

Emily Chu Assignment 6

Lab 6 Assignment

Data frame for this assignment: drugtreatment

1. Conduct the appropriate hypothesis test to determine if there is a significant difference in IV drug use history at admission by race.

- Use variables at the appropriate level of measurement.
- Show R syntax.
- Show results tables.
- Report technical results.
- In one paragraph, comment on the implications of the result of the test. Make observations. Speculate.

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```
options(scipen = 999)
table(drugtreatment$IVHX, drugtreatment$RACE)
```

| | 0 | 1 |
|---|-----|----|
| 1 | 143 | 80 |
| 2 | 83 | 26 |
| 3 | 204 | 39 |

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```
chisq.test(table(drugtreatment$IVHX, drugtreatment$RACE)) ##chisquare test
```

Pearson's Chi-squared test

```
data: table(drugtreatment$IVHX, drugtreatment$RACE)
X-squared = 24.368, df = 2, p-value = 0.000005111
```

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```
library(gmodels) ##crosstable
CrossTable(drugtreatment$IVHX, drugtreatment$RACE, expected=TRUE, format="SPSS")
```

Cell Contents

| |
|-------------------------|
| ----- |
| Count |
| Expected Values |
| Chi-square contribution |
| Row Percent |
| Column Percent |
| Total Percent |
| ----- |

Total Observations in Table: 575

| drugtreatment\$RACE | | drugtreatment\$IVHX | |
|---------------------|---------|---------------------|-----------|
| | 0 | 1 | Row Total |
| 1 | 143 | 80 | 223 |
| | 166.765 | 56.235 | |
| | 3.387 | 10.043 | |
| | 64.126% | 35.874% | 38.783% |
| | 33.256% | 55.172% | |
| | 24.870% | 13.913% | |
| 2 | 83 | 26 | 109 |
| | 81.513 | 27.487 | |
| | 0.027 | 0.080 | |
| | 76.147% | 23.853% | 18.957% |
| | 19.302% | 17.931% | |
| | 14.435% | 4.522% | |
| 3 | 204 | 39 | 243 |
| | 181.722 | 61.278 | |
| | 2.731 | 8.099 | |
| | 83.951% | 16.049% | 42.261% |
| | 47.442% | 26.897% | |
| | 35.478% | 6.783% | |
| Column Total | 430 | 145 | 575 |
| | 74.783% | 25.217% | |

Statistics for All Table Factors

Pearson's Chi-squared test

Chi^2 = 24.3683 d.f. = 2 p = 0.000005110825

Minimum expected frequency: 27.48696

Technical Results

Null Hypothesis: IV drug use history at admission and race are independent Alternate Hypothesis: IV drug use history at admission and race are not independent

Reject the null hypothesis for $\chi^2(2, N = 575) = 24.368, p < .001$. There is a significant relationship between IV drug use history at admission and race.

Implications

Assuming Race 0 = white and 1 = nonwhite (metadata does not define), nonwhites are more likely to report ivhx = 1 and less likely to report ivhx = 3.

2. If you wanted to conduct a Chi-Square hypothesis test, but both of your variables were intervalratio, which of the following tasks would you need to complete in order to be able to conduct the test? Select only one answer:

- c. Recode both the dependent and independent variables into nominal or ordinal variables.