Module 19 homework

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AIDS cases

1. A=0.01
2. Ho “the distribution of AIDs in males in the four race categories is the same from the distribution of females in the same four categories.” Vs Ha “the distribution of AIDs in males in the four race categories is NOT THE SAME from the distribution of females in the four race categories.
3. A chi-square test is required because (i) a categorical variable with four levels (race) was recorded and two populations were sampled (male and female).
4. The data suggests that this is an observational study with no randomization.
5. There are more than five individuals in each cell of the expanded (table 4).
6. The test statistic is the observed frequency table.
7. X squared=1650.767 with 3 DF(table 1)
8. P-value=2.2e-16(table 1)
9. Ho is rejected because P-value is <a.
10. There does appear to be a significant difference in the distribution of AIDs in male’s vs females in the four race categories. Looking at both the percentage (table 3) and the residual table (table 2) the race with biggest difference between male and female is white.

Table 1-Results from Chi-squared test for differences in AIDs cases between different races for males and females

X-squared = 1650.767, df = 3, p-value < 2.2e-16

Table 2- Pearson residuals Chi-squared test for differences in AIDs cases between different races for males and females

W B H O

M 14.39045 -13.20228 1.791356 1.163951

F -26.05094 23.90000 -3.242881 -2.107094

Table 3-Percenatage table for differences in AIDs cases between different races for males and females

W B H O Sum

M 36.5 42.4 19.9 1.2 100.0

F 17.9 63.1 18.1 1.0 100.1

Table 4-Expected frequency table for differences in AIDs cases between different races for males and females

W B H O

M 11323.672 16649.53 6870.517 415.2805

F 3455.328 5080.47 2096.483 126.7195

R Stuff

library(NCStats)

( freq <- c(12855,14946,7019,439,1924,6784,1948,103))

( aids <- matrix(freq,nrow=2,byrow=TRUE))

rownames(aids)<-c("M","F")

colnames(aids)<-c("W","B","H","O")

(aids.chi <-chisq.test(aids))

aids.chi$expected

aids.chi$residuals

percTable(aids,margin=1,digits=1)

aids<-aids[,-1]

(aids.chi1<-chisq.test(aids))