

Running head: EMPIRICAL STATUS OF MINDFULNESS

Supplemental Materials Table 1. Databases and search terms and fields

Database	Search String	Search Fields
PubMed	mindful* AND meta-analy*	all fields
CINAHL	mindful* AND meta-analy*	all fields
PsycINFO	mindful* AND meta-analy*	all fields
Scopus	mindful* AND meta-analy*	title, abstract, keywords
Web of Science	mindful* AND meta-analy*	all fields
Cochrane Database Systematic Reviews	mindful* AND meta-analy*	title, abstract, keywords

Running head: EMPIRICAL STATUS OF MINDFULNESS

Supplemental Materials Table 2. Study-level characteristics for included meta-analyses

Study	Treatment	Focus	Comparison	Population	Condition	k	n
Anheyer (2017)	MBSR/MBCT	Cond	passive (TAU)	NA	low back pain	4	326
Anheyer (2019)	MBSR/MBCT	Cond	passive (TAU)	NA	tension-type headache / migraines	5	195
Bawa (2015)	MBIs	Cond	passive, active	NA	chronic pain	9	453
Bohlmeijer (2010)	MBSR	Cond	passive (waitlist)	NA	adults with a chronic medical disease	4	
Chen (2019)	MBIs	Pop	passive (waitlist, TAU)	nursing or allied health care students	NA	4	624
Chiesa (2011)	MBCT	Int, cond	passive (TAU)	NA	depression	4	326
Cillessen (2019)	MBIs	Cond	passive, active	NA	cancer	29	3274
de Abreu Costa (2019)	MBSR/MBCT	Cond	active (CBT)	NA	anxiety disorders	4	275
Cuijpers (2019)	MBCT	Int, con	passive (waitlist)	NA	depression	4	

## Running head: EMPIRICAL STATUS OF MINDFULNESS

Demarzo (2015)	MBIs	Pop	passive, active	primary care patients	NA	6	553
Dunning (2019)	MBIs	Pop	passive, active	children/adolescents	NA	33	3666
Galante (2013)	MBCT	Cond	passive (TAU)	NA	depression	4	307
Goldberg (2018)	MBIs	Comp, cond	passive (no treatment), active (minimal treatment, non-specific active, specific active, EBT)	NA	various psychiatric conditions	14 2	1200 5
Goldberg (2019a)	MBCT	Int, cond	specific active	NA	depression	13	1046
Goldberg (2019b)	MBIs	Comp, out	passive, active	NA	various psychiatric conditions	55	4743
Goldberg (2020)	MBIs	Comp	active (bona fide treatments)	NA	various psychiatric conditions	60	5627
Goyal (2014)	MBIs	Comp, out	non-specific active controls, specific active controls	NA	clinical condition	36	2733
Halladay (2019)	MBIs	Pop	passive (waitlist), active (various)	post-secondary students	NA	41	4211
Haller (2017)	MBSR/MBCT	Cond, int	passive (TAU), active comparisons	NA	breast cancer	9	1314

Running head: EMPIRICAL STATUS OF MINDFULNESS

Hedman-Lagerlöf (2018)	MBIs	Comp, cond	placebo, TAU, active treatment, other treatment	NA	common psychiatric conditions	19	1291
Khoo (2019)	MBSR	Comp, cond	active (CBT)	NA	chronic pain	21	1842
Kuyken (2016)	MBCT	Int, cond	active, antidepressants	NA	depression	5	892
Lenz (2016)	MBCT	Int, cond	passive, active	NA	depression	31	2298
Li (2017)	MBIs	Cond	active	NA	substance misuse	12	1456
Li (2019)	MBSR	Pop	passive	older adults	NA	4	330
Linardon (2019)	MBIs	Out	passive (waitlist)	NA	NA	10	
Martin (2018)	self-help MBIs	Int	active	NA	NA	4	386
Norman (2019)	MBIs	Out	passive	NA	NA	4	435
Pascoe (2017)	MBIs	Out	active	NA	NA	5	
Phillips (2019)	e-health MBIs	Int, pop	passive	employees	NA	4	
Piet (2011)	MBCT	Cond, int	passive	NA	depression	4	352
Piet (2012)	MBSR/MBCT	Cond, int	passive (waitlist, TAU)	NA	cancer	9	959

## Running head: EMPIRICAL STATUS OF MINDFULNESS

Rusch (2019)	MBIs	Cond, comp	non-specific active controls, specific active controls	NA	sleep disturbance	18	1654
Sanada (2016)	MBIs	Out	passive	healthy adults	NA	4	115
Schell (2019)	MBSR	Cond, int	passive (no treatment)	NA	cancer	10	1571
Spijkerman (2016)	online MBIs	Int	passive	NA	NA	7	1174
Spinelli (2019)	MBIs	Pop	passive (no treatment, waitlist), active	healthcare professionals	NA	19	
Stratton (2017)	online MBIs	Int, out	passive (waitlist)	employees	NA	4	203
Strauss (2014)	MBIs	Cond	passive (TAU, waitlist), active (CBT, exercise, psychoeducation)	NA	depression, anxiety	12	578
Teleki (2010)	MBSR	Int, out	passive (waitlist)	NA	NA	12	613
Visted (2015)	Group-based MBIs	Out	passive (waitlist), active	NA	NA	72	2901
Wang (2018)	MBIs	Cond	passive (TAU), active (CBT, psychoeducation, walking control, HEP)	NA	depression	11	764
Zhang (2015)	MBIs	Cond	passive (waitlist)	NA	cancer	6	746

Running head: EMPIRICAL STATUS OF MINDFULNESS

---

Zhang (2016)	MBIs	Cond	passive (no treatment, TAU)	NA	breast cancer	5	737
--------------	------	------	-----------------------------	----	---------------	---	-----

---

Note: MBI = mindfulness-based intervention; MBSR = mindfulness-based stress reduction; MBCT = mindfulness-based cognitive therapy; Int = intervention focus; Cond = condition focus; Comp = comparison focus; Pop = population focus; TAU = treatment as usual; CBT = cognitive-behavioral therapy; HEP = Health Enhancement Program; EBT = evidence-based treatment; k = number of primary studies; n = number of participants; NA = not available.

## Running head: EMPIRICAL STATUS OF MINDFULNESS

Supplemental Materials Table 3. Effect-size level characteristics for included meta-analyses

Study	Comparison	Outcome	Timepoint	k	n	ES (d/g)	95% CI	I <sup>2</sup>	Pub Bias	FSN
Anheyer (2017)	passive	pain intensity	post	4	326	0.48	[0.14, 0.81]	0	NA	NA
Anheyer (2017)	passive	pain-related disability	post	4	326	0.38	[-0.04, 0.81]	0	NA	NA
Anheyer (2019)	passive	mindfulness	post	4	157	0.24	[-0.08, 0.55]	0	NA	NA
Anheyer (2019)	passive	pain intensity	post	5	195	0.78	[0.11, 1.45]	79	NA	NA
Bawa (2015)	passive	pain intensity	post	4	104	0.38	[-0.01, 0.78]	0	NA	NA
Bawa (2015)	active	pain intensity	post	5	349	0.09	[-0.13, 0.31]	0	NA	NA
Bohlmeijer (2010)	passive	anxiety	post	4	348	0.47	[0.11, 0.83]	53.95	NA	NA
Chen (2019)	passive	depression	post	4	624	0.39	[0.09, 0.68]	41	NA	NA
Chiesa (2011)	passive	depression	FU	4	326	0.66	[0.32, 0.98]	39	no evidence	NA
Cillessen (2019)	active	psychological distress	post	4	410	0.09	[-0.11, 0.28]	0	NA	NA
Cillessen (2019)	active	psychological distress	post	5	518	0.15	[-0.02, 0.32]	0	NA	NA
Cillessen (2019)	active	psychological distress	FU	7	772	0.01	[-0.14, 0.15]	0	NA	NA
Cillessen (2019)	passive	psychological distress	FU	11	1435	0.3	[0.14, 0.45]	46.1	no evidence	74
Cillessen (2019)	passive	psychological distress	post	20	2346	0.4	[0.29, 0.52]	38.9	no evidence	431
Cuijpers (2019)	passive	depression	post	4	NA	0.49	[0.27, 0.71]	0	NA	NA
de Abreu Costa (2019)	active	internalizing symptoms	post	4	275	0.17	[-0.06, 0.39]	39.15	no evidence	NA
Demarzo (2015)	active	combined mental health and quality of life	post	4	NA	-0.22	[-0.92, 0.48]	89	NA	NA
Demarzo (2015)	passive	combined mental health and quality of life	post	4	NA	1.22	[0.36, 2.07]	90	NA	NA
Dunning (2019)	passive	all measures	post	8	578	0.38	[0.24, 0.51]	61.5	NA	NA
Dunning (2019)	active	all measures	post	9	813	0.26	[0.15, 0.37]	64.57	NA	NA

