**Meta-analysis R code**

#Installing and loading required packages

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| If(!require(meta)){install.packages(‘meta')}  library(meta)  if(!require(metafor)){install.packages('metafor')}  library(metafor)  if(!require(puniform)){install.packages('puniform')}  library(puniform)  #Meta-analysis of studies with **lowest correlation** imputed (for those studies for which no correlation could be retrieved) + studies that were later identified as heterogeneous  #Effect sizes, variance  yi<-c(0.0472,0.1370,0.1612,0.2452,0.3291,0.3416,0.3593,0.3655,0.3933,0.4476,0.4481,0.4522,0.5024,0.5065,0.5256,0.5563,0.6375,0.7106,0.7243,1.2433,1.5283)  vi<-c(0.0598,0.0044,0.0094,0.0453,0.0161,0.0161,0.1243,0.0263,0.0957 ,0.0324,0.0204,0.0702,0.1729,0.0271,0.0083,0.0940,0.1521,0.0728,0.2710,0.3291,0.5788)  #Puniform analysis  puniform(yi=yi,vi=vi,alpha=.05,side="right",method="LNP",plot=TRUE)  #Random-effects meta-analysis  es.d<-c(yi)  es.d.v<-c(vi)  d.se<-c(sqrt(es.d.v))  meta<-metagen(es.d, d.se, comb.fixed=FALSE)  meta  #Forest plot  forest(meta, leftcols=c("studlab"), studlab=c("Haegler et al. 2010","de Groot et al. 2015b","Adolph et al. 2013","de Groot et al. 2015a","Dalton et al. 2013","de Groot et al. 2014b","Zernecke et al. 2011","Zhou & Chen 2009","Albrecht et al. 2011","Vink (unpublished master’s thesis)","Pause et al. 2010","Wudarczyk et al. 2016","Pause et al. 2009","Ackerl et al. 2002","Hatcher 2016","de Groot et al. 2012","Mujica-Parodi et al. 2009","de Groot et al. 2014a","Pause et al. 2004","Lübke et al. 2017","Prehn et al. 2006"), hetstat=FALSE, xlab="Hedges' g", col.square="#0053a9", col.square.lines="black", col.diamond="#56B4E9", col.study="black", fontsize =14)  #Galbraith plot  library(metafor)  par(mar=c(5,4,0,2))  res <- rma(yi, vi, method="REML")  radial(res)  #Meta-analysis of studies with **lowest correlation** imputed (for those studies for which no correlation could be retrieved), **minus heterogeneous studies**  yi<-c(0.1612,0.2452,0.3291,0.3416,0.3593,0.3655,0.3933,0.4476,0.4481,0.4522,0.5024,0.5065,0.5256,0.5563,0.6375,0.7106,0.7243,1.2433,1.5283)  vi<-c(0.0094,0.0453,0.0161,0.0161,0.1243,0.0263,0.0957,0.0324,0.0204,0.0702,0.1729,0.0271,0.0083,0.0940,0.1521,0.0728,0.2710,0.3291,0.5788)  puniform(yi=yi,vi=vi,alpha=.05,side="right",method="LNP",plot=TRUE)  es.d<-c(yi)  es.d.v<-c(vi)  d.se<-c(sqrt(es.d.v))  meta<-metagen(es.d, d.se, comb.fixed=FALSE)  meta  forest(meta, leftcols=c("studlab"), studlab=c("Adolph et al. 2013","de Groot et al. 2015a","Dalton et al. 2013","de Groot et al. 2014b","Zernecke et al. 2011","Zhou & Chen 2009","Albrecht et al. 2011","Vink (unpublished master’s thesis)","Pause et al. 2010","Wudarczyk et al. 2016","Pause et al. 2009","Ackerl et al. 2002","Hatcher 2016","de Groot et al. 2012","Mujica-Parodi et al. 2009","de Groot et al. 2014a","Pause et al. 2004","Lübke et al. 2017","Prehn et al. 2006"), hetstat=FALSE, xlab="Hedges' g", col.square="#0053a9", col.square.lines="black", col.diamond="#56B4E9", col.study="black", fontsize =14)  library(metafor)  par(mar=c(5,4,0,2))  res <- rma(yi, vi, method="REML")  radial(res)  #Meta-analysis of studies with **highest correlation** imputed (for those studies for which no correlation could be retrieved) + studies that were later identified as heterogeneous  yi<-c(0.0423,0.1370,0.1612,0.2452,0.3177,0.3265,0.3416,0.3544,0.3655,0.4397,0.4476,0.4481,0.4522,0.5024,0.5065,0.5256,0.5563,0.7106,0.7243,1.2433,1.5283)  