

Qualitative and Quantitative Data

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WHAT'S COVERED

In this tutorial, you're going to learn about the difference between qualitative data and quantitative data by examining:

1. Qualitative Data

1a. Nominal Measurements

1b. Ordinal Measurements

2. Quantitative Data

3. Qualitative and Quantitative Data in Practice

1. Qualitative Data

Qualitative data is also often called “**categorical data**”. It is not numerical in the sense that we can do numerical operations with it, like adding numbers together or finding an average, but rather, it fits in the category.

⇒ **EXAMPLE** Gender: male and female. That's a qualitative variable with two categories.

Letter grades AND zip codes feature numbers, but you wouldn't necessarily do mathematical equations with them. You wouldn't find an average zip code, for instance. The purpose of zip codes is to divide areas into categories. Hair color is another example of qualitative data because you can group those with black hair and put those with blonde hair in another group.

It's important to know that qualitative data can be divided further into two categories:

- Nominal Measurements
- Ordinal Measurements



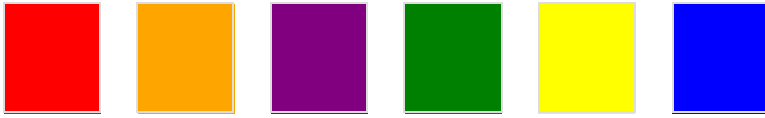
TERM TO KNOW

Qualitative/Categorical Data

Data whose values are the names of categories. These can be numbers, but not the kinds of numbers with which it makes sense to do any numerical operations.

1a. Nominal Measurements

⇒ EXAMPLE Favorite color. The order of the listed categories makes no difference. It doesn't matter if you put the colors below in the order of the color spectrum or not.



With **nominal data**, it only makes sense to reference which category has the largest frequency. In this case, let's say most people say that green is their favorite color. That is what you would report and it doesn't matter that green is the 4th box from the left.



TERM TO KNOW

Nominal Level of Measurement

Qualitative data where the order in which the categories are presented does not matter.

1b. Ordinal Measurements

⇒ EXAMPLE Rating scale. The order of the listed categories is very important because the order is associated with a type of value. It's very important that you don't mix up the order here because the circle on the furthest left indicates you are feeling no pain.

Pain Scale						
○	○	○	○	○	○	○
No			Moderate			Worst
Pain			Pain			Pain

With **ordinal data**, it's important to keep the order straight, or rather, *in order*, to express a spectrum ranging from lowest to highest, or worst to best. Ratings like that.



TERM TO KNOW

Ordinal Level of Measurement

Qualitative data where the order in which the categories are presented matters.

2. Quantitative Data

On the other hand, you have **quantitative data**. Quantitative data are expressed numerically. It makes sense to do numerical operations with it, like finding averages or adding them together.

Examples of quantitative data include:

- Weight

- Commute time to work
- Outdoor temperature

All of these are measured in numbers. It makes sense to find, for instance, averages of these. So you can do numerical operations with them.

It's important to note that data is displayed differently for qualitative data than with quantitative data. Statistical operations depending on the type of data that we have.



TERM TO KNOW

Quantitative Data

Data whose values are numbers and it makes sense to do numerical operations.

3. Qualitative and Quantitative Data in Practice

Determine if each situation is qualitative or quantitative data.



WATCH



SUMMARY

Data used in statistics falls under one of two broad classifications: categorical, which is called “qualitative,” or numerical, which is called “quantitative.”

Qualitative data branches out even further to either nominal, which means that the names are important, and ordinal, which means the order is important.

Numerical values must make sense to do numerical operations with them. They are treated differently when organizing graphical displays and applying statistics to them.

Good luck!

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TERMS TO KNOW

Nominal Data

Categorical data with qualities that cannot be ordered or ranked.

Ordinal Data

Categorical data with qualities that can be ordered or ranked.

Qualitative (Categorical) Data

Data that describes. It can't be measured or used for arithmetic.

Quantitative (Numerical) Data

Data that is numerical. It can be measured and it can be used for arithmetic. .