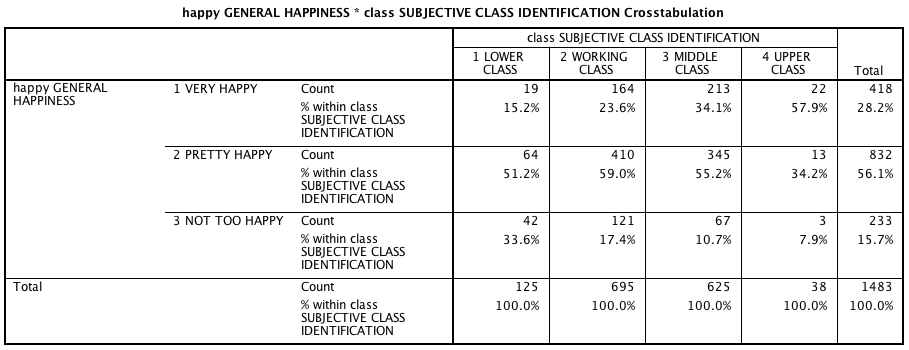
**SPSS Solutions**

1.



a. 164/695 = 23.6%

b. 19/125 = 15.2%

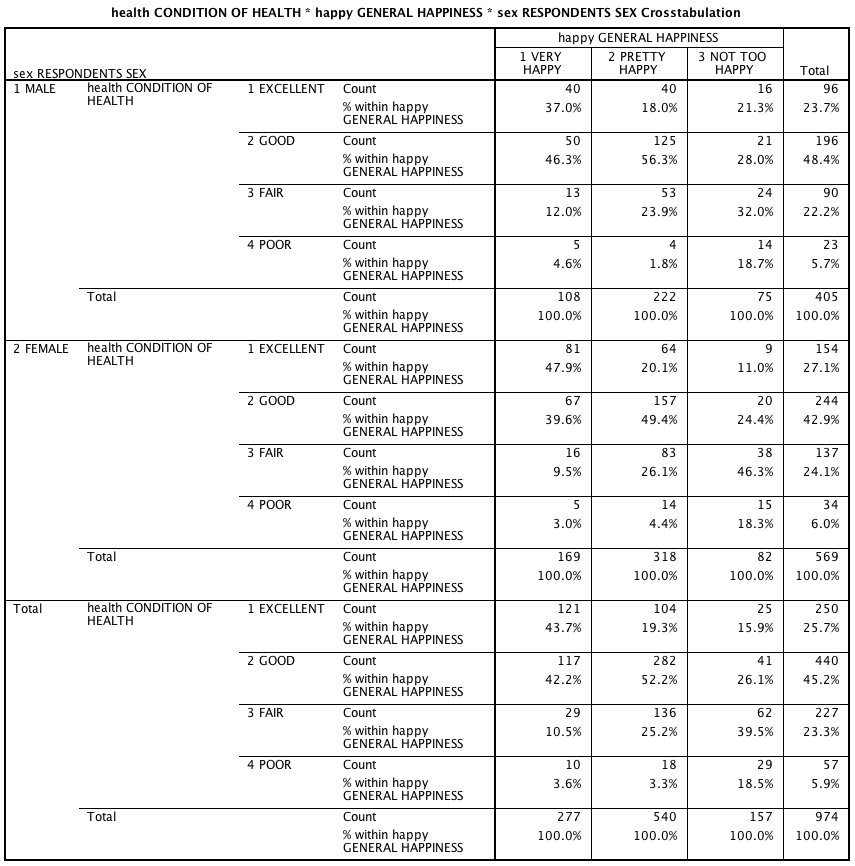
c. (345 + 15)/832 = 43.2%

d. Working class (f = 164) and middle class (f = 213)

e. Happiness increases as social class increases. Among the lower class only 15.2% indicated that they were “very happy” compared with more than 57.9% of the upper class who indicated the same. There is a 42.7 percentage point difference, which indicates a moderate relationship.

f. The relationship between social class and happiness is stronger among whites than blacks. For whites as social class increases, so does general happiness – 64.3% of upper class whites indicated that they were very happy compared with 17.5% of lower class whites. However, among blacks, 50% of upper class blacks report being very happy compared with 11.4% percentage of lower class blacks. The difference between the upper and lower class respondents in the black population (50-11.4 = 38.6%) is less than the difference between the two classes in the white population (64.3-17.5 = 46.8%).

