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

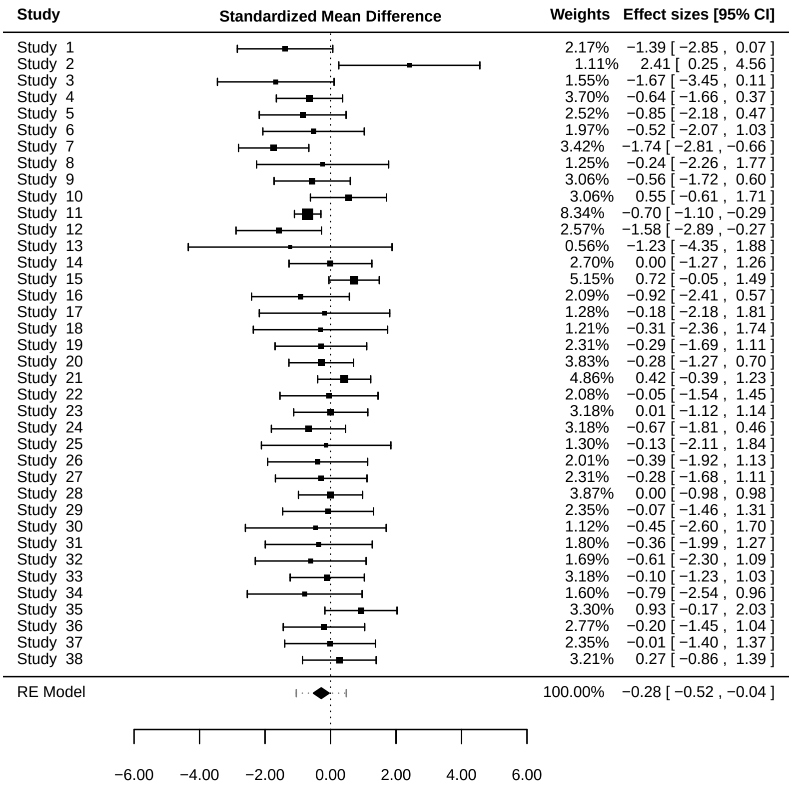

Figure 1: Forest plot of a random effects model. The study and its respectice effect size (ES) [+- 95% CI] are shown. The weight given to the study (%) (the inverse to the study variance) is depicted as well.

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					

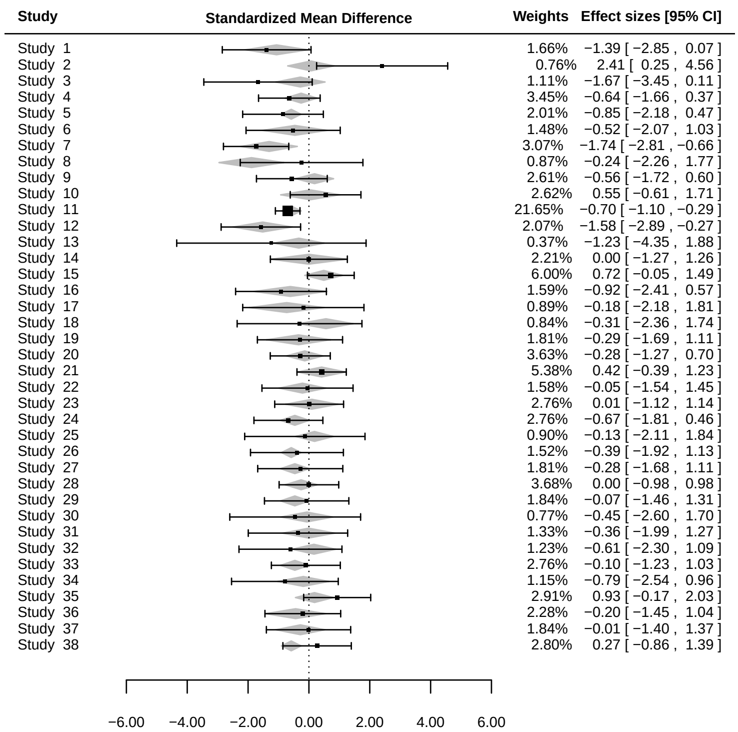

Figure 2: Forest plot of a random effects meta regression model. The study and its respectice effect size (ES) [+- 95% CI] are shown. The weight given to the study (%) (the inverse to the study variance) is depicted as well.

