민감도

2023-08-29

파일 불러오기

```
setwd('C:\\Users\\phl02\\Desktop\\P\\bio_sas')
sensi<- read.csv("data\\sm.csv")
sensi
```

```
##    study     g    se
## 1 study1 1.074 0.475
## 2 study2 0.710 0.473
## 3 study3 0.627 0.457
## 4 study4 1.098 0.472
## 5 study5 1.235 0.476
## 6 study6 0.147 0.272
## 7 study7 0.625 0.354
```

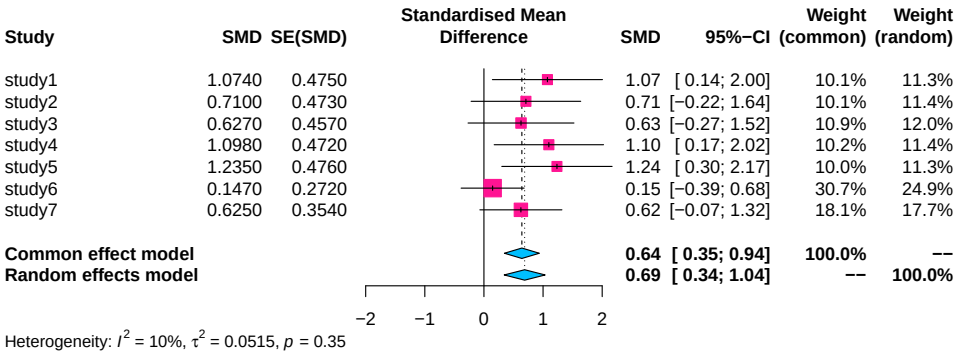
분석 진행

```
library(meta)
meta_sensi <- metagen(g,se,data=sensi,sm='SMD',study)
meta_sensi
```

```
## Number of studies: k = 7
##
##                          SMD           95%-CI    z  p-value
## Common effect model  0.6416 [0.3465; 0.9368] 4.26 < 0.0001
## Random effects model 0.6890 [0.3423; 1.0358] 3.89 < 0.0001
##
## Quantifying heterogeneity:
##  tau^2 = 0.0515 [0.0000; 0.5410]; tau = 0.2270 [0.0000; 0.7355]
##  I^2 = 9.8% [0.0%; 73.7%]; H = 1.05 [1.00; 1.95]
##
## Test of heterogeneity:
##     Q d.f. p-value
##  6.65    6  0.3546
##
## Details on meta-analytical method:
## - Inverse variance method
## - Restricted maximum-likelihood estimator for tau^2
## - Q-Profile method for confidence interval of tau^2 and tau
```

그래프

```
forest(meta_sensi,
       col.diamond = 'deepskyblue1',col.square = 'deeppink1')
```



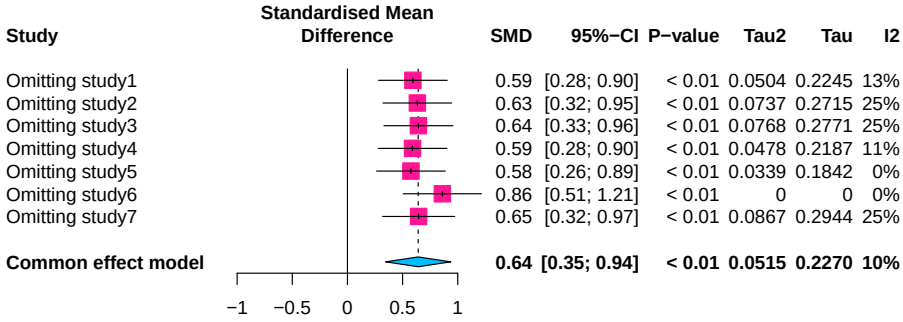
민감도 검사

```
meta_sensi2<- metainf(meta_sensi)
meta_sensi2
```

```
## Influential analysis (common effect model)
##
##                      SMD           95%-CI  p-value   tau^2     tau    I^2
## Omitting study1   0.5933 [0.2821; 0.9046]   0.0002  0.0504  0.2245  12.7%
## Omitting study2   0.6339 [0.3226; 0.9453] < 0.0001  0.0737  0.2715  24.5%
## Omitting study3   0.6434 [0.3308; 0.9561] < 0.0001  0.0768  0.2771  24.8%
## Omitting study4   0.5899 [0.2785; 0.9014]   0.0002  0.0478  0.2187  10.8%
## Omitting study5   0.5756 [0.2645; 0.8868]   0.0003  0.0339  0.1842   0.0%
## Omitting study6   0.8603 [0.5059; 1.2148] < 0.0001  0.0000  0.0000   0.0%
## Omitting study7   0.6453 [0.3192; 0.9715]   0.0001  0.0867  0.2944  24.8%
##
## Pooled estimate   0.6416 [0.3465; 0.9368] < 0.0001  0.0515  0.2270   9.8%
##
## Details on meta-analytical method:
## - Inverse variance method
## - Restricted maximum-likelihood estimator for tau^2
```