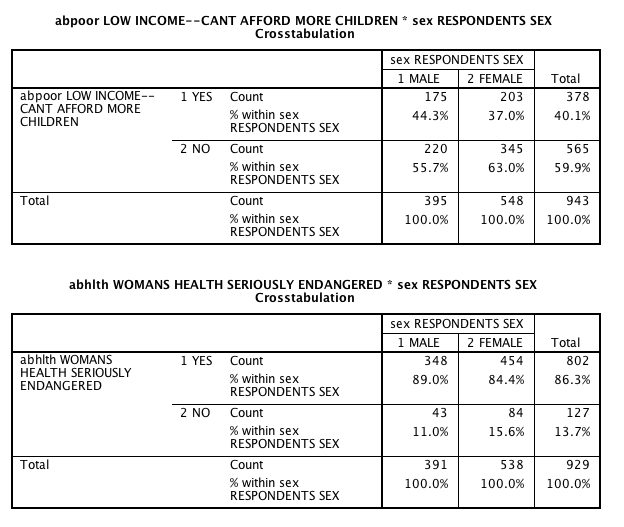
2.



b. A slightly higher percent of women report being in excellent health than men (27.1% vs. 23.7%).

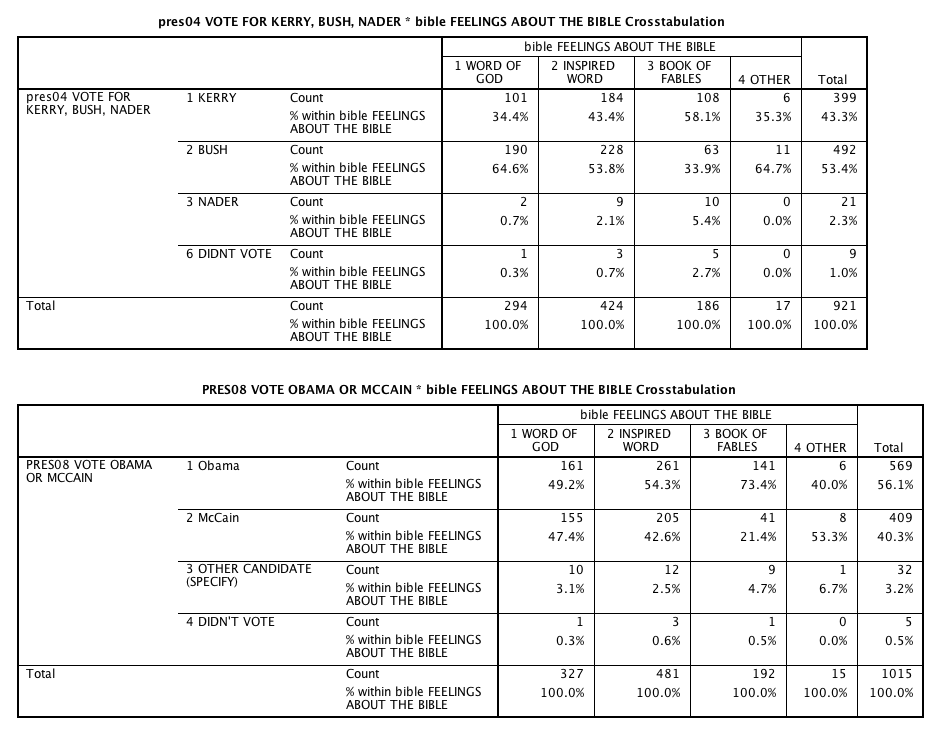
c. Among men and women who report being “very happy”, the two categories with the highest percentages are “excellent” and “good” health. When percentages are added up for both health groups, there is a slightly higher percentage of women than men (87.5% versus 83.3%). It is the case for both men and women that the happier you are, the more likely they report being in excellent or good health.

3.



The bivariate tables indicate that support for abortion does vary according to the circumstances. In the case where a woman is poor and cannot afford more children, the majority of males (55.7%) and females (63.0%) indicated that they did not support an abortion. In the case where a woman’s health was endangered, the majority of males (89.0%) and females (84.4%) supported an abortion.

4.



a. The argument could be made that PRESO4/08 are the dependent variables, dependent on BIBLE (the independent variable). One may hypothesize that individuals will cast their vote for candidates whom they believe share their definition of the Bible.

b. For 2004, the majority of respondents who believed that the Bible was the word of God or the inspired word cast their vote for President George W. Bush. Voters who believed that the Bible is a book of fables were more likely to vote for Senator John Kerry.

