Activity 5.2: The Chi-Square Test for Independence

This activity uses the dataset **Smoke_Hyper.xlxs** that is included in the Activity folder for this section. This data was collected in an experiment to study the dependence of hypertension on smoking habits It consists three variables and 180 cases. The variables are:

Respondent (respondent identification number), nominal

Smoking_Status: categorical

Levels: 1 = non-smoker; 2 = moderate smoker; 3 = heavy smoker

Hyperten_Status: categorical

Levels: Y = hypertensive; N = non-hypertensive

Test the hypothesis that the presence or absence of hypertension is independent of smoking habits. Test at the 0.05 level of significance.

Hypothesis:

H_0: There is no association between smoking status and hypertensive status (it can also be stated as, smoking status and hypertensive status are independent).

H_A: There is an association between smoking status and hypertensive status (or, smoking status and hypertensive status are not independent).

Assumption:

Take it that the Chi-Square test assumption that the data have come from a random sample drawn from a selected population has been satisfied.

The Other assumption is the "Expected Cell Frequency" assumption. Upon receiving the SPSS output of the test, check for a footnote below the Chi-Square Tests

table must have a frequency of greater than 5.

Instructions

Procedure for chi-square test for independence

1. Load the Excel dataset **Smoke_Hyper.xlxs** into SPSS.
2. Correctly define the categories for both the categorical variables in Variable view.
3. Save the file in SPSS as **Smoke_Hyper.sav**.
4. In Data view, and from the menu at the top of the screen, click on **Analyze**, then **Descriptive Statistics**, and then **Crosstabs**.
5. Click on one of your variables to be your row variable and click on the arrow to move it into the box marked **Row(s)**.
6. Click on the other variable to be your column variable and click on the arrow to move it into the box marked **Column(s)**.
7. Click on the **Statistics** button. Tick **Chi-square** and **Phi and Cramer's V**. Click on **Continue**.
8. Click on the **Cells** button.
   - In the **Counts** box, make sure there is a tick for **Observed**.
   - In the **Percentage** section, click on the **Row** box.
   - In the **Residuals** section click on **Adjusted standardized**.
9. Click on **Continue** and then **OK** (or on **Paste** to save to **Syntax Editor**).
10. Read, interpret, and write a report (APA format) of the results of the test.

★ Please create a copy of the Excel file and use the duplicate to complete the activity. Ensure no changes are made to the shared file