vi<-c(0.0045,0.0044,0.0094,0.0453,0.0093,0.0012,0.0161,0.0072,0.0263,0.0104,0.0324,0.0204,0.0702,0.1729,0.0271,0.0083,0.0940,0.0728,0.2710,0.3291,0.5788)  puniform(yi=yi,vi=vi,alpha=.05,side="right",method="LNP",plot=TRUE)  es.d<-c(yi)  es.d.v<-c(vi)  d.se<-c(sqrt(es.d.v))  meta<-metagen(es.d, d.se, comb.fixed=FALSE)  meta  forest(meta, leftcols=c("studlab"), studlab=c("Haegler et al. 2010","de Groot et al. 2015b","Adolph et al. 2013","de Groot et al. 2015a","Zernecke et al. 2011","Dalton et al. 2013","de Groot et al. 2014b","Albrecht et al. 2011","Zhou & Chen 2009","Mujica-Parodi et al. 2009","Vink (unpublished master’s thesis)","Pause et al. 2010","Wudarczyk et al. 2016","Pause et al. 2009","Ackerl et al. 2002","Hatcher 2016","de Groot et al. 2012","de Groot et al. 2014a","Pause et al. 2004","Lübke et al. 2017","Prehn et al. 2006"), hetstat=FALSE, xlab="Hedges' g", col.square="#0053a9", col.square.lines="black", col.diamond="#56B4E9", col.study="black", fontsize =14)  library(metafor)  par(mar=c(5,4,0,2))  res <- rma(yi, vi, method="REML")  radial(res)  #Meta-analysis of studies with **highest correlation** imputed (for those studies for which no correlation could be retrieved), **minus heterogeneous studies**  yi<- c(0.1612,0.2452,0.3177,0.3265,0.3416,0.3544,0.3655,0.4397,0.4476,0.4481,0.4522,0.5024,0.5065,0.5256,0.5563,0.7106,0.7243,1.2433,1.5283)  vi<-c(0.0094,0.0453,0.0093,0.0012,0.0161,0.0072,0.0263,0.0104,0.0324,0.0204,0.0702,0.1729,0.0271,0.0083,0.0940,0.0728,0.2710,0.3291,0.5788)  puniform(yi=yi,vi=vi,alpha=.05,side="right",method="LNP",plot=TRUE)  es.d<-c(yi)  es.d.v<-c(vi)  d.se<-c(sqrt(es.d.v))  meta<-metagen(es.d, d.se, comb.fixed=FALSE)  meta  forest(meta, leftcols=c("studlab"), studlab=c("Adolph et al. 2013","de Groot et al. 2015a","Zernecke et al. 2011","Dalton et al. 2013","de Groot et al. 2014b","Albrecht et al. 2011","Zhou & Chen 2009","Mujica-Parodi et al. 2009","Vink (unpublished master’s thesis)","Pause et al. 2010","Wudarczyk et al. 2016","Pause et al. 2009","Ackerl et al. 2002","Hatcher 2016","de Groot et al. 2012","de Groot et al. 2014a","Pause et al. 2004","Lübke et al. 2017","Prehn et al. 2006"), hetstat=FALSE, xlab="Hedges' g", col.square="#0053a9", col.square.lines="black", col.diamond="#56B4E9", col.study="black", fontsize =14)  library(metafor)  par(mar=c(5,4,0,2))  res <- rma(yi, vi, method="REML")  radial(res)library(metafor)  **Results**  Lowest rho + heterogeneous studies:  Method: LNP  Effect size estimation p-uniform  est ci.lb ci.ub L.0 pval ksig  0.3051 0.1785 0.4332 30.5469 <.001 11  ===  Publication bias test p-uniform  L.pb pval  10.1749 0.4388  ===  Fixed-effect meta-analysis  est.fe se.fe zval.fe pval.fe ci.lb.fe ci.ub.fe Qstat Qpval  0.3214 0.0343 9.3695 <.001 0.2542 0.3886 29.0348 0.0871  95%-CI %W(random)  1 0.0472 [-0.4321; 0.5265] 3.2  2 0.1370 [ 0.0070; 0.2670] 14.0  3 0.1612 [-0.0288; 0.3512] 10.7  4 0.2452 [-0.1720; 0.6624] 4.0  5 0.3291 [ 0.0804; 0.5778] 8.2  6 0.3416 [ 0.0929; 0.5903] 8.2  7 0.3593 [-0.3317; 1.0503] 1.7  8 0.3655 [ 0.0476; 0.6834] 6.0  9 0.3933 [-0.2130; 0.9996] 2.1  10 0.4476 [ 0.0948; 0.8004] 5.2  11 0.4481 [ 0.1682; 0.7280] 7.1  12 0.4522 [-0.0671; 0.9715] 2.8  13 0.5024 [-0.3126; 1.3174] 1.3  14 0.5065 [ 0.1838; 0.8292] 5.9  15 0.5256 [ 0.3470; 0.7042] 11.3  16 0.5563 [-0.0446; 1.1572] 2.2  17 0.6375 [-0.1269; 1.4019] 1.4  18 0.7106 [ 0.1818; 1.2394] 2.7  19 0.7243 [-0.2960; 1.7446] 0.8  20 1.2433 [ 0.1189; 2.3677] 0.7  21 1.5283 [ 0.0372; 3.0194] 0.4  Number of studies combined: k = 21  95%-CI z p-value  Random effects model 0.3637 [0.2693; 0.4581] 7.55 < 0.0001  Quantifying heterogeneity:  tau^2 = 