

Article

# Preregistered as Code: Gender differences in Machiavellianism

Aaron Peikert<sup>1,\*</sup> , Caspar J. Van Lissa<sup>2,3</sup> , Andreas M. Brandmaier<sup>1,4</sup> 

<sup>1</sup> Center for Lifespan Psychology—Max Planck Institute for Human Development Lentzeallee 94, 14195 Berlin, Germany;

<sup>2</sup> Department of Methodology & Statistics—Utrecht University faculty of Social and Behavioral Sciences, Utrecht, Netherlands;

<sup>3</sup> Open Science Community Utrecht, Utrecht, Netherlands;

<sup>4</sup> Max Planck UCL Centre for Computational Psychiatry and Ageing Research Berlin, Germany and London, UK;

\* Correspondence: [peikert@mpib-berlin.mpg.de](mailto:peikert@mpib-berlin.mpg.de)

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**Abstract:** We test for group differences in machiavellianism between self-identified males and females in the MACH-IV in a well powered preregistered study.

**Keywords:** preregistration as code, power simulation, machiavellianism, gender

## 1. Theoretical Background

Machiavellianism describes a personality dimension characterized by a cynical disregard of morals in the pursuit of one's own interest, e.g. through manipulation [1]. There is extensive literature reporting differences in the dark triad (narcissism, machiavellianism, and psychopathy) between self-identified males and females [2] but only few studies focus solely on machiavellianism. We aim to replicate the finding that males tend to have higher machiavellianism scores [2]. This research question serves as a testbed for preregistration as code (PAC) to examine if PAC is feasible under realistic conditions. In the PAC paradigm, all analysis code is written before real data are gathered or accessed the first time.

## 2. Method

We report how we determined our sample size, all data exclusions (if any), all manipulations, and all measures in the study [cf. 3]. We use data available from [openpsychometrics.org](https://openpsychometrics.org) from the online version of the MACH-IV[1] and included participants that have responded to at least one machiavellianism item and reported their gender as either "male" or "female".

We conduct a Student's t-test [4] with Welch's correction [5] of the average of machiavellianism items between the binary-coded gender groups. If the skew of this average is greater than 1.0 we conduct a supposedly more robust Mann–Whitney–Wilcoxon test [6] instead.

A simulation we conducted indicated that with a sample size of 900 for an alpha of .05 (two-sided) we achieve at least 80% power assuming a standardized effect size of  $d=0.2$ .

## 3. Results

The Welch Two Sample t-test testing the difference of machiavellianism by gender (mean in group male = 2.88, mean in group female = 2.97) suggests that the effect is - positive, statistically significant, and small (difference = 0.09, 95% CI [-0.09, -0.08],  $t(69726.20) = -32.83$ ,  $p < .001$ ; Cohen's  $d = -0.25$ , 95% CI [-0.26, -0.23])

## 4. Discussion

This document only serves to illustrate Preregistration as Code. We, therefore, do not discuss the results. After we have acquired the data, we realized that we had to change the code for reading the data, including recoding gender, missing values and reversed items (see commit [6556a93](#) and commit [9f7ab21](#)). We do not believe that these changes influence the results substantively.

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