Homework #9: Crosstabs and Three-ways

GENERAL INSTRUCTIONS

- You may type your answers into your output file (preferred) or write them out by hand, but *you must* hand in your output. You may **not** work with each other. You may always, of course, ask me anything you wish. Email is usually best – ellis.godard@csun.edu will work

- Be sure to show all work and to write out all answers in sentence form; points *will* be deducted for incomplete answers. Be as complete as possible in your answers. On this and all assignments, put all answers in prose (sentence/paragraph) form; single-word or phrase answers are not sufficient. Be explicit and complete in explaining your answers. Show all work done, including any calculations, & explain all of the steps involved and all of the parts of each calculation.

- NOTE THAT THERE ARE TWO PAGES HERE!

SPECIFIC INSTRUCTIONS

Using data from the 1988 General Social Survey (gss88a.sav), do the following:

- Examine, report, and interpret the univariate distributions of SEX, XMOVIE, PRAY, and PARTNERS.

- Deal with these missing values: 0, 8, & 9 for PRAY; 0, 8, & 9 for XMOVIE; -1, -2, 9, 98, & 99 for PARTNERS

- Recode PRAY into an ordinal measure that distinguishes between those who pray one or more per day, from those who pray once or more per week, and those who pray less than once per week (or never).

- Recode PARTNERS into three categories, of those who have had no partners, those who have had one partner, and those who have had more than one partner.

- Crosstabulate sample data to examine whether someone having seen an x-rated movie is related to their sex.

  1. What are the percentages of men and women who report that they have seen an x-rated movie?

  2. Using percentage comparisons (modal frequencies, reference groups, or comparisons to the marginals), make an assessment as to whether or not there is a dependent relationship between these two variables. ("Using percentage comparisons" means *cite data*!)

  3. What would be the predicted percentage of women who have seen an x-rated movie under the (null) hypothesis of independence? What's the predicted number (or cell count)? (Show all calculations!)

  4. What does the chi-square statistic tell us about this relationship? How does this relate to question 2? (Be sure to make an explicit conclusion about the null hypothesis.)

  5. What does the tau (btau) statistic tell us about the strength of the relationship?

- Construct a crosstabulation of sample data to examine whether the number of partners someone has had is related to how often they pray.

  6. Using percentage comparisons (modal frequencies, reference groups, or comparisons to the marginals), make an assessment as to whether or not there is a dependent relationship between these two variables. ("Using percentage comparisons" means *cite data*!)

  7. What does the chi-square statistic tell us about this relationship? How does this relate to question 6? (Be sure to make an explicit conclusion about the null hypothesis.)

  8. Which cells are concordant to each "start cell", and why? (Reminder: you must start with each cell, and move through the table; any cell might be a "start cell".) How many total pairs *of cases* are concordant?

  9. State the value of gamma, explain how it is calculated (but do not calculate it), and interpret it. (Remember to provide all interpretations of gamma – strength, direction, and PRE.)

EXTRA CREDIT (Points on this assignment, not a separate "extra credit" homework assignment)

- Construct a three-way crosstabulation of sample data to examine whether the relationship between praying and number of partners varies by sex.

  10. Among men, is prayer significantly related to number of partners? In which direction, and how strongly? To which statistics (*plural!) d*o you refer? Explain why they apply.

  11. Among women, is prayer significantly related to number of partners? In which direction, and how strongly? To which statistics (*plural!) d*o you refer? Explain why they apply.

  12. Which cells in either table are "concordant" relative to the top-left cell (i.e. row 1, column 1)? How many females are in those cells, and how many concordant pairs (with that *single* start cell) are there for females? How many males are in those cells, and how many concordant pairs (with that *single* start cell) are there for males?

  13. State (do not calculate) the value of gamma for each "partial" table (that is, the crosstab for each category of sex) and interpret it. (Remember to provide all interpretations of gamma – strength, direction, and PRE.)For whom are praying and number of partners more strongly related?