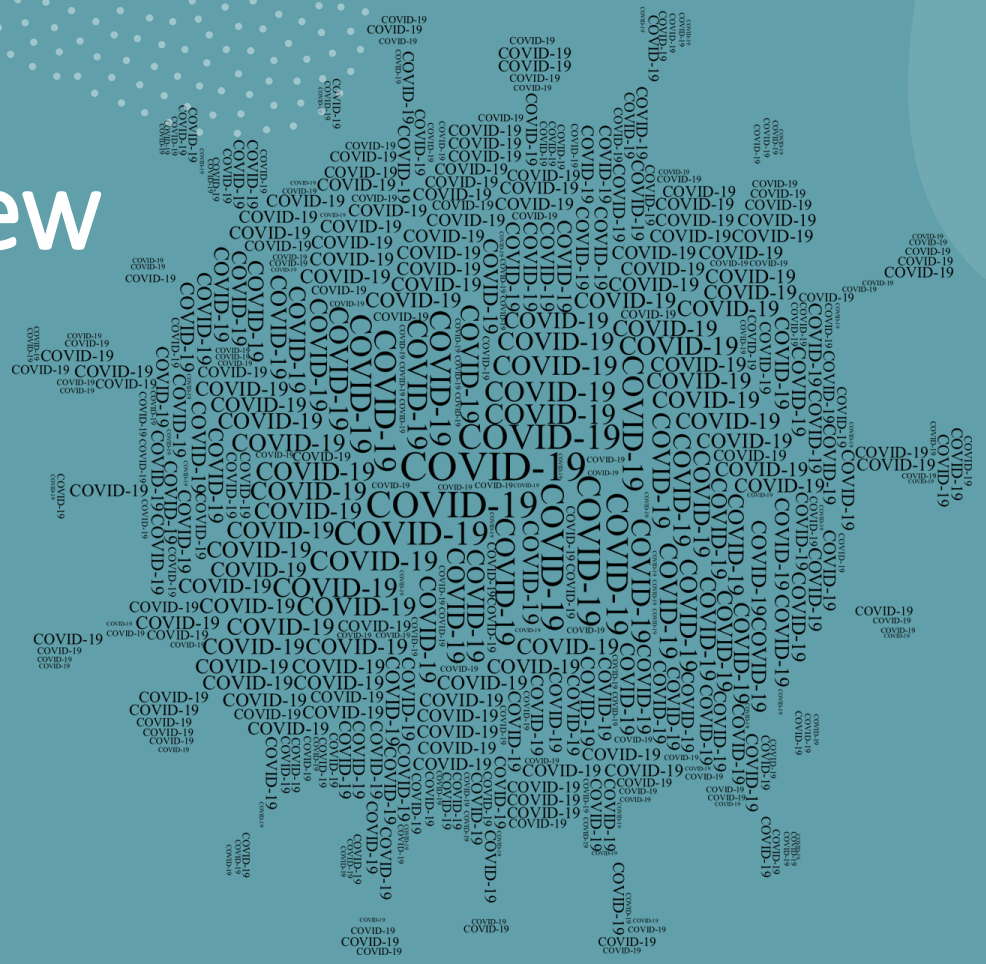
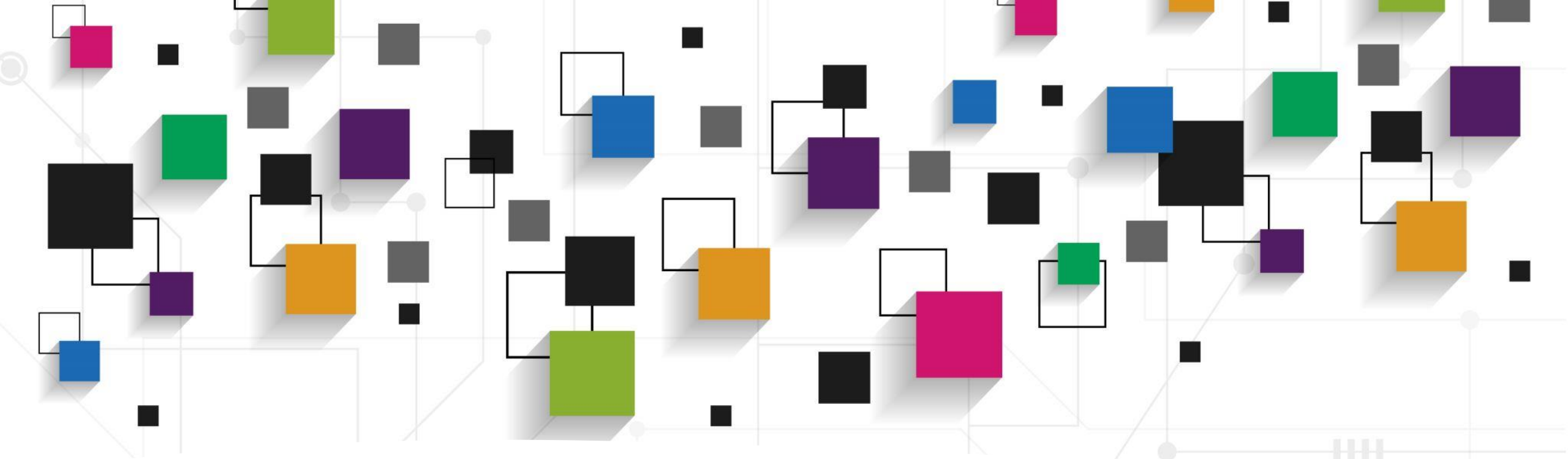
Systematic Literature Review & Meta-Analysis

Evaluation of the effectiveness of interventions in persuading citizens' COVID-19 compliance across 10 countries.





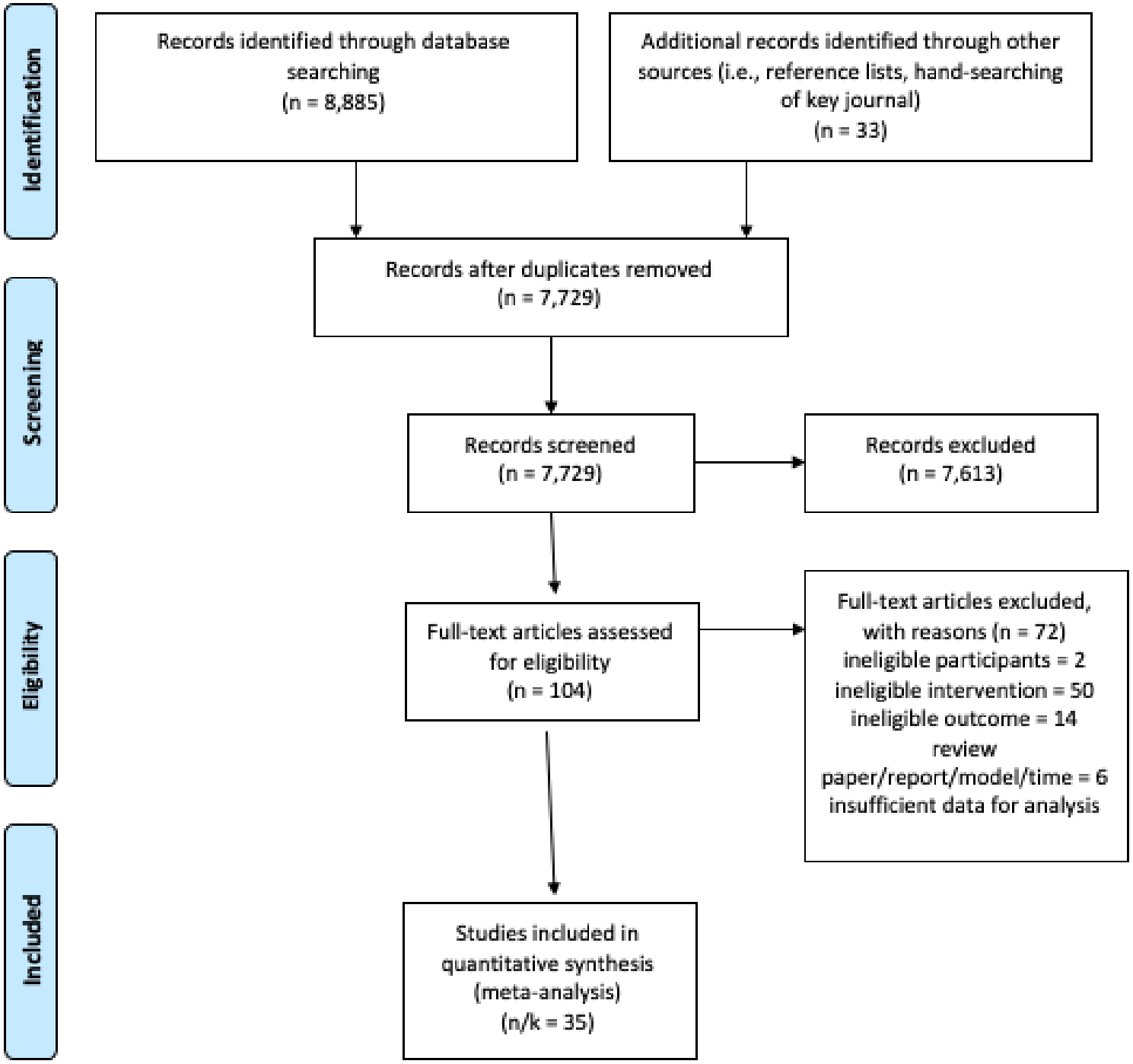
Project Showcase Notice

- The content provided in this PDF is intended to demonstrate the capabilities, design patterns, and methodologies employed in the project. It is not meant for production use and may lack certain functionalities that are part of the full, official version.