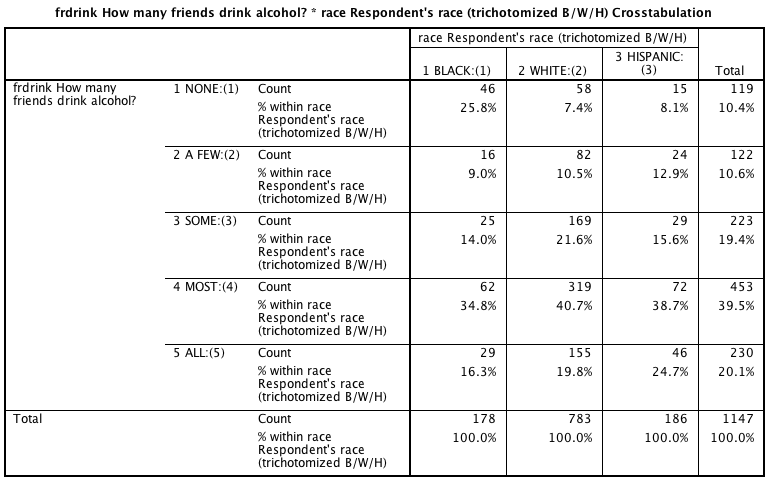
For 2008, a higher percentage of respondents who believed that the Bible is the word of God or the inspired word voted for President Barack Obama.

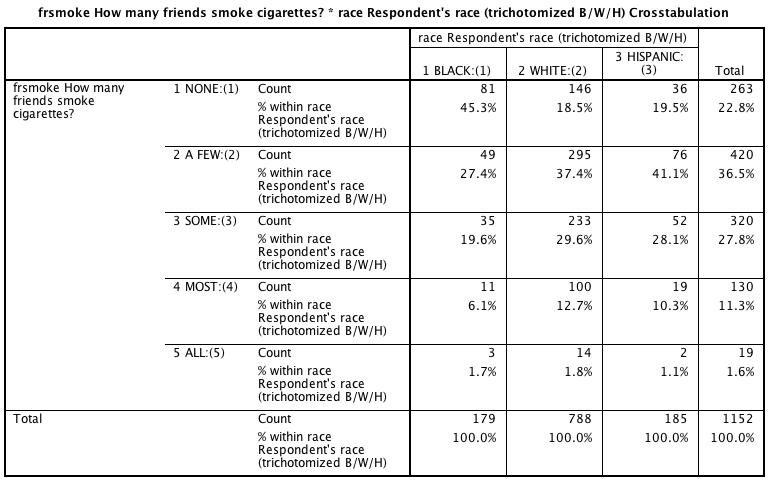
Among those who responded that the Bible is the word of god, the difference between Obama and Senator McCain voters (49.2-47.4%) is smaller than the difference between Bush and Kerry voters (64.6-34.4%).

c. Sex (SEX), political affiliation (PPARTY) or political views (POLVIEWS) could be used as control variables.

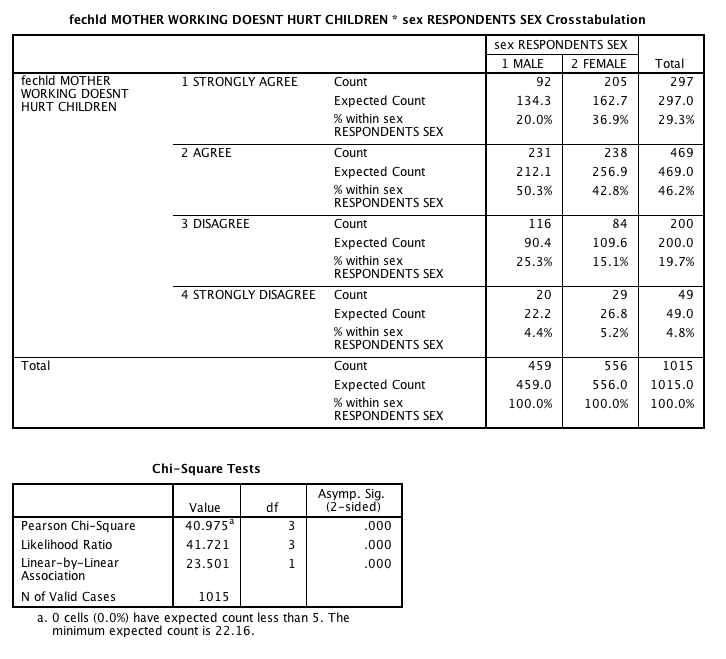
5. Based on the MTF data, we know that black teens are more likely than white or Hispanic teens to have no friends who drink alcohol or smoke cigarettes.

For example, almost 26% of black respondents indicated that none of their friends drink alcohol compared with 7.4% of white teens and 8.1% of Hispanic teens. On the other end of the scale, 63.4% of Hispanic teens and 60.5% of white teens reported that most or all of their friends drink alcohol. Among black teens, 51.1% reported the same.





