EPH705 Homework 2

Nina Dyatchenko

January 31, 2019

### Agresti 2.12

### a) Construct 2x2 table.

HAdata <- matrix(c(198, 193, 19736, 19749),  
 nrow = 2, ncol = 2, byrow = TRUE)  
  
dimnames (HAdata) <- list (Treatment = c("Aspirin", "Placebo"),  
 outcome = c("Event", "No Event"))

### b) Odds ratio.

OR <- oddsratio(HAdata, log = FALSE)  
OR

## odds ratios for Treatment and outcome   
##   
## [1] 1.026582

### c) 95% CI for odds ratio for women

ciOR <- confint(OR)

### Agresti 2.13

Afterlife <- matrix(c(509, 116, 398, 104),  
 nrow = 2, ncol = 2, byrow = TRUE)  
  
dimnames (Afterlife) <- list (Sex = c("Female", "Male"),  
 Belief = c("Yes", "No"))

### a) 90% CI for difference in proportions

p1 <- Afterlife[1]/((Afterlife[1]+Afterlife[3]))  
p1

## [1] 0.8144

p2 <- Afterlife[2]/((Afterlife[2]+Afterlife[4]))  
p2

## [1] 0.7928287

diff\_prop <- p1 - p2  
diff\_prop

## [1] 0.02157131

n1 <- Afterlife[1] +Afterlife[3]  
n2<- Afterlife[2] +Afterlife[4]  
SE <- sqrt(p1\*(1-p1)/n1 + p2\*(1-p2)/n2)  
SE

## [1] 0.02385452

Lci <- diff\_prop - (1.645 \* SE)  
Uci <- diff\_prop + (1.645 \* SE)  
Lci

## [1] -0.01766937

Uci

## [1] 0.060812

### b) 90% CI for Odds ratio

OR\_2 <-oddsratio(Afterlife, log = FALSE)   
OR\_2

## odds ratios for Sex and Belief   
##   
## [1] 1.146595

ciOR\_2 <- confint(OR\_2, level = 0.9)  
ciOR\_2

## 5 % 95 %  
## Female:Male/Yes:No 0.8948511 1.469161