Process Flow

PRISMA:

Preferred Reporting Items for Systematic Reviews and Meta-Analysis



Source:

Liberati, A., Altman, D. G., Tetzlaff, J., Mulrow, C., Gøtzsche, P. C., Ioannidis, J. P., ... & Moher, D. (2009). The PRISMA statement for reporting systematic reviews and meta-analyses of studies that evaluate health care interventions: explanation and elaboration. *Journal of clinical epidemiology*, *62*(10), e1-e34.

Search strategy: Database

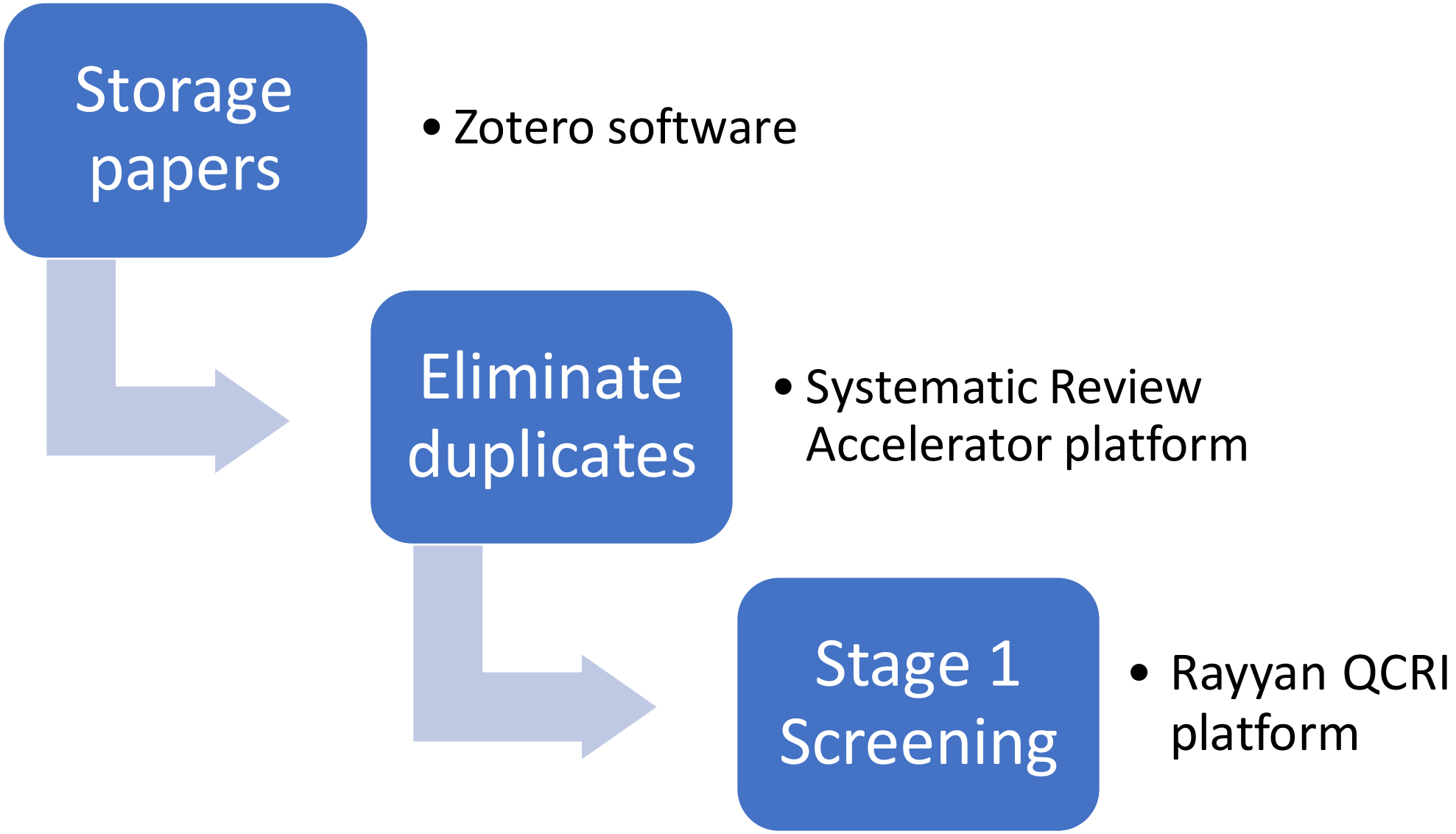
Electronic databased	Grey Literature	Hand search	Covid-19 dataset
- Scopus - PubMed - Web of Science (all databases) - ScienceDirect - EBSCOHost - Ovid Medline (no right) - PsychINFO (no, institutional site license) * Medline (included in web of sciece) - ProQuest - Ovid EMBASE	- MedRxiv - Econpapers - SocArxiv - Google Scholar - PsyArXiv - Dissertation Abstracts	- Preliminary review (Nudge&COVID19) - Journal of Behavioral Public Administration * Journal BE: - social capital gateway	1) CDC COVID-19 Research Articles Downloadable Database for bioRxiv, medRxiv and SSRN preprints (cdc.gov/library/researchguides/2019novelcoronavirus/researcharticles.html) {return journal} 2) WHO COVID-19 Global literature on coronavirus disease (search.bvsalud.org/global-literature-on-novel- coronavirus-2019-ncov): this includes published and prepublication journal articles. {mantenance} 3) The Cochrane COVID-19 Study Register (covid-19.cochrane.org/): this includes published articles, trials registry records and preprints.

Search strategy: 4 blocks

BLOCK 1	BLOCK 2	BLOCK 3	BLOCK 4
Nudge	**Framing**	**COVID-19**	**Compliance**
* Truncation: - nudg* (nudge, nudging) - bias* (bias, biases) - heuristic* (heuristic, heuristics) “”“ phrase searching - Behavio* science - Behavio* economics - behavioural science - behavioral science -behavioural economic -behavioral economic - behavioural economics - behavioral economics - choice architecture	* Truncation: - frame - framing “”“ phrase searching - prospect theory Single word: - gain-loss - loss-fram* - gain-fram* - loss-aversion - aversion	Single word: COVID-19, Coronavirus, pandemic 2019-Cov, 2019-nCoV, 2019ncov 2019nCoV, nCoV, 2019-novel-corona, 2019-new-corona, novel-corona, new-corona, neocorona SARS-CoV-2, SARS2, SARS-2, SARS-CoV-2 , CORonavirus-2 “”“ phrase searching” novel coronavirus coronavirus disease 2019 “Severe Acute Respiratory Syndrome Coronavirus-2” sars cORona	* Truncation: - intervention* (intervention, interventions) - intention* (intention, intentions) - behavio* (behaviour, behaviours, behavior, behaviors) “”“ phrase searching COVID-19 policy response Single word: Compliance, comply, guideline, guidance #### Type of behaviour # lockdown Single word: Lockdown, stay-at-home # social distancing “”“ phrase searching social distancing, social distance, physical contact, physical distance Single word: social-distancing, social-distance, distancing, isolation, quarantine, quarantined # Mask * Truncation: mask* (mask, masks), facemask* (facemask, facemasks), face-mask* (face-mask, face-masks) # Hand was “”“ phrase searching hand wash*, hand hygiene

