Appendix

The appendix includes forest plots, funnel plots and tables visualizing the results created in the meta-analysis.

Table 1: Results of the meta-analysis. ES = Effect Size, Q = Test for residual heterogeneity, I^2 = Residual heterogeneity, Egger's test (SE used as the predictor) and the fails-safe number (FSN) for publication bias testing according to 'Rosenberg'.

	ES	SE of ES	CI (lb)	CI (ub)	P(ES)	Q	P(Q)	I^2	Egger	P(Egger)	FSN
Meta-Analysis	-0.28	0.12	-0.52	-0.04	0.02	47.05	0.12	27.22	-0.44	0.66	68.00

Study	Standardized Mean Difference	Weights	Effect sizes [95% CI]
Study 1		2.17%	−1.39 [−2.85 , 0.07]
Study 2		1.11%	2.41 [0.25 , 4.56]
Study 3		1.55%	−1.67 [−3.45 , 0.11]
Study 4		3.70%	−0.64 [−1.66 , 0.37]
Study 5		2.52%	−0.85 [−2.18 , 0.47]
Study 6		1.97%	−0.52 [−2.07 , 1.03]
Study 7		3.42%	−1.74 [−2.81 , −0.66]
Study 8		1.25%	−0.24 [−2.26 , 1.77]
Study 9		3.06%	−0.56 [−1.72 , 0.60]
Study 10		3.06%	0.55 [−0.61 , 1.71]
Study 11		8.34%	−0.70 [−1.10 , −0.29]
Study 12		2.57%	−1.58 [−2.89 , −0.27]
Study 13		0.56%	−1.23 [−4.35 , 1.88]
Study 14		2.70%	0.00 [−1.27 , 1.26]
Study 15		5.15%	0.72 [−0.05 , 1.49]
Study 16		2.09%	−0.92 [−2.41 , 0.57]
Study 17		1.28%	−0.18 [−2.18 , 1.81]
Study 18		1.21%	−0.31 [−2.36 , 1.74]
Study 19		2.31%	−0.29 [−1.69 , 1.11]
Study 20		3.83%	−0.28 [−1.27 , 0.70]
Study 21		4.86%	0.42 [−0.39 , 1.23]
Study 22		2.08%	−0.05 [−1.54 , 1.45]
Study 23		3.18%	0.01 [−1.12 , 1.14]
Study 24		3.18%	−0.67 [−1.81 , 0.46]
Study 25		1.30%	−0.13 [−2.11 , 1.84]
Study 26		2.01%	−0.39 [−1.92 , 1.13]
Study 27		2.31%	−0.28 [−1.68 , 1.11]
Study 28		3.87%	0.00 [−0.98 , 0.98]
Study 29		2.35%	−0.07 [−1.46 , 1.31]
Study 30		1.12%	−0.45 [−2.60 , 1.70]
Study 31		1.80%	−0.36 [−1.99 , 1.27]
Study 32		1.69%	−0.61 [−2.30 , 1.09]
Study 33		3.18%	−0.10 [−1.23 , 1.03]
Study 34		1.60%	−0.79 [−2.54 , 0.96]
Study 35		3.30%	0.93 [−0.17 , 2.03]
Study 36		2.77%	−0.20 [−1.45 , 1.04]
Study 37		2.35%	−0.01 [−1.40 , 1.37]
Study 38		3.21%	0.27 [−0.86 , 1.39]
RE Model		100.00%	−0.28 [−0.52 , −0.04]

