hw\_05

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library(vcd)

## Loading required package: grid

library(gmodels)  
library(tidyverse)

## ── Attaching packages ─────────────────────────────────────── tidyverse 1.2.1 ──

## ✔ ggplot2 3.1.0 ✔ purrr 0.2.5  
## ✔ tibble 1.4.2 ✔ dplyr 0.7.7  
## ✔ tidyr 0.8.2 ✔ stringr 1.3.1  
## ✔ readr 1.1.1 ✔ forcats 0.3.0

## ── Conflicts ────────────────────────────────────────── tidyverse\_conflicts() ──  
## ✖ dplyr::filter() masks stats::filter()  
## ✖ dplyr::lag() masks stats::lag()

shaw\_s1 <- read\_csv("Shaw\_S1.csv") %>%  
 select(-X5, -X6, -X7, -X8,-X9)

## Warning: Missing column names filled in: 'X5' [5], 'X6' [6], 'X7' [7],  
## 'X8' [8], 'X9' [9]

## Parsed with column specification:  
## cols(  
## `DV (Y= You, T= Trash, M= Mark)` = col\_character(),  
## `Age (1= younger, 2 = older)` = col\_integer(),  
## Age = col\_double(),  
## `Sex (1=Male, 2= Female)` = col\_integer(),  
## X5 = col\_character(),  
## X6 = col\_character(),  
## X7 = col\_character(),  
## X8 = col\_character(),  
## X9 = col\_character()  
## )

names(shaw\_s1)[c(1,2,4)] = c('choice', 'agegroup', 'sex')  
  
shaw\_s1$choice = factor(shaw\_s1$choice, levels = c("T", "Y", "M"), labels = c("Throw Away", "Give to Self", "Give to Other"))  
shaw\_s1$choice = factor(shaw\_s1$choice)  
shaw\_s1$agegroup = factor(shaw\_s1$agegroup, levels = c(1, 2), labels = c("Younger", "Older"))  
shaw\_s1$sex = factor(shaw\_s1$sex)  
  
#CrossTable  
CrossTable(shaw\_s1$agegroup, shaw\_s1$choice,  
 expected=TRUE, prop.r = TRUE, prop.c = FALSE, prop.t = FALSE, prop.chisq = FALSE)

##   
##   
## Cell Contents  
## |-------------------------|  
## | N |  
## | Expected N |  
## | N / Row Total |  
## |-------------------------|  
##   
##   
## Total Observations in Table: 127   
##   
##   
## | shaw\_s1$choice   
## shaw\_s1$agegroup | Throw Away | Give to Self | Give to Other | Row Total |   
## -----------------|---------------|---------------|---------------|---------------|  
## Younger | 16 | 46 | 20 | 82 |   
## | 23.244 | 33.575 | 25.181 | |   
## | 0.195 | 0.561 | 0.244 | 0.646 |   
## -----------------|---------------|---------------|---------------|---------------|  
## Older | 20 | 6 | 19 | 45 |   
## | 12.756 | 18.425 | 13.819 | |   
## | 0.444 | 0.133 | 0.422 | 0.354 |   
## -----------------|---------------|---------------|---------------|---------------|  
## Column Total | 36 | 52 | 39 | 127 |   
## -----------------|---------------|---------------|---------------|---------------|  
##   
##   
## Statistics for All Table Factors  
##   
##   
## Pearson's Chi-squared test   
## ------------------------------------------------------------  
## Chi^2 = 22.35745 d.f. = 2 p = 1.396825e-05   
##   
##   
##

# phi = (chi^2/n)^(1/2)  
  
phi <- function(x,n){  
 ((x/n)^(1/2))  
}  
  
#goodness of fit younger  
shaw\_young <- shaw\_s1 %>%  
 filter(agegroup == "Younger")  
shawtab = xtabs(~choice, data = shaw\_young)  
chi <- chisq.test(shawtab)  
#phi  
  
phi(chi[["statistic"]][["X-squared"]],length(shaw\_young$choice))

## [1] 0.4865838

chi <- chisq.test(shawtab)  
  
#goodness of fit older  
shaw\_old <- shaw\_s1 %>%  
 filter(agegroup == "Older")  
shawtab1 = xtabs(~choice, data = shaw\_old)  
chi1<- chisq.test(shawtab1)  
#phi  
phi(chi1[["statistic"]][["X-squared"]],length(shaw\_old$choice))

## [1] 0.4251361

shawtab2 = xtabs(~agegroup + choice, data = shaw\_s1)  
chisq.test(shawtab2)

##   
## Pearson's Chi-squared test  
##   
## data: shawtab2  
## X-squared = 22.357, df = 2, p-value = 1.397e-05