

Ch. 14: Test of Homogeneity & Independence

➤ Three Types of Chi-Square Hypothesis Testing:

I. Goodness of Fit

II. Test of Homogeneity of Populations --- use the χ^2 _____ function on the calculator; enter your contingency table in _____.

- Use when separate surveys are conducted on _____ and you want to test whether they are _____ with respect to _____.
- Calculate the _____ for each cell using _____
*** These values will be found in _____ after you run the χ^2 _____ function
- Calculate _____ for each cell then add them to get the χ^2 _____.
- $df = (\text{_____} - 1)(\text{_____} - 1)$
- Data is conveyed in a _____ table (at least _____ rows and _____ columns)

In Class Example for Chi-Square Test of Homogeneity: p. 866 #15 (refers to p. 855 #11)

I. Parameters: $p_1 =$ _____
 $p_2 =$ _____
 $p_3 =$ _____
 $p_4 =$ _____

II. Inference Test: χ^2 - test for _____

III. Hypotheses: $H_0:$ _____ = _____ = _____ = _____
 $H_0:$ _____
 $H_a:$ _____ \neq _____ \neq _____ \neq _____
 $H_a:$ _____

IV. Conditions for Chi-square test:

1. _____
2. _____

Treatment _____ Successes _____ Failures _____

Nicotine Patch

Drug

Patch plus Drug

Placebo

IV. Calculation of test statistic: $\chi^2 =$ _____

$P(\chi^2 > \text{_____}) =$ _____

VI. Interpretation :

*** What if you are only comparing **two** proportions? _____

➤ Three Types of Chi-Square Hypothesis Testing:

I. Goodness of Fit

II. Homogeneity

III. **Test for Independence/Association** --- use the χ^2 _____ function on the calculator; you will need to enter your contingency table in _____.

- Use when _____ is surveyed and you are testing the _____ or _____ of _____ within that _____
- Calculate the _____ for each cell using _____
*** These values will be found in _____ once you run the χ^2 test function
- Calculate _____ for each cell then add them to get the χ^2 test statistic.
- $df = (\text{_____} - 1)(\text{_____} - 1)$
- Data is conveyed in a _____ table (at least _____ rows and _____ columns)

❖ Only change in Template:

Ho: there is _____ between _____ and _____

Ha: there is _____ between _____ and _____

➤ In Class Example for Chi-Square Test of Independence: p. 875 #24 (refers to #22)

Inference Test: χ^2 - test for _____

Hypotheses: Ho: _____

Ha: _____

Conditions for Chi-square test:

1. _____

2. _____

	Student Smokes	Student Does Not Smoke
Both Parents Smoke		
One Parent Smokes		
Neither Parent Smokes		

Calculation of test statistic: $\chi^2 =$ _____

$P(\chi^2 > \text{_____}) =$ _____

Interpretation :

➤ Assignment: p. 867 #19 (a) p. 878 #29, 31 (a, c)

*** Know the difference between the type of χ^2 tests:

GOF & Homogeneity ---comparing proportion values; difference has to do with whether its one or two populations

Association/Independence --- determine if an association exists between two categorical variables.