**6.**

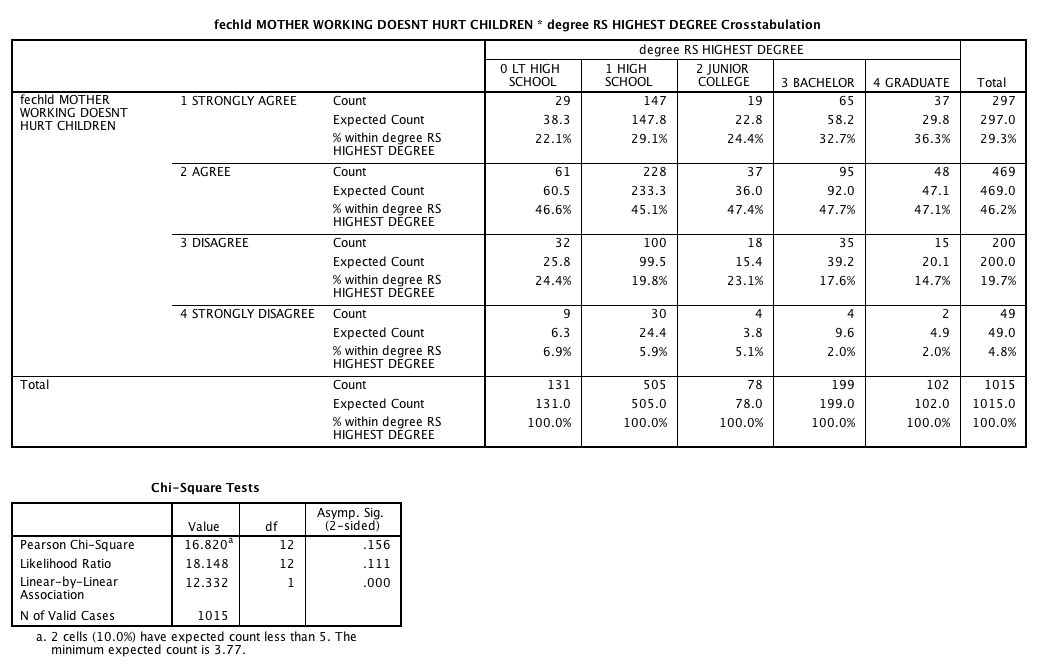


a. 0 cells have an expected count less than 5.

b. Chi-square is 40.975, p=.000

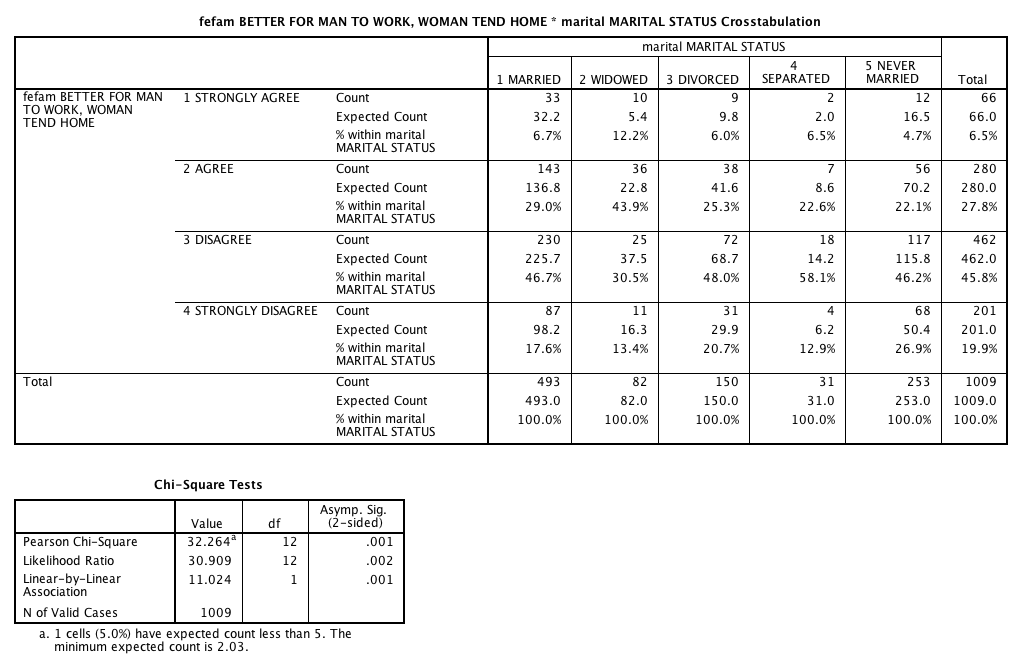
c. Based on the obtained chi-square, we would reject the null hypothesis and conclude that there is a relationship between sex and FECHLD response. A higher proportion of women than men indicated that they “strongly agree” or “agree” to the statement – 79.7% versus 70.3%

d. Output for DEGREE by FECHLD is presented.