Note: Not inclusion of System1 and System2 keyword

Software used



Quality assessment

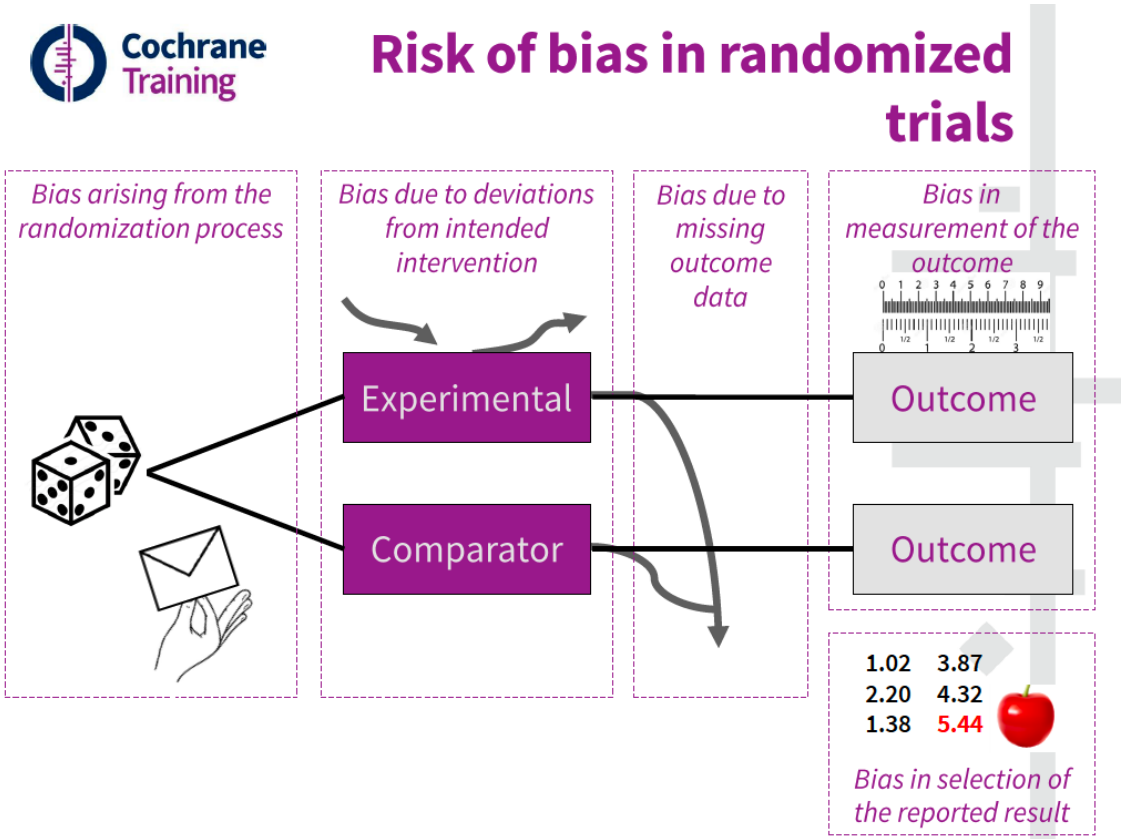
Assess the quality and/or risk of bias in each individual study

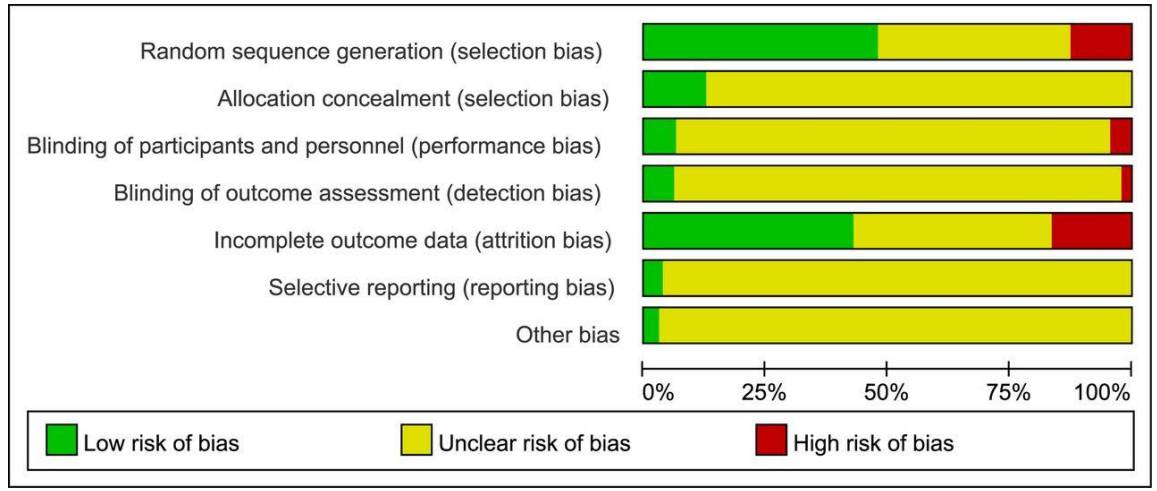
Assessment for quality of evidence

Domains for assessing certainty of evidence by outcome	Results section
Risk of bias	Describe the risk of bias based on the criteria used in the risk-of-bias table.
Inconsistency	Describe the degree of inconsistency by outcome using one or more indicators (e.g. I^2 and P value), confidence interval overlap, difference in point estimate, between-study variance.
Indirectness	Describe if the majority of studies address the PICO – were they similar to the question posed?
Imprecision	Describe the number of events, and width of the confidence intervals.
Publication bias	Describe the possible degree of publication bias.
Large effects (upgrading)	Describe the magnitude of the effect and the widths of the associate confidence intervals.
Dose response (upgrading)	The studies show a clear relation with increases in the outcome of an outcome (e.g. lung cancer) with higher exposure levels.
Opposing plausible residual bias and confounding (upgrading)	Describe which opposing plausible biases and confounders may have not been considered.

Cochrane Training

Risk of bias in randomized trials





ROB: Risk of bias

Cochrane Training

Risk of bias in randomized trials

Intention-to-treat

Unique ID	Study ID	Experimental	Comparator	Outcome	Weight	D1	D2	D3	D4	D5	Overall
ID1	Study1	intervention	baseline	compliance	1	+	+	+	!	!	!
ID2	Study2	intervention	baseline	social distancing	1	+	+	+	+	+	+
ID3	Study3	intervention	control	social distancing	1	+	+	+	+	+	+
ID4	Study4	intervention	control	social distancing intentions	1	+	+	+	+	+	+
ID5	Study5	intervention	control	change intended behavoiurs	1	+	+	+	+	+	+
ID6	Study6	intervention	control	preventive behavioural intentic	1	+	+	+	+	+	+
ID7	Study7	intervention	control	Policy support	1	!	+	+	+	+	!
ID8	Study8	intervention	control	Preventions measures	1	+	+	+	+	+	+
ID9	Study9	intervention	control	intentions preventive behavioi	1	+	+	+	+	+	+
ID10	Study10	intervention	baseline	use mask	1	+	+	+	+	+	+
ID11	Study11	intervention	baseline	intentions to comply health b	1	!	+	+	!	+	!
ID12	Study12	intervention	control	social distancing behavioural i	1	+	+	+	+	+	+
ID13	Study13	intervention	control	social distancing	1	+	+	-	+	+	-
ID14	Study14	intervention	baseline	protective behaviours	1	+	+	-	+	+	-
ID15	Study15	intervention	baseline	strict compliance	1	+	+	+	!	+	!
ID16	Study16	intervention	control	behavioural intentions	1	+	+	+	+	+	+
ID17	Study17	intervention	control	compliance	1	+	+	-	+	!	-
ID18	Study18	intervention	control	physical distancing	1	+	+	+	+	+	+
ID19	Study19	intervention	control	wearing mask	1	+	+	-	+	+	-
ID20	Study20	intervention	control	Behavioural intentions	1	!	+	!	+	+	!
ID21	Study21	intervention	control	intentions physical distancing	1	+	+	+	+	+	+
ID22	Study22	intervention	control	intentions stay home	1	+	+	+	+	+	+
ID23	Study23	intervention	control	intetntions self-isolate	1	+	+	+	+	+	+
ID24	Study24	intentions	control	intentions wear face covering	1	+	+	-	+	+	-
ID25	Study25	intervention	control	intentions wear face covering	1	+	+	-	+	+	-
ID26	Study26	intervention	control	intented social distancing	1	+	+	+	+	+	+
ID27	Study27	intervention	control	support social distancing	1	+	+	-	+	+	-
ID28	Study28	intervention	control	distance where had symptoms	1	-	+	-	+	+	-
ID29	Study29	intervention	control	follow government raccommer	1	+	+	+	+	+	+

+ Low risk
! Some concerns
- High risk

D1 Randomisation process
D2 Deviations from the intended interventions
D3 Missing outcome data
D4 Measurement of the outcome
D5 Selection of the reported result

Synthesise

Combine data (synthesis or meta-analysis)

Table 2 | **Methodological approaches to consider in the synthesis of heterogeneous data**

Problem	Possible methodological solution	Selected key caveats
High statistical heterogeneity	Random effects	Does not explain heterogeneity, small study effects, limited data
	Meta-regression	Choice of variables, ecological fallacy, limited data
	Bayesian meta-analysis	Prior specification
	Bayesian meta-regression	Similar to meta-regression and Bayesian meta-analysis
	Meta-analysis of individual level data	Unavailable individual level information
Different interventions compared	Merge interventions in same class	Unrecognised heterogeneity
	Network meta-analysis	Inconsistency in direct versus indirect comparisons
Different metrics of same outcome	Conversion formulas	Difficulties in clinical interpretation
Different outcomes, same construct	Standardised effects	Difficulties in clinical interpretation
Different outcomes	Meta-analysis of multiple outcomes	Specification of correlations
Observational data	Generalised evidence synthesis	Spurious precision, confounding, selective reporting
Cluster randomised trials	Account for clustering correlation	Unavailable sufficient information
Crossover trials	Account for period or carry-over effect	Unavailable sufficient information
Other study design issues	Same as for high statistical heterogeneity	As for high statistical heterogeneity above
Different participants or settings	Same as for high statistical heterogeneity	As for high statistical heterogeneity above
Many counts per participant	Meta-analysis of multiple period or follow-up	Unavailable sufficient information
Limited data	Standard meta-analysis methods	Caution needed as for any meta-analysis

Popular software such as RevMan can accommodate only random effects calculations, while Comprehensive Meta-Analysis also accommodates simple meta-regressions. Bayesian models and models of multiple treatments or outcomes can be run in WinBugs. Most models can also be run in STATA or R.

