General Linear Model, Psychology 610/710

Lab 3 - In Class Exercise with Bias Data

Friday, September 22, 2017

**Reducing Racial Bias – Description of Study**

A common theme of the modern study of racial bias is that bias can be unintentional and subtle. For example, few people say directly that they dislike Black people, and most people genuinely want to treat others fairly, regardless of race. However, when put into an ambiguous situation (such as whether to hire a Black applicant whose resume is moderately good, but not outstanding), people often fall prey to subtle, unintentional biases.

A group of social psychologists developed an intervention designed to help people eliminate these subtle, unintentional biases. In the intervention, people are educated about subtle bias and are trained in a variety of techniques that reduce bias.

The experimenters wished to test the efficacy of their intervention. First, they measured people’s baseline unintentional anti-Black bias using the race Implicit Association Test, wherein positive scores indicate an unintentional preference for White people and negative scores an unintentional preference for Black people. Then they randomly assigned people to training or control conditions. Finally, they measured people’s unintentional race bias four weeks and eight weeks after the training manipulation. *The first question the experimenters wish to investigate is whether people who score highly on a scale measuring concern about discrimination in society (with higher scores indicating greater concern) have different Week4 IAT scores than those who are less concerned. The researchers expect a negative relationship (i.e., the higher the concern, the lower the Week4 IAT scores).*

**Reducing Racial Bias - Codebook for "** **Lab3\_BiasData.csv"**

|  |  |  |  |
| --- | --- | --- | --- |
| Column | Variable name | Description | Values |
| 1 | Condition | Whether the participant completed the training intervention | 0 = control, 1 = training |
| 2 | Concern1 | Item 1 of the concern about discrimination scale | 1-10 |
| 3 | Concern2 | Item 2 of the concern about discrimination scale | 1-10 |
| 4 | Concern3 | Item 3 of the concern about discrimination scale | 1-10 |
| 5 | Concern4 | Item 4 of the concern about discrimination scale | 1-10 |
| 6 | BaseIAT | Baseline Black-White Implicit Association Test score | -.45 - 1.50 |
| 7 | Wk4IAT | Week 4 Black-White Implicit Association Test score | -.83 - 1.45 |
| 8 | Wk8IAT | Week 8 Black-White Implicit Association Test score | -.62 - 1.31 |
|  |  |  |  |

**In-Lab Exercise**

Two parameter model: Continuous predictor

*New hypothesis:* The scientists would like to know whether participants who have spent more hours in diversity trainings have lower levels of implicit bias. The researchers expect that participants will have lower Week 4 IAT scores the greater the number of hours of training they have attended.

1. What model comparison(s) should we do in order to test our hypothesis? In particular, we are interested in the significance test and size of which parameter? (Discuss with a neighbor and record your answers as comments in your script.)
2. Using the lm command, estimate the model comparison that reflects your hypothesis.
3. Request a summary of your model.
4. Discuss the following with a neighbor, and record your answers in your script:
   1. How should we interpret b0?
   2. How should we interpret b1?
   3. How should we interpret the *p*-value for each parameter?
   4. Is the social psychologists’ hypothesis supported?
5. Calculate partial eta squared (= PRE) and interpret it in a sentence in R.
6. Recode Trainhours into a new variable called "TrainhoursC" so that it is centered.
   1. Using lm command, fit another model with the centered Trainhours variable.
7. Inspect your new parameter estimates and the tests of these estimates. Discuss with your group:
   1. What changed between the old and new models and why?
   2. How should we interpret b0 and b1?
   3. What is the predicted value of Wk4IAT for someone who has attended 2 hours of diversity trainings?
   4. What is the predicted value of Wk4IAT for someone who has attended 6 hours of diversity trainings?
8. For a continuous predictor, we will make a scatterplot. Follow the methodology we did in lab to complete this.
9. Write a few sentences to summarize your results. Be sure to include your hypothesis, the parameter estimates, the results of your significance testing, and an indicator of effect size. In words, describe the effect of Training hours on Week 4 IAT scores in terms of both the parameter estimate and the effect size.