CPH 682-001: Quantitative Methods   Fall 2017
Team Project #4   Dr. Charnigo

This project covers Chapter 6 and anticipates Chapter 7. Please record your answers in an Excel file called {WB4CPH682F17 LN1 LN2 LN3 LN4.xlsx} and upload the final version into Canvas. Above, LN1 is your last name, while LN2 through LN4 are the last names of your other group members. (Groups with only three persons will have only three last names, obviously.) Members of the same group will have identical files except for the order of the last names in the filename. Members of different groups should have different files.

Here are the wait times (in minutes) for patients to be seen at a family medicine clinic on a particular afternoon this month:

25, 31, 18, 29, 24, 16, 17, 12, 13, 9, 14, 12, 8, 20, 21, 17, 8, 16, 22, 23, 12, 9, 14, 14, 25, 23, 22

1. Use Excel to obtain the mean, median, variance, standard deviation, and interquartile range.

2. Do you think that the data come from (approximately) a normal distribution ? Answer by seeing what percentage of the data fall within one standard deviation of the mean, compared to what you would expect if the data came from a normal distribution. Also compare the mean to median and interquartile range to $4/3 \times$ standard deviation.

3. What is the estimated standard error of the mean ?

4. Add and subtract twice the estimated standard error to and from the mean to obtain a range of values. The interpretation is that you anticipate the population mean falling somewhere in this range; what is meant by "population mean" in this example ?

5. Add and subtract TINV(0.05,n-1) multiples of the estimated standard error to and from the mean to obtain a range of values, where n is the sample size. Compare to the previous answer.

6. Suppose that the health needs of the population are deemed to be met if the population mean is at most 15. What is your conclusion about whether the health needs of the population are met ?

7. What is the proportion of persons who are seen within 15 minutes ?

8. What is the estimated standard error of the proportion ?

9. Add and subtract twice the estimated standard error to and from the proportion to obtain a range of values. The interpretation is that you anticipate the population proportion falling somewhere in this range; what is meant by "population proportion" in this example ?

10. Suppose that the health needs of the population are deemed to be met if the population proportion is at least 0.50. What is your conclusion about whether the health needs of the population are met ?