Supplemental Materials - The Napoleon complex: When shorter men take more

1. Height and strength as predictors of competitive ability (introduction)

With regard to competitive ability, Archer & Thanzami (2007) showed that in a sample of young Indian men, height was a stronger predictor than strength for physical aggression and direct aggression, and was the only significant predictor for hostility (however, see also Archer & Thanzami, 2009). Stulp et al. (2015) were the first to examine the direct influence of height on actual dominant behavior. Three observational studies suggested that height was positively associated with dominant behavior, results indicating (amongst others) that taller individuals in same-sex pairs more often took precedence over shorter individuals on a narrow sidewalk. On the other hand, research by von Rueden, Gurven, and Kaplan (2008) suggests that male fighting ability among the Tsimane of Bolivia is determined more by muscle size and weight than by height, as height had a smaller correlation with success in dyadic fights than bicep/chest circumference or weight did.

Sell et al. (2009) suggest that in a sample of US students, height also independently predicted *perceived* male fighting ability, but strength was an even stronger predictor (however, in their non-US samples, height was not an independent predictor). Even though von Rueden, Gurven, Kaplan, & Stieglitz (2014) found a positive association between elected Tsimane' male leaders and height, it did not persist after controlling for strength.

2. Syntax of Main Analyses (results)

For Study 1 and 2, we used Generalized Estimating Equations (GEE) in SPSS, where we specified a dyadic structure. Below is an example of the syntax used for a Poisson loglinear distribution (DG and UG analyses), followed by an example of the syntax used when a normal distribution was specified. The full syntax file and all datasets are publicly available via Open Science Framework (osf.io/x9h8b).

```
GENLIN DGofferR WITH Height
  /MODEL Height INTERCEPT=YES
 DISTRIBUTION=POISSON LINK=LOG
  /CRITERIA METHOD=FISHER(1) SCALE=DEVIANCE MAXITERATIONS=100
MAXSTEPHALVING=5
    PCONVERGE=1E-006(ABSOLUTE) LCONVERGE=1E-006(ABSOLUTE)
SINGULAR=1E-012 ANALYSISTYPE=3(WALD)
    CILEVEL=95 LIKELIHOOD=FULL
  /REPEATED SUBJECT=Dyad WITHINSUBJECT=Member SORT=YES
CORRTYPE=UNSTRUCTURED ADJUSTCORR=YES
    COVB=ROBUST MAXITERATIONS=100 PCONVERGE=1e-006(ABSOLUTE)
UPDATECORR=1
  /MISSING CLASSMISSING=EXCLUDE
  /PRINT CPS DESCRIPTIVES MODELINFO FIT SUMMARY SOLUTION.

GENLIN ZHotSauce WITH ZHeight
  /MODEL ZHeight INTERCEPT=YES
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 DISTRIBUTION=NORMAL LINK=IDENTITY
  /CRITERIA METHOD=FISHER(1) SCALE=DEVIANCE MAXITERATIONS=100
MAXSTEPHALVING=5
    PCONVERGE=1E-006(ABSOLUTE) LCONVERGE=1E-006(ABSOLUTE)
SINGULAR=1E-012 ANALYSISTYPE=3(WALD)
    CILEVEL=95 LIKELIHOOD=FULL
  /REPEATED SUBJECT=Dyad WITHINSUBJECT=Member SORT=YES
CORRTYPE=UNSTRUCTURED ADJUSTCORR=YES
    COVB=ROBUST MAXITERATIONS=100 PCONVERGE=1e-006(ABSOLUTE)
UPDATECORR=1
  /MISSING CLASSMISSING=EXCLUDE
  /PRINT CPS DESCRIPTIVES MODELINFO FIT SUMMARY SOLUTION.
```

3. Data Collection and Analysis Strategy for Study 2 (method)

In this section, we give some additional information regarding our data collecting strategy for Study 2, which was collected in three waves. We set a goal of 80 pairs of men for Study 2 (n = 160) before starting data collection. We did not do a formal power analysis to get to this number, but made an estimate based on what we deemed a realistic high number to achieve in our lab. Because of labspace availability, availability of help with recruitment of participants, and budget constraints, it ended up happening in three periods of 2 to 3 weeks each (the "waves").

Initially, our main focus was the relationship between relative height and the coins kept for self in the Dictator Game. We expected that the shorter an individual was compared to their opponent (variable "Relative Height", which is absolute height in cm subtracted by opponent height in cm), the more coins they would keep for themselves in the Dictator Game. After Wave 1 (n = 90), there was a marginally significant correlation between Relative Height and coins kept for self in the DG, r = -.199, p = .060. After Wave 1 and 2 (n = 114), there was a significant negative correlation between Relative Height and coins kept for self in the DG (r = -.193, p = .039). After Wave 2, our main expectation was supported by the data (the shorter the participant was compared to his competitor, the more coins he kept for himself in the DG). Since we were still far off our original target sample size of 80 pairs, we conducted a third wave of data collection.

Through the review process, our focus moved away from using the difference score "Relative Height" as the main measure of height, to a model where the participant's own height, their opponent's height, and the interaction term predicted behavior in the economic games. The main analyses reported in the paper (and in previous versions of this paper during the review process) were not conducted until all data had been collected.

References

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Archer, J., & Thanzami, V. (2009). The relation between mate value, entitlement, physical aggression, size and strength among a sample of young Indian men. *Evolution and Human Behavior, 30*(5), 315-321.

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