*The approach used for high statistical heterogeneity may also be applicable to situations where clinical heterogeneity is considered high because of differences in interventions, metrics, outcomes, designs, participants, or settings.

Ioannidis, J. P., Patsopoulos, N. A., & Rothstein, H. R. (2008). Reasons or excuses for avoiding meta-analysis in forest plots. Bmj, 336(7658), 1413-1415.

Effect Size

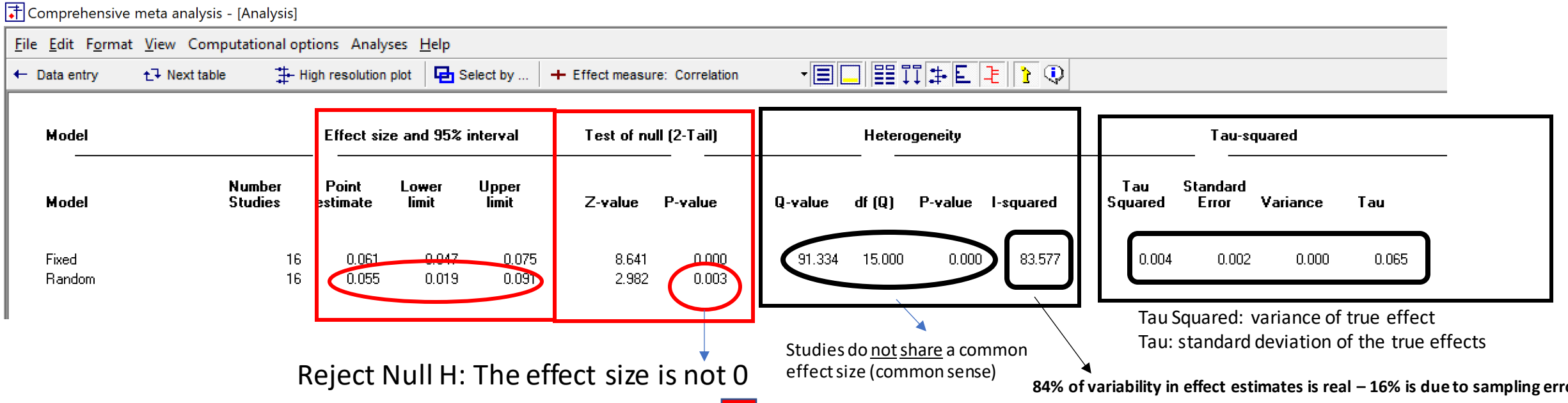
Cohen's d
Hedges’ g
Pearson's correlation coefficient (r)
Risk ratio (RR)
Odds ratio (OR)
eta squared (η^2)
Phi coefficient
Point-biserial correlation coefficient (rpb)
Partial eta squared (ηp^2)
R squared (R^2)

Comprehensive meta analysis - [Analysis]

File Edit Format View Computational options Analyses Help

Data entry | Next table | High resolution plot | Select by ... | Effect measure: Correlation

Model	Study name	Subgroup within study	Outcome	Statistics for each study					Correlation and 95% CI	Weight (Random)	Residual (Random)
				Correlation	Lower limit	Upper limit	Z-Value	p-Value	-0.250 -0.125 0.000 0.125 0.250	Relative weight	Std Residual
	Bhanot &	Elites	Social	0.043	-0.002	0.088	1.882	0.060		7.16	-0.18
	Capraro &	Combined	Social	0.042	0.002	0.081	2.075	0.038		7.34	-0.20
	Capraro &	Combined	Wear mask	0.019	-0.026	0.063	0.811	0.417		7.17	-0.55
	Cohen 2020	Messager	Compliance	-0.047	-0.180	0.088	-0.682	0.495		3.78	-1.10
	Deslatte	Health	Social	0.158	0.105	0.210	5.839	0.000		6.84	1.53
	Hacquin et	Combined	Compliance	0.010	-0.026	0.045	0.524	0.600		7.46	-0.70
	Hameleers	Gain frame	Compliance	0.090	0.032	0.148	3.017	0.003		6.64	0.51
	Jordan et al.	Combined	Social	0.086	0.024	0.147	2.715	0.007		6.50	0.45
	Lammers et	Overcome	Social	0.096	0.017	0.175	2.379	0.017		5.78	0.56
	Lunn et al.	Identifiable	Social	0.083	-0.005	0.169	1.855	0.064		5.45	0.37
	Melo &	Combined	Compliance	-0.031	-0.113	0.051	-0.748	0.454		5.69	-1.15
	Pfattheicher	Combined	Social	0.098	0.032	0.163	2.911	0.004		6.33	0.61
	Pfattheicher	Combined	Social	0.091	0.041	0.140	3.568	0.000		6.97	0.54
	Romano et	Linear	Wear mask	0.191	0.146	0.235	8.256	0.000		7.12	2.08
	Sobkow et	Combined	Compliance	-0.103	-0.242	0.039	-1.422	0.155		3.56	-1.65
	Utych &	Combined	Compliance	-0.080	-0.149	-0.011	-2.265	0.024		6.20	-1.89
Random				0.055	0.019	0.091	2.982	0.003			



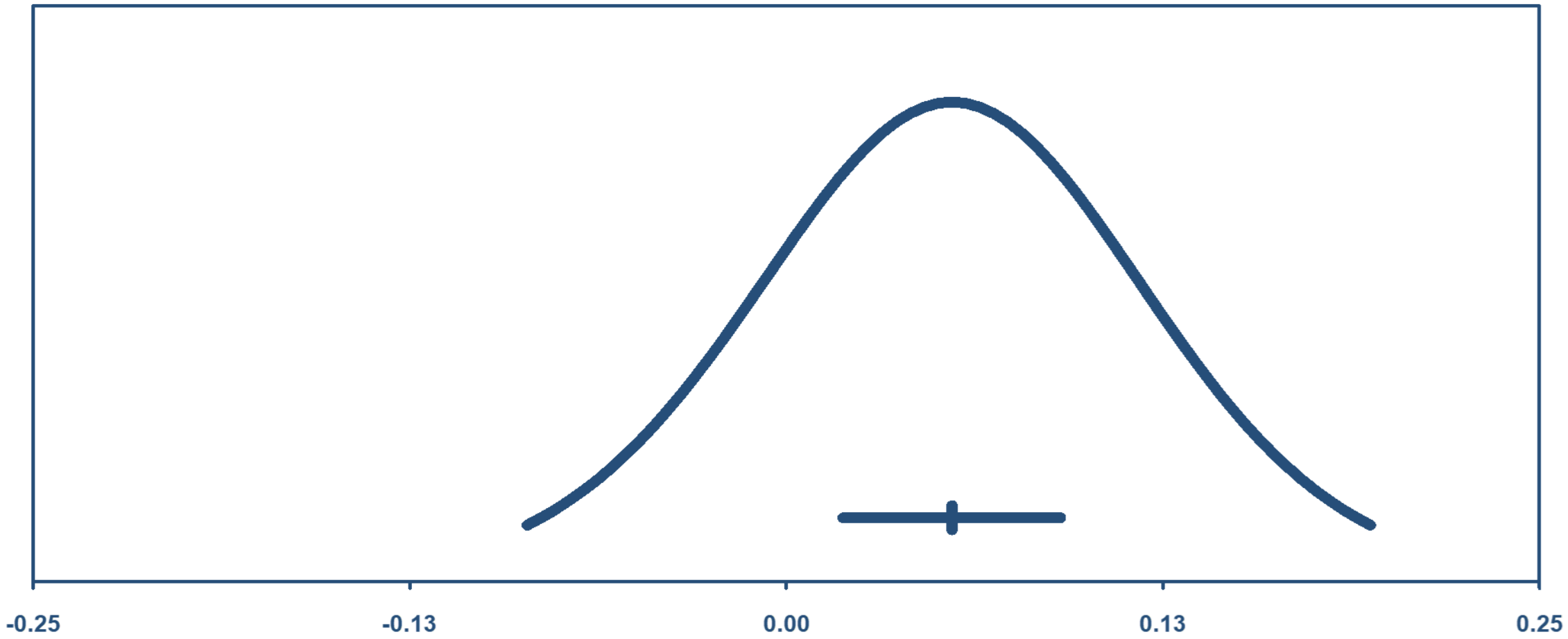
Behavioural science intervention works… but:

1) How much effect size varies across comparable studies? See Prediction interval

2) Has the magnitude of effect size a practical importance? See Benchmarking

3) Can we explain some of the effect size variation? See Moderation Analysis

Distribution of True Effects



The mean effect size is 0.05 with a 95% confidence interval of 0.02 to 0.09

The true effect size in 95% of all comparable populations falls in the interval -0.09 to 0.19

Moderator

- Source of Information
- Country
- Platform
- Average Age
- Time
- Risk of bias
- Behavioural Science Concept

Outcomes

Comprehensive meta analysis - [Analysis]

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Data entry | Next table | High resolution plot | Select by ... | Effect measure: Correlation

Model	Group by Outcome	Study name	Subgroup within study	Outcome	Correlation	Lower limit	Upper limit	Z-Value	p-Value
	Compliance	Cohen 2020	Messager	Compliance	-0.047	-0.180	0.088	-0.682	0.495
	Compliance	Hacquin et	Combined	Compliance	0.010	-0.026	0.045	0.524	0.600
	Compliance	Hameleers	Gain frame	Compliance	0.090	0.032	0.148	3.017	0.003
	Compliance	Melo &	Combined	Compliance	-0.031	-0.113	0.051	-0.748	0.454
	Compliance	Sobkow et	Combined	Compliance	-0.103	-0.242	0.039	-1.422	0.155
	Compliance	Utych &	Combined	Compliance	-0.080	-0.149	-0.011	-2.265	0.024
Random	Compliance				-0.015	-0.073	0.042	-0.513	0.608
	Social	Bhanot &	Elites	Social	0.043	-0.002	0.088	1.882	0.060
	Social	Capraro &	Combined	Social	0.042	0.002	0.081	2.075	0.038
	Social	Deslatte	Health	Social	0.158	0.105	0.210	5.839	0.000
	Social	Jordan et al.	Combined	Social	0.086	0.024	0.147	2.715	0.007
	Social	Lammers et	Overcome	Social	0.096	0.017	0.175	2.379	0.017
	Social	Lunn et al.	Identifiable	Social	0.083	-0.005	0.169	1.855	0.064
	Social	Pfattheicher	Combined	Social	0.098	0.032	0.163	2.911	0.004
	Social	Pfattheicher	Combined	Social	0.091	0.041	0.140	3.568	0.000
Random	Social				0.086	0.041	0.131	3.725	0.000
	Wear mask	Capraro &	Combined	Wear mask	0.019	-0.026	0.063	0.811	0.417
	Wear mask	Romano et	Linear	Wear mask	0.191	0.146	0.235	8.256	0.000
Random	Wear mask				0.105	0.019	0.190	2.397	0.017
Random	Overall				0.056	0.023	0.089	3.323	0.001

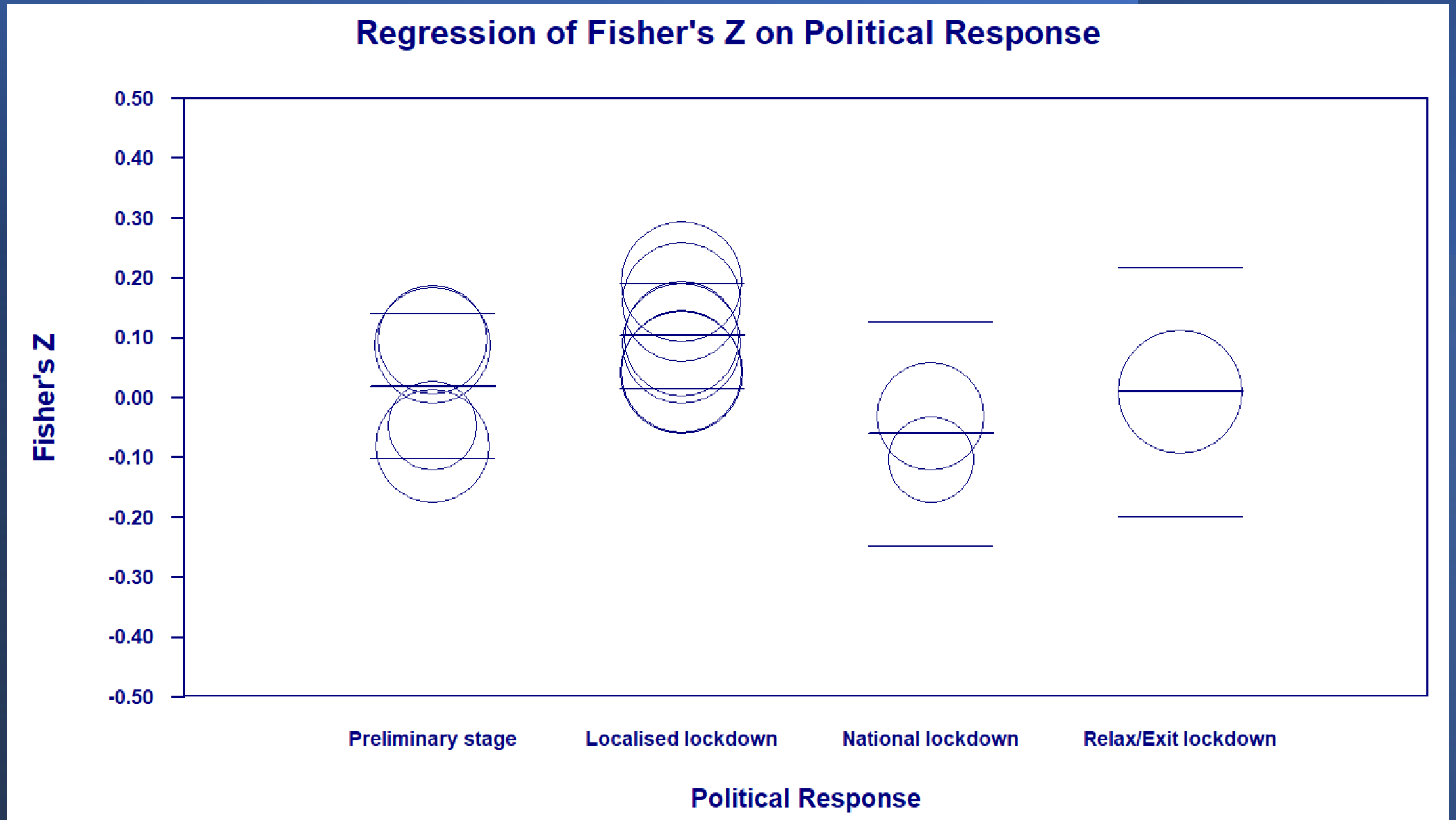
Correlation and 95% CI: -0.250 -0.125 0.000 0.125 0.250

Mixed effects analysis

Compliance	6	-0.015	-0.073	0.042	-0.513	0.608			
Social	8	0.086	0.041	0.131	3.725	0.000			
Wear mask	2	0.105	0.019	0.190	2.397	0.017			
Total between							8.844	2	0.012
Overall	16	0.056	0.023	0.089	3.323	0.001			

Mixed effects analysis

Social	8	0.086	0.041	0.132	3.694	0.000			
Wear mask	2	0.105	0.018	0.190	2.375	0.018			
Total between							0.146	1	0.703
Overall	10	0.090	0.050	0.130	4.375	0.000			


Regression of Fisher's Z on Political Response
Fisher's Z
0.50
0.40
0.30
0.20
0.10
0.00
-0.10
-0.20
-0.30
-0.40
-0.50
Preliminary stage
Localised lockdown
National lockdown
Relax/Exit lockdown
Political Response

Political response

Comprehensive meta analysis - [Analysis]

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Data entry | Next table | High resolution plot | Select by ... | Effect measure: Correlation

Model	Group by Political	Study name	Subgroup within study	Outcome	Correlation	Lower limit	Upper limit	Z-Value	p-Value
	Localised	Bhanot &	Elites	Social	0.043	-0.002	0.088	1.882	0.060
	Localised	Capraro &	Combined	Social	0.042	0.002	0.081	2.075	0.038
	Localised	Deslatte	Health	Social	0.158	0.105	0.210	5.839	0.000
	Localised	Pfattheicher	Combined	Social	0.098	0.032	0.163	2.911	0.004
	Localised	Pfattheicher	Combined	Social	0.091	0.041	0.140	3.568	0.000
	Localised	Romano et	Linear	Wear mask	0.191	0.146	0.235	8.256	0.000
Random	Localised				0.104	0.048	0.159	3.629	0.000
	National	Melo &	Combined	Compliance	-0.031	-0.113	0.051	-0.748	0.454
	National	Sobkow et	Combined	Compliance	-0.103	-0.242	0.039	-1.422	0.155
Random	National				-0.059	-0.176	0.060	-0.974	0.330
	Preliminary	Cohen 2020	Messager	Compliance	-0.047	-0.180	0.088	-0.682	0.495
	Preliminary	Jordan et al.	Combined	Social	0.086	0.024	0.147	2.715	0.007
	Preliminary	Lammers et	Overcome	Social	0.096	0.017	0.175	2.379	0.017
	Preliminary	Utych &	Combined	Compliance	-0.080	-0.149	-0.011	-2.265	0.024
Random	Preliminary				0.020	-0.057	0.096	0.507	0.612
	Relax/Exit	Hacquin et	Combined	Compliance	0.010	-0.026	0.045	0.524	0.600
Random	Relax/Exit				0.010	-0.123	0.142	0.141	0.888
Random	Overall				0.053	0.013	0.093	2.588	0.010

