Untitled

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March 16, 2017

```
library(data.table)
library(dplyr)
```

```
## ------------------------------------------------------------------------
```

```
## data.table + dplyr code now lives in dtplyr.
## Please library(dtplyr)!
```

```
## ------------------------------------------------------------------------
```

```
##
## Attaching package: 'dplyr'
```

```
## The following objects are masked from 'package:data.table':
##
##     between, first, last
```

```
## The following objects are masked from 'package:stats':
##
##     filter, lag
```

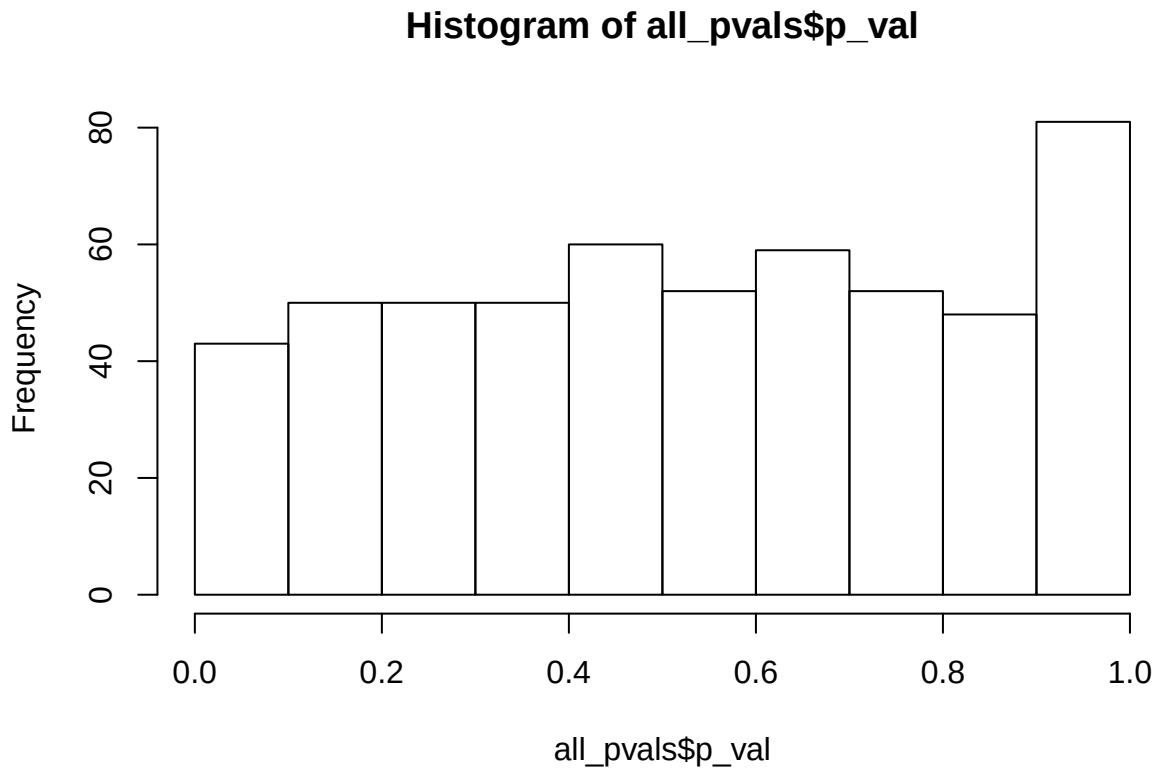
```
## The following objects are masked from 'package:base':
##
##     intersect, setdiff, setequal, union
```

```
library(ggplot2)


# Load data

post.attitude <- fread(input = "./REVISED_FINAL_POST_ATTITUDE_rename.csv",
                       header = TRUE, stringsAsFactors = TRUE)
Pre_post <- fread(input = "./Pre_post.csv",
                  header = TRUE, stringsAsFactors = TRUE)

# merge pre_post and post.attitude
pre_post.attitude <- merge(Pre_post,post.attitude,by='BPL.BLD.ID', all.x = TRUE)

# select E group
pre_post.attitude_E <- pre_post.attitude %>%
  filter(LogCheck == "Y")
```

```
# ONE - NO TECH, NO AGE OR EXPERIENCE
all_pvals <- data.frame(varname=as.character(), col=as.character(), p_val=as.numeric())

for (col in names(pre_post.attitude_E)[grep("X", names(pre_post.attitude_E))]) {
  # cat(col, ":\n")
  smy <- summary(lm(paste(col, "~ A0.3 + A0.4 + A0.56 + A0.57 + A0.58 + A0.59 + Age + Experience + A0.6
```

```
                    data = pre_post.attitude_E))

  all_pvals <- rbind(all_pvals,
                     data.frame(varname = names(smy$coefficients[,4]), col = col, p_val = smy$coeffic

}
```

```
hist(all_pvals$p_val)
```




```
all_pvals %>% filter(p_val < .05)
```

```
##              varname  col       p_val
## 1           A0.57Yes X1.4 0.017476011
## 2           A0.57Yes X2.1 0.030605236
## 3        (Intercept) X3.1 0.041709267
## 4           Age44-54 X3.1 0.004290497
## 5             Age55+ X3.1 0.011591706
## 6   Experience15-20Y X3.1 0.006519213
## 7     Experience20+Y X3.1 0.002421040
## 8    Experience5-10Y X3.1 0.003974522
## 9           A0.56Yes X3.3 0.035350768
## 10          A0.57Yes X3.3 0.001050115
## 11          A0.59Yes X3.3 0.027619137
## 12          A0.56Yes X3.6 0.040277584
## 13          A0.56Yes X4.5 0.029526885
## 14          A0.58Yes X4.5 0.048757364
## 15          Age44-54 X4.5 0.009357408
```

```
## 16            Age55+ X4.5 0.035390824
## 17  Experience15-20Y X4.5 0.008122051
## 18    Experience20+Y X4.5 0.018161658
## 19          A0.69Yes X4.8 0.023024443
## 20          A0.57Yes X6.2 0.038793549
## 21   Experience5-10Y X6.3 0.039922465
## 22 A0.3Very involved X7.1 0.035656837
## 23          A0.56Yes X7.1 0.049678794
## 24            Age55+ X7.1 0.013745740
## 25  Experience15-20Y X7.1 0.029065456
## 26    Experience20+Y X7.1 0.013113864
```

```
p.adjust(all_pvals$p_val, method = "BH")
```

```
##   [1] 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000
##   [8] 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000
##  [15] 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000
##  [22] 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000
##  [29] 1.0000000 1.0000000 1.0000000 1.0000000       NaN       NaN       NaN
##  [36]       NaN       NaN       NaN       NaN       NaN       NaN       NaN
##  [43]       NaN       NaN       NaN       NaN       NaN       NaN 1.0000000
##  [50] 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 0.8248419 1.0000000
##  [57] 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000
##  [64] 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 0.9471479
##  [71] 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000
##  [78] 1.0000000 1.0000000       NaN       NaN       NaN       NaN       NaN
##  [85]       NaN       NaN       NaN       NaN       NaN       NaN       NaN
##  [92]       NaN       NaN       NaN       NaN 1.0000000 1.0000000 1.0000000
##  [99] 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000
## [106] 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000
## [113] 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000
## [120] 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000
## [127] 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000
## [134] 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000
## [141] 1.0000000 1.0000000 0.9471479 1.0000000 0.9961561 1.0000000 1.0000000
## [148] 1.0000000 1.0000000 0.9731922 1.0000000 0.5845802 0.7491428 0.7105942
## [155] 0.5845802 0.5845802 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000
## [162] 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000
## [169] 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000
## [176] 1.0000000 1.0000000 1.0000000 1.0000000 0.9471479 0.5723125 1.0000000
## [183] 0.9471479 1.0000000 1.0000000 0.9731922 1.0000000 1.0000000 1.0000000
## [190] 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000
## [197] 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000
## [204] 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000
## [211] 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000
## [218] 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000
## [225] 1.0000000 1.0000000 1.0000000 0.9471479 1.0000000 1.0000000 1.0000000
## [232] 1.0000000 1.0000000 1.0000000 0.9731922 1.0000000 1.0000000 1.0000000
## [239] 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000
## [246] 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000
## [253] 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000
## [260] 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000
## [267] 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000
## [274] 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000
## [281] 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000
```

