HW #2

PSY 5003

Due on 10/8/2019

1. Suppose that we have data on a depression inventory from a random sample of 36 OU college students, and find a mean depression score of 25 and standard deviation 6.
   1. Provide a point estimate for the mean depression of all OU students.
   2. What is the margin of error for estimating the population mean?
   3. Construct a 95% CI around the point estimate.
   4. What does this CI indicate?
   5. If the mean for the general population of college students is known to be 40, what can you conclude regarding whether OU college students have different mean than the nation mean?
2. In a null hypothesis test (such as a one-sample Z test), how to interpret the *p* value produced by the test, and what does an 𝝰 = .05 indicate?
3. Demonstrate 𝝰, 𝛽 and power by shading the graphs of sampling distributions under H0 and H1
4. List three common factors that influence the statistical power of a test?
5. The data set of ***salary*** is a SPSS data set (see HW1 data), including variables gender, sex, years (years of being a faculty member), age, pubs (number of publications), and salary (annual salary in dollars). Use R for the following questions. You need to copy and paste your R code to this assignment.
   1. Create histograms of Salary by Gender in the same plot
   2. Create boxplots of Salary by Gender in the same plot
   3. Make bar plots of means for Salary by Gender with error bars added