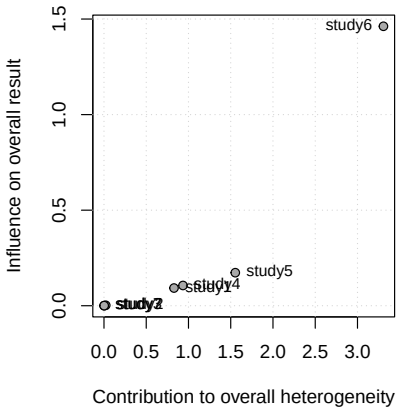
그래프

```
forest(meta_sensi2,
       col.diamond = 'deepskyblue1',col.square = 'deeppink1')
```



두 번째 민감도 검사

```
baujat(meta_sensi)
```



세 번째 민감도 검사

```
library(metafor)
res <- rma(g,se^2,measure = 'SMD',method = 'DL',slab = paste(study),data=sensi)
res
```

```
##
## Random-Effects Model (k = 7; tau^2 estimator: DL)
##
## tau^2 (estimated amount of total heterogeneity): 0.0179 (SE = 0.1062)
## tau (square root of estimated tau^2 value):      0.1339
## I^2 (total heterogeneity / total variability):   9.75%
## H^2 (total variability / sampling variability):  1.11
##
## Test for Heterogeneity:
## Q(df = 6) = 6.6484, p-val = 0.3546
##
## Model Results:
##
## estimate      se    zval    pval   ci.lb   ci.ub
##   0.6627  0.1606  4.1261  <.0001  0.3479  0.9776  ***
##
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

```
inf<- influence(res)
inf
```

```
##
##        rstudent  dffits cook.d  cov.r tau2.del QE.del    hat  weight    dfbs
## study1   0.8619  0.2695 0.0742 1.1587   0.0232 5.7273 0.1059 10.5932  0.2678
## study2   0.0420 -0.1390 0.0220 1.3716   0.0519 6.6252 0.1068 10.6763 -0.1347
## study3  -0.1313 -0.2079 0.0499 1.3907   0.0531 6.6473 0.1138 11.3769 -0.2020
## study4   0.9330  0.3154 0.1001 1.1315   0.0194 5.6077 0.1072 10.7182  0.3148
## study5   1.3140  0.5633 0.2941 0.9770   0.0000 4.9217 0.1055 10.5520  0.5784
## study6  -2.1839 -1.3711 1.5134 1.2679   0.0000 1.8791 0.2807 28.0718 -1.3120
## study7  -0.1749 -0.2466 0.0780 1.5238   0.0583 6.6457 0.1801 18.0116 -0.2493
##        inf
## study1
## study2
## study3
## study4
## study5
## study6   *
## study7
```

```
plot(inf)
```