**Homework 11. Rao-Scott Chi-square test for survey data**

**MSDS 6370**

1. Consider the data in the chart below. Suppose that the data have been collected independently (i.e., ignore the sample design and finite population).

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Married** | **Previously married** | **Never**  **married** | **TOTAL** |
| BAD HEALTH | 107 | 87 | 5 | 199 |
| ~ BAD HEALTH | 835 | 460 | 33 | 1328 |
| TOTAL | 942 | 547 | 38 | 1527 |

a. Carry out a Chi-square test of the following hypothesis:

* *H*0: Self-reported bad health is independent of marital status.
* *H*a: Self-reported bad health is not independent of marital status.

Chi-square statistic = 6.31 with 2 degrees of freedom.

b. Write a sentence interpreting your result.

Since 6.31 is greater than the critical value of 5.991, we can concoude that marital status and perceived bad health are not independent. In my case, my wife is constantly reminding of my bad health.

2. Now reanalyze the data above, using the Rao-Scott Chi-square test to determine if marital status and self-reported bad health are independent or not. Include your SAS code and output, as well as a sentence interpreting your output.

I could not get the data to load into SAS. I calculated the weighted Chi Squared but not the generalized degrees of freedom to divide it by.

Perceived bad health is not independent of marital status.