**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, varianceyi<-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 analysispuniform(yi=yi,vi=vi,alpha=.05,side="right",method="LNP",plot=TRUE)#Random-effects meta-analysises.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 plotforest(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et al. 2013","de Groot et al. 2014b","Zernecke et al. 2011","Zhou & Chen 2009","Albrecht et al. 2011","Vink (unpublished master’s thesis)","Pause et al. 2010","Wudarczyk et al. 2016","Pause et al. 2009","Ackerl et al. 2002","Hatcher 2016","de Groot et al. 2012","Mujica-Parodi et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 plotlibrary(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)metaforest(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 heterogeneousyi<-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)metaforest(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)metaforest(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: LNPEffect 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] 3.22 0.1370 [ 0.0070; 0.2670] 14.03 0.1612 [-0.0288; 0.3512] 10.74 0.2452 [-0.1720; 0.6624] 4.05 0.3291 [ 0.0804; 0.5778] 8.26 0.3416 [ 0.0929; 0.5903] 8.27 0.3593 [-0.3317; 1.0503] 1.78 0.3655 [ 0.0476; 0.6834] 6.09 0.3933 [-0.2130; 0.9996] 2.110 0.4476 [ 0.0948; 0.8004] 5.211 0.4481 [ 0.1682; 0.7280] 7.112 0.4522 [-0.0671; 0.9715] 2.813 0.5024 [-0.3126; 1.3174] 1.314 0.5065 [ 0.1838; 0.8292] 5.915 0.5256 [ 0.3470; 0.7042] 11.316 0.5563 [-0.0446; 1.1572] 2.217 0.6375 [-0.1269; 1.4019] 1.418 0.7106 [ 0.1818; 1.2394] 2.719 0.7243 [-0.2960; 1.7446] 0.820 1.2433 [ 0.1189; 2.3677] 0.721 1.5283 [ 0.0372; 3.0194] 0.4Number of studies combined: k = 21 95%-CI z p-valueRandom effects model 0.3637 [0.2693; 0.4581] 7.55 < 0.0001Quantifying 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 0.0871Details on meta-analytical method:- Inverse variance method- DerSimonian-Laird estimator for tau^2Lowest rho - heterogeneous studiesMethod: LNPEffect 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 0.558995%-CI %W(random)1 0.1612 [-0.0288; 0.3512] 17.62 0.2452 [-0.1720; 0.6624] 3.63 0.3291 [ 0.0804; 0.5778] 10.34 0.3416 [ 0.0929; 0.5903] 10.35 0.3593 [-0.3317; 1.0503] 1.36 0.3655 [ 0.0476; 0.6834] 6.37 0.3933 [-0.2130; 0.9996] 1.78 0.4476 [ 0.0948; 0.8004] 5.19 0.4481 [ 0.1682; 0.7280] 8.110 0.4522 [-0.0671; 0.9715] 2.411 0.5024 [-0.3126; 1.3174] 1.012 0.5065 [ 0.1838; 0.8292] 6.113 0.5256 [ 0.3470; 0.7042] 19.914 0.5563 [-0.0446; 1.1572] 1.815 0.6375 [-0.1269; 1.4019] 1.116 0.7106 [ 0.1818; 1.2394] 2.317 0.7243 [-0.2960; 1.7446] 0.618 1.2433 [ 0.1189; 2.3677] 0.519 1.5283 [ 0.0372; 3.0194] 0.3Number of studies combined: k = 19 95%-CI z p-valueRandom effects model 0.3981 [0.3185; 0.4777] 9.80 < 0.0001Quantifying 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 0.5589Details on meta-analytical method:- Inverse variance method- DerSimonian-Laird estimator for tau^2Highest rho + heterogeneous studiesMethod: LNPEffect 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] 9.12 0.1370 [ 0.0070; 0.2670] 9.23 0.1612 [-0.0288; 0.3512] 7.34 0.2452 [-0.1720; 0.6624] 2.95 0.3177 [ 0.1287; 0.5067] 7.36 0.3265 [ 0.2586; 0.3944] 11.17 0.3416 [ 0.0929; 0.5903] 5.78 0.3544 [ 0.1881; 0.5207] 8.09 0.3655 [ 0.0476; 0.6834] 4.210 0.4397 [ 0.2398; 0.6396] 7.011 0.4476 [ 0.0948; 0.8004] 3.712 0.4481 [ 0.1682; 0.7280] 5.013 0.4522 [-0.0671; 0.9715] 2.014 0.5024 [-0.3126; 1.3174] 0.915 0.5065 [ 0.1838; 0.8292] 4.216 0.5256 [ 0.3470; 0.7042] 7.617 0.5563 [-0.0446; 1.1572] 1.618 0.7106 [ 0.1818; 1.2394] 2.019 0.7243 [-0.2960; 1.7446] 0.620 1.2433 [ 0.1189; 2.3677] 0.521 1.5283 [ 0.0372; 3.0194] 0.3Number of studies combined: k = 21 95%-CI z p-valueRandom effects model 0.3399 [0.2584; 0.4214] 8.18 < 0.0001Quantifying 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 0.0011Details on meta-analytical method:- Inverse variance method- DerSimonian-Laird estimator for tau^2Highest rho – heterogeneous studiesMethod: LNPEffect 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



 