Correlation and 95% CI: -0.250 -0.125 0.000 0.125 0.250

Mixed effects analysis

Localised	6	0.104	0.048	0.159	3.629	0.000		
National	2	-0.059	-0.176	0.060	-0.974	0.330		
Preliminary	4	0.020	-0.057	0.096	0.507	0.612		
Relax/Exit	1	0.010	-0.123	0.142	0.141	0.888		
Total between							7.694	3	0.053
Overall	13	0.053	0.013	0.093	2.588	0.010		

✓ **There is a difference between groups**

Possible explanation:

- Stronger mandatory restriction might lead to a weaker (or opposite) compliance
- Difficult to have a homogenous effect across all the country
- People do not follow the compliance because they think that the compliance should varies across the country because the virus affected in different way in time and space

Platform

Comprehensive meta analysis - [Analysis]

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Data entry | Next table | High resolution plot | Select by ... | Effect measure: Correlation

Model	Group by Platform	Study name	Subgroup within study	Outcome	Statistics for each study					Correlation and 95% CI
					Correlation	Lower limit	Upper limit	Z-Value	p-Value	-0.250 -0.125 0.000 0.125 0.250
	Clickworker	Pfattheicher	Combined	Social	0.098	0.032	0.163	2.911	0.004	
	Clickworker	Pfattheicher	Combined	Social	0.091	0.041	0.140	3.568	0.000	
Random	Clickworker				0.094	0.042	0.145	3.573	0.000	
	Dynata	Hameleers	Gain frame	Compliance	0.090	0.032	0.148	3.017	0.003	
Random	Dynata				0.090	0.016	0.163	2.388	0.017	
	Ipsos	Hacquin et	Combined	Compliance	0.010	-0.026	0.045	0.524	0.600	
Random	Ipsos				0.010	-0.048	0.067	0.325	0.745	
	Mturk	Capraro &	Combined	Wear mask	0.019	-0.019	0.058	0.982	0.326	
	Mturk	Cohen 2020	Messager	Compliance	-0.047	-0.184	0.091	-0.665	0.506	
	Mturk	Jordan et al.	Combined	Social	0.070	0.020	0.121	2.712	0.007	
Random	Mturk				0.034	-0.009	0.077	1.548	0.122	
	MyVoiceCo	Sasaki et al.	Combined	Self-isolatio	0.000	-0.033	0.033	0.000	1.000	
Random	MyVoiceCo				0.000	-0.056	0.056	0.000	1.000	
	na	Bhanot &	Elites	Social	0.043	-0.002	0.088	1.882	0.060	
	na	Biroli et al.	Gain frame	Compliance	0.032	-0.003	0.067	1.819	0.069	
	na	Melo &	Combined	Compliance	-0.034	-0.105	0.037	-0.943	0.346	
	na	Sobkow et	Combined	Compliance	-0.100	-0.254	0.059	-1.232	0.218	
Random	na				0.017	-0.020	0.053	0.875	0.382	
Random	Overall				0.035	0.015	0.055	3.371	0.001	

Behavioural Science Concept

Comprehensive meta analysis - [Analysis]

File Edit Format View Computational options Analyses Help

Data entry | Next table | High resolution plot | Select by ... | Effect measure: Correlation

Model	Group by BS Concept	Study name	Subgroup within study	Outcome	Statistics for each study					Correlation and 95% CI
					Correlation	Lower limit	Upper limit	Z-Value	p-Value	-0.250 -0.125 0.000 0.125 0.250
	Empathy	Pfattheicher	Combined	Social	0.098	0.032	0.163	2.911	0.004	
	Empathy	Pfattheicher	Combined	Social	0.091	0.041	0.140	3.568	0.000	
Random	Empathy				0.094	0.043	0.144	3.629	0.000	
	Framing	Bhanot &	Elites	Social	0.043	-0.002	0.088	1.882	0.060	
	Framing	Biroli et al.	Gain frame	Compliance	0.032	-0.003	0.067	1.819	0.069	
	Framing	Hacquin et	Combined	Compliance	0.010	-0.026	0.045	0.524	0.600	
	Framing	Hameleers	Gain frame	Compliance	0.090	0.032	0.148	3.017	0.003	
	Framing	Jordan et al.	Combined	Social	0.070	0.020	0.121	2.712	0.007	
	Framing	Melo &	Combined	Compliance	-0.034	-0.105	0.037	-0.943	0.346	
Random	Framing				0.036	0.010	0.062	2.689	0.007	
	Heuristic/Bi	Cohen 2020	Messager	Compliance	-0.047	-0.184	0.091	-0.665	0.506	
Random	Heuristic/Bi				-0.047	-0.190	0.098	-0.635	0.526	
	Nudge	Sasaki et al.	Combined	Self-isolatio	0.000	-0.033	0.033	0.000	1.000	
Random	Nudge				0.000	-0.055	0.055	0.000	1.000	
	Priming	Capraro &	Combined	Wear mask	0.019	-0.019	0.058	0.982	0.326	
Random	Priming				0.019	-0.039	0.077	0.653	0.513	
	risk-as-feelin	Sobkow et	Combined	Compliance	-0.100	-0.254	0.059	-1.232	0.218	
Random	risk-as-feelin				-0.100	-0.260	0.065	-1.189	0.234	
Random	Overall				0.035	0.015	0.054	3.434	0.001	

Source of Information

Comprehensive meta analysis - [Analysis]

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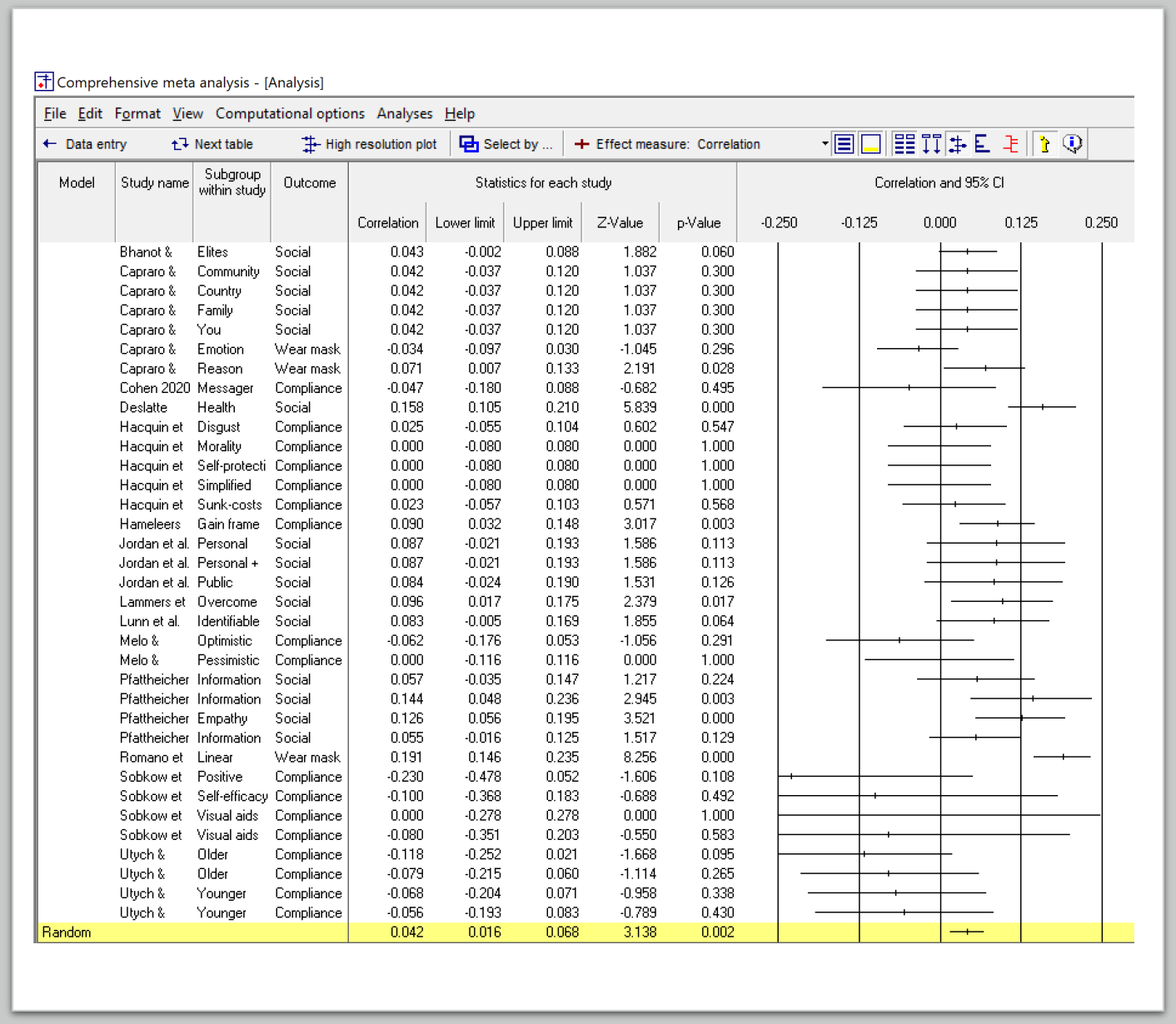
Data entry | Next table | High resolution plot | Select by ... | Effect measure: Correlation

