
Sociology 350 Your Name: _____
Lab Challenge #2
Subject: Constructing and Interpreting Contingency Tables;
also with a control variable

This lab asks you to test selected hypotheses from data in the *gss8090.sav* --- *available off your personal on-line file that we created on week one*---using the “chi square” statistic after constructing the appropriate “crosstab” table. Just below **each one** of these crosstabs you will find a Pearson chi square statistic and the significance level (p value) of this test statistic will appear to the right. Remember the decision rule is always to accept the null hypothesis when the significance level is above .055 and to reject the null hypothesis when the significance level (p value) is below .055. You must inspect the contingency table itself to discover what the pattern of association is.

Whenever you construct a “crosstab” table it is customary to place the independent variable along the columns and the dependent variable along the rows. It is also customary to recode variables as required to generate no more than 3 or 4 columns and rows so as to simplify the ability to read the table. This often requires that a variable be recoded so as to generate the desired numbers of rows and columns. After having done this you should always select the column percents from the **CELLS** dialog box within the “CROSSTAB” program and you should always select CHI SQUARE from within the **STATISTICS** dialog box.

Doing all of what has been described above will make it easier to interpret the pattern of association between the variables. If the pattern of association resembles a positive correlation, then the highest column percent figure in the top row of the contingency table will be in the far left corner, and the highest column percent figure in the bottom row will be in the far right corner. This pattern is the one that shows us that high scores in the independent variable predict high scores in the dependent variable while low scores in the independent variable predict low scores in the dependent variable.

For each of the crosstabs specified below calculate the *chi square* statistic and the associated significance test. Most of these cases will require that you do the designated recodes first however. **In all cases you are required to write the computed p values and your interpretation** of what each of these contingency tables should be interpreted to mean. Remember that the chi square is another bivariate statistic and the relationship between the two variables involved should state either how the two variables are related to one another. In other words, your interpretation should read the same way that the interpretation of a correlation coefficient reads. For example, “married people express higher levels of life happiness than single people.”

Now proceed to execute the following:

1. First do a cross tabulation to test of the hypothesis that a person's 'sex' (sex) influences his or her level of 'family income' (income). To get started you need to select "**Analyze**" off the SPSS main menu.

Next, select "**Descriptive Statistics**". And next select "**Crosstabs**".

Now you must place your independent variable (in this case, "**sex**") in the column box and you must place your dependent variable (in this case, "**income**") in row box.

Next, you must click on "**Cells**" and select "**Column percents**" here.

Next, click "**Continue**". Then, you must click on "**Statistics**" and next select the "**chi square**" statistic. Afterwards click "**Continue**". And then finally click "**OK**".

[Remember or refer back to these steps described above every time that you do a crosstabs analysis of data throughout this lab.]

The **significancd level** (p value) here is?

Your interpretation of this table is?

2. Now select "**Transfrm**" off the SPSS main menu and then select *recode*. Next select "**Into Different Variables**". Now move the 'income' variable into the '**Input Variable**' box. Next type the name **newinc** under "**Name**" in the "**Output Variable**" box. Now click "**Change**". Next click on "**Old and New Values**" and perform the following value changes:

<u>Old Value</u>		<u>New Value</u>
1 thru 6	=	1
7 thru 9	=	2
10 thru 11	=	3
12	=	4
All other values	=	System-missing

Finally, click "**Continue**" and then click "**OK**" to complete this job.

Now add the "**value labels**" for the 'newinc' variable to read as follows:

1 = Very Poor

2 = Poor

3 = Middle Class

4 = Moderately Wealthy

In order to do this you just go into the “*Variable View*” screen of your data file. Next go to the bottom of the data file to find “*newinc*”. Now go to the “*Values*” column and then click the right corner of this column. Now click the three dots that appear (...) and go from there to enter the “*value labels*” listed for you above.

To finish, click “**Continue**” and then click “**OK**” to complete this job.

Now do a new “**Crosstabs**” for “**sex**” and “**newinc**”.