Running head: EMPIRICAL STATUS OF MINDFULNESS

Dunning (2019)	active	all measures	post	11	1136	0.15	[0.09, 0.22]	65.46	NA	NA
Dunning (2019)	passive	all measures	post	11	1501	0.1	[0.04, 0.16]	67.99	NA	NA
Dunning (2019)	active	attention	post	5	787	0.13	[-0.01, 0.28]	0	no evidence	NA
Dunning (2019)	active	anxiety/stress	post	9	844	0.18	[0.05, 0.31]	0	no evidence	NA
Dunning (2019)	active	executive functions	post	7	958	0.1	[-0.03, 0.23]	5.1	no evidence	NA
Dunning (2019)	active	depression	post	6	520	0.47	[0.22, 0.72]	28.92	no evidence	NA
Dunning (2019)	active	all measures	post	17	1762	0.2	[0.14, 0.26]	67.08	no evidence	NA
Dunning (2019)	active	negative behavior	post	5	580	0.22	[-0.16, 0.59]	74.79	no evidence	NA
Dunning (2019)	active	social behavior	post	6	708	-0.07	[-0.46, 0.31]	79.14	no evidence	NA
Dunning (2019)	active	mindfulness	post	6	600	0.42	[0.16, 0.67]	44.9	yes, unclear direction	NA
Galante (2013)	passive	depression relapse	FU	4	307	0.65	[0.38, 0.89]	0	no evidence	
Goldberg (2018)	active	weight/eating	post	5	437	0.08	[-0.24, 0.39]	0	no evidence	NA
Goldberg (2018)	active	depression	FU	7	1064	0.04	[-0.13, 0.20]	0	no evidence	NA
Goldberg (2018)	active	anxiety	post	5	374	0.15	[-0.16, 0.46]	15	no evidence	NA
Goldberg (2018)	active	addiction	post	7	900	0.27	[0.02, 0.53]	18	no evidence	NA
Goldberg (2018)	passive	schizophrenia	post	7	456	0.5	[0.23, 0.76]	46	no evidence	NA
Goldberg (2018)	passive	depression	FU	12	2369	0.55	[0.25, 0.84]	60	no evidence	NA
Goldberg (2018)	passive	addiction	post	5	149	0.35	[-0.06, 0.76]	69	no evidence	NA
Goldberg (2018)	active	depression	post	9	762	0.38	[0.12, 0.64]	72	no evidence	NA
Goldberg (2018)	active	addiction	FU	4	900	0.38	[0.00, 0.76]	73	no evidence	NA
Goldberg (2018)	active	weight/eating	FU	5	437	0.18	[-0.16, 0.53]	74	no evidence	NA
Goldberg (2018)	active	pain	post	9	946	0.03	[-0.20, 0.26]	79	no evidence	NA
Goldberg (2018)	passive	anxiety	post	8	472	0.89	[0.62, 1.17]	81	no evidence	NA
Goldberg (2018)	passive	weight/eating	post	5	226	0.79	[0.44, 1.15]	82	no evidence	NA
Goldberg (2018)	active	depression	FU	6	762	0.35	[0.04, 0.67]	83	no evidence	NA
Goldberg (2018)	active	psychiatric symptoms	post	9	410	0.35	[0.09, 0.62]	62	no evidence	NA
Goldberg (2018)	active	psychiatric symptoms	post	28	2806	-0.004	[-0.15, 0.14]	65	no evidence	NA



## Running head: EMPIRICAL STATUS OF MINDFULNESS

Goldberg (2018)	active	psychiatric symptoms	FU	29	3810	0.29	[0.13, 0.45]	72	no evidence	NA
Goldberg (2018)	passive	psychiatric symptoms	FU	37	5748	0.5	[0.36, 0.65]	80	no evidence	NA
Goldberg (2018)	active	depression	post	10	1064	-0.01	[-0.19, 0.16]	0	yes, effect size increased	NA
Goldberg (2018)	active	anxiety	post	5	362	-0.18	[-0.41, 0.06]	38	yes, effect size increased	NA
Goldberg (2018)	active	pain	FU	8	946	0.18	[-0.07, 0.44]	51	yes, effect size increased	NA
Goldberg (2018)	active	psychiatric symptoms	FU	4	557	0.38	[-0.05, 0.82]	12	yes, effect size increased	NA
Goldberg (2018)	active	psychiatric symptoms	post	4	557	0.37	[0.03, 0.71]	33	yes, effect size increased	NA
Goldberg (2018)	active	psychiatric symptoms	FU	4	410	0.52	[0.05, 0.99]	73	yes, effect size increased	NA
Goldberg (2018)	active	smoking cessation	post	4	587	0.42	[0.20, 0.64]	11	yes, effect size reduced	NA
Goldberg (2018)	passive	depression	post	30	2369	0.59	[0.46, 0.73]	35	yes, effect size reduced	NA
Goldberg (2018)	passive	pain	post	24	1534	0.45	[0.30, 0.60]	46	yes, effect size reduced	NA
Goldberg (2018)	passive	pain	FU	12	1534	0.48	[0.19, 0.78]	54	yes, effect size reduced	NA
Goldberg (2018)	active	psychiatric symptoms	FU	15	2806	0.09	[-0.14, 0.33]	67	yes, effect size reduced	NA
Goldberg (2018)	passive	schizophrenia	FU	4	456	1.18	[0.71, 1.65]	97	yes, effect size reduced	NA
Goldberg (2018)	passive	psychiatric symptoms	post	89	5748	0.55	[0.47, 0.63]	58	yes, effect size reduced	NA
Goldberg (2018)	active	psychiatric symptoms	post	42	3810	0.23	[0.12, 0.34]	61	yes, effect size reduced	NA
Goldberg (2019a)	active	depression	post	6	447	0.002	[-0.43, 0.44]	65.34	no evidence	0
Goldberg (2019a)	active	depression	FU	4	324	0.26	[-0.24, 0.75]	59.31	yes, effect size reduced	1
Goldberg (2019b)	active	psychiatric symptoms	FU	19	2020	0.18	[0.06, 0.30]	42.71	no evidence	NA
Goldberg (2019b)	active	mindfulness	post	30	2863	0.25	[0.11, 0.38]	59.85	no evidence	NA

Running head: EMPIRICAL STATUS OF MINDFULNESS

Goldberg (2019b)	passive	psychiatric symptoms	FU	6	296	0.27	[-0.14, 0.67]	70.34	no evidence	NA
Goldberg (2019b)	active	psychiatric symptoms	post	30	2863	0.16	[0.07, 0.24]	18.67	yes, effect size increased	NA
Goldberg (2019b)	passive	mindfulness	post	25	1415	0.52	[0.40, 0.64]	17.45	yes, effect size reduced	NA
Goldberg (2019b)	passive	mindfulness	FU	5	234	0.52	[0.20, 0.84]	21.65	yes, effect size reduced	NA
Goldberg (2019b)	passive	psychiatric symptoms	post	25	1415	0.37	[0.25, 0.50]	36.34	yes, effect size reduced	NA
Goldberg (2019b)	active	mindfulness	FU	13	1430	0.1	[-0.08, 0.28]	58.54	yes, effect size reduced	NA
Goldberg (2020)	active	psychiatric symptoms	post	58	5627	0.13	[0.03, 0.23]	69.7	NA	NA
Goyal (2014)	active	pain	post	4	341	0.33	[0.03, 0.62]	NA	NA	NA
Goyal (2014)	active	anxiety	post	8	647	0.38	[0.12, 0.64]	NA	NA	NA
Goyal (2014)	active	depression	post	10	806	0.3	[0.00, 0.59]	NA	NA	NA
Goyal (2014)	active	anxiety	FU	NA	NA	0.22	[0.02, 0.43]	NA	NA	NA
Goyal (2014)	active	depression	FU	NA	NA	0.23	[0.05, 0.42]	NA	NA	NA
Halladay (2019)	active	depression	post	9	830	-0.04	[-0.22, 0.13]	29	NA	NA
Halladay (2019)	active	anxiety	post	7	663	-0.13	[-0.34, 0.08]	39	NA	NA
Halladay (2019)	active	stress	post	6	605	0.08	[-0.16, 0.30]	47	NA	NA
Halladay (2019)	passive	depression	post	20	1266	0.49	[0.30, 0.68]	59	NA	NA
Haller (2017)	passive	sleep	post	4	504	0.23	[0.05, 0.40]	0	NA	NA
Haller (2017)	passive	fatigue	post	5	764	0.28	[0.14, 0.43]	0	NA	NA
Haller (2017)	passive	anxiety	post	9	1314	0.28	[0.16, 0.39]	6	NA	NA
Haller (2017)	passive	depression	post	8	1249	0.34	[0.21, 0.46]	16	NA	NA
Haller (2017)	passive	anxiety	FU	5	778	0.28	[0.09, 0.47]	35	NA	NA
Haller (2017)	passive	quality of life	post	7	958	0.21	[0.04, 0.39]	41	NA	NA
Haller (2017)	passive	depression	FU	4	722	0.26	[0.04, 0.47]	45	NA	NA
Haller (2017)	passive	stress	post	5	619	0.33	[0.05, 0.61]	60	NA	NA

