5.6: The Write-Up

Through the practice examples, I hope that you have realized that when conducting statistics for the social sciences, the answer is never just the number. We do the statistics to answer questions, to the final answer needs enough information to answer that question, and to let other statisticians know a little bit about the sample and the calculations. Based on what we've learned so far, here's what you might include in a concluding sentence, as well as what should be included in a paper describing a distribution.

Concluding Sentence

For any conclusion, you should include the results of your calculations, what was measured, and the answer to the original research question. Sometimes, this might be as simple as:

- Research Question: What is the average final exam score?
- Conclusion: The average final exam score was 77.7 points.

The Research Question from Exercise 5.4.1 was:

- Research Question: How many students earned 90 points or higher on the Final Exam?

So the Conclusion should be:

- Conclusion: Based on the mean, standard deviation, and size of this sample, 1 of the 20 students should earn 90 points or higher on the Final Exam.

The important pieces of information to include in these concluding sentences are the research question (rephrase as an answer), the calculation results, and what was measured. For Exercise 5.4.1, those are:

1. Research Question: "How many students earned 90 points or higher on the Final Exam?" was turned in to "1 student should earn 90 points or higher on the Final Exam."
2. Calculation: This is the "1 of the 20 students" part of the conclusion.
3. What was measured: This is your DV, your outcome variable. In this Exercise, it was points earned on the Final Exam.

For something a little more advanced you will need to include more information. We'll cover that a little later!

Paper Describing a Distribution

For a full paper to describe a distribution, you will combine the conclusion for everything that we've covered so far. This should include:

1. Describing who and what was measured. This should include:
    1. Naming the sample. Who provided the data? How many participants were there?
    2. Naming who you think the population could be. In other words, name who is the biggest group that the sample can represent?
    3. Naming what was measured (quantitative DV).
2. Interpreting what the measures of central tendency mean.
    1. Make sure that you calculate the mean, median, and mode correctly!
    2. To interpret the measures of central tendency, describe what does knowing the mean, median, and mode *collectively* tell you? Maybe answering these questions will help: Are the mean, median, and mode similar? What could that tell us about the shape of the distribution? Is one smaller or bigger? What could that tell us about the shape of the distribution? Are they all very different? What could that tell us about the shape of the distribution?
3. Interpreting what the standard deviation can tell us.
    1. Make sure that you calculated the standard deviation correctly!
    2. An interpretation of standard deviation should include:
        1. An evaluation of whether one standard deviation above and below the mean really includes about 68% of the scores, like it should if the data was normally distributed.
        2. Use the standard deviation to predict the shape of the distribution (tall/narrow, medium/normal, or wide/flat), then compare the predicted shape to the actual shape.

3. If the standard deviation seems large, you would expect a platykurtic distribution (wide and flat). For example, if you look at your frequency chart, does the shape seem wide and flat? Small samples are often not normally distributed, so what we might expect based on the standard deviation is not the actual shape of the distribution. Plus, outliers can cause skewed shapes and large standard deviations. The standard deviation gives us a general idea of how different each score is from the mean, but there's nothing better than looking at the actual distribution.

4. Providing and describing/interpreting appropriate frequency charts.
    1. Don't forget to format the chart number and title in appropriate APA Style!
    2. You should mention the chart (by Figure by number) in the paper body.
    3. Just like we did for each different types of chart, you should describe/interpret the frequency chart by saying something about what you see or what the chart makes you wonder.

And don't forget that a paper in your statistics class is still a paper! You should have an introduction with some sort of hook (Why is this topic interesting?), the body (which should include everything above), and a concluding paragraph. Concluding paragraphs often include why this topic is important (which may refer back to the hook from the introduction), or who would want to know this information. A one- or two-sentence summary of what was found could also be included, but don't get too hung up on that.

The next chapter will discuss how to format this paper describing a data set in APA Style.