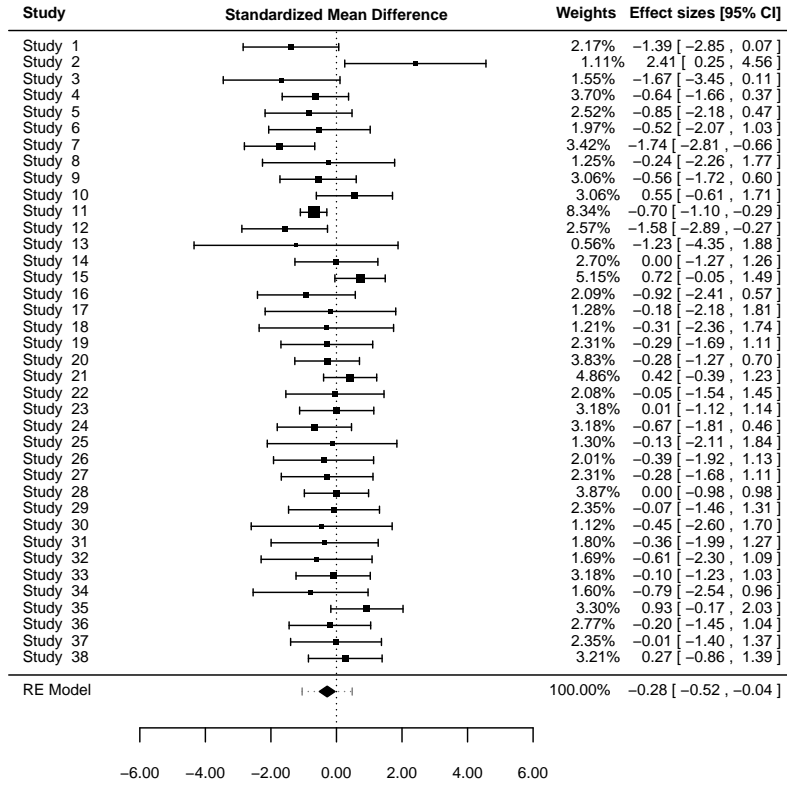−6.00 −4.00 −2.00 0.00 2.00 4.00 6.00

Figure 1: Forest plot of a random effects model. The study and its respectice effect size (ES) [+- 95% CI] are shown. The weight given to the study (%) (the inverse to the study variance) is depicted as well.

If the effect sizes in the forest plot vary too much, then heterogeneity should be explored in more depth. This is done by taking *explanatory variabales* into account in a meta-regression.

When taking various explanatory variables (moderators) into account, the resulting forest plot shows the way in which the effect size varies when looking at the particular moderator.

Table 2: Results of the meta-regression (mixed-effects model). The model results are shown taking a moderator or various moderators into account and displaying their coefficients. Results for the whole model are displayed as Q = Test for residual heterogeneity, I^2 = residual heterogeneity and QM = Test of Moderators.

|	ES	SE of ES	CI (lb)	CI (ub)	P(ES)	Q	P(Q)	I^2	QM	P(QM)
intrcpt	-0.353	0.766	-1.85	1.15	0.645	22.7	0.54	0.000493	24.4	0.0278