## Running head: EMPIRICAL STATUS OF MINDFULNESS

Hedman-Lagerlöf (2018)	active	psychiatric symptoms	post	6	NA	0.17	[-0.05, 0.39]	33	no evidence	NA
Hedman-Lagerlöf (2018)	active	psychiatric symptoms	post	5	NA	0.18	[-0.20, 0.56]	54	no evidence	NA
Hedman-Lagerlöf (2018)	passive	psychiatric symptoms	post	6	NA	0.4	[0.19, 0.61]	0	yes, effect size reduced	NA
Hedman-Lagerlöf (2018)	active	psychiatric symptoms	post	8	NA	-0.01	[-0.35, 0.33]	64	yes, effect size reduced	NA
Khoo (2019)	passive	depression	post	6	658	0.49	[0.24, 0.74]	59.06	NA	NA
Khoo (2019)	passive	physical functioning	post	5	566	0.38	[0.09, 0.68]	62.45	NA	NA
Khoo (2019)	passive	pain intensity	post	5	418	0.33	[-0.09, 0.74]	78.53	NA	NA
Khoo (2019)	active	depression	post	14	1163	0.24	[-0.59, 1.95]	NA	NA	NA
Khoo (2019)	active	physical functioning	post	15	1177	-0.02	[-0.83, 0.65]	NA	NA	NA
Khoo (2019)	active	pain intensity	post	17	1221	0.02	[-0.53, 0.59]	NA	NA	NA
Kuyken (2016)	active	depression relapse	FU	4	637	0.17	[0.01, 0.35]	0	NA	NA
Kuyken (2016)	active	depression relapse	FU	5	892	0.16	[0.01, 0.31]	0	NA	NA
Lenz (2016)	active	depression	FU	7	NA	0.16	[0.01, 0.30]	0	NA	12
Lenz (2016)	passive	depression	FU	4	NA	0.97	[0.26, 1.68]	88.24	NA	66
Lenz (2016)	active	depression	post	16	NA	0.54	[0.36, 0.73]	46.15	NA	376
Lenz (2016)	passive	depression	post	16	NA	0.76	[0.56, 0.95]	51.08	NA	722
Li (2017)	active	craving	post	6	627	0.63	[0.08, 1.17]	NA	NA	NA
Li (2017)	active	smoking cessation	post	4	473	0.31	[-0.01, 0.63]	34.5	yes, effect size reduced	NA
Li (2017)	active	substance misuse	post	6	700	0.33	[0.17, 0.49]	5	yes, unclear direction	NA
Li (2019)	passive	depression	post	4	330	0.74	[-0.20, 1.68]	92	NA	NA
Linardon (2019)	passive	disordered eating behaviors	post	4	NA	0.29	[-0.13, 0.71]	NA	NA	NA
Linardon (2019)	passive	body image concerns	post	6	NA	0.08	[-0.01, 0.16]	NA	NA	NA
Martin (2018)	active	depression	post	4	386	0.32	[-0.01, 0.66]	63	NA	NA

Running head: EMPIRICAL STATUS OF MINDFULNESS

Norman (2019)	passive	alexithymia	FU	4	435	0.48	[0.15, 0.81]	42	NA	NA
Norman (2019)	passive	alexithymia	post	4	441	0.38	[0.00, 0.76]	56	NA	NA
Pascoe (2017)	active	IL-6	post	4	98	0.04	[-0.02, 0.12]	0	NA	NA
Pascoe (2017)	active	resting heart rate	post	5	240	0.26	[0.01, 0.52]	0	NA	NA
Pascoe (2017)	active	c-reactive protein	post	5	298	0.16	[-0.07, 0.39]	0	NA	NA
Pascoe (2017)	active	ambulatory heart rate	post	4	310	0.16	[-0.06, 0.38]	0	NA	NA
Pascoe (2017)	active	diastolic blood pressure	post	5	359	0.11	[-0.10, 0.32]	0	NA	NA
Pascoe (2017)	active	systolic blood pressure	post	5	359	0.22	[-0.03, 0.47]	36.65	NA	NA
Phillips (2019)	passive	mindfulness	post	4	NA	0.43	[0.20, 0.66]	17.14	NA	NA
Piet (2011)	passive	depression	FU	4	302	0.63	[0.37, 0.89]	12	NA	NA
Piet (2011)	passive	depression	FU	4	352	0.45	[0.21, 0.68]	24	NA	NA
Piet (2012)	passive	depression	FU	4	576	0.19	[0.03, 0.36]	0	NA	1
Piet (2012)	passive	anxiety	FU	4	581	0.26	[0.10, 0.42]	0	NA	4
Piet (2012)	passive	mindfulness	post	5	513	0.39	[0.20, 0.58]	9	NA	21
Piet (2012)	passive	depression	post	9	955	0.44	[0.24, 0.64]	51	no evidence	82
Piet (2012)	passive	anxiety	post	9	959	0.37	[0.24, 0.50]	0	yes, effect size reduced	66
Rusch (2019)	active	sleep quality	FU	4	527	-0.14	[-0.62, 0.34]	84	NA	NA
Rusch (2019)	active	sleep quality	post	7	716	-0.03	[-0.49, 0.43]	88	NA	NA
Sanada (2016)	passive	cortisol	post	4	115	0.48	[-0.39, 1.35]	79	NA	NA
Schell (2019)	passive	sleep	post	4	475	0.38	[-0.04, 0.79]	NA	NA	NA
Schell (2019)	passive	fatigue	FU	4	607	0.31	[-0.23, 0.84]	NA	NA	NA
Schell (2019)	passive	sleep	FU	4	654	0.27	[-0.08, 0.63]	NA	NA	NA
Schell (2019)	passive	fatigue	post	5	693	0.5	[0.14, 0.86]	NA	NA	NA
Schell (2019)	passive	depression	post	6	745	0.54	[0.22, 0.86]	NA	NA	NA
Schell (2019)	passive	anxiety	post	6	749	0.29	[0.08, 0.50]	NA	NA	NA
Schell (2019)	passive	anxiety	FU	7	1094	0.28	[0.07, 0.49]	NA	NA	NA

## Running head: EMPIRICAL STATUS OF MINDFULNESS

Schell (2019)	passive	depression	FU	7	1097	0.32	[0.06, 0.58]	NA	NA	NA
Spijkerman (2016)	passive	stress	post	7	1174	0.54	[0.27, 0.82]	85.18	NA	NA
Spinelli (2019)	passive	mindfulness	FU	7	NA	0.34	[0.17, 0.52]	0	NA	NA
Spinelli (2019)	active	overall	post	9	NA	0.22	[0.03, 0.42]	0	NA	NA
Stratton (2017)	passive	stress	FU	4	215	0.32	[-0.09, 0.73]	0	NA	NA
Strauss (2014)	active	depression, anxiety	post	5	211	-0.03	[-0.54, 0.48]	68	NA	NA
Strauss (2014)	passive	depression, anxiety	post	7	367	1.03	[0.40, 1.66]	87	NA	NA
Teleki (2010)	passive	psychological outcomes	post	6	197	0.66	[0.37, 0.96]	NA	NA	NA
Teleki (2010)	passive	psychological outcomes	post	5	320	0.34	[0.11, 0.57]	NA	NA	NA
Teleki (2010)	passive	psychological outcomes	post	12	613	0.54	[0.33, 0.75]	NA	yes, effect size reduced	NA
Visted (2015)	active	mindfulness	post	12	NA	0.1	[-0.05, 0.26]	NA	NA	NA
Visted (2015)	passive	mindfulness	post	16	NA	0.47	[0.23, 0.70]	NA	NA	NA
Wang (2018)	active	depression	post	8	475	0.24	[-0.16, 0.64]	75	no evidence	NA
Wang (2018)	passive	depression	post	4	247	1.27	[0.66, 1.88]	77	yes, unclear direction	NA
Zhang (2015)	passive	anxiety	post	4	406	0.25	[-0.28, 0.77]	0	NA	NA
Zhang (2015)	passive	depression	post	4	406	0.6	[0.38, 0.81]	0	NA	NA
Zhang (2015)	passive	anxiety	post	4	520	1	[-0.04, 2.03]	95.86	NA	NA
Zhang (2015)	passive	depression	post	4	520	1.05	[-0.22, 2.31]	97.13	NA	NA
Zhang (2016)	passive	anxiety	post	4	681	0.31	[0.16, 0.46]	18	NA	NA
Zhang (2016)	passive	depression	post	5	737	1.13	[0.41, 1.85]	95	NA	NA

Note: ES = effect size; CI = confidence interval; FSN = fail-safe N; NA = not available; FU = follow-up; k = number of studies; n = number of participants.