0.0122; H = 1.20 [1.00; 1.57]; I^2 = 31.1% [0.0%; 59.5%];  Rb = 25.1% [0.0%; 56.5%]  Test of heterogeneity:  Q d.f. p-value  29.03 20 0.0871  Details on meta-analytical method:  - Inverse variance method  - DerSimonian-Laird estimator for tau^2      Lowest rho - heterogeneous studies  Method: LNP  Effect size estimation p-uniform  est ci.lb ci.ub L.0 pval ksig  0.3249 0.1986 0.4549 30.2956 <.001 10  ===  Publication bias test p-uniform  L.pb pval  6.7624 0.1462  ===  Fixed-effect meta-analysis  est.fe se.fe zval.fe pval.fe ci.lb.fe ci.ub.fe Qstat Qpval  0.3981 0.0406 9.7998 <.001 0.3185 0.4777 16.4829 0.5589  95%-CI %W(random)  1 0.1612 [-0.0288; 0.3512] 17.6  2 0.2452 [-0.1720; 0.6624] 3.6  3 0.3291 [ 0.0804; 0.5778] 10.3  4 0.3416 [ 0.0929; 0.5903] 10.3  5 0.3593 [-0.3317; 1.0503] 1.3  6 0.3655 [ 0.0476; 0.6834] 6.3  7 0.3933 [-0.2130; 0.9996] 1.7  8 0.4476 [ 0.0948; 0.8004] 5.1  9 0.4481 [ 0.1682; 0.7280] 8.1  10 0.4522 [-0.0671; 0.9715] 2.4  11 0.5024 [-0.3126; 1.3174] 1.0  12 0.5065 [ 0.1838; 0.8292] 6.1  13 0.5256 [ 0.3470; 0.7042] 19.9  14 0.5563 [-0.0446; 1.1572] 1.8  15 0.6375 [-0.1269; 1.4019] 1.1  16 0.7106 [ 0.1818; 1.2394] 2.3  17 0.7243 [-0.2960; 1.7446] 0.6  18 1.2433 [ 0.1189; 2.3677] 0.5  19 1.5283 [ 0.0372; 3.0194] 0.3  Number of studies combined: k = 19  95%-CI z p-value  Random effects model 0.3981 [0.3185; 0.4777] 9.80 < 0.0001  Quantifying heterogeneity:  tau^2 = 0; H = 1.00 [1.00; 1.34]; I^2 = 0.0% [0.0%; 44.2%];  Rb = 0.0% [0.0%; 100.0%]  Test of heterogeneity:  Q d.f. p-value  16.48 18 0.5589  Details on meta-analytical method:  - Inverse variance method  - DerSimonian-Laird estimator for tau^2      Highest rho + heterogeneous studies  Method: LNP  Effect size estimation p-uniform  est ci.lb ci.ub L.0 pval ksig  0.3227 0.2602 0.4075 92.1804 <.001 14  ===  Publication bias test p-uniform  L.pb pval  16.3188 0.7507  ===  Fixed-effect meta-analysis  est.fe se.fe zval.fe pval.fe ci.lb.fe ci.ub.fe Qstat Qpval  0.3022 0.0216 13.9915 <.001 0.2598 0.3445 45.0883 0.0011  95%-CI %W(random)  1 0.0423 [-0.0892; 0.1738] 9.1  2 0.1370 [ 0.0070; 0.2670] 9.2  3 0.1612 [-0.0288; 0.3512] 7.3  4 0.2452 [-0.1720; 0.6624] 2.9  5 0.3177 [ 0.1287; 0.5067] 7.3  6 0.3265 [ 0.2586; 0.3944] 11.1  7 0.3416 [ 0.0929; 0.5903] 5.7  8 0.3544 [ 0.1881; 0.5207] 8.0  9 0.3655 [ 0.0476; 0.6834] 4.2  10 0.4397 [ 0.2398; 0.6396] 7.0  11 0.4476 [ 0.0948; 0.8004] 3.7  12 0.4481 [ 0.1682; 0.7280] 5.0  13 0.4522 [-0.0671; 0.9715] 2.0  14 0.5024 [-0.3126; 1.3174] 0.9  15 0.5065 [ 0.1838; 0.8292] 4.2  16 0.5256 [ 0.3470; 0.7042] 7.6  17 0.5563 [-0.0446; 1.1572] 1.6  18 0.7106 [ 0.1818; 1.2394] 2.0  19 0.7243 [-0.2960; 1.7446] 0.6  20 1.2433 [ 0.1189; 2.3677] 0.5  21 1.5283 [ 0.0372; 3.0194] 0.3  Number of studies combined: k = 21  95%-CI z p-value  Random effects model 0.3399 [0.2584; 0.4214] 8.18 < 0.0001  Quantifying heterogeneity:  tau^2 = 0.0144; H = 1.50 [1.18; 1.92]; I^2 = 55.6% [27.6%; 72.8%];  Rb = 39.8% [15.7%; 63.8%]  Test of heterogeneity:  Q d.f. p-value  45.09 20 0.0011  Details on meta-analytical method:  - Inverse variance method  - DerSimonian-Laird estimator for tau^2      Highest rho – heterogeneous studies  Method: LNP  Effect size estimation p-uniform  est ci.lb ci.ub L.0 pval ksig  0.3328 0.2683 0.4218 91.9291 <.001 13  ===  Publication bias test p-uniform  L.pb pval  10.8129 0.291  ===  Fixed-effect meta-analysis  est.fe se.fe zval.fe pval.fe ci.lb.fe ci.ub.fe Qstat Qpval  0.3584 0.0243 14.7534 <.001 0.3108 0.406 18.5246 0.4216 |
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95%-CI %W(random)

