Module 2 Lab SOLUTIONS: univariate analysis

BIOSTAT 213: Introduction to Computing in the R Software Environment

Wednesday, January 23, 2019

Save your code in a script file. I suggest adding labels and notes to this script file as comments. You may work in groups of 2–3.

1. Download the `unps.csv` data file from the Collaborative Learning Environment. The file, courtesy of Adrienne Epstein (thank you Adrienne!), contains data from children in Uganda. A data dictionary is available on the Collaborative Learning Environment.

2. Import the data into R.

```
> ii<-read.csv('unps.csv')
```

3. Explore the data frame using RStudio's built-in data viewer.

4. Explore the data frame using `names()`, `head()`, `tail()`, `str()`, and `dim()`. Notice, from `head()` and `tail()`, that R is treating the ID variables `hhid` and `pid` as numeric objects, and hiding the full digits using `e+` notation.

5. Use `class()` to verify that `hhid` and `pid` are numeric objects. Convert the variables to character objects. Use `class()` to verify that the variables have been properly converted.

```
> class(ii$hhid)
[1] "numeric"
> class(ii$pid)
[1] "numeric"
> ii$hhid<-as.character(ii$hhid)
> ii$pid<-as.character(ii$pid)
> class(ii$hhid)
[1] "character"
> class(ii$pid)
[1] "character"
```

6. How many unique households are there in the data? In other words, how many unique household IDs `hhid` are there in the data?

```
> length(unique(ii$hhid))
[1] 1809
```

7. What is the smallest number of characters in `hhid`? What is the largest number of characters in `hhid`?

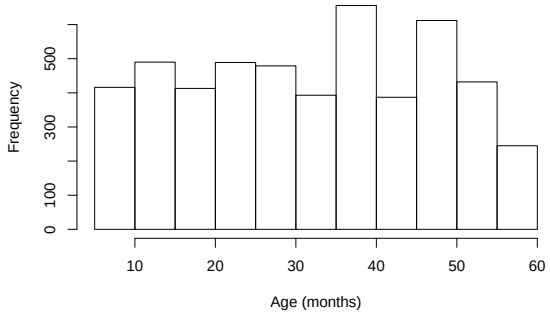
```
> min(nchar(ii$hhid))
[1] 10
> max(nchar(ii$hhid))
[1] 15
```

8. How many waves (`wave`) of data are there?

```
> length(unique(ii$wave))
[1] 3
```

9. Produce a histogram for age, in months (`age_months`).

```
> hist(ii$age_months,xlab='Age (months)',main='')
```



10. Add a variable to the data frame for age in years (note: there are 12 months in a year).

```
> ii$age_years<-ii$age_months/12
> head(ii$age_years) # just a check
[1] 2.583333 3.250000 1.666667 2.666667 4.000000 2.416667
```

11. Compute the percent of children who are male (`male`). Compute the percent of children who are underweight (`underweight`).

```
> prop.table(table(ii$male))*100

       0        1
49.30168 50.69832
> prop.table(table(ii$underweight))*100

       0        1
87.07103 12.92897
```

50.7% of the children are male. 12.9% of the children are underweight.