The **significance level** now is?

Your interpretation of this table is?

What makes this table easier to read and interpret than the first one?

3. Next, do a new “**Crosstabs**” to test the hypothesis that the amount of education (use the variable called **degree**) a person has significantly relates to that person’s familyincome level (use the variable, **newinc**).

The **significance level** for this table is?

Your interpretation of this table is?

4. Now make a recode [select: **Into Different Variables**] of this same ‘**degree**’ variable and rename it (**newdeg**) as follows:

<u>Old Value</u>		<u>New Value</u>
0 thru 1	=	1
2	=	2
3 thru 4	=	3
All other values	=	System Missing

Now make another “**crosstabs**” for **'newdeg'** and **'newinc'**.

The **significance level** here is?

Your interpretation of this table is?

Why is this table easier to read and interpret than the first one?

5. Next, do a cross tabulation to test of the hypothesis that a person's belief in a life after death **'postlife'** is significantly influenced by his or her family income (use **newinc**).

The **significance level** here is?

Your interpretation of this table is?

6. Next, do a **cross tabulation** to test the hypothesis that whether or not a person has a revolver or gun in their home **'owngun'** is significantly increased by his or her family income (use **newinc**).

The **significance level** here is?

Your interpretation of this table is?

7. Next, do a **cross tabulation** to test of the hypothesis that whether or not a person ever approves of hitting an adult person **'hitok'** is significantly determined by his or her family income (use **newinc**).

The **significance level** here is?

Your interpretation of this table is?

8. Now you are asked to introduce a **control variable** and retest the impact that “**race**” has on “**ever being punched or beaten by another person**” (**hit**) with family income (**newinc**) controlled. The only difference here with what you previously did under #6 preceding is that you introduce the control variable (**newinc**) into the Crosstabs box labeled “**Layer 1 of 1**).

What are the new **significance levels** when you introduce this control?

Your interpretation of this new table with controls is?

9. Now you are asked to introduce a **control variable** and retest the impact that “**race**” has on “**ever approves of a man punching another adult man**” (**hitok**) with family income (**newinc**) controlled. The only difference here with what you previously did under #7 preceding is that you introduce the control variable (**newinc**) into the Crosstabs box labeled “**Layer 1 of 1**).

What are the new **significance levels** when you introduce this control?

Your interpretation of this new table with controls is?

10. Next, make a “**crosstab**” to test of the hypothesis that a person’s net annual family income ‘**newinc**’ significantly increases the likelihood of ‘personal life happiness’ (**happy**).

The **significance level** is?

Your interpretation of this association is?

Which of these variables is the *dependent variable*? _____

11. Next you are asked to introduce a control variable (race) and assess how annual family income (**newinc**) impacts on the likelihood of personal life happiness (**happy**) once the race variable has been controlled.

The **significance level** is?

Your interpretation of this association is?

12. Finally, explore the relationship between a person's zodiac sign '**zodiac**' and any other aspects of their lives you wish to test. This will require that you run **any five variables** from the *gss8090* variable list and run a crosstabs for **each** one of them. Write the names of the variables you choose and the significance level that you obtain for **each** of these variables as they relate to the person's zodiac sign.

<u>Variable Name:</u>	<u>Significance Level:</u>
1) _____	_____
2) _____	_____
3) _____	_____
4) _____	_____
5) _____	_____

Based entirely upon this data that you have assembled above, **what do you conclude about the sociological significance of a person's zodiac sign upon their lifetime experiences?**

13. Finally, a **puzzler**. Think about how you could test whether just one sign of the zodiac such as **Aries** was correlated significantly with each of your same **five dependent** variables. (Clue: you would have to use the *recode* function of SPSS **[Into Different Variables]**.) If you need help with this one ask. If you have time try testing the statistical significance of Aries with your *dependent* variables. Were any of them statistically significant? If not, what conclusion do you draw about the validity of astrology?

Voila! Finis! You are fast approaching 'master of the universe' status.

Ain't life

grand?