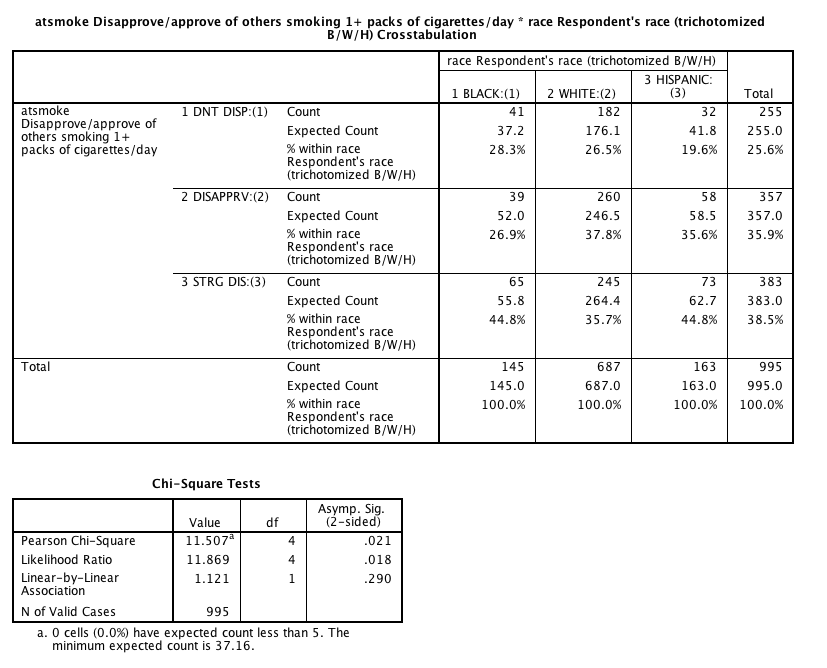
7. The obtained chi-square is 32.264, p=.001. We would reject the null hypothesis and conclude that marital status and response to FEFAM are dependent.

Disagreement to the statement was highest among respondents who were separated (71%) or never married (73.1%).



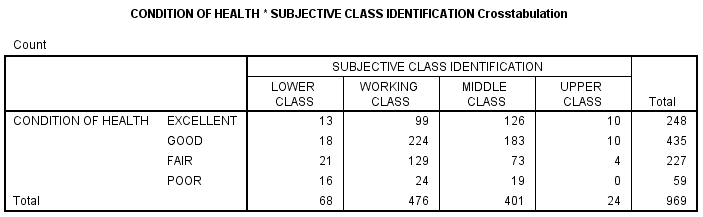
8. Sample output, using race as the independent variable, with ATSMOKE (attitude toward smoking one pack of cigarettes per day).

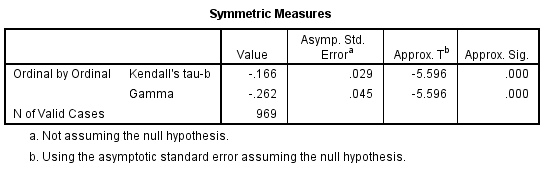
For ATSMOKE, we reject the null hypothesis and conclude that there is a relationship between teen’s race and approval of cigarette smoking. Strong disapproval is highest among black and Hispanic teens (both at 44.8%). A lower percentage (35.7%) of white students indicated strong disapproval. If we combine the “disapprove” and “strongly disapprove” categories, Hispanic teens are most likely to indicate disapproval of smoking (80.4%) vs. white (73.5%) and Black (71.7%) students.



9.

a. Gamma and Kendall’s Tau-*b* would be the appropriate PRE measures.

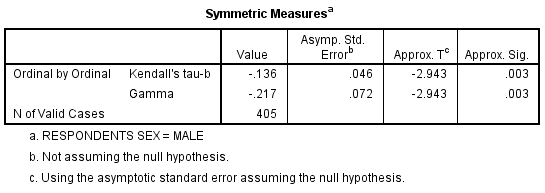
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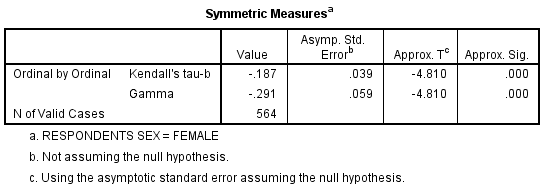
****

The SPSS output reports that the gamma for the table is -.262, a weak-to-moderate negative relationship. Kendall’s Tau-*b* is -.166, indicating a weak negative relationship.

b. The relationship between these two variables is stronger for females than for males. Gamma for the male table is -.217; gamma for the female table is

-.291. Similarly, Kendall’s Tau-*b* for the male table is -.136; for the female table it is -.187. [Cross tabulation tables are not presented.]





c. Instructors are advised to encourage students to complete this problem on their own.