Running head: EMPIRICAL STATUS OF MINDFULNESS

Supplemental Materials Table 4. PICOS subcategories

PICOS category	Subcategory	Description in meta-analyses
Population	Children	Children/adolescents
Population	Adults	Adults, employees, healthcare professionals, healthy adults, non-clinical community volunteers, nursing or allied health care students, older adults, post-secondary students
Population	Older adults	Older adults
Population	Employees	Employees, healthcare professionals
Population	Healthcare workers and healthcare trainees	Healthcare professionals, nursing or allied health care students
Population	Students	Nursing or allied health care students, post-secondary students
Problem	Psychiatric condition	Addiction, anxiety, anxiety disorders, chronic headache, chronic pain, common psychiatric conditions, depression, depression, anxiety, depression with three or more previous episodes, depression, anxiety, low back pain, pain, psychiatric conditions, schizophrenia, sleep disturbance, smoking, substance misuse, various psychiatric disorders, weight/eating disorders
Problem	Physical health condition	Chronic medical disease, breast cancer, cancer, chronic headache, chronic pain, low back pain, medical diagnoses, mixed cancer, pain, weight/eating
Problem	Cancer	Breast cancer, cancer, mixed cancer
Problem	Pain conditions	Chronic headache, chronic pain, pain, low back pain
Problem	Eating and weight-related conditions	Weight/eating disorders
Problem	Schizophrenia and psychotic disorders	Schizophrenia
Problem	Anxiety	Anxiety, anxiety disorders
Problem	Depression	Depression, depression in remission, depression with three or more previous episodes
Problem	Depression in remission	Depression in remission

## Running head: EMPIRICAL STATUS OF MINDFULNESS

---

Problem	Substance use	Addiction, substance misuse
Problem	Smoking	Smoking
Intervention	MBIs	various MBIs
Intervention	MBSR	MBSR
Intervention	MBCT	MBCT
Intervention	MBSR/MBCT	MBSR/MBCT
Intervention	mHealth	e-health MBIs, online MBIs, self-help MBIs
Comparison	Passive	Waitlist, no treatment, treatment-as-usual, usual care
Comparison	Active	Antidepressants, attention placebo, bona fide treatment comparison, CBT, competing intervention, placebo
Comparison	Specific active	Antidepressants, bona fide treatment comparison, CBT, competing intervention
Comparison	Evidence-based treatment	Antidepressants, CBT
Outcome	Psychological symptoms	Addiction, anxiety, anxiety/stress, body image concerns, craving, depression, depression, anxiety, depression relapse, disordered eating behaviors, internalizing symptoms, negative behavior, psychiatric symptoms, psychological distress, schizophrenia, sleep, sleep quality, smoking cessation, stress, substance misuse, weight/eating
Outcome	Stress	Anxiety/stress, psychological distress, stress
Outcome	Physical health symptoms	Pain, pain intensity, pain-related disability, physical functioning, sleep, sleep quality
Outcome	Physiology	C-reactive protein, diastolic blood pressure, IL-6, resting heart rate, ambulatory heart rate, systolic blood pressure
Outcome	Well-being	Quality of life
Outcome	Mindfulness	Mindfulness
Outcome	Objective measures	Ambulatory heart rate, attention, c-reactive protein, cortisol, diastolic blood pressure, executive functions, IL-6, resting heart rate, systolic blood pressure
Outcome	Sleep	Sleep, sleep quality, total sleep time

---

Running head: EMPIRICAL STATUS OF MINDFULNESS

Note: CBT = cognitive behavior therapy; IL-6 = interleukin-6; MBI = mindfulness-based intervention; MBSR = mindfulness-based stress reduction; MBCT = mindfulness-based cognitive therapy.



## Running head: EMPIRICAL STATUS OF MINDFULNESS

Supplemental Materials Table 5. Post-treatment comparisons with specific active controls across PICOS

PICOS	Subcategory	k <sub>all</sub>	ES <sub>all</sub>	ES <sub>all</sub> Min	ES <sub>all</sub> Max	Rep Study	k <sub>rep</sub>	n <sub>rep</sub>	ES <sub>rep</sub>	95% CI <sub>rep</sub>	I <sup>2</sup> <sub>rep</sub>
Population	Children	1	1	0.26	0.26	Dunning (2019)	9	813	0.26	0.15, 0.37	64.57
Population	Adults	13	28	-0.18	0.63	Goldberg (2020)	58	5627	0.13	0.03, 0.23	69.7
Population	Older adults	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Population	Employees	1	1	0.22	0.22	Spinelli (2019)	9	NA	0.22	0.03, 0.42	0
Population	Healthcare	1	1	0.22	0.22	Spinelli (2019)	9	NA	0.22	0.03, 0.42	0
Population	Students	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Problem	Psychiatric	12	27	-0.18	0.63	Goldberg (2020)	58	5627	0.13	0.03, 0.23	69.7
Problem	Physical	3	6	-0.02	0.24	Khoo (2019)	17	1221	0.02	-0.53, 0.59	NA
Problem	Cancer	1	1	0.09	0.09	Cillessen (2019)	4	410	0.09	-0.11, 0.28	0
Problem	Pain	2	4	-0.02	0.24	Khoo (2019)	17	1221	0.02	-0.53, 0.59	NA
Problem	Weight/eating	1	1	0.08	0.08	Goldberg (2018)	5	437	0.08	-0.24, 0.39	0
Problem	Psychotic	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Problem	Anxiety	2	3	-0.18	0.17	Goldberg (2018)	5	362	-0.18	-0.41, 0.06	38
Problem	Depression	4	5	-0.01	0.54	Lenz (2016)	16	NA	0.54	0.36, 0.73	46.15
Problem	MDD relapse	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Problem	Substance use	2	4	0.27	0.63	Goldberg (2018)	7	900	0.27	0.02, 0.53	18
Problem	Smoking	1	1	0.42	0.42	Goldberg (2018)	4	587	0.42	0.20, 0.64	11
Interv	Various MBIs	12	25	-0.18	0.63	Goldberg (2020)	58	5627	0.13	0.03, 0.23	69.7
Interv	MBSR	1	3	-0.02	0.24	Khoo (2019)	17	1221	0.02	-0.53, 0.59	NA
Interv	MBCT	2	2	0.002	0.54	Lenz (2016)	16	NA	0.54	0.36, 0.73	46.15
Interv	MBSR/MBCT	4	6	-0.02	0.54	Khoo (2019)	17	1221	0.02	-0.53, 0.59	NA
Interv	mHealth	1	1	0.32	0.32	Martin (2018)	4	386	0.32	-0.01, 0.66	63
Outcome	Psych sx	14	25	-0.18	0.63	Goldberg (2020)	58	5627	0.13	0.03, 0.23	69.7
Outcome	Stress	1	1	0.09	0.09	Cillessen (2019)	4	410	0.09	-0.11, 0.28	0
Outcome	Phys sx	3	4	-0.03	0.03	Khoo (2019)	17	1221	0.02	-0.53, 0.59	NA
Outcome	Physiology	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Outcome	Well-being	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Running head: EMPIRICAL STATUS OF MINDFULNESS

Outcome	Mindfulness	2	2	0.1	0.25	Goldberg (2019b)	30	2863	0.25	0.11, 0.38	59.85
Outcome	Objective	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Outcome	Sleep	1	1	-0.03	-0.03	Rusch (2019)	7	716	-0.03	-0.49, 0.43	88

Note: PICOS = populations, problems, interventions, comparisons, outcomes, and study design; Subcategory = PICOS subcategory;  $k_{all}$  = number of meta-analyses providing effect size for PICOS subcategory; Min = minimum effect size for subcategory;  $ES_{all}$  Max = maximum effect size for subcategory; Rep Study = meta-analysis that included the effect size based on the largest number of studies for PICOS subcategory;  $k_{rep}$  = number of studies in representative effect size;  $n_{rep}$  = number of participants for representative effect size;  $ES_{rep}$  = representative effect size; 95%  $CI_{rep}$  = confidence interval for representative effect size;  $I^2_{rep}$  = heterogeneity for representative effect size; NA = not available; sx = symptoms; MDD = major depressive disorder; MBI = mindfulness-based intervention; MBSR = mindfulness-based stress reduction; MBCT = mindfulness-based cognitive therapy; mHealth = mobile health; Phys = physical; Psych = psychiatric; Interv = intervention.

## Running head: EMPIRICAL STATUS OF MINDFULNESS

Supplemental Materials Table 6. Follow-up comparisons with specific active controls across PICOS

PICOS	Subcategory	k <sub>all</sub>	ES <sub>all</sub>	ES <sub>all</sub> Min	ES <sub>all</sub> Max	Rep Study	k <sub>rep</sub>	n <sub>rep</sub>	ES <sub>rep</sub>	95% CI <sub>rep</sub>	I <sup>2</sup> <sub>rep</sub>
Population	Children	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Population	Adults	5	13	-0.14	0.38	Goldberg (2018)	29	3810	0.29	0.13, 0.45	72
Population	Older adults	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Population	Employees	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Population	Healthcare	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Population	Students	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Problem	Psychiatric	6	14	-0.14	0.38	Goldberg (2018)	29	3810	0.29	0.13, 0.45	72
Problem	Physical	1	2	0.18	0.18	Goldberg (2018)	8	946	0.18	-0.07, 0.44	51
Problem	Cancer	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Problem	Pain	1	1	0.18	0.18	Goldberg (2018)	8	946	0.18	-0.07, 0.44	51
Problem	Weight/eating	1	1	0.18	0.18	Goldberg (2018)	5	437	0.18	-0.16, 0.53	74
Problem	Psychotic	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Problem	Anxiety	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Problem	Depression	4	6	0.04	0.35	Goldberg (2018)	7	1064	0.04	-0.13, 0.20	0
Problem	MDD relapse	1	2	0.16	0.17	Kuyken (2016)	5	892	0.16	0.01, 0.31	0
Problem	Substance use	1	1	0.38	0.38	Goldberg (2018)	4	900	0.38	0.00, 0.76	73
Problem	Smoking	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Interv	Various MBIs	3	10	-0.14	0.38	Goldberg (2018)	29	3810	0.29	0.13, 0.45	72
Interv	MBSR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Interv	MBCT	3	4	0.16	0.26	Lenz (2016)	7	NA	0.16	0.01, 0.30	0
Interv	MBSR/MBCT	3	4	0.16	0.26	Lenz (2016)	7	NA	0.16	0.01, 0.30	0
Interv	mHealth	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Outcome	Psych sx	6	12	-0.14	0.38	Goldberg (2018)	29	3810	0.29	0.13, 0.45	72
Outcome	Stress	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Outcome	Phys sx	2	2	-0.14	0.18	Goldberg (2018)	8	946	0.18	-0.07, 0.44	51
Outcome	Physiology	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Outcome	Well-being	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Running head: EMPIRICAL STATUS OF MINDFULNESS

