Statistics with R – Beginner Level

Section 6

Performing Univariate Analyses

Lesson 30 - One-Sample T Test

```
demo <- read.csv("demographics.csv")

View(demo)

##########
### how to perform the one-sample t test
##########

#################
### Basic assumptions:

# the variable of study is normally distributed
# the variable does not present important outliers
#################

### we will check whether the average income is
significantly different from 70

t.test(demo$income, alternative="two.sided", mu=70)
```

Lesson 31 - Binomial Test

```
demo <- read.csv("demographics.csv")
```

```
View(demo)

##########
### how to perform the binomial test
##########

### we will check whether the male/female proportion in the
population is 50/50

### create a counts table for the variable gender

mytable = table(demo$gender)

print(mytable)

### run the binomial test

binom.test(mytable, p=0.50, alternative="two.sided",
conf.level=0.95)

### to check whether the proportion of male subjects is 60%

binom.test(mytable, p=0.40, alternative="two.sided",
conf.level=0.95)
```

Lesson 32 - Chi-Square Test For Goodness-of-Fit

```
demo <- read.csv("demographics.csv")

View(demo)

##########
### how to perform the chi square test for goodness-of-fit
##########

### we will use the categorical variable educ (education
level)

### create a counts table for our variable

mytable <- table(demo$educ)

print(mytable)
```

```
### run the chi square test
### with equal theoretical probabilities

n <- length(mytable)

print(n)

thprop <- 1/n

print(thprop)

chisq.test(mytable, p=rep(thprop, n))

### get the expected values, the residual values and the
standardized residuals

chisq.test(mytable, p=rep(thprop, n))$expected

chisq.test(mytable, p=rep(thprop, n))$residuals

chisq.test(mytable, p=rep(thprop, n))$stdres

### run the chi square test
### with UNequal theoretical probabilities

chisq.test(mytable, p=c(0.30,0.30,0.20,0.10,0.10))

chisq.test(mytable, p=c(0.30,0.30,0.20,0.10,0.10))$expected

### if some expected counts are lower than 5
### we can ask the program to simulate the p value

chisq.test(mytable, p=rep(thprop, n),
simulate.p.value=TRUE)
```

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