

## Systematic Reviews and Meta-Analysis

### Data Analysis Exercise – `metafor` package in R

Edwards and Holtzman (2017) conducted a systematic review of the relationship (correlation) between depression and frequency of the use of singular first-person pronouns (e.g., I, me, my).

Your job is to take the data from Edwards and Holtzman and produce:

- 1) The meta-analytic (combined) effect size
- 2) The meta-analytic confidence interval for the effect size
- 3) A measure of heterogeneity of the effect sizes
- 4) A forest plot of the effect sizes
- 5) A funnel plot to evaluate potential publication bias
- 6) A plot of the effect of leaving each out each study, one-at-a-time, on the combined effect
- 7) A test of whether or not the study was published relates to (moderates) the magnitude of the effect size

Use the random effects model for any analyses.

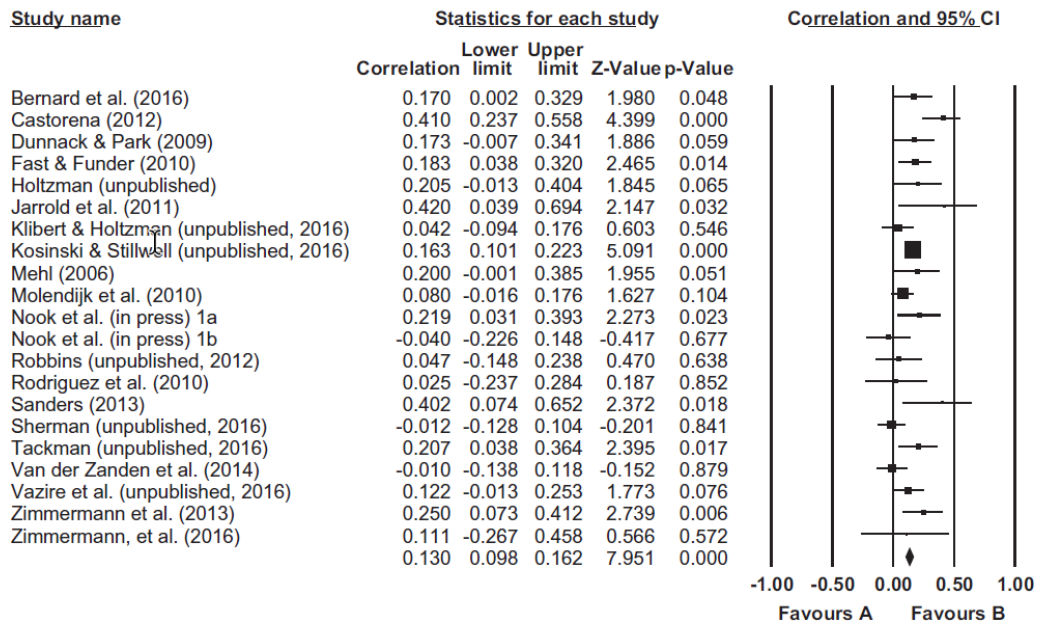
The data from the systematic review are displayed on the next page (and are also available in a CSV file on the course website)

#### Hints:

- 1) For the `rma` function, you will need the following arguments:
  - a. `ri` (correlations)
  - b. `ni` (sample sizes)
  - c. `method` (random effects, "REML")
  - d. `measure` (for correlation use "COR")
  - e. `slab` (study names)
  - f. `data` (dataset name in R)
- 2) For the moderator analysis, you will also need the argument `mods` (e.g., `mods=~X`, if X is your moderator)

**Table 1**  
Study, sample size (N), language task descriptions, depression measures, and mean age for each sample.

Study	N	Language task(s)	Depression measure(s)	Mean age
Bernard et al. (2015)	136	Write for 20 min about experiences since coming to college	CES-D	18.80
Castorena (2012)	105	Audio stream of consciousness about marital separation	BDI-II	40.40
Dunnack and Park (2009)	120	Journal about a serious loss	CES-D	n/a
Fast and Funder (2010)	181	Interviewed by clinician	BDI-II and the Brief Psychiatric Rating Scale	n/a
Holtzman (unpublished, 2014)	82	Interview with psychologist: life story; high point; low point; turning point	CES-D	19.69
Jarrold et al. (2011)	26	Structured interviews	CES-D	69.80
Klibert and Holtzman (unpublished, 2016)	211	Written stream of consciousness	CES-D	19.67
Kosinski & Stillwell (unpublished, 2016)	966	Facebook status updates	CES-D	26.65
Mehl (2006)	96	Audio from electronically activated recorder	BDI-Short	18.70
Molendijk et al. (2010)	412	Written essay about one's life	Symptom Check List-90: Depression Scale	37.90
Nook et al. (in press) Study 1a	107	Writing in response to neutral images	BDI	35.77
Nook et al. (in press) Study 1b	110	Writing in response to neutral images	BDI	36.53
Robbins (unpublished, 2012)	103	Conversations captured by EAR among couples in which the woman has a breast cancer diagnosis	CES-D	57.94
Rodriguez et al. (2010)	57	Personal diaries and online blogs	BDI	18.70
Sanders (2013)	34	Writing about a personal life experience	BDI-II	22.82
Sherman (unpublished, 2016)	287	Five minute interviews about one's personality	BDI-II	21.03
Tackman et al. (unpublished, 2016)	133	Spoke into video recorder about relationship separation	CES-D	43.13
Van der Zanden et al. (2014)	234	Written responses to (a) why one is applying to Master Your Mood; (b) personal problems	CES-D	20.00
Vazire et al. (unpublished, 2016)	211	Audio from Electronically Activated Recorder	CES-D	19.16
Zimmermann et al. (2013)	118	Semi-structured interview	BDI	32.80
Zimmermann et al. (2016)	29	Semi-structured interview	BDI	38.50



**Fig. 1.** Results of the meta-analysis. The correlation on the bottom row indicates the overall effect ( $r=0.130$ ,  $p<0.001$ ). (See above-mentioned references for further information.)