Final Code

2023-05-09

```
library(tidyverse)
```

```
## -- Attaching packages --------------------------------------- tidyverse 1.3.2 --
## v ggplot2 3.4.0      v purrr   0.3.5
## v tibble  3.1.8      v dplyr   1.0.10
## v tidyr   1.2.1      v stringr 1.4.1
## v readr   2.1.3      v forcats 0.5.2
## -- Conflicts ------------------------------------------ tidyverse_conflicts() --
## x dplyr::filter() masks stats::filter()
## x dplyr::lag()    masks stats::lag()
```

```
library(rio)
library(janitor)
```

```
##
## Attaching package: 'janitor'
##
## The following objects are masked from 'package:stats':
##
##     chisq.test, fisher.test
```

```
library(broom)
library(stargazer)
```

```
##
## Please cite as:
##
##  Hlavac, Marek (2022). stargazer: Well-Formatted Regression and Summary Statistics Tables.
##  R package version 5.2.3. https://CRAN.R-project.org/package=stargazer
```

Data Downloading and Cleaning

```
ptsd_comparison <- import("PTSD_Outcome_Comparisons_Between_Treatment_Arms.csv")
# git_survey <- import("survey_results_public.csv")

ptsd_comparison <- ptsd_comparison %>%
  clean_names()

ptsd_comparison <- ptsd_comparison %>%
  mutate(bias_number = ifelse(risk_of_bias_rating_study_level == "High", 3, 2))

ptsd_summary <- ptsd_comparison %>%
  group_by(study_class) %>%
  summarize(number = n(),
            mean_effect = mean(effect_size_1_value, na.rm = T))
```

```
ptsd_comparison %>%
  count(effect_size_1_type) %>%
  ggplot(aes(x = reorder(effect_size_1_type, -n), y = n)) +
  geom_bar(stat = 'identity') +
  xlab("effect size 1 type") +
  theme(axis.text.x = element_text(angle = 90, vjust = 0.5, hjust=1))
```
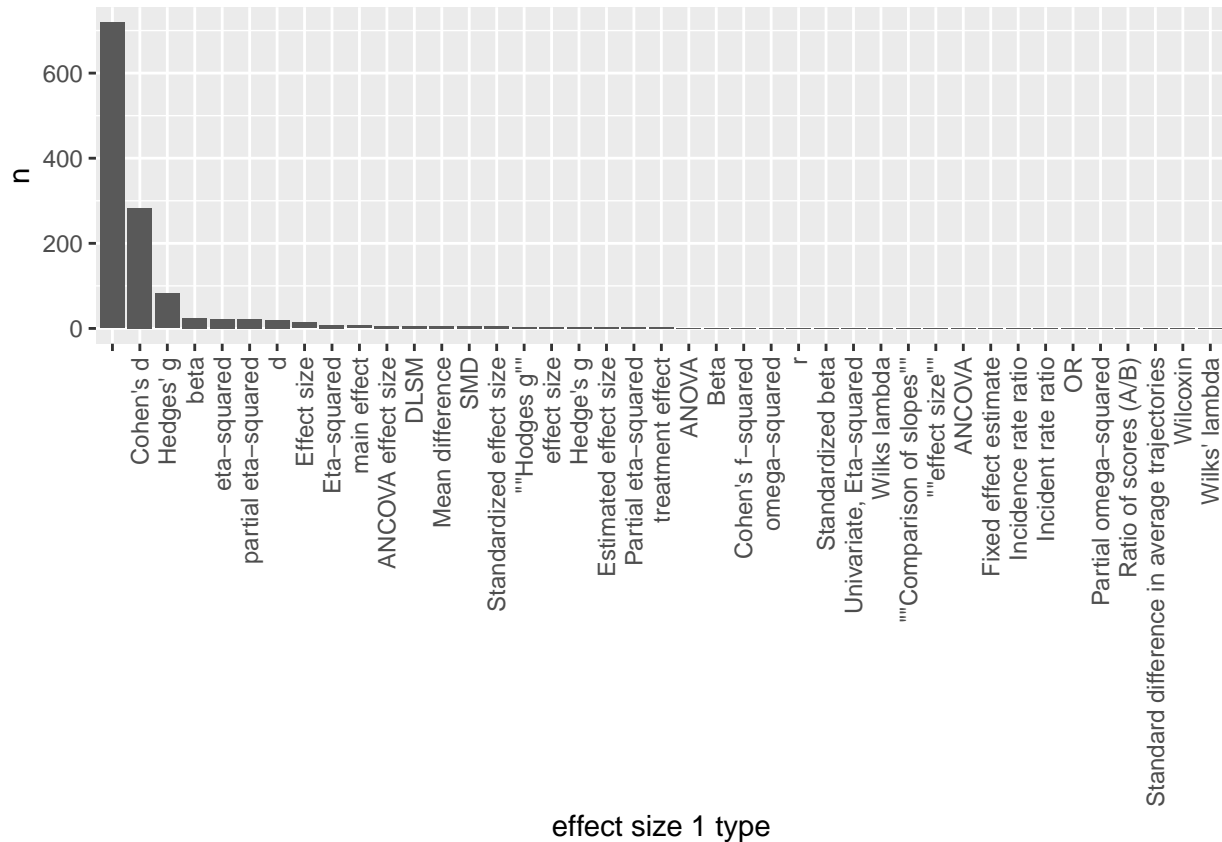