Model	Group by Source	Study name	Subgroup within study	Outcome	Statistics for each study					Correlation and 95% CI
					Correlation	Lower limit	Upper limit	Z-Value	p-Value	-0.250 -0.125 0.000 0.125 0.250
	Grey	Biroli et al.	Gain frame	Compliance	0.032	-0.003	0.067	1.819	0.069	
	Grey	Capraro &	Combined	Wear mask	0.019	-0.019	0.058	0.982	0.326	
	Grey	Hacquin et	Combined	Compliance	0.010	-0.026	0.045	0.524	0.600	
	Grey	Jordan et al.	Combined	Social	0.070	0.020	0.121	2.712	0.007	
	Grey	Sasaki et al.	Combined	Self-isolatio	0.000	-0.033	0.033	0.000	1.000	
Random	Grey				0.024	-0.006	0.054	1.554	0.120	
	Journal	Bhanot &	Elites	Social	0.043	-0.002	0.088	1.882	0.060	
	Journal	Cohen 2020	Messager	Compliance	-0.047	-0.184	0.091	-0.665	0.506	
	Journal	Hameleers	Gain frame	Compliance	0.090	0.032	0.148	3.017	0.003	
	Journal	Melo &	Combined	Compliance	-0.034	-0.105	0.037	-0.943	0.346	
	Journal	Pfattheicher	Combined	Social	0.098	0.032	0.163	2.911	0.004	
	Journal	Pfattheicher	Combined	Social	0.091	0.041	0.140	3.568	0.000	
	Journal	Sobkow et	Combined	Compliance	-0.100	-0.254	0.059	-1.232	0.218	
Random	Journal				0.048	0.014	0.082	2.778	0.005	
Random	Overall				0.035	0.012	0.057	3.009	0.003	

Sensitivity analysis: Publication bias

Separate subgroups



Model	Study name	Subgroup within study	Outcome	Correlation	Lower limit	Upper limit	Z-Value	p-Value
	Bhanot &	Elites	Social	0.043	-0.002	0.088	1.882	0.060
	Capraro &	Community	Social	0.042	-0.037	0.120	1.037	0.300
	Capraro &	Country	Social	0.042	-0.037	0.120	1.037	0.300
	Capraro &	Family	Social	0.042	-0.037	0.120	1.037	0.300
	Capraro &	You	Social	0.042	-0.037	0.120	1.037	0.300
	Capraro &	Emotion	Wear mask	-0.034	-0.097	0.030	-1.045	0.296
	Capraro &	Reason	Wear mask	0.071	0.007	0.133	2.191	0.028
	Cohen 2020	Messager	Compliance	-0.047	-0.180	0.088	-0.682	0.495
	Deslatte	Health	Social	0.158	0.105	0.210	5.839	0.000
	Hacquin et	Disgust	Compliance	0.025	-0.055	0.104	0.602	0.547
	Hacquin et	Morality	Compliance	0.000	-0.080	0.080	0.000	1.000
	Hacquin et	Self-protecti	Compliance	0.000	-0.080	0.080	0.000	1.000
	Hacquin et	Simplified	Compliance	0.000	-0.080	0.080	0.000	1.000
	Hacquin et	Sunk-costs	Compliance	0.023	-0.057	0.103	0.571	0.568
	Hameleers	Gain frame	Compliance	0.090	0.032	0.148	3.017	0.003
	Jordan et al.	Personal	Social	0.087	-0.021	0.193	1.586	0.113
	Jordan et al.	Personal +	Social	0.087	-0.021	0.193	1.586	0.113
	Jordan et al.	Public	Social	0.084	-0.024	0.190	1.531	0.126
	Lammers et	Overcome	Social	0.096	0.017	0.175	2.379	0.017
	Lunn et al.	Identifiable	Social	0.083	-0.005	0.169	1.855	0.064
	Melo &	Optimistic	Compliance	-0.062	-0.176	0.053	-1.056	0.291
	Melo &	Pessimistic	Compliance	0.000	-0.116	0.116	0.000	1.000
	Pfattheicher	Information	Social	0.057	-0.035	0.147	1.217	0.224
	Pfattheicher	Information	Social	0.144	0.048	0.236	2.945	0.003
	Pfattheicher	Empathy	Social	0.126	0.056	0.195	3.521	0.000
	Pfattheicher	Information	Social	0.055	-0.016	0.125	1.517	0.129
	Romano et	Linear	Wear mask	0.191	0.146	0.235	8.256	0.000
	Sobkow et	Positive	Compliance	-0.230	-0.478	0.052	-1.606	0.108
	Sobkow et	Self-efficacy	Compliance	-0.100	-0.368	0.183	-0.688	0.492
	Sobkow et	Visual aids	Compliance	0.000	-0.278	0.278	0.000	1.000
	Sobkow et	Visual aids	Compliance	-0.080	-0.351	0.203	-0.550	0.583
	Utych &	Older	Compliance	-0.118	-0.252	0.021	-1.668	0.095
	Utych &	Older	Compliance	-0.079	-0.215	0.060	-1.114	0.265
	Utych &	Younger	Compliance	-0.068	-0.204	0.071	-0.958	0.338
	Utych &	Younger	Compliance	-0.056	-0.193	0.083	-0.789	0.430
Random				0.042	0.016	0.068	3.138	0.002

Risk of Bias

Comprehensive meta analysis - [Analysis]

File Edit Format View Computational options Analyses Help

Data entry | Next table | High resolution plot | Select by ... | Effect measure: Correlation

Model	Group by Risk of bias	Study name	Subgroup within study	Outcome	Statistics for each study					Correlation and 95% CI
					Correlation	Lower limit	Upper limit	Z-Value	p-Value	-0.250 -0.125 0.000 0.125 0.250
	High risk	Bhanot &	Elites	Social	0.043	-0.002	0.088	1.882	0.060	
	High risk	Capraro &	Combined	Wear mask	0.019	-0.026	0.063	0.811	0.417	
	High risk	Lammers et	Overcome	Social	0.096	0.017	0.175	2.379	0.017	
	High risk	Pfattheicher	Combined	Social	0.091	0.041	0.140	3.568	0.000	
Random	High risk				0.061	-0.014	0.135	1.584	0.113	
	Low risk	Capraro &	Combined	Social	0.042	0.002	0.081	2.075	0.038	
	Low risk	Cohen 2020	Messager	Compliance	-0.047	-0.180	0.088	-0.682	0.495	
	Low risk	Deslatte	Health	Social	0.158	0.105	0.210	5.839	0.000	
	Low risk	Hacquin et	Combined	Compliance	0.010	-0.026	0.045	0.524	0.600	
	Low risk	Jordan et al.	Combined	Social	0.086	0.024	0.147	2.715	0.007	
	Low risk	Lunn et al.	Identifiable	Social	0.083	-0.005	0.169	1.855	0.064	
	Low risk	Melo &	Combined	Compliance	-0.031	-0.113	0.051	-0.748	0.454	
	Low risk	Pfattheicher	Combined	Social	0.098	0.032	0.163	2.911	0.004	
	Low risk	Romano et	Linear	Wear mask	0.191	0.146	0.235	8.256	0.000	
	Low risk	Sobkow et	Combined	Compliance	-0.103	-0.242	0.039	-1.422	0.155	
	Low risk	Utych &	Combined	Compliance	-0.080	-0.149	-0.011	-2.265	0.024	
Random	Low risk				0.048	0.000	0.095	1.974	0.048	
	Some	Hameleers	Gain frame	Compliance	0.090	0.032	0.148	3.017	0.003	
Random	Some				0.090	-0.061	0.237	1.170	0.242	
Random	Overall				0.054	0.015	0.093	2.732	0.006	

Mixed effects analysis

High risk	4	0.061	-0.014	0.135	1.584	0.113			
Low risk	11	0.048	0.000	0.095	1.974	0.048			
Some concerns	1	0.090	-0.061	0.237	1.170	0.242			
Total between							0.311	2	0.856
Overall	16	0.054	0.015	0.093	2.732	0.006			