1 0.1612 [-0.0288; 0.3512] 7.0

2 0.2452 [-0.1720; 0.6624] 1.5

3 0.3177 [ 0.1287; 0.5067] 7.1

4 0.3265 [ 0.2586; 0.3944] 42.6

5 0.3416 [ 0.0929; 0.5903] 4.2

6 0.3544 [ 0.1881; 0.5207] 9.1

7 0.3655 [ 0.0476; 0.6834] 2.6

8 0.4397 [ 0.2398; 0.6396] 6.4

9 0.4476 [ 0.0948; 0.8004] 2.1

10 0.4481 [ 0.1682; 0.7280] 3.3

11 0.4522 [-0.0671; 0.9715] 1.0

12 0.5024 [-0.3126; 1.3174] 0.4

13 0.5065 [ 0.1838; 0.8292] 2.5

14 0.5256 [ 0.3470; 0.7042] 7.9

15 0.5563 [-0.0446; 1.1572] 0.7

16 0.7106 [ 0.1818; 1.2394] 0.9

17 0.7243 [-0.2960; 1.7446] 0.3

18 1.2433 [ 0.1189; 2.3677] 0.2

19 1.5283 [ 0.0372; 3.0194] 0.1

Number of studies combined: k = 19

95%-CI z p-value

Random effects model 0.3629 [0.3114; 0.4145] 13.80 < 0.0001

Quantifying heterogeneity:

tau^2 = 0.0004; H = 1.01 [1.00; 1.42]; I^2 = 2.8% [0.0%; 50.4%];

Rb = 3.2% [0.0%; 67.8%]

Test of heterogeneity:

Q d.f. p-value

18.52 18 0.4216

Details on meta-analytical method:

- Inverse variance method

- DerSimonian-Laird estimator for tau^2



