Investigation 3.1C: Haircut Prices

Do women pay more than men for haircuts? Is this a statistical tendency, or always true? By how much do women spend more than men, on average? How much do haircut prices vary within a gender as well as between genders?

To investigate these questions a Cal Poly professor asked students in her class to report the cost of their most recent haircut, along with their sex.

(a) Which would you consider to be the explanatory variable, and which the response? Also classify the type (categorical or quantitative) for each variable.

Explanatory: Type:

Response: Type:

(b) Is this an experiment or an observational study? Explain briefly.

(c) Did the professor who collected the data make use of random sampling, random assignment, both, or neither?

The haircut prices, sorted by sex, and a dotplot are shown below:

Men ($n = 13$):
0 0 0 14 15 15 20 20 20 22 23 60 75

Women ($n = 18$):
0 15 15 20 25 30 35 40 45 45 50 50 60 70 75 110 120 150

(d) What shape do both distributions have? Explain why this makes sense.

(e) Which sex tends to have higher haircut prices? Which tends to have more variability in haircut prices?
(f) Determine the five-number summary of haircut prices for each group.

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<th>Minimum</th>
<th>Lower quartile</th>
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<tr>
<td>Men</td>
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<td>Women</td>
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(g) Comment on how the five-number summaries compare between the two groups.

(h) Use the $1.5 \times \text{IQR}$ rule to check for outliers in each group.

(i) Produce boxplots of haircut prices for the two groups on the same scale.

(j) Summarize what you have learned about the distributions of haircut prices between Cal Poly men and women students.