10. Students are encouraged to select a variety of demographic variables – sex, marital status, number of children, degree – to examine abortion attitudes as measured by the General Social Survey. As an example we looked at the relationship between SEX and two abortion attitudes: ABANY (support abortion for any reason) and ABDEFECT (support abortion even if there is a strong chance of serious defect). Under either conditions there isn’t much of a difference beween men and women. About 40% of men and 35% of women support abortion for any reason.

The weak relationship is reflected in gamma (gamma is appropriate here because both the independent and dependent variables are dichotomous) which is .095.

While the relationship between gender and abortion attitudes is still weak, gamma is a bit larger (.172) when it comes to supporting abortion when there is a chance for serious defect in the baby.

**ABORTION IF WOMAN WANTS FOR ANY REASON \* RESPONDENTS SEX**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Crosstab** | | | | | |
|  | | | RESPONDENTS SEX | | Total |
| MALE | FEMALE |
| ABORTION IF WOMAN WANTS FOR ANY REASON | YES | Count | 159 | 195 | 354 |
| % within RESPONDENTS SEX | 40.3% | 35.8% | 37.7% |
| NO | Count | 236 | 350 | 586 |
| % within RESPONDENTS SEX | 59.7% | 64.2% | 62.3% |
| Total | | Count | 395 | 545 | 940 |
| % within RESPONDENTS SEX | 100.0% | 100.0% | 100.0% |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Symmetric Measures** | | | | | |
|  | | Value | Asymp. Std. Errora | Approx. Tb | Approx. Sig. |
| Ordinal by Ordinal | Kendall's tau-b | .046 | .033 | 1.393 | .164 |
| Gamma | .095 | .067 | 1.393 | .164 |
| N of Valid Cases | | 940 |  |  |  |
| a. Not assuming the null hypothesis. | | | | | |
| b. Using the asymptotic standard error assuming the null hypothesis. | | | | | |

**STRONG CHANCE OF SERIOUS DEFECT \* RESPONDENTS SEX**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Crosstab** | | | | | |
|  | | | RESPONDENTS SEX | | Total |
| MALE | FEMALE |
| STRONG CHANCE OF SERIOUS DEFECT | YES | Count | 294 | 373 | 667 |
| % within RESPONDENTS SEX | 76.0% | 69.1% | 72.0% |
| NO | Count | 93 | 167 | 260 |
| % within RESPONDENTS SEX | 24.0% | 30.9% | 28.0% |
| Total | | Count | 387 | 540 | 927 |
| % within RESPONDENTS SEX | 100.0% | 100.0% | 100.0% |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Symmetric Measures** | | | | | |
|  | | Value | Asymp. Std. Errora | Approx. Tb | Approx. Sig. |
| Ordinal by Ordinal | Kendall's tau-b | .076 | .032 | 2.340 | .019 |
| Gamma | .172 | .073 | 2.340 | .019 |
| N of Valid Cases | | 927 |  |  |  |
| a. Not assuming the null hypothesis. | | | | | |
| b. Using the asymptotic standard error assuming the null hypothesis. | | | | | |

**Chapter 9 – Answers to Exercises**

1.

a. The independent variable is race; the dependent variable is fear of walking alone at night.

|  |  |  |
| --- | --- | --- |
| Fear of Walking Alone at Night | Race | |
| Black | White |
| Yes | 3 | 4 |
| No | 5 | 9 |

b. Approximately 69% of whites (69.2%) are not afraid to walk alone in their neighborhoods at night, whereas approximately 63% of blacks (62.5%) are not afraid to walk alone. This amounts to about a 7% difference (69.2% –62.5%) between whites and blacks who are not afraid to walk alone at night, indicating a weak relationship. Also, although we went ahead and compared percentage differences in this exercise; it is important to keep in mind that our sample size inhibits our ability to make any meaningful comparisons.

|  |  |  |
| --- | --- | --- |
| Fear of Walking Alone at Night | Race | |
| Black | White |
| Yes | 37.5% | 30.8% |
| No | 62.5% | 69.2% |

c. There is some difference in fears between homeowners and renters. A total of 25.0% of homeowners and 38.5% of renters are afraid to walk in their neighborhood at night. The difference between the two groups is 13.5%. Thus, there is a weak to moderate relationship between home ownership and fear of walking in one’s neighborhood at night.

|  |  |  |
| --- | --- | --- |
| Fear of Walking Alone at Night | Home Ownership | |
| Yes | No |
| Yes  Percentage | 2  25.0% | 5  38.5% |
| No  Percentage | 6  75.0% | 8  61.5% |

2.