continentAS	-0.377	0.423	-1.21	0.452	0.373					
continentCA	-0.0485	0.61	-1.24	1.15	0.937					
continentSA	-0.627	0.375	-1.36	0.108	0.0945					
metricric	0.119	0.254	-0.38	0.617	0.641					
disturbanceagf	0.331	0.745	-1.13	1.79	0.657					
disturbanceagr	0.701	0.936	-1.13	2.54	0.454					
disturbancebur	0.723	0.731	-0.709	2.15	0.322					
disturbanceoth	0.728	0.903	-1.04	2.5	0.42					
disturbancepas	-0.0589	0.979	-1.98	1.86	0.952					
disturbancepla	-0.203	0.868	-1.9	1.5	0.815					
disturbancesec	0.399	0.723	-1.02	1.82	0.581					
disturbancesel	0.796	0.691	-0.559	2.15	0.25					
disturbanceshd	-0.908	0.783	-2.44	0.626	0.246					
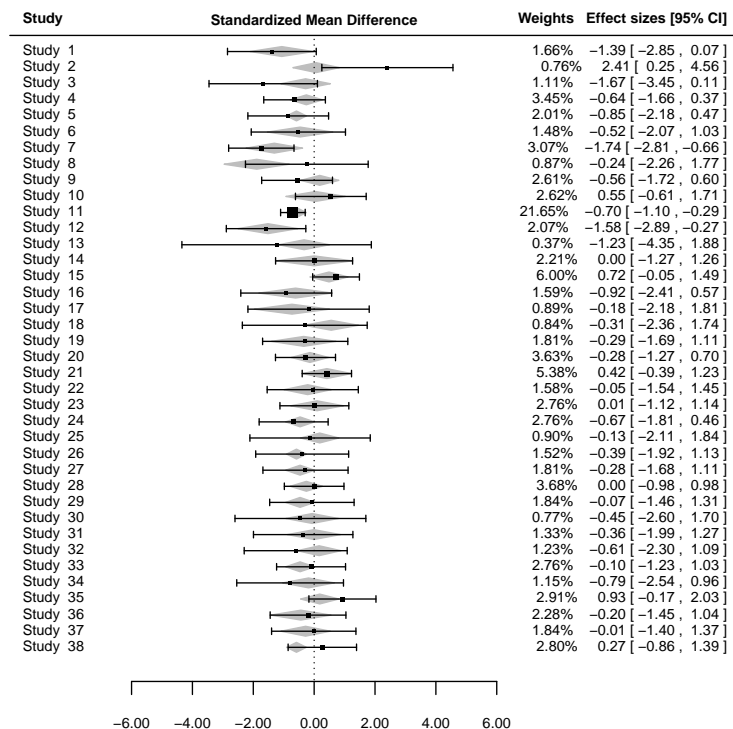
Figure 2: Forest plot of a random effects meta regression model. The study and its respectice effect size (ES) [+-95% CI] are shown. The weight given to the study (%) (the inverse to the study variance) is depicted as well.
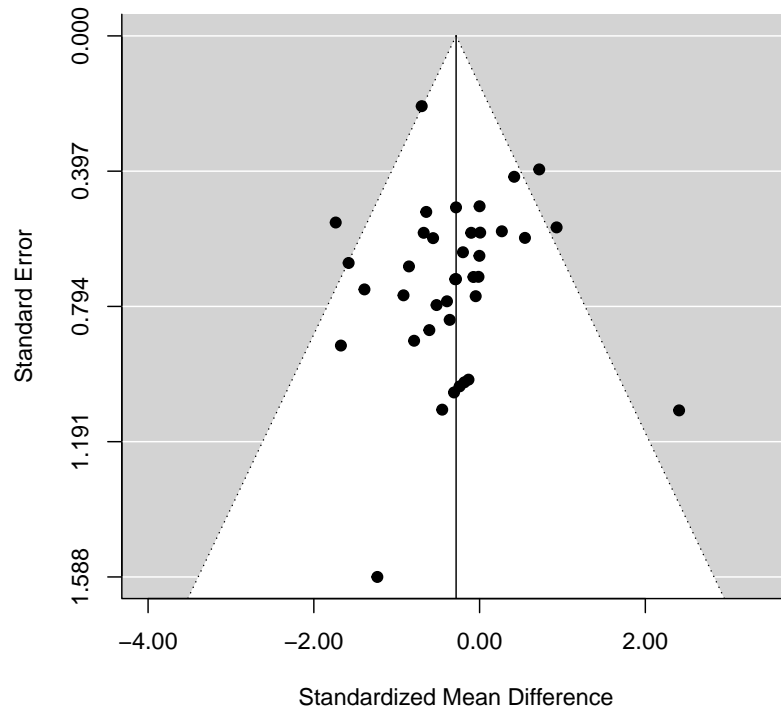
Figure 3: Funnel plot of a random effects model displaying possible publication bias. The true ES is displayed by the solid verical line.

