

Assignment #2 - Descriptive statistics

EXAMPLE. NOTE!! IN THIS EXAMPLE I HAVE ONLY SHOWN THE RESULTS FOR THE FIRST VARIABLE BECAUSE OTHERWISE, I WOULD BE GIVING YOU THE ANSWER IF YOU CHOSE TO USE THE SPIRIT LAKE PRE-TEST DATA. For your assignment, you want to include the results for all of the variables in the dataset.

You have three datasets available, a dataset I collected about family members, the one you collected on the same topic and a dataset of math assessment of primarily Native American children from the Great Plains from 2015-2018.

Select ONE of these datasets.

I selected the Example_SL_game dataset which is the math assessment students took before and after playing the Spirit Lake game.

1. Write three questions that can be answered with descriptive statistics.
 - *What was the average score on the pretest?*
 - *Did students do better on the pretest than the posttest?*
 - *What was the average age for students in this study?*
2. Compute the mean and standard deviation for those variables where it would be appropriate. For example, the mean of year doesn't really make sense.
3. Compute a frequency distribution for each variable, except if a dataset has username do NOT compute a frequency distribution for username.
4. Write 2-3 paragraphs discussing your results, including any observations and additional questions.

I computed mean and standard deviation for the pretest, posttest, pretest, percentage correct, post-test percentage correct and age. See table below.

<i>Pretest</i>	<i>Post-test</i>	<i>Pre-test Percent</i>	<i>Post-test Percent</i>	<i>Age</i>
<i>11.2</i>				
<i>4.3</i>				

The students clearly did better on the post-test than the pretest, with a mean score of 11.2 on the pretest and ■■■ on the post-test. This was ■■■ % on the pretest and ■■■ % on the post-test.

To compute the frequency distribution, I selected the variable, clicked Data and then Analyze Data to get the Pivot table. For each value, I used the formula =cell/total to get the percent.

grade	Count of grade	Percent
fourth	39	48.1%
sixth	29	35.8%
fifth	12	14.8%
third	1	1.2%
Grand Total	81	100.0%

NOTE: You would include the rest of the frequency tables here.

The average age for students in this study was 10.7 with a standard deviation of 1.2.

I computed a frequency distribution of grade with cumulative frequency, shown below. It can be seen that over half of the students are in fifth-grade or higher and almost 99% are in fourth-grade or higher. Given that fact, and an average age of close to 11, it is a little troubling that the average student scored only 11.2 out of 24 on a test of multiplication and division.

grade	Count of grade	Percent	Cum Freq	Cum %
3	1	1.2%	1	1.2%
4	39	48.1%	40	49.4%
5	12	14.8%	52	64.2%
6	29	35.8%	81	100.0%
Grand Total	81			

NOTE: You do not need to include a graph, but I just did it because I thought it added to the discussion and, for me, was easier to see the skewness visually than looking at a table.

I created a frequency distribution of pretest and then created a bar graph, because it seemed the data were positively skewed. As can be seen in the graph below, my supposition was right and the graph is skewed, with a mode of 9 answers correct out of 24 possible. There is a wide range in the data, with some students scoring as low as 2 correct answers and others with 20 or more.

From the point of view of classroom application, the pretest data suggest:

- a.) That many students require extra instructional time to come up to grade level in multiplication and division knowledge and application, and*
- b.) Schools include students at a range of achievement level, so lessons must also include adequate challenges for students who are at or above grade level.*