a. sex (or gender)

b. More women, about 4.5% more (18.7-14.2%), think that it is very likely that whites are hurt by affirmative action. More women than men think that it is somewhat likely that whites are hurt by affirmative action (46.3-43.3%). However, more men than women think that it is not very likely that whites are hurt by affirmative action (42.5-35.0 = 7.5% difference).

c.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | *fo* | *fe* | *fo* ****** *fe* | *(fo* ****** *fe)2* |  |
| Male/Very likely | 56 | 66.39 | 10.39 | 107.8521 | 1.63 |
| Male/Somewhat likely | 171 | 177.88 | 6.88 | 47.3344 | .27 |
| Male/Not very likely | 168 | 150.73 | 17.27 | 298.2529 | 1.98 |
| Female/Very likely | 103 | 92.61 | 10.39 | 107.8521 | 1.17 |
| Female/Somewhat likely | 255 | 248.12 | 6.88 | 47.3344 | .19 |
| Female/Not very likely | 193 | 210.27 | 17.27 | 298.2529 | 1.42 |
| 2 = 6.66 | | | | | |

Chi-square obtained is 6.66, larger than chi-square critical of 5.991 (2 degrees of freedom, alpha = .05). The null hypothesis of no relationship between respondent sex and responses to the variable DISCAFF should be rejected. There is evidence that a relationship does exist, with a higher percentage of females than males indicating that it is “very likely” that whites are hurt by affirmative action (19% vs. 14%). There is also a higher percentage of female responses in the “somewhat likely” category than males (49% vs. 43%).

3. a. Based on the student’s argument the independent variable is attitude toward homosexual relations and the dependent variable is political views.

b. 451/792 = 56.9%

c. Those who believe that homosexuality is always wrong are more likely to be conservative (50.8%) than moderate or liberal. On the other hand, those who believe homosexuality is not wrong at all are more like to indicate liberal political views (45.4%) than moderate or conservative.

d.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | *fo* | *fe* | *fo* ****** *fe* | *(fo* ****** *fe)2* |  |
| Always wrong/Liberal | 82 | 134.96 | 52.96 | 2804.76 | 20.78 |
| Always wrong/Moderate | 140 | 148.05 | 8.05 | 64.8025 | .44 |
| Always wrong/Conservative | 229 | 167.99 | 61.01 | 3722.2201 | 22.16 |
| Not wrong at all/Liberal | 155 | 102.04 | 52.96 | 2804.76 | 27.49 |
| Not wrong at all/Moderate | 120 | 111.94 | 8.06 | 64.9636 | .58 |
| Not wrong at all/Conservative | 66 | 127.01 | 61.01 | 3722.2201 | 29.31 |
| 2 = 100.76 | | | | | |

Chi-square obtained 100.76 is larger than chi-square critical of 9.210 (two degrees of freedom, alpha = .01). The null hypothesis is rejected. There is a relationship between attitudes about homosexuality and general political views.

4.

a. DV: attitudes about homosexual relations

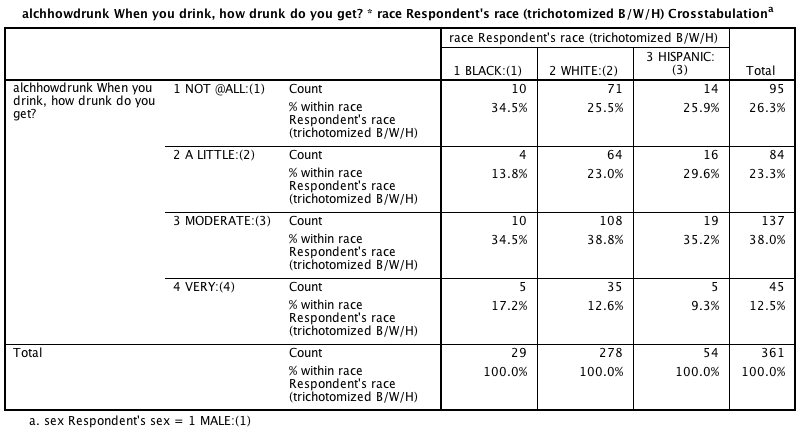
IV: church attendance

b. 31% of respondents who never attended church also thought that homosexual relations were always wrong; this compares with 78% of respondents who attend church weekly and think that homosexual relations are always wrong. This amounts to a 47% difference, indicating a moderate relationship between church attendance and attitudes towards homosexual relations.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | | Church Attendance | | |  |
| Never | Several Times a Year | Every Week | Total |
| Homosexual Relations | Always Wrong | 31% | 59% | 78% | 56% |
|  | Not Wrong at All | 69% | 41% | 22% | 44% |
| Total | | 100.0% | 100.0% | 100.0% | 100.0% |

c. The assignment of variables in this case would be problematic because both variables are attitudes or opinions. As such, it would be difficult to say that one attitude or opinion changes on the basis of another attitude or opinion. Either variable could qualify as the independent variable; and either variable could qualify as the dependent variable.