Outcome	Mindfulness	1	1	0.1	0.1	Goldberg (2019b)	13	1430	0.1	-0.08, 0.28	58.54
Outcome	Objective	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Outcome	Sleep	1	1	-0.14	-0.14	Rusch (2019)	4	527	-0.14	-0.62, 0.34	84

Note: PICOS = populations, problems, interventions, comparisons, outcomes, and study design; Subcategory = PICOS subcategory;  $k_{all}$  = number of meta-analyses providing effect size for PICOS subcategory; Min = minimum effect size for subcategory;  $ES_{all}$  Max = maximum effect size for subcategory; Rep Study = meta-analysis that included the effect size based on the largest number of studies for PICOS subcategory;  $k_{rep}$  = number of studies in representative effect size;  $n_{rep}$  = number of participants for representative effect size;  $ES_{rep}$  = representative effect size; 95%  $CI_{rep}$  = confidence interval for representative effect size;  $I^2_{rep}$  = heterogeneity for representative effect size; NA = not available; sx = symptoms; MDD = major depressive disorder; MBI = mindfulness-based intervention; MBSR = mindfulness-based stress reduction; MBCT = mindfulness-based cognitive therapy; mHealth = mobile health; Phys = physical; Psych = psychiatric; Interv = intervention.

## Running head: EMPIRICAL STATUS OF MINDFULNESS

Supplemental Materials Table 7. Post-treatment comparisons with evidence-based treatments across PICOS

PICOS	Subcategory	k <sub>all</sub>	ES <sub>all</sub>	ES <sub>all</sub> Min	ES <sub>all</sub> Max	Rep Study	k <sub>rep</sub>	n <sub>rep</sub>	ES <sub>rep</sub>	95% CI <sub>rep</sub>	I <sup>2</sup> <sub>rep</sub>
Population	Children	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Population	Adults	2	7	-0.18	0.42	Goldberg (2018)	28	2806	-0.004	-0.15, 0.14	65
Population	Older adults	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Population	Employees	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Population	Healthcare	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Population	Students	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Problem	Psychiatric	3	8	-0.18	0.42	Goldberg (2018)	28	2806	-0.004	-0.15, 0.14	65
Problem	Physical	1	3	-0.02	0.24	Khoo (2019)	17	1221	0.02	-0.53, 0.59	NA
Problem	Cancer	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Problem	Pain	1	3	-0.02	0.24	Khoo (2019)	17	1221	0.02	-0.53, 0.59	NA
Problem	Weight/eating	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Problem	Psychotic	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Problem	Anxiety	2	2	-0.18	0.17	Goldberg (2018)	5	362	-0.18	-0.41, 0.06	38
Problem	Depression	1	1	-0.01	-0.01	Goldberg (2018)	10	1064	-0.01	-0.19, 0.16	0
Problem	MDD relapse	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Problem	Substance use	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Problem	Smoking	1	1	0.42	0.42	Goldberg (2018)	4	587	0.42	0.20, 0.64	11
Interv	Various MBIs	1	4	-0.18	0.42	Goldberg (2018)	28	2806	-0.004	-0.15, 0.14	65
Interv	MBSR	1	3	-0.02	0.24	Khoo (2019)	17	1221	0.02	-0.53, 0.59	NA
Interv	MBCT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Interv	MBSR/MBCT	2	4	-0.02	0.24	Khoo (2019)	17	1221	0.02	-0.53, 0.59	NA
Interv	mHealth	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Outcome	Psych sx	3	6	-0.18	0.42	Goldberg (2018)	28	2806	-0.004	-0.15, 0.14	65
Outcome	Stress	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Outcome	Phys sx	1	2	-0.02	0.02	Khoo (2019)	17	1221	0.02	-0.53, 0.59	NA
Outcome	Physiology	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Outcome	Well-being	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Running head: EMPIRICAL STATUS OF MINDFULNESS

Outcome	Mindfulness	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Outcome	Objective	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Outcome	Sleep	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Note: PICOS = populations, problems, interventions, comparisons, outcomes, and study design; Subcategory = PICOS subcategory;  $k_{all}$  = number of meta-analyses providing effect size for PICOS subcategory; Min = minimum effect size for subcategory;  $ES_{all}$  Max = maximum effect size for subcategory; Rep Study = meta-analysis that included the effect size based on the largest number of studies for PICOS subcategory;  $k_{rep}$  = number of studies in representative effect size;  $n_{rep}$  = number of participants for representative effect size;  $ES_{rep}$  = representative effect size; 95%  $CI_{rep}$  = confidence interval for representative effect size;  $I^2_{rep}$  = heterogeneity for representative effect size; NA = not available; sx = symptoms; MDD = major depressive disorder; MBI = mindfulness-based intervention; MBSR = mindfulness-based stress reduction; MBCT = mindfulness-based cognitive therapy; mHealth = mobile health; Phys = physical; Psych = psychiatric; Interv = intervention.

## Running head: EMPIRICAL STATUS OF MINDFULNESS

Supplemental Materials Table 8. Follow-up comparisons with evidence-based treatments across PICOS

PICOS	Subcategory	k <sub>all</sub>	ES <sub>all</sub>	ES <sub>all</sub> Min	ES <sub>all</sub> Max	Rep Study	k <sub>rep</sub>	n <sub>rep</sub>	ES <sub>rep</sub>	95% CI <sub>rep</sub>	I <sup>2</sup> <sub>rep</sub>
Population	Children	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Population	Adults	2	3	0.04	0.17	Goldberg (2018)	15	2806	0.09	-0.14, 0.33	67
Population	Older adults	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Population	Employees	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Population	Healthcare	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Population	Students	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Problem	Psychiatric	2	3	0.04	0.17	Goldberg (2018)	15	2806	0.09	-0.14, 0.33	67
Problem	Physical	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Problem	Cancer	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Problem	Pain	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Problem	Weight/eating	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Problem	Psychotic	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Problem	Anxiety	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Problem	Depression	2	2	0.04	0.17	Goldberg (2018)	7	1064	0.04	-0.13, 0.20	0
Problem	MDD relapse	1	1	0.17	0.17	Kuyken (2016)	4	637	0.17	0.01, 0.35	0
Problem	Substance use	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Problem	Smoking	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Interv	Various MBIs	1	2	0.04	0.09	Goldberg (2018)	15	2806	0.09	-0.14, 0.33	67
Interv	MBSR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Interv	MBCT	1	1	0.17	0.17	Kuyken (2016)	4	637	0.17	0.01, 0.35	0
Interv	MBSR/MBCT	1	1	0.17	0.17	Kuyken (2016)	4	637	0.17	0.01, 0.35	0
Interv	mHealth	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Outcome	Psych sx	2	3	0.04	0.17	Goldberg (2018)	15	2806	0.09	-0.14, 0.33	67
Outcome	Stress	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Outcome	Phys sx	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Outcome	Physiology	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Outcome	Well-being	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Running head: EMPIRICAL STATUS OF MINDFULNESS

Outcome	Mindfulness	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Outcome	Objective	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Outcome	Sleep	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Note: PICOS = populations, problems, interventions, comparisons, outcomes, and study design; Subcategory = PICOS subcategory;  $k_{all}$  = number of meta-analyses providing effect size for PICOS subcategory; Min = minimum effect size for subcategory;  $ES_{all}$  Max = maximum effect size for subcategory; Rep Study = meta-analysis that included the effect size based on the largest number of studies for PICOS subcategory;  $k_{rep}$  = number of studies in representative effect size;  $n_{rep}$  = number of participants for representative effect size;  $ES_{rep}$  = representative effect size; 95%  $CI_{rep}$  = confidence interval for representative effect size;  $I^2_{rep}$  = heterogeneity for representative effect size; NA = not available; sx = symptoms; MDD = major depressive disorder; MBI = mindfulness-based intervention; MBSR = mindfulness-based stress reduction; MBCT = mindfulness-based cognitive therapy; mHealth = mobile health; Phys = physical; Psych = psychiatric; Interv = intervention.



