Analysis Draft Zhang et al. 2020

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```
library(readxl)
library(metafor)
```

```
## Loading required package: Matrix
```

```
##
## Loading the 'metafor' package (version 3.0-2). For an
## introduction to the package please type: help(metafor)
```

```
# Import data
df1 <- read_excel('data_stress.xlsx')
str(df1)
```

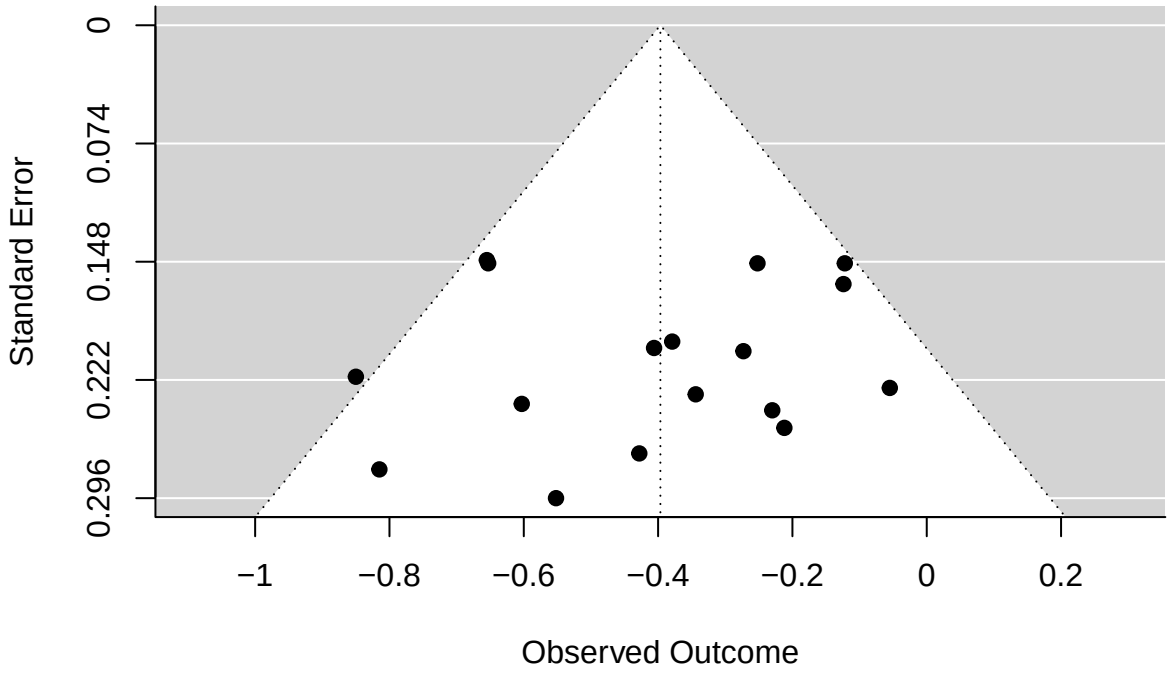
```
## tibble [17 x 7] (S3: tbl_df/tbl/data.frame)
##  $ study       : chr [1:17] "aikens_2014" "allexandre_2016" "cavanagh_2013" "cavanagh_2018" ...
##  $ studyID     : num [1:17] 1 2 5 6 6 7 8 9 10 11 ...
##  $ effectsizeID: chr [1:17] "str1" "str2" "str3" "str4" ...
##  $ outcome     : chr [1:17] "stress" "stress" "stress" "stress" ...
##  $ intervention: chr [1:17] "MBSR" "Mindfulness meditation" "Mindfulness treatment" "Mindfulness medi
##  $ g           : num [1:17] -0.85 -0.815 -0.428 -0.379 -0.406 -0.212 -0.344 -0.552 -0.055 -0.124 ...
##  $ se          : num [1:17] 0.22 0.278 0.268 0.198 0.202 0.252 0.231 0.296 0.227 0.162 ...
```

```
# REM
model1<- rma(yi = g, vi = se^2, data = df1, method='REML')
summary(model1)
```

```
##
## Random-Effects Model (k = 17; tau^2 estimator: REML)
##
##   logLik  deviance       AIC       BIC      AICc
##  -0.4335    0.8671    4.8671    6.4123    5.7902
##
## tau^2 (estimated amount of total heterogeneity): 0.0226 (SE = 0.0220)
## tau (square root of estimated tau^2 value):      0.1503
## I^2 (total heterogeneity / total variability):   36.64%
## H^2 (total variability / sampling variability):  1.58
##
## Test for Heterogeneity:
## Q(df = 16) = 24.4829, p-val = 0.0795
##
## Model Results:
##
## estimate      se     zval    pval    ci.lb    ci.ub
##  -0.3966  0.0615  -6.4530  <.0001  -0.5170  -0.2761  ***
##
```

```
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

```
funnel(model1)
```




```
trimfill(model1)
```

```
##
## Estimated number of missing studies on the right side: 0 (SE = 2.5709)
##
## Random-Effects Model (k = 17; tau^2 estimator: REML)
##
## tau^2 (estimated amount of total heterogeneity): 0.0226 (SE = 0.0220)
## tau (square root of estimated tau^2 value):      0.1503
## I^2 (total heterogeneity / total variability):   36.64%
## H^2 (total variability / sampling variability):  1.58
##
## Test for Heterogeneity:
## Q(df = 16) = 24.4829, p-val = 0.0795
##
## Model Results:
##
## estimate      se     zval    pval    ci.lb    ci.ub
##  -0.3966  0.0615  -6.4530  <.0001  -0.5170  -0.2761  ***
##
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

```
# Three-level model
multilevel3 <- rma.mv(yi = g,
                      V = se^2,
                      random = list(~1 | studyID/effectsizeID),
                      data = df1)
summary(multilevel3)
```

```
##
## Multivariate Meta-Analysis Model (k = 17; method: REML)
##
##   logLik  Deviance       AIC       BIC      AICc
##   0.7700   -1.5401    4.4599    6.7777    6.4599
##
## Variance Components:
##
##             estim    sqrt  nlvls  fixed               factor
## sigma^2.1  0.0274  0.1654     14     no              studyID
## sigma^2.2  0.0000  0.0000     17     no  studyID/effectsizeID
##
## Test for Heterogeneity:
## Q(df = 16) = 24.4829, p-val = 0.0795
##
## Model Results:
##
## estimate      se     zval    pval    ci.lb    ci.ub
##  -0.3940  0.0694  -5.6775  <.0001  -0.5300  -0.2580  ***
##
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```