

## Relation Between Two Qualitative Variables (Smoke and Gender)

Data file: [fatageproj.sav](#) (Click on the file to download it to your computer.)  
(URL to data: <http://gchang.people.yosu.edu/stat/fatageproj.sav>)

Objective: Examining whether there is significant correlation between smoking habit and gender (or is there a difference in the percentage of smokers between males and females?)

### Data Definition:

1. **smoke** variable, it is a qualitative variable.
2. **gender** variable, it is a qualitative variable.

### Answer the following questions:

1. State the statistical hypotheses.

Null hypothesis,  $H_0$ :

Alternative hypothesis,  $H_a$ :

2. Perform a Chi-square test using SPSS and report the p-value for the Pearson's Chi-square test. P-value : \_\_\_\_\_
3. Use SPSS output on chi-square test to conclude your analysis and comment on whether statistically there is significant correlation between smoking habit and gender. (or is there a difference in the percentage of smokers between males and females?)

Use MS-Word to prepare this report.

To perform the chi-square test, in SPSS main menu, click the following menu selections: **Analyze** ⇒ **Descriptive Statistics** ⇒ **Crosstab ...**, and then select the variables to put in the row and column variable boxes, and check the Statistics button for selecting statistics options, check chi-square box for doing chi-square test.

### Reference:

- [SPSS video instructions, Video for Chi-square Test of Independence for Un-organized Data](#) for instruction.
- [Exploratory Data Analysis](#) instruction pages 7 and 8 for instructions on how to run chi-square test.