## Running head: EMPIRICAL STATUS OF MINDFULNESS

Supplemental Materials Table 9. Results of moderator tests

Moderator	# of tests	# significant	Description
Study quality	29	4	Smaller effects in studies using non-self-report measures (1 test; Goldberg et al., 2018), smaller effects in high quality studies (1 test; Bohlmeijer et al., 2010), larger effects in studies with high risk of bias (1 test; Dunning et al., 2019), larger effects in low quality studies (1 test; Goldberg et al., 2019a), no association with blind outcome assessment (1 test; de Abreu Costa et al., 2019), no association with non-self-report measures (9 tests; Goldberg et al., 2018), no association with use of intent-to-treat analyses (10 tests; Goldberg et al., 2018), no association with study quality (5 tests; Goldberg et al., 2019a; Halladay et al., 2019)
Dosage	13	1	Larger effects with longer interventions (Halladay et al., 2019), no association with intervention length (12 tests; Dunning et al., 2019; Halladay et al., 2019)
Participant characteristics	13	4	Larger effects with lower age (2 tests; Dunning et al., 2019; Lenz et al., 2016), smaller effects with higher percentage female (1 test; de Abreu Costa et al., 2019), larger effects in studies conducted in Asia or South African versus elsewhere (1 test; Lenz et al., 2016), no association with age (2 tests; de Abreu Costa et al., 2019; Lenz et al., 2016), no association with depression inclusion criteria (2 tests; Goldberg et al., 2019a), no association with gender (2 tests; Lenz et al., 2016), no association with country of origin (1 test; Lenz et al., 2016), no association with treatment setting (2 tests; Lenz et al., 2016)
Comparison type	12	1	Larger effects with non-evidence-based treatment comparisons (1 test; Goldberg et al., 2020), no association with time matching (10 tests; Goldberg et al., 2018), no association with type of active comparison (1 test; Lenz et al., 2016)
MBI type	3	2	Larger effects with MBCT versus MBSR (2 tests; Halladay et al., 2019), no difference between MBSR and MBCT (1 test; de Abreu Costa et al., 2019)
Analysis type	1	0	No association with analysis method (e Abreu Costa et al., 2019)
Researcher allegiance	1	1	Researcher allegiance to MBIs associated with larger effects (1 test; Goldberg et al., 2020)
Therapist experience	1	0	No association with therapist experience (de Abreu Costa et al., 2019)

Note: MBI = mindfulness-based intervention; MBSR = mindfulness-based stress reduction; MBCT = mindfulness-based cognitive therapy; # = number.

Running head: EMPIRICAL STATUS OF MINDFULNESS

Supplemental Materials Figure 10. Publication bias assessment methods.

Method	k	Studies
Egger's test, funnel plot, and/or trim-and-fill	13	de Abreu Costa (2019), Wang (2018), Dunning (2019), Lenz (2016), Chiesa (2011), Galante (2013), Li (2017), Piet (2012), Visted (2015), Goldberg (2019a), Goldberg (2018), Goldberg (2019b), Teleki (2010)
Fail-safe N	6	Wang (2018), Cillessen (2019), Piet (2012), Visted (2015), Goldberg (2019) CBT, Goldberg (2018)
None	31	Hedman-Lagerlöf (2018), Martin (2018), Norman (2019), Sanada (2016), Spinelli (2019), Zhang (2015), Zhang (2018), Anheyer (2019), Anheyer (2017), Haller (2017), Halladay (2019), Li (2019), Kuyken (2016), Schell (2019), Goyal (2014), Pascoe (2017), Bawa (2015), Zhang (2016), Piet (2011), Bohlmeijer (2010), Cuijpers (2019), Goldberg (2020), Phillips (2019), Spijkerman (2016), Stratton (2017), Strauss (2014), Demarzo (2015), Chen (2019), Linardon (2019), Rusch (2019), Khoo (2019)

Note: Some meta-analyses included both trim-and-fill-based methods and fail-safe N. k = number of meta-analyses.

Running head: EMPIRICAL STATUS OF MINDFULNESS

Supplemental Materials Table 11. Risk of bias reporting

Method	k	Studies
Cochrane tool	18	de Abreu Costa (2019), Dunning (2019), Hedman-Lagerlöf (2018), Martin (2018), Norman (2019), Sanada (2016), Spinelli (2019), Zhang (2015), Anheyer (2019), Anheyer (2017), Haller (2017), Halladay (2019), Li (2019), Kuyken (2016), Cillessen (2019), Schell (2019), Wang (2018), Goyal (2014)
GRADE	5	Cillessen (2019), Schell (2019), Wang (2018), Pascoe (2017), Bawa (2015)
Jadad	4	Wang (2018), Zhang (2016), Piet (2011), Goldberg (2019a)
Methods Guide for Conducting Comparative Effectiveness Reviews	2	Goyal (2014), Rusch (2019)
Methodological Quality Rating Scale	1	Li (2017)
Quality Assessment Tool for Quantitative Studies	2	Chen (2019), Linardon (2019)
US Preventive Services Task Force Quality Rating Criteria	1	Khoo (2018)

Note: GRADE = Grading of Recommendations Assessment Development and Evaluation. k = number of meta-analyses.

Running head: EMPIRICAL STATUS OF MINDFULNESS

Supplemental Materials Table 12. Cochrane risk of bias coding.

Study	<u>RS</u>			<u>AC</u>			<u>BP</u>			<u>BO</u>			<u>ID</u>			<u>SR</u>			<u>OB</u>		
	L	U	H	L	U	H	L	U	H	L	U	H	L	U	H	L	U	H	L	U	H
Anheyer (2017)	100	0	0	75	25	0	0	50	50	25	25	50	75	0	25	75	0	25	75	0	25
Anheyer (2019)	20	60	20	40	40	20	0	80	20	20	60	20	60	20	20	60	0	40	80	0	20
Cillessen (2019)	62	34	3	41	55	3	7	69	24	31	62	7	76	21	3	59	0	41	NA	NA	NA
de Abreu Costa (2019)	50	40	10	50	40	10	50	40	10	50	40	10	20	0	80	80	0	20	80	10	10
Dunning (2019)	32	62	6	44	41	15	18	47	35	18	47	35	35	59	6	53	23	24	NA	NA	NA
Goyal (2014)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Halladay (2019)	100	0	0	46	0	54	10	0	90	10	0	90	50	0	50	98	0	2	95	0	5
Haller (2017)	55	44	0	44	55	0	0	89	11	44	56	0	100	0	0	0	22	78	89	11	0
Hedman-Lagerlöf (2018)	58	42	0	27	68	5	NA	NA	NA	47	12	41	63	6	31	84	5	11	NA	NA	NA
Kuyken (2016)	100	0	0	100	0	0	0	0	100	0	0	100	100	0	0	100	0	0	100	0	0
Li (2019)	50	50	0	25	75	0	0	100	0	50	50	0	50	25	25	0	100	0	0	100	0
Martin (2018)	75	25	0	0	100	0	75	25	0	100	0	0	75	25	0	100	0	0	NA	NA	NA
Norman (2019)	25	75	0	25	75	0	100	0	0	0	0	100	50	25	25	25	75	0	100	0	0
Sanada (2016)	25	75	0	25	75	0	50	50	0	NA	NA	NA	50	50	0	NA	NA	NA	NA	NA	NA
Schell (2019)	50	50	0	40	60	0	0	0	100	0	0	100	60	20	20	10	60	30	80	0	20
Spinelli (2019)	60	35	5	0	95	5	0	0	100	0	95	5	42	27	31	13	87	0	63	11	26
Wang (2018)	91	9	0	36	0	63	9	0	91	45	0	55	82	0	18	100	0	0	0	100	0
Zhang (2015)	100	0	0	100	0	0	33	0	67	33	50	17	100	0	0	100	0	0	100	0	0

Note: L = low risk for bias; U = unclear risk for bias; H = high risk for bias; NA = not available; RS = randomization sequence generation; AC = allocation concealment; BP = blinding of personnel and participants; BO = blinding of outcome assessor; ID = incomplete data; SR = selective reporting; OB = other bias. Dimensions based on Cochrane guidelines (Higgins & Green, 2008).

Running head: EMPIRICAL STATUS OF MINDFULNESS

Supplemental Materials Table 13. Adverse events reporting

Finding	k	Studies
Lack of reporting in primary studies	11	Bawa (2015), Cillesen (2019), Demarzo (2015), Galante (2013), Schell (2019), Wang (2018), Anheyer (2019), Rusch (2019), Anheyer (2017), Haller (2017), Kuyken (2016)
No evidence of increased risk	1	Rusch (2019), Kuyken (2016)
No SAE events	4	Anheyer (2019), Chiesa (2011), Anheyer (2017), Haller (2017)
Mild AEs reported in MBI	1	Anheyer (2017)
AEs coded but not reported in meta-analysis	1	de Abreu Costa (2019)
Lack of adverse reporting noted, unclear if coded	1	Li (2019)
Lack of reporting in current meta-analysis as limitation	1	Halladay (2019)

Note: AE = adverse event; SAE = serious adverse event; MBI = mindfulness-based intervention. k = number of meta-analyses.

