

9.4: Which Analysis Should You Conduct?

One of the most important concept that you need to understand is deciding which analysis you should conduct for a particular situation. To help you to figure out the analysis to conduct, there are a series of questions you should ask yourself.

1. Does the problem deal with mean or proportion?

Sometimes the problem states explicitly the words mean or proportion, but other times you have to figure it out based on the information you are given. If you counted number of individuals that responded in the affirmative to a question, then you are dealing with proportion. If you measured something, then you are dealing with mean.

2. Does the problem have one or two samples?

So look to see if one group was measured or if two groups were measured. If you have the data sets, then it is usually easy to figure out if there is one or two samples, then there is either one data set or two data sets. If you don't have the data, then you need to decide if the problem describes collecting data from one group or from two groups.

3. If you have two samples, then you need to determine if the samples are independent or dependent.

If the individuals are different for both samples, then most likely the samples are independent. If you can't tell, then determine if a data value from the first sample influences the data value in the second sample. In other words, can you pair data values together so you can find the difference, and that difference has meaning. If the answer is yes, then the samples are paired.

Otherwise, the samples are independent.

4. Does the situation involve a hypothesis test or a confidence interval?

If the problem talks about "do the data show", "is there evidence of", "test to see", then you are doing a hypothesis test. If the problem talks about "find the value", "estimate the" or "find the interval", then you are doing a confidence interval.

So if you have a situation that has two samples, independent samples, involving the mean, and is a hypothesis test, then you have a two-sample independent t-test. Now you look up the assumptions and the formula or technology process for doing this test. Every hypothesis test involves the same six steps, and you just have to use the correct assumptions and calculations. Every confidence interval has the same five steps, and again you just need to use the correct assumptions and calculations. So this is why it is so important to figure out what analysis you should conduct.

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