Cumulative analysis

Model	Study name	Subgroup within study	Outcome	Cumulative statistics					Cumulative correlation (95% CI)
				Point	Lower limit	Upper limit	Z-Value	p-Value	-0.250 -0.125 0.000 0.125 0.250
	Bhanot &	Elites	Social	0.043	-0.002	0.088	1.882	0.060	
	Capraro &	Combined	Social	0.042	0.013	0.072	2.801	0.005	
	Capraro &	Combined	Wear mask	0.035	0.010	0.060	2.783	0.005	
	Cohen 2020	Messager	Compliance	0.032	0.008	0.057	2.615	0.009	
	Deslatte	Health	Social	0.053	-0.000	0.106	1.955	0.051	
	Hacquin et	Combined	Compliance	0.045	0.001	0.089	1.991	0.047	
	Hameleers	Gain frame	Compliance	0.051	0.011	0.091	2.512	0.012	
	Jordan et al.	Combined	Social	0.055	0.019	0.092	2.982	0.003	
	Lammers et	Overcome	Social	0.059	0.025	0.093	3.380	0.001	
	Lunn et al.	Identifiable	Social	0.061	0.029	0.093	3.702	0.000	
	Melo &	Combined	Compliance	0.054	0.022	0.086	3.333	0.001	
	Pfattheicher	Combined	Social	0.058	0.027	0.088	3.742	0.000	
	Pfattheicher	Combined	Social	0.061	0.032	0.089	4.209	0.000	
	Romano et	Linear	Wear mask	0.071	0.037	0.105	4.039	0.000	
	Sobkow et	Combined	Compliance	0.065	0.030	0.099	3.651	0.000	
	Utych &	Combined	Compliance	0.055	0.019	0.091	2.982	0.003	
Random				0.055	0.019	0.091	2.982	0.003	

Main results for Model 1, Random effects (MM), Z-Distribution, Fisher's Z

Set	Covariate	Coefficient	Standard Error	95% Lower	95% Upper	Z-value	2-sided P-value	
	Intercept	0.0199	0.0392	-0.0570	0.0967	0.51	0.6122	
Political Response	Political Response: Localised	0.0841	0.0486	-0.0111	0.1793	1.73	0.0834	
	Political Response: National	-0.0791	0.0723	-0.2209	0.0627	-1.09	0.2743	Q=7.69, df=3, p=0.0528
	Political Response:	-0.0103	0.0783	-0.1638	0.1432	-0.13	0.8953	

Statistics for Model 1

Test of the model: Simultaneous test that all coefficients (excluding intercept) are zero

Q = 7.69, df = 3, p = 0.0528

Goodness of fit: Test that unexplained variance is zero

Tau^2 = 0.0043, Tau = 0.0653, I^2 = 82.91%, Q = 52.68, df = 9, p = 0.0000

Comparison of Model 1 with the null model

Total between-study variance (intercept only)

Tau^2 = 0.0051, Tau = 0.0717, I^2 = 86.14%, Q = 86.55, df = 12, p = 0.0000

Proportion of total between-study variance explained by Model 1

R^2 analog = 0.17

Number of studies in the analysis 13

Main results for Model 1, Random effects (MM), Z-Distribution, Fisher's Z

Covariate	Coefficient	Standard Error	95% Lower	95% Upper	Z-value	2-sided P-value
Intercept	0.0456	0.1496	-0.2477	0.3389	0.30	0.7605
Age	0.0002	0.0036	-0.0068	0.0073	0.06	0.9489

Statistics for Model 1

Test of the model: Simultaneous test that all coefficients (excluding intercept) are zero

Q = 0.00, df = 1, p = 0.9489

Goodness of fit: Test that unexplained variance is zero

Tau^2 = 0.0041, Tau = 0.0640, I^2 = 82.67%, Q = 51.95, df = 9, p = 0.0000

Comparison of Model 1 with the null model

Total between-study variance (intercept only)

Tau^2 = 0.0039, Tau = 0.0624, I^2 = 82.70%, Q = 57.79, df = 10, p = 0.0000

Proportion of total between-study variance explained by Model 1

R^2 analog = 0.00 (computed value is -0.05)

Number of studies in the analysis 11

Begg and Mazumdar rank correlation

Kendall's S statistic (P-Q)	-16.00000

Kendall's tau without continuity correction

Tau	-0.13333
z-value for tau	0.72036
P-value (1-tailed)	0.23565
P-value (2-tailed)	0.47130

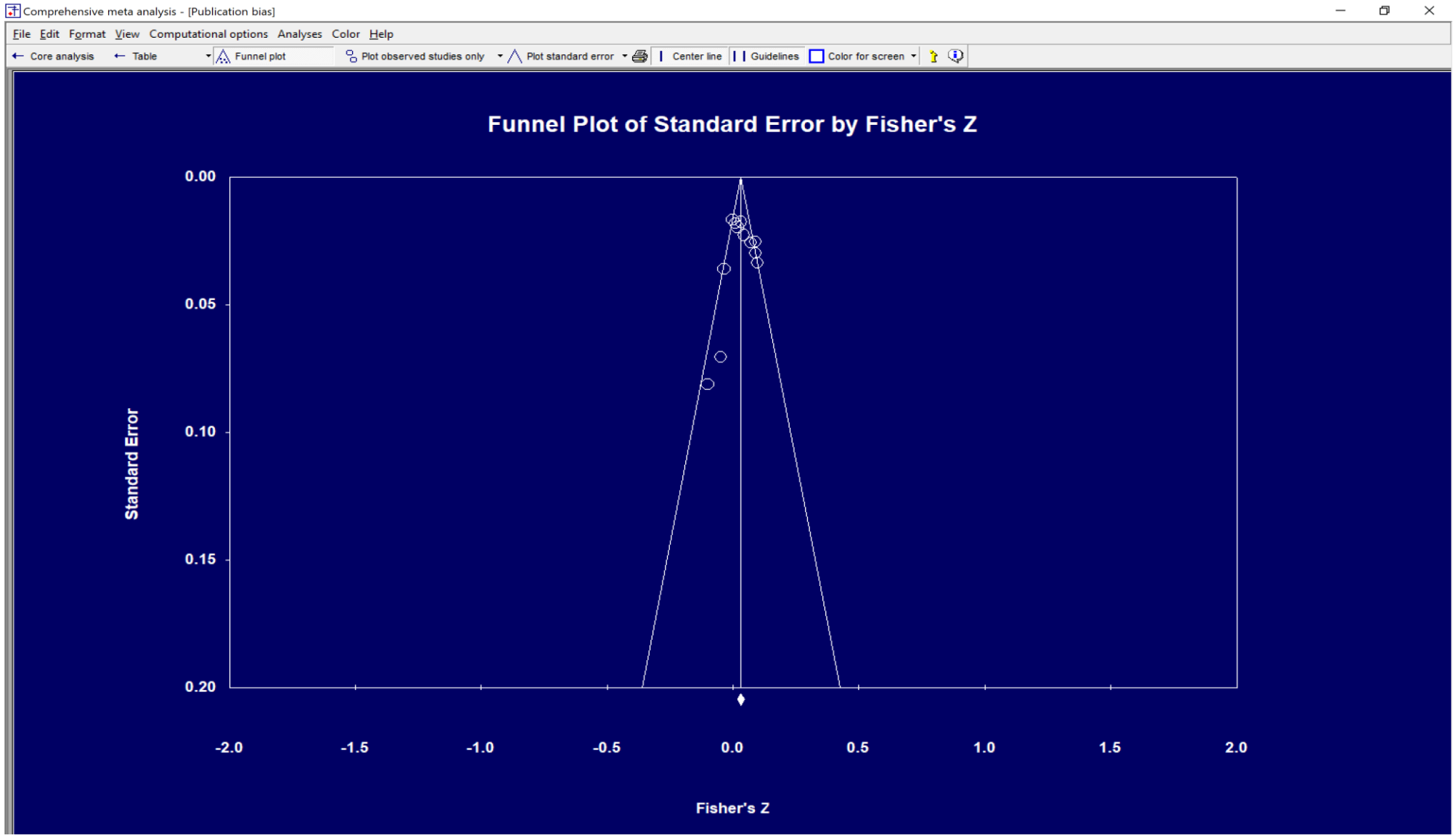
Kendall's tau with continuity correction

Tau	-0.12500
z-value for tau	0.67534
P-value (1-tailed)	0.24973
P-value (2-tailed)	0.49946

Egger's regression intercept

Intercept	-1.11145
Standard error	1.91879
95% lower limit (2-tailed)	-5.22685
95% upper limit (2-tailed)	3.00395
t-value	0.57925
df	14.00000
P-value (1-tailed)	0.28581
P-value (2-tailed)	0.57163

Funnel Plot


Comprehensive meta analysis - [Publication bias]
File Edit Format View Computational options Analyses Color Help
Core analysis
Table
Funnel plot
Plot observed studies only
Plot standard error
Center line
Guidelines
Color for screen
Funnel Plot of Standard Error by Fisher's Z
Standard Error
0.00
0.05
0.10
0.15
0.20
-2.0
-1.5
-1.0
-0.5
0.0
0.5
1.0
1.5
2.0
Fisher's Z