**References for included meta-analyses**

- Anheyer, D., Haller, H., Barth, J., Lauche, R., Dobos, G., & Cramer, H. (2017). Mindfulness-based stress reduction for treating low back pain: a systematic review and meta-analysis. *Annals of Internal Medicine*, *166*(11), 799-807.
- Anheyer, D., Leach, M. J., Klose, P., Dobos, G., & Cramer, H. (2019). Mindfulness-based stress reduction for treating chronic headache: A systematic review and meta-analysis. *Cephalalgia*, *39*(4), 544-555.
- Bawa, F. L. M., Mercer, S. W., Atherton, R. J., Clague, F., Keen, A., Scott, N. W., & Bond, C. M. (2015). Does mindfulness improve outcomes in patients with chronic pain? Systematic review and meta-analysis. *British Journal of General Practice*, *65*(635), e387-e400.
- Bohlmeijer, E., Prenger, R., Taal, E., & Cuijpers, P. (2010). The effects of mindfulness-based stress reduction therapy on mental health of adults with a chronic medical disease: A meta-analysis. *Journal of Psychosomatic Research*, *68*(6), 539-544.  
doi:10.1016/j.jpsychores.2009.10.005
- Chen, D., Sun, W., Liu, N., Wang, J., Guo, P., Zhang, X., & Zhang, W. (2019). Effects of nonpharmacological interventions on depressive symptoms and depression among nursing students: A systematic review and meta-analysis. *Complementary Therapies in Clinical Practice*, *34*, 217-228.
- Chiesa, A., & Serretti, A. (2011). Mindfulness based cognitive therapy for psychiatric disorders: A systematic review and meta-analysis. *Psychiatry Research*, *187*, 441-453.  
doi:10.1016/j.psychres.2010.08.011
- Cillessen, L., Johannsen, M., Speckens, A. E., & Zachariae, R. (2019). Mindfulness-based

Running head: EMPIRICAL STATUS OF MINDFULNESS

interventions for psychological and physical health outcomes in cancer patients and survivors: A systematic review and meta-analysis of randomized controlled trials.

*Psycho-Oncology*, 28(12), 2257-2269.

Cuijpers, P., Karyotaki, E., de Wit, L., & Ebert, D. D. (2020). The effects of fifteen evidence-supported therapies for adult depression: A meta-analytic review. *Psychotherapy Research*, 30(3), 279-293.

de Abreu Costa, M., de Oliveira, G. S. D. A., Tatton-Ramos, T., Manfro, G. G., & Salum, G. A. (2019). Anxiety and stress-related disorders and mindfulness-based interventions: a systematic review and multilevel meta-analysis and meta-regression of multiple outcomes. *Mindfulness*, 10(6), 996-1005.

Demarzo, M. M., Montero-Marin, J., Cuijpers, P., Zabaleta-del-Olmo, E., Mahtani, K. R., Vellinga, A., ... & García-Campayo, J. (2015). The efficacy of mindfulness-based interventions in primary care: A meta-analytic review. *The Annals of Family Medicine*, 13(6), 573-582.

Dunning, D. L., Griffiths, K., Kuyken, W., Crane, C., Foulkes, L., Parker, J., & Dalgleish, T. (2019). The effects of mindfulness-based interventions on cognition and mental health in children and adolescents—a meta-analysis of randomized controlled trials. *Journal of Child Psychology and Psychiatry*, 60(3), 244-258. doi:10.1111/jcpp.12980

Galante, J., Iribarren, S. J., & Pearce, P. F. (2013). Effects of mindfulness-based cognitive therapy on mental disorders: a systematic review and meta-analysis of randomised controlled trials. *Journal of Research in Nursing*, 18(2), 133-155.

Goldberg, S. B., & Tucker, R. P. (2020). Allegiance effects in mindfulness-based

Running head: EMPIRICAL STATUS OF MINDFULNESS

interventions for psychiatric disorders: A meta-re-analysis. *Psychotherapy Research*.

doi: 10.1080/10503307.2019.1664783

Goldberg, S. B., Tucker, R. P., Greene, P. A., Davidson, R. J., Kearney, D. J., & Simpson, T.L. (2019a). Mindfulness-based cognitive therapy for the treatment of current depressive symptoms: A meta-analysis. *Cognitive Behaviour Therapy*, 48(6), 445-462.

doi: 10.1080/16506073.2018.1556330

Goldberg, S.B., Tucker, R.P., Greene, P.A., Davidson, R.J., Wampold, B.E., Kearney, D.J., & Simpson, T.L. (2018). Mindfulness-based interventions for psychiatric disorders: A systematic review and meta-analysis. *Clinical Psychology Review*, 59, 52-60.

doi:10.1016/j.cpr.2017.10.011

Goldberg, S. B., Tucker, R. P., Greene, P. A., Simpson, T.L., Hoyt, W. T., Kearney, D. J., & Davidson, R. J. (2019b). What can we learn from randomized clinical trials about the construct validity of self- report measures of mindfulness? A meta-analysis.

*Mindfulness*, 10(5), 775-785. doi: 10.1007/s12671-018-1032-y

Goyal, M., Singh, S., Sibinga, E.M., Gould, N.F., Rowland-Seymour, A., Sharma, R.,...& Haythornthwaite, J.A. (2014). Meditation programs for psychological stress and well-being: A systematic review and meta-analysis. *JAMA Internal Medicine*, 174(3), 357-368.

doi:10.1001/jamainternmed.2013.13018

Halladay, J. E., Dawdy, J. L., McNamara, I. F., Chen, A. J., Vitoroulis, I., McInnes, N., & Munn, C. (2019). Mindfulness for the mental health and well-being of post-secondary students: A systematic review and meta-analysis. *Mindfulness*, 10(3), 397-414.

Haller, H., Winkler, M. M., Klose, P., Dobos, G., Kuemmel, S., & Cramer, H. (2017).



Running head: EMPIRICAL STATUS OF MINDFULNESS

Mindfulness-based interventions for women with breast cancer: An updated systematic review and meta-analysis. *Acta Oncologica*, 56(12), 1665-1676.

Hedman-Lagerlöf, M., Hedman-Lagerlöf, E., & Öst, L. G. (2018). The empirical support for mindfulness-based interventions for common psychiatric disorders: A systematic review and meta-analysis. *Psychological Medicine*, 48, 2116-2129.

doi: 10.1017/ S0033291718000259

Khoo, E. L., Small, R., Cheng, W., Hatchard, T., Glynn, B., Rice, D. B., ... & Poulin, P. A. (2019). Comparative evaluation of group-based mindfulness-based stress reduction and cognitive behavioural therapy for the treatment and management of chronic pain: A systematic review and network meta-analysis. *Evidence-Based Mental Health*, 22(1), 26-35.

Kuyken, W., Warren, F.C., Taylor, R.S., Whalley, B., Crane, C., Bondolfi, G.,...& Dalgeish, T. (2016). Efficacy of mindfulness-based cognitive therapy in prevention of depressive relapse: An individual patient data meta-analysis from randomized trials. *JAMA Psychiatry*, 73(6), 565-574. doi:10.1001/jamapsychiatry.2016.0076

Lenz, A. S., Hall, J., & Bailey Smith, L. (2016). Meta-analysis of group mindfulness-based cognitive therapy for decreasing symptoms of acute depression. *The Journal for Specialists in Group Work*, 41(1), 44-70.

Li, S. Y. H., & Bressington, D. (2019). The effects of mindfulness-based stress reduction on depression, anxiety, and stress in older adults: A systematic review and meta-analysis. *International Journal of Mental Health Nursing*, 28(3), 635-656.

Li, W., Howard, M. O., Garland, E. L., McGovern, P., & Lazar, M. (2017). Mindfulness treatment

Running head: EMPIRICAL STATUS OF MINDFULNESS

- for substance misuse: A systematic review and meta-analysis. *Journal of Substance Abuse Treatment*, 75, 62-96. doi: 10.1016/j.jsat.2017.01.008
- Linardon, J., Gleeson, J., Yap, K., Murphy, K., & Brennan, L. (2019). Meta-analysis of the effects of third-wave behavioural interventions on disordered eating and body image concerns: Implications for eating disorder prevention. *Cognitive Behaviour Therapy*, 48(1), 15-38.
- Martin, K. J., Golijani-Moghaddam, N., & dasNair, R. (2018). Mindfulness self-help interventions for symptoms of depression, anxiety and stress: Review and meta-analysis. *International Journal of Therapy and Rehabilitation*, 25(2), 82-95.
- Norman, H., Marzano, L., Coulson, M., & Oskis, A. (2019). Effects of mindfulness-based interventions on alexithymia: a systematic review. *Evidence-Based Mental Health*, 22(1), 36-43.
- Pascoe, M. C., Thompson, D. R., Jenkins, Z. M., & Ski, C. F. (2017). Mindfulness mediates the physiological markers of stress: systematic review and meta-analysis. *Journal of Psychiatric Research*, 95, 156-178.
- Phillips, E. A., Gordeev, V. S., & Schreyögg, J. (2019). Effectiveness of occupational e-mental health interventions: a systematic review and meta-analysis of randomized controlled trials. *Scandinavian Journal of Work, Environment & Health*, 45(6), 560-576.
- Piet, J., & Hougaard, E. (2011). The effect of mindfulness-based cognitive therapy for prevention of relapse in recurrent major depressive disorder: A systematic review and meta-analysis. *Clinical Psychology Review*, 31(6), 1032-1040.
- Piet, J., Würtzen, H., & Zachariae, R. (2012). The effect of mindfulness-based therapy on symptoms of anxiety and depression in adult cancer patients and survivors: A systematic

Running head: EMPIRICAL STATUS OF MINDFULNESS

review and meta-analysis. *Journal of Consulting and Clinical Psychology*, 80(6), 1007-1020.

Rusch, H. L., Rosario, M., Levison, L. M., Olivera, A., Livingston, W. S., Wu, T., & Gill, J. M.

(2019). The effect of mindfulness meditation on sleep quality: a systematic review and meta-analysis of randomized controlled trials. *Annals of the New York Academy of Sciences*, 1445(1), 5-16.

