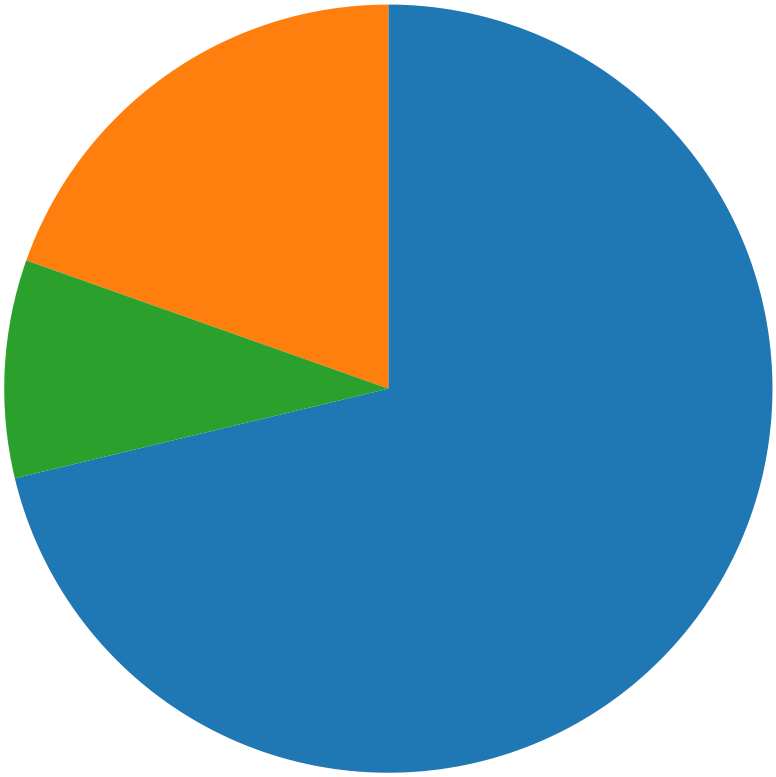
Pie and Bar Charts

Learning Objective: Summarize and describe the distribution of a categorical variable in context.

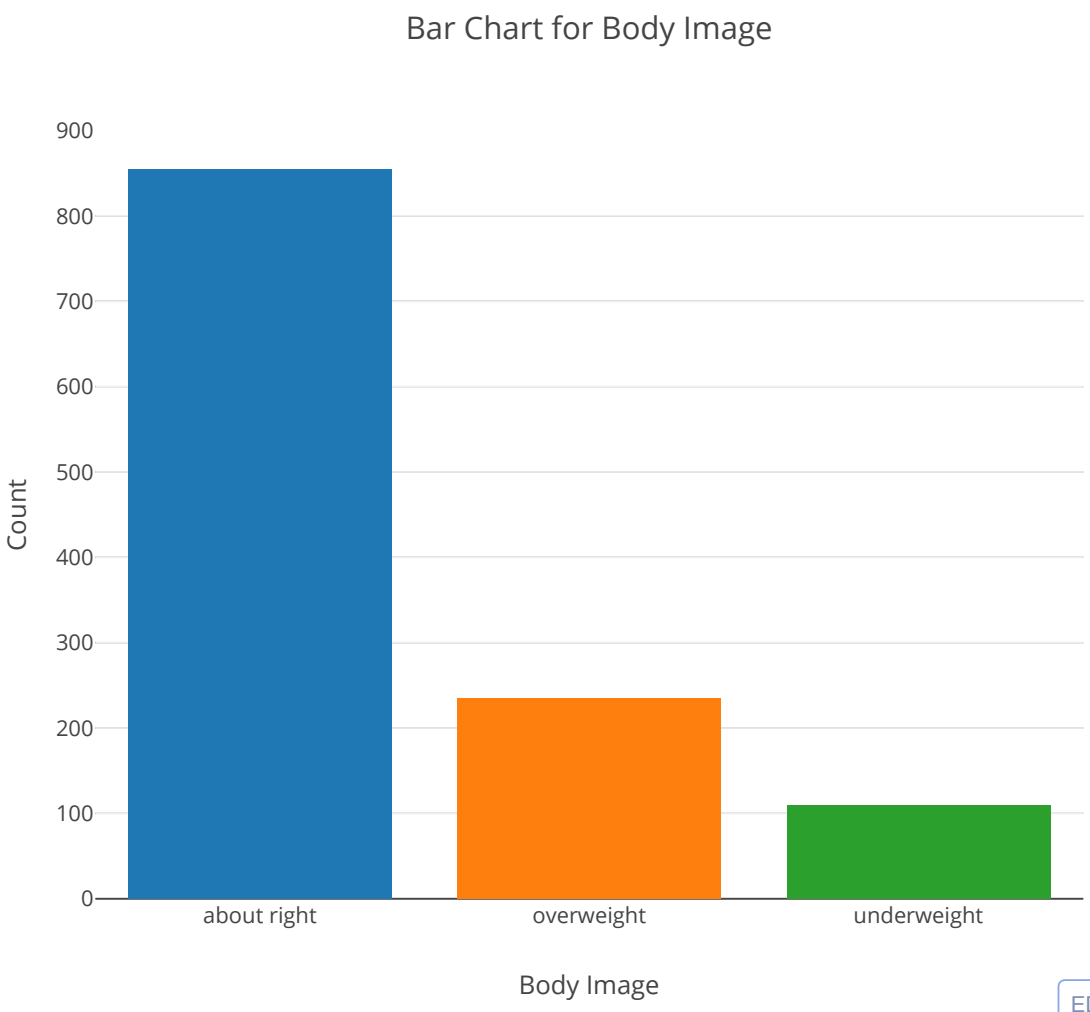
In order to visualize the numerical summaries we've obtained, we need a graphical display. There are two simple graphical displays for visualizing the distribution of categorical data:

1. The Pie Chart

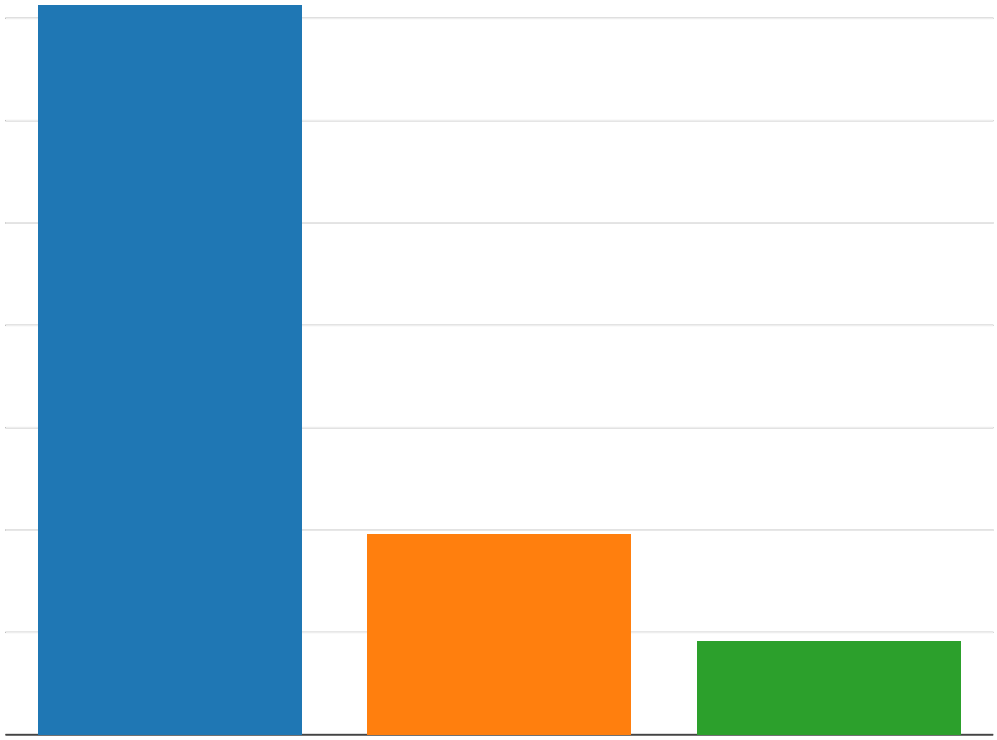


EDIT CHART

2. The Bar Chart


Bar Chart for Body Image
900
800
700
600
500
400
300
200
100
0
Count
about right
overweight
underweight
Body Image
EDIT CHART

OR



EDIT CHART

Learn By Doing

1/1 point (graded)

What is the difference between the two bar charts?

- ○ There is no difference.
- ○ The two bar charts represent the distributions of two different variables.
- ◉ The first bar chart represents the count of respondents that chose each category, while the second bar chart represents the percentage of respondents that chose each category. ✔
- ○ The two bar charts represent the distribution of "Body Image" obtained from two different samples.

Answer

Correct:
The two bar charts are different because counts and percentages have different scales on the vertical axis. Counts have a scale from 0 to the total number of subjects, while percentages always have a scale from 0 to 100.

Submit

Now that we have summarized the distribution of values in the Body Image variable, let's go back and interpret the results in the context of the questions that we posed:

Learn By Doing

1/1 point (graded)
What do the results suggest about how the students are divided across the three body image categories?

- ○ Students are equally divided across the three categories.
- ◉ Students are not equally divided across the three categories. ✔

Answer
Correct:
You correctly saw that the pieces of the pie and the lengths of the three bars representing the three body image categories are not all the same. Thus, the students' responses are not equally divided among the categories.

Submit

Learn By Doing

1/1 point (graded)
How do the vast majority of students (71.3%) feel about their weight?

- ◉ About right ✔
- ○ Overweight
- ○ Underweight

Answer
Correct:
71.3% is well over half, or "the vast majority" of the respondents. We are looking for the category that has the largest piece of the pie and the longest bar in the bar chart—the category "about right." Also, both charts note that the percentage for this category is 71.3%.

Submit

Learn By Doing

1/1 point (graded)
How does the middle group of students (19.6%) feel about their weight?

- ○ About right
- ◉ Overweight ✔
- ○ Underweight

Answer
Correct: The category "overweight" represents the body image of 19.6% of the students.

Submit

Learn By Doing

1/1 point (graded)
What was the body perception that occurred the least often?

- ○ About right
- ○ Overweight
- ◉ Underweight ✔

Answer
Correct: The category "underweight" represents 9.2% of the students.

Submit

Now that we've interpreted the results, there are some other interesting questions that arise:

- Can we reliably generalize our results to the entire population of interest and conclude that a similar distribution across body image categories exists among all U.S. college students? In particular, can we make such a generalization even though our sample consisted of only 1,200 students, which is a very small fraction of the entire population?
- If we had separated our sample by gender and looked at males and females separately, would we have found a similar distribution across body image categories?

These are the types of questions that we will deal with in future sections of the course.