

PSYC 4330: Seminar in Statistics

Assignment 1

The dataset for this assignment comes from a study by Dr. Bob Altemeyer from the University of Manitoba (interestingly, his office was just around the corner from mine at the U of M, and he wrote a reference letter for me when I applied for jobs). Dr. Altemeyer primarily studied 'right wing authoritarianism' (RWA, personality trait of someone who is highly submissive to their authority figures, acts aggressively in the name of said authorities, and is conformist in thought and behavior). We are using a random subset of the total dataset (which was close to $N = 1000$ and had many more variables). The variables that we will be using are *rwas* (RWA scale, average score across 22 seven-point Likert items), *age* (continuous), *education* [1 (less than high school); 2 (high school); 3 (college/university); 4 (graduate/professional degree)], *TIP10* (level of conventional/uncreative personality, 1-7 Likert scale), and *gender* (male/female).

Part A

For this question we are interested in predicting *rwas* from *age*, *education*, *TIP10*, and *gender*. We are going to treat *education* as a factor in this question (with "high school" education as the reference category). Due to some missing data, we will use multiple imputation (4 imputed datasets) for the analysis. You can skip testing assumptions for this analysis.

- i) Summarize the null hypothesis testing results, using $\alpha = .10$.
- ii) Interpret each unstandardized effect.
- iii) Recalculate the standard error for the *age* effect using Eqs 1:3 from Baraldi & Enders.
- iv) Interpret the magnitude of the gender effect (do your best ... I know you are not RWA researchers).

Part B

For this part we are interested in whether *education* mediates the relationship between *age* and *rwas*. We are going to treat education as a continuous variable, and use stochastic regression imputation. Use bootstrapping for the analysis (1000 samples).

- i) Summarize the null hypothesis testing results for the indirect effect, using $\alpha = .01$. You can use the *p*-value for this analysis.
- ii) Interpret the coefficient for the indirect effect.
- iii) Use effect size measures to discuss the magnitude of the indirect effect.