

LEARNING CHECK

1. How is the χ^2 goodness-of-fit test similar to the χ^2 test for independence? How are these two tests different?

A: Both tools are used to analyze nominal data. The goodness-of-fit test uses one nominal variable to see how well those data fit the population. The test for independence uses two nominal variables to see whether scores on each of those two variables are independent of each other, or whether the scores on each of the two variables depend on each other.

2. How is the χ^2 test for independence different from a two-way analysis of variance (ANOVA)?

A: To use the χ^2 test for independence requires frequency data from two nominal variables. The two-way ANOVA uses two nominal variables (either manipulated independent variables or nonmanipulated predictor variables) to see whether they have an effect on or are related to some outcome (dependent) variable that is a scale variable.

3. At the end of the previous section, we explored whether there were differences in vegetable preference among a sample of 100 university students. Let's now explore differences between men and women for favorite vegetables. Here are those data, this time broken down by respondent sex (male or female):

	Men	Women	Totals
Carrots	21	5	26
Broccoli	9	9	18
Red peppers	3	13	16
Asparagus	11	2	13
Spinach	6	5	11
Turnip greens	5	5	10
Peas	2	4	6
	57	43	100

Enter these data in SPSS. Run the analyses to generate this output. Then, answer the questions that appear after the output, which should look like this:

- a) What is the hypothesis that is being tested?

A: There will be no differences between men and women in their vegetable preferences.

- b) How many men were in the sample? How many women were in the sample?

A: 57 men and 43 women

- c) What are the expected frequencies for each category?

A: Men carrots = 14.8; Women carrots = 11.2