5. In contrast with black and white male students, Hispanic male students are less likely to report being moderately or very drunk. The majority of white males and Black males report being moderately or very drunk. For Hispanics males, the total percentage in these two categories is 44.5%, which is lower than the totals for the other groups (51.4% of white students and 51.7% of Black students). The relationship is weak between race and getting drunk while drinking alcohol.



6.

a. Since 1980, educational attainment has increased. This is a positive relationship since as years increase, so does the level of educational attainment.

b. Americans with a bachelor’s degree or higher increased by 14.1 percent from 1980

to 2010, and high school graduates or more increased by 20.6 percent over the same time period. The percentages do not add up to 100 percent because of how educational attainment is measured. Notice that there is an overlap between the two categories, as the first measures high school attainment or more (which would include college graduates measured in the second category).

c. Yes, these data support this premise, but don’t exactly prove it. The world is complicated, so other factors affect these numbers. As older people with less education die, it will appear that Americans are getting more education even if they are not over a ten-year period.

7. Female seniors have higher educational expectations than male seniors. For example, 73.9% (32.6 + 41.3) of female students expected to complete a bachelor’s degree or higher. This is higher than the combined percentage for male students – 63.3% (34.4 + 28.9).

8. a. Democrats: 76.4%, Republican = 51.6%

b. Chi-square = 26.586, sig = .000. We decide to reject the null hypothesis of no relationship and conclude that there is a relationship between party identification and support for citizenship for children of illegal immigrants. Democrats and independents are more likely to support citizenship than Republicans.

9. Based on the SPSS output, we would fall to reject the null hypothesis. The obtained chi-square is 4.872, significant at .771 level. Teen residence and marijuana access are not associated.

10.

Reject the null hypothesis. The obtained chi-square of 12.11 is greater than the chi-square critical of 9.488 (alpha = .05). Though the majority of respondents report being pretty happy, more Whites (26.9%) and Hispanics (21.2%) report being very happy than black students (17.7%).

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Race/Happy | *fo* | *fe* | *fo* ****** *fe* | *(fo* ****** *fe)2* |  |
| Black/not happy | 33 | 24.2 |  | 77.44 | 3.2 |
| Black/pretty happy | 116 | 112.3 | 3.7 | 13.69 | .12 |
| Black/very happy | 32 | 44.4 | -12.4 | 153.76 | 3.46 |
| White/not happy | 93 | 106.5 | -13.4 | 179.56 | 1.69 |
| White/pretty happy | 488 | 493.4 | -5.4 | 29.16 | .06 |
| White/very happy | 214 | 195.2 | 18.8 | 353.44 | 1.81 |
| Hispanic/not happy | 30 | 25.3 | 4.7 | 22.09 | .87 |
| Hispanic/pretty happy | 119 | 117.3 |  | 2.89 | .02 |
| Hispanic/very happy | 40 | 46.4 | -6.4 | 40.96 | .88 |
| 2 = 12.11 | | | | | |

11.

a. Ignoring sex of the offender, we would make 1,730 errors. *E*1 = 5,940-4,210=1,730.

b. Considering the sex of the offender to predict sex of the victim, we would make 1,730 errors. For male offenders, we would make 1,590 errors and for the female offenders, we would make 140 errors.

c. Lambda = (1,730 – 1,730) / 1,730 = 0. Information about sex of the offender reduces our error in predicting the sex of the victim by 0% (.

12. a. We will make 2,973 errors, because we predict that all victims fall in the modal category (white). *E*1 = 6,084 – 3,111 = 2,973.

b. For white offenders, we could make 373 errors; for black offenders, 493 errors; and for other offenders, we would make 42 errors. *E*2 = 908.

c. The proportional reduction in error is then (2,973 – 908)/2,973=.6946. This indicates a very strong relationship between the two variables. We can reduce the error in predicting victim’s race based upon race of offender by 69.46%.

13.

SPANKING and SEX: Gamma = .118 This signifies a very weak positive relationship between sex (more specifically, being male) and approval of spanking a child.

SPANKING and CLASS: Gamma = -.178 This signifies a weak negative relationship between being upper-class and approval of spanking a child.

SPANKING and MARITAL: Lambda = 0 This signifies no discernable relationship between marital status and approval of spanking a child.

14. Since the data are both dichotomous, Gamma and Kendall’s tau-b are most appropriate. If we calculated gamma for this table, we would discover a very weak negative relationship between the two variables, -.056. If we calculated Kendall’s Tau-*b*, we would also discover a very weak negative relationship between the two variables of -.022.