 0.001$) positive association with male height. However, the inclusion of a quadratic term of height significantly ($Z = -7.33$, $p < 0.001$) improves the predictive power of the model and the bell shaped association between male height and the hazard for not being unmarried is hardly affected at all when adjusting for the father's occupational position, the man's self-rated health, or educational level. The highest hazard is found among men who are approximately 185 cm tall. The hazard for divorce once married has no significant ($Z = 1.56$, $p = 0.119$, for the quadratic term in the crude model) bell shaped association with male height. Instead, the association is weakly linear and negative ($Z = -3.05$, $p = 0.002$, for the linear term in the crude model). However, this linear association stops being significant ($Z = -0.98$, $p = 0.330$) when adjusting for level of education (Fig. 1). There is a positive association between male height and level of education (Table 1) and a negative association between level of education and the hazard for divorce once married ($Z = -11.4$, $p < 0.001$, when adjusting for the effect of height).

4. Discussion

In accordance with earlier studies (e.g. Stulp et al., 2012) we found a bell shaped association between male height and marital status, in our case the hazard for not being unmarried. As male height has shown a positive association with advantageous characteristics such as good health (Silventoinen et al., 1999), higher levels of socioeconomic success (Judge & Cable, 2004), and maybe also fighting ability (Carrier, 2011), these characteristics could be seen as possible confounders of the association between male height and marital status. However, adjustment for the father's occupational position, when the male subject was approximately ten years old, or the male subject's self-rated health, at the time of conscription, or attained level of education, at age 40, hardly had any impact on the bell shaped association between male height and the hazard for not being unmarried.

Instead, microeconomic factors such as supply and market value might be possible reasons for this bell shaped association. Courtiol et al. (2010) found that preferred partner height was given by the equation (Own Height − 165.3) × 0.77 + 182.9 cm among female participants and (Own Height − 177.7) × 0.60 + 167.7 cm among males (with 165.3 and 177.7 being the average height among female and male subjects, respectively). If this information is combined with knowledge about the height distribution among Swedish women and men (the present conscription data; Statistics Sweden, 2013), and using ±1 cm as category limits, it is possible to estimate supply (=percentage of the female population that is of the preferred height) and market value (=percentage of the female population that think you have an optimal height) as functions of male height (Fig. 2). For example, a man who is 190 cm tall should prefer women who are (190–177.7) × 0.60 + 167.7 = 175.08 cm tall and since 4.4% of the female population is calculated to be between 174.08 and 176.08 cm tall, his supply value is 0.044. The same man is perceived to have the optimal height by women who are 165.3 + (190–182.9) / 0.77 = 174.52 cm tall and as 4.9% of the female population is between 173.52 and 175.52 cm tall, his market value is 0.049. It should be noted that the category limits ±1 cm was chosen arbitrarily but that some other limits, e.g. ±5 cm, would change the absolute values but not the shape of the association between male height and supply/market value.

A certain degree of similarity between the functions in Fig. 2 and the hazard for not being unmarried (Fig. 1) can be noted. For instance, the height for the highest hazard and for the highest market value is more or less the same. Hence, it is possible that such microeconomic factors can explain at least some of the bell shaped association between male height and marital status. This microeconomic explanation is, admittedly, highly speculative and difficult to prove. However, maybe it would be possible to find indications of this explanation's correctness or erroneousness by analyzing data from populations, historic or contemporary, where the female and male height preferences, and/or the sex difference in height, vary.

The hazard for divorce once married had a weak negative linear association with male height. However, this association weakened even

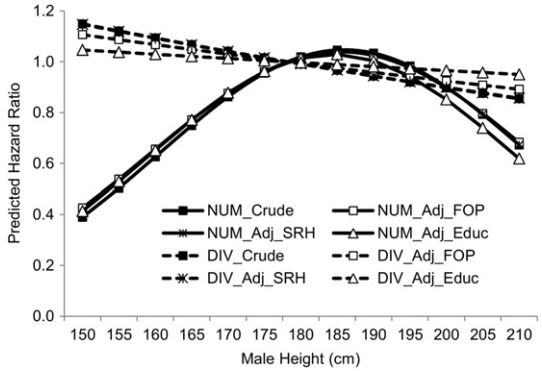

Fig. 1. Predicted hazard ratio for not being unmarried (solid lines) and for divorce once married (dotted lines) as a function of male height, both crude and adjusted for father's occupational position (FOP), own self-rated health (SRH), and own attained level of education (Educ). The hazard is set to one for those of average height (=178.19 cm).

Table 1
Descriptive statistics for, and correlations between, study variables.

Variable	*N*	*M*	*SD*	Pearson Correlation		
				2.	3.	4.
1. Height	48,904	178.19	6.36	0.011†	0.114*	0.165*
2. SRH[a]	48,494	4.19	0.83		0.016†	0.036*
3. FOP[b]	42,405	2.30	1.31			0.348*
4. Education	47,191	3.52	1.56			

† $p < 0.05$.
* $p < 0.001$.
[a] Self-rated health.
[b] Father's occupational position.

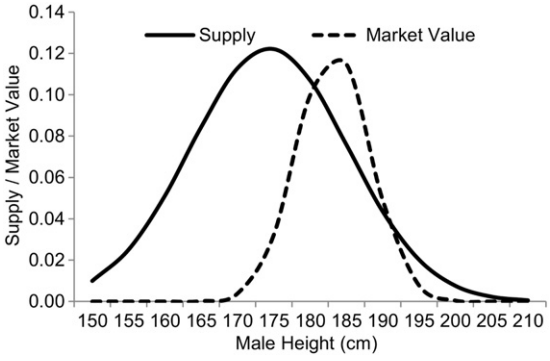

Fig. 2. Male supply and market value on the marriage market as a function of height. The functions are based on the association between own and preferred partner height found by Courtiol et al. (2010).

further when adjusting for indicators of socioeconomic status, especially level of education. Together with findings that decisions of divorce are more often initiated by women than men (Kalmijn & Poortman, 2006; Sayer, England, Allison, & Kangas, 2011) and that the likelihood for divorce has a negative association with male socioeconomic status (the present study; Hoffman & Duncan, 1995; Jalovaara, 2003; Sayer et al., 2011; Kaplan & Herbst, 2015) this could be seen to indicate that tall men are slightly more successful at retaining their spouses because they are better breadwinners.

Contrary to the present findings, Mueller and Mazur (2001) found a positive association between male height and the likelihood for divorce. This discrepancy could, for example, be due to the difference between samples. While the present study is based on a large representative sample of Swedish men born between 1949 and 1951, Mueller and Mazur used a much smaller ($N = 437$) sample of American military officers born approximately twenty years earlier (the Class of 1950 of the United States Military Academy at West Point). This could be seen as an example of the importance of validating earlier research finding instead of taking their universality for granted.

5. Conclusions

In the present cohort of Swedish men, height has a bell shaped association with the hazard for not being unmarried and as this association is not affected by indicators of health and socioeconomic status it might be due to other factors, for instance microeconomic factors such as supply and market value based on preferred partner height. The hazard for divorce once married, on the other hand, has a negative linear association with male height and this association is accounted for by indicators of socioeconomic status.

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