Sanada, K., Montero-Marin, J., Alda Díez, M., Salas-Valero, M., Pérez-Yus, M. C., Morillo, H., ...

& García-Campayo, J. (2016). Effects of mindfulness-based interventions on salivary cortisol in healthy adults: a meta-analytical review. *Frontiers in Physiology*, 7, 471.

Schell, L. K., Monsef, I., Woekel, A., & Skoetz, N. (2019). Mindfulness-based stress reduction

for women diagnosed with breast cancer. *Cochrane Database of Systematic Reviews*, (3).

Spijkerman, M. P. J., Pots, W. T. M., & Bohlmeijer, E. T. (2016). Effectiveness of online

mindfulness-based interventions in improving mental health: A review and meta-analysis of randomised controlled trials. *Clinical Psychology Review*, 45, 102-114.

doi: 10.1016/j.cpr.2016.03.009

Spinelli, C., Wisener, M., & Khoury, B. (2019). Mindfulness training for healthcare professionals

and trainees: A meta-analysis of randomized controlled trials. *Journal of Psychosomatic Research*, 120,29-38.

Stratton, E., Lampit, A., Choi, I., Calvo, R. A., Harvey, S. B., & Glozier, N. (2017). Effectiveness of

eHealth interventions for reducing mental health conditions in employees: A systematic review and meta-analysis. *PLOS ONE*, 12(12).

Running head: EMPIRICAL STATUS OF MINDFULNESS

Strauss, C., Cavanagh, K., Oliver, An., & Pettman, D. (2014). Mindfulness-based interventions for people diagnosed with a current episode of an anxiety or depressive disorder: A meta-analysis of randomised controlled trials. *PLOS ONE*, *9*(4), e96110.

doi:10.1371/journal.pone.0096110

Teleki, J. W. (2010). *Mindfulness-based stress reduction: A meta-analysis of psychological outcomes (Unpublished doctoral dissertation)*. PGSP-Stanford PsyD Consortium, Palo Alto, CA.

Visted, E., Vøllestad, J., Nielsen, M. B., & Nielsen, G. H. (2015). The impact of group-based mindfulness training on self-reported mindfulness: A systematic review and meta-analysis. *Mindfulness*, *6*(3), 501-522.

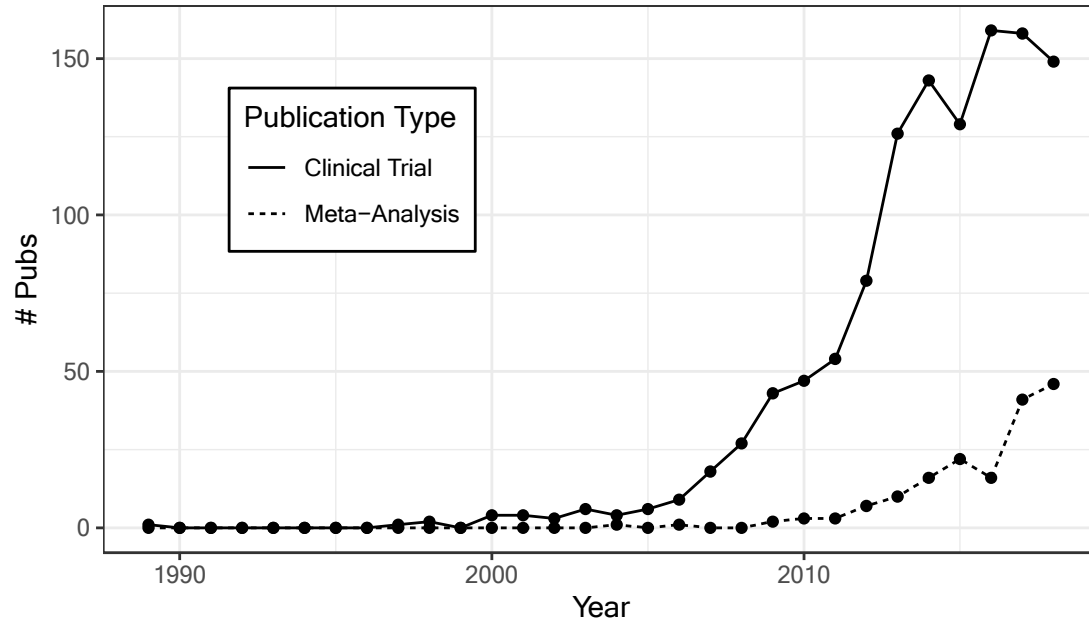
Wang, Y. Y., Li, X. H., Zheng, W., Xu, Z. Y., Ng, C. H., Ungvari, G. S., ... & Xiang, Y. T. (2018). Mindfulness-based interventions for major depressive disorder: a comprehensive meta-analysis of randomized controlled trials. *Journal of Affective Disorders*, *229*, 429-436.

doi: 10.1016/j.jad.2017.12.093

Zhang, M. F., Wen, Y. S., Liu, W. Y., Peng, L. F., Wu, X. D., & Liu, Q. W. (2015). Effectiveness of mindfulness-based therapy for reducing anxiety and depression in patients with cancer: A meta-analysis. *Medicine*, *94*(45).

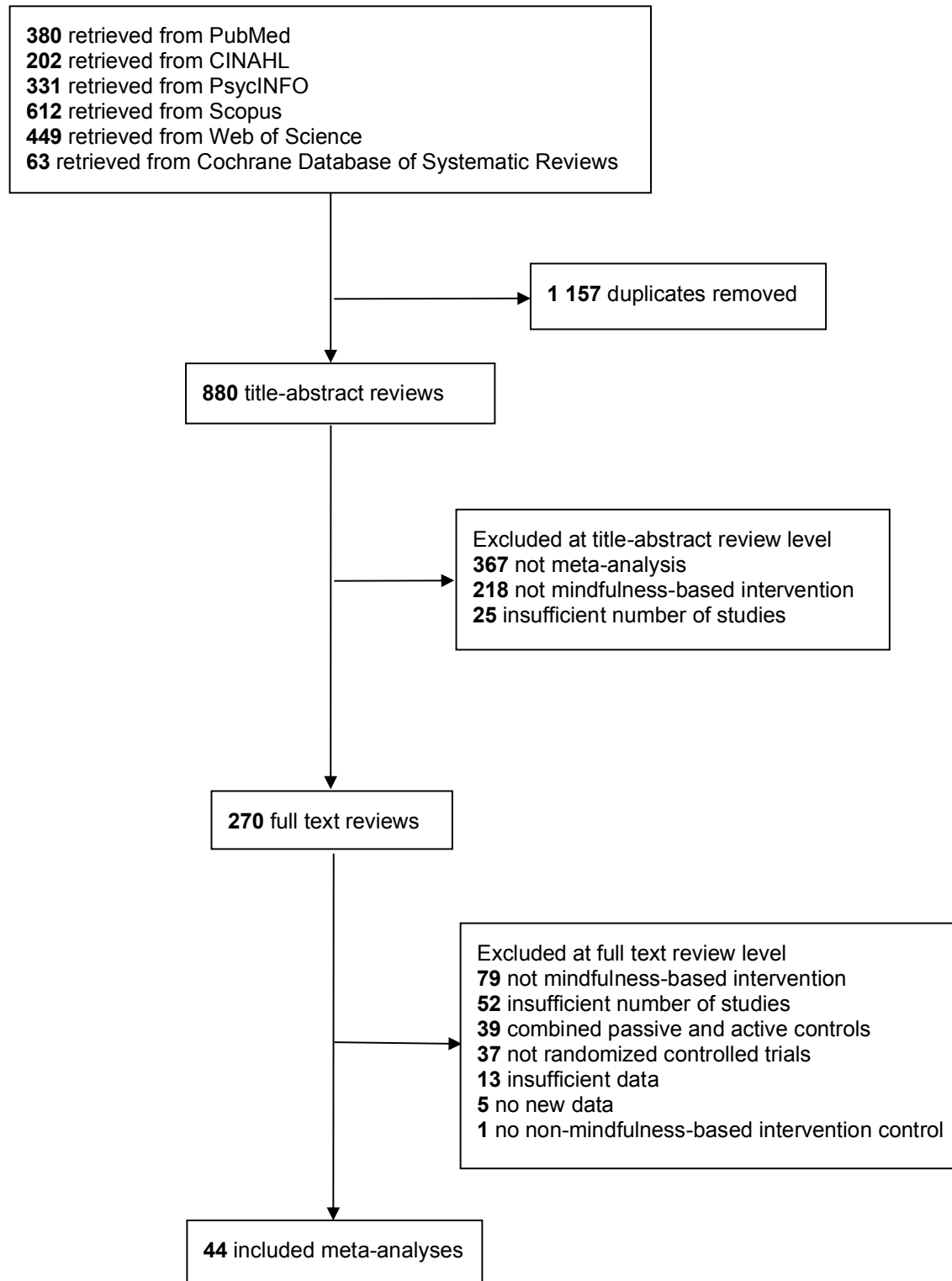
Zhang, J., Xu, R., Wang, B., & Wang, J. (2016). Effects of mindfulness-based therapy for patients with breast cancer: a systematic review and meta-analysis. *Complementary Therapies in Medicine*, *26*, 1-10.

Running head: EMPIRICAL STATUS OF MINDFULNESS