```
## [288] 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000
## [295] 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000
## [302] 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 0.9471479
## [309] 1.0000000 0.9731922 1.0000000 0.7285410 0.9471479 0.7285410 0.8248419
## [316] 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000
## [323] 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000
## [330] 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000
## [337] 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000
## [344] 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000
## [351] 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000
## [358] 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 0.9471479
## [365] 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000
## [372] 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000
## [379] 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000
## [386] 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000
## [393] 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000
## [400] 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000
## [407] 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000
## [414] 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000
## [421] 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000
## [428] 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000
## [435] 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000       NaN
## [442]       NaN       NaN       NaN       NaN       NaN       NaN       NaN
## [449]       NaN       NaN       NaN       NaN 1.0000000 1.0000000 1.0000000
## [456] 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000
## [463] 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000
## [470] 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 0.9471479 1.0000000
## [477] 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000
## [484] 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000
## [491] 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000
## [498] 0.9471479 1.0000000 1.0000000 1.0000000 1.0000000 0.9471479 1.0000000
## [505] 0.9731922 1.0000000 1.0000000 1.0000000 0.9731922 0.7491428 0.9471479
## [512] 0.7491428 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000
## [519] 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000
## [526] 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000
## [533] 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000
## [540] 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000       NaN
## [547]       NaN       NaN       NaN       NaN       NaN       NaN       NaN
## [554]       NaN       NaN       NaN       NaN       NaN       NaN       NaN
## [561] 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000
## [568] 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000
## [575] 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000
## [582] 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000
## [589] 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000       NaN
## [596]       NaN       NaN       NaN       NaN       NaN       NaN       NaN
## [603]       NaN 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000
## [610] 1.0000000 1.0000000 1.0000000 1.0000000
```

```
p.adjust(all_pvals$p_val[all_pvals$p_val < 0.05], method = "BH")
```

```
##  [1]         NA         NA         NA         NA         NA         NA
##  [7]         NA         NA         NA         NA         NA         NA
## [13]         NA         NA         NA         NA 0.03935026 0.04518504
## [19]         NA         NA         NA         NA         NA         NA
## [25]         NA         NA         NA         NA         NA         NA
```

```
## [31]         NA         NA         NA         NA 0.04518504 0.02788823
## [37] 0.03573892 0.03389991 0.02788823 0.02788823 0.04518504 0.02730298
## [43] 0.04518504 0.04518504 0.04518504 0.04967879 0.03475609 0.04518504
## [49] 0.03475609 0.03935026 0.04518504         NA         NA         NA
## [55]         NA         NA         NA         NA         NA         NA
## [61]         NA         NA         NA 0.04518504 0.04518504 0.04518504
## [67] 0.04967879 0.03573892 0.04518504 0.03573892         NA         NA
## [73]         NA         NA         NA         NA         NA         NA
## [79]         NA         NA         NA         NA         NA         NA
## [85]         NA         NA         NA         NA         NA         NA
## [91]         NA         NA         NA         NA
```