To assess possible publication bias, funnel plots can be used for visualization purposes.When publication bias is absent, the plot should have a symmetrical shape of a funnel around the mean effect size. This is because the precision of the estimation of effect size should increase with sample size (smaller standard error). If many studies lie outside of this funnel shaped space, then the studies used might need to be reviewed and checked for

The Baujat plot detects sources of heterogeneity. Studies which are aggregated to the far left of the plot contribute to more heterogeneity in the analysis. Plots which have a high contribution to the overall heterogeneity and have a high influence on the overall result, should be looked at more critically. These studies should be compared to the results obtained in the sensitivity analysis table 3.

The Galbraith plot provides visual information on the heterogeneity of the meta-analysis. Values which are closer to the origin have a higher SE and are therefore less precise than values aggregated away from the origin. The curved axis indicates the individual observed effect sizes or outcomes and the line coming from (0,0) indicates the individual effect size or outcome for that specific point.

if (rma.REpval < 0.05)if(length(which(sens.REpval > 0.05) > 0)) paste0("The leave-one out analysis shows that the effect size of the meta-analysis is not significant anymore when following study(ies) is left out:", which(sens.REpval > 0.05))elsepaste0("$The leave-one out analysis shows that no$ < 0.05) > 0)) paste0("The leave-one out analysis shows that significance is yielded by leaving out the following study(ies):", which(sens.REpval < 0.05))elsepaste0("$The leave-one out analysis shows that no$
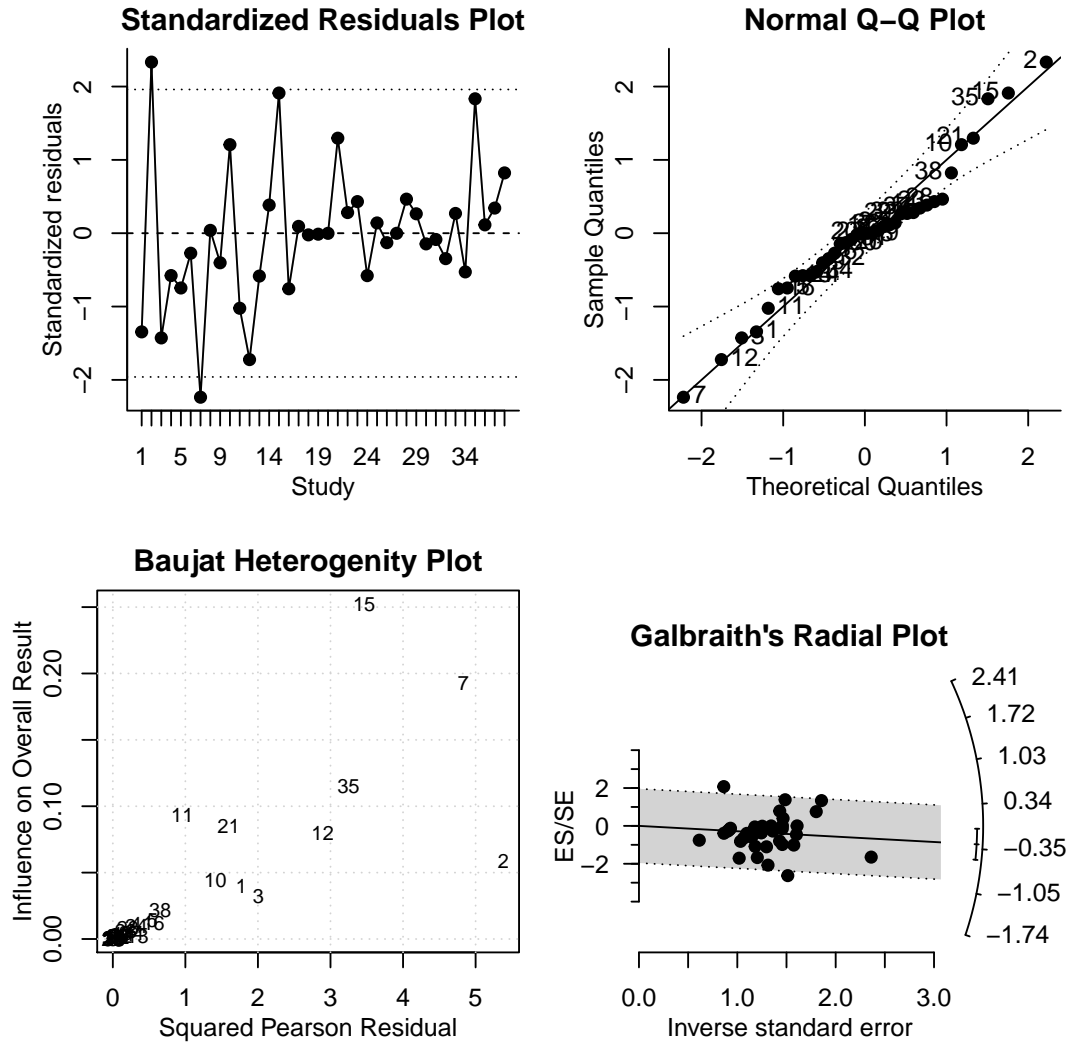
Figure 4: Diagnostic plots for diagnostics of meta analysis. Standardized residual plot, normal Q-Q plot, Baujat heterogeneity plot and Galbrath's radial plot are shown.

Table 3: Output of the sensitivity analysis (leave1out analysis) with the results of the meta analysis, leaving out 1 study at a time. The top most influential studies, in relation to effect size, sorted by absolute change in effect size is shown. The Left-out study indicates which study is left out to produce the results. ES = Effect size, SE = Standard error, CI = 95 percent confidence interval, P(ES) = p-value of estimate, Q = Test for residual heterogeneity, P(Q) = p-value of heterogenity value, I^2 = residual heterogeneity.

Left-out study	ES	ES change	SE of ES	CI (lb)	CI (ub)	P(ES)	Q	P(Q)	I^2
15	-0.342	-0.0589	0.117	-0.572	-0.113	0.0035	39.6	0.311	17.5
7	-0.232	0.0517	0.118	-0.463	-0.000631	0.0494	40.1	0.293	20.1
35	-0.324	-0.0409	0.121	-0.56	-0.088	0.00715	42	0.227	23.1
11	-0.244	0.0389	0.127	-0.493	0.00424	0.054	42.6	0.208	22.9