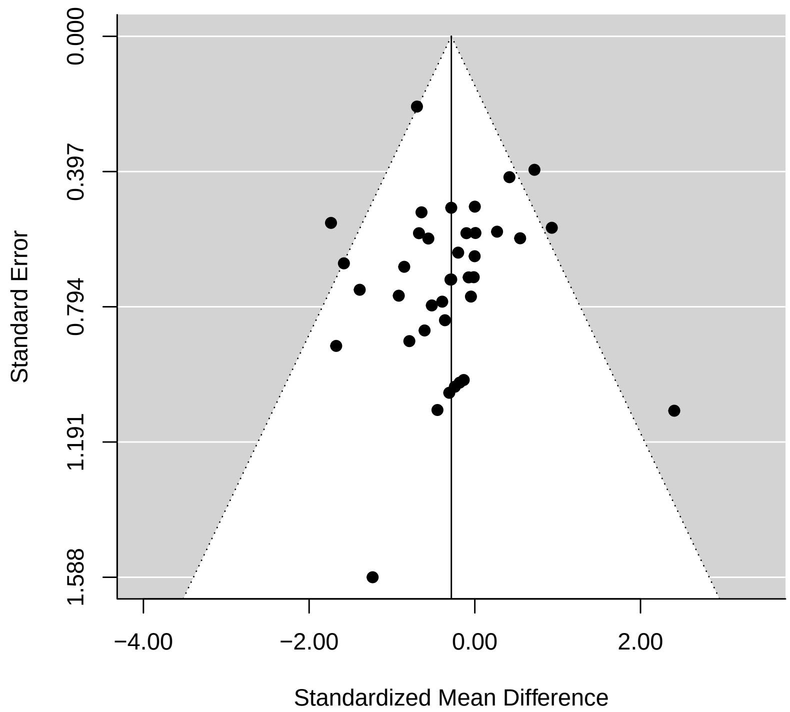

Figure 3: Funnel plot of a random effects model displaying possible publication bias. The true ES is displayed by the solid verical line.

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.

A sensitivity analysis should be conducted to see how sensitive the meta analysis is. One good way of exploring the sensitivity is to conduct a leave-one-out analysis. This computes the pooled effect size, variance, heterogenity measures leaving out one study at the time. The results can be compared to the original meta analysis output to assess how each study influences the meta analysis. Table 3 shows the most influential studies on the effect size and what the

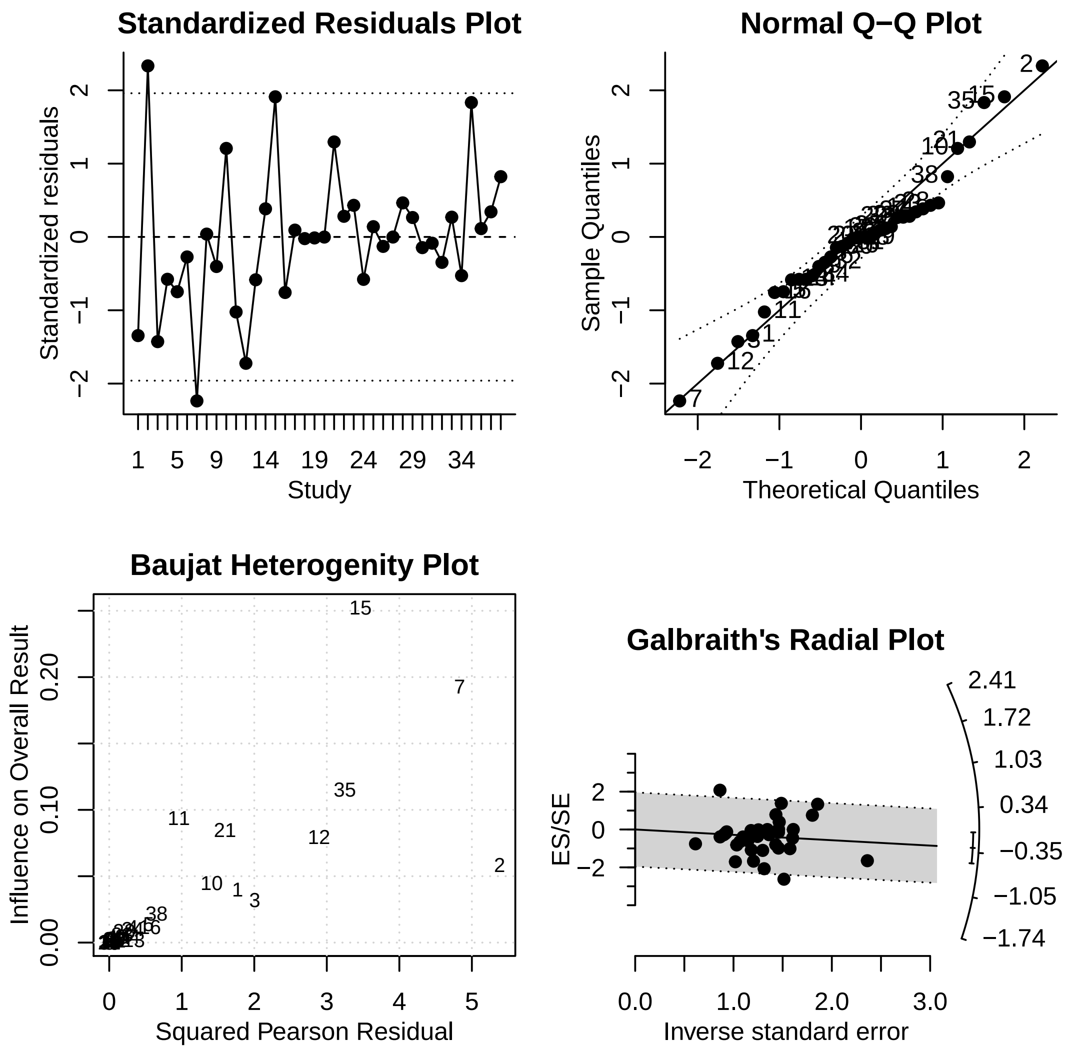

Figure 4: Diagnostic plots for diagnostics of meta analysis. Standardized residual plot, normal Q-Q plot, Baujat heterogeneity plot and Galbrath's radial plot are shown.

resulting effect size would be if these studies were left out (one study at the time), and several other parameters.

The significance of the effect size is important. The effect size found in this meta-analysis is significant with a p-value of 0.0205. The leave-one out analysis shows that the effect size of the meta-analysis is not significant anymore if study 11 is left out. If there are many left-out studies yielding non-significance relative to the total number of studies in the meta analysis, it is a sign of a fragile analysis.

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