effect size 1 type

```
ptsd_cohensd <- ptsd_comparison %>%
  filter(effect_size_1_type == "Cohen's d")

cohensd_summary <- ptsd_cohensd %>%
  group_by(study_class) %>%
  summarize(number = n(),
            mean_effect = mean(effect_size_1_value))

ptsd_cohensd <- ptsd_cohensd %>%
  filter(study_class != "Nonpharmacologic cognitive")

ptsd_cohensd <- ptsd_cohensd %>%
  mutate(psych = ifelse(study_class == "Psychotherapy", 1, 0)) %>%
  mutate(other = ifelse(study_class == "Other mixed", 1, 0)) %>%
  mutate(psych_pharm = ifelse(study_class == "Mixed: Psychotherapy & pharmacotherapy", 1, 0)) %>%
  mutate(pharm = ifelse(study_class == "Pharmacotherapy", 1, 0)) %>%
  mutate(psych_cih = ifelse(study_class == "Mixed: Psychotherapy & CIH", 1, 0)) %>%
  mutate(cih = ifelse(study_class == "Complementary and integrative health (CIH)", 1, 0)) %>%
  mutate(nonpharm_bio = ifelse(study_class == "Nonpharmacologic biological", 1, 0)) %>%
  mutate(collab = ifelse(study_class == "Collaborative care", 1, 0))
```

```r
mean_effect_data <- ptsd_cohensd %>%
  group_by(study_class) %>%
  summarize(
    effect_size_mean = mean(effect_size_1_value),
    effect_size_median = median(effect_size_1_value),
    study_number = n()
  )
```

ANOVA

```r
one.anova <- aov(effect_size_1_value ~ study_class, data = ptsd_cohensd)
summary(one.anova)
```

```
##               Df Sum Sq Mean Sq F value   Pr(>F)
## study_class    7  16.14  2.3062   5.019 2.27e-05 ***
## Residuals    275 126.35  0.4595
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

Linear regression

```r
num_model <- lm(effect_size_1_value ~ psych + other + psych_pharm + pharm + psych_cih + nonpharm_bio + c
class_model <- lm(effect_size_1_value ~ study_class + total_n_randomized, data = ptsd_cohensd)
```

```r
summary(num_model)
```

```
##
## Call:
## lm(formula = effect_size_1_value ~ psych + other + psych_pharm +
##       pharm + psych_cih + nonpharm_bio + collab, data = ptsd_cohensd)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -2.3428 -0.3367 -0.1197  0.2572  4.1972
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)   -0.3500     0.1750  -2.000 0.046505 *
## psych          0.9428     0.1826   5.162 4.68e-07 ***
## other          1.1397     0.2144   5.317 2.19e-07 ***
## psych_pharm    0.8281     0.2183   3.794 0.000183 ***
## pharm          0.6495     0.2341   2.774 0.005915 **
## psych_cih      1.0653     0.2475   4.304 2.33e-05 ***
## nonpharm_bio   0.6983     0.3274   2.133 0.033828 *
## collab         0.7300     0.5103   1.431 0.153667
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.6778 on 275 degrees of freedom
## Multiple R-squared:  0.1133, Adjusted R-squared:  0.09072
## F-statistic: 5.019 on 7 and 275 DF,  p-value: 2.267e-05
```

Images

```
stargazer(num_model, type="latex", header=FALSE,
          title="Relationship Between Effect Size and Treatment Type",
          covariate.labels = c("Psychotherapy", "Other", "Psych Pharm", "Pharmacotherapy", "Psych CIH",
          keep.stat=c("adj.rsq", "n"))
```

Table 1: Relationship Between Effect Size and Treatment Type

	Dependent variable:
	effect_size_1_value
Psychotherapy	0.943***
	p = 0.00000
Other	1.140***
	p = 0.00000
Psych Pharm	0.828***
	p = 0.0002
Pharmacotherapy	0.649***
	p = 0.006
Psych CIH	1.065***
	p = 0.00003
Nonpharm bio	0.698**
	p = 0.034
Collaborative Care	0.730
	p = 0.154
Constant	−0.350**
	p = 0.047
Observations	283
Adjusted R^2	0.091
Note:	*p<0.1; **p<0.05; ***p<0.01

```
ggplot(ptsd_cohensd, aes(x = effect_size_1_value, y = study_class)) +
  geom_boxplot() +
  labs(title = "Comparison of PTSD Treatment Groups",
       x = "Effect Size",
       y = "Treatment Type")
```

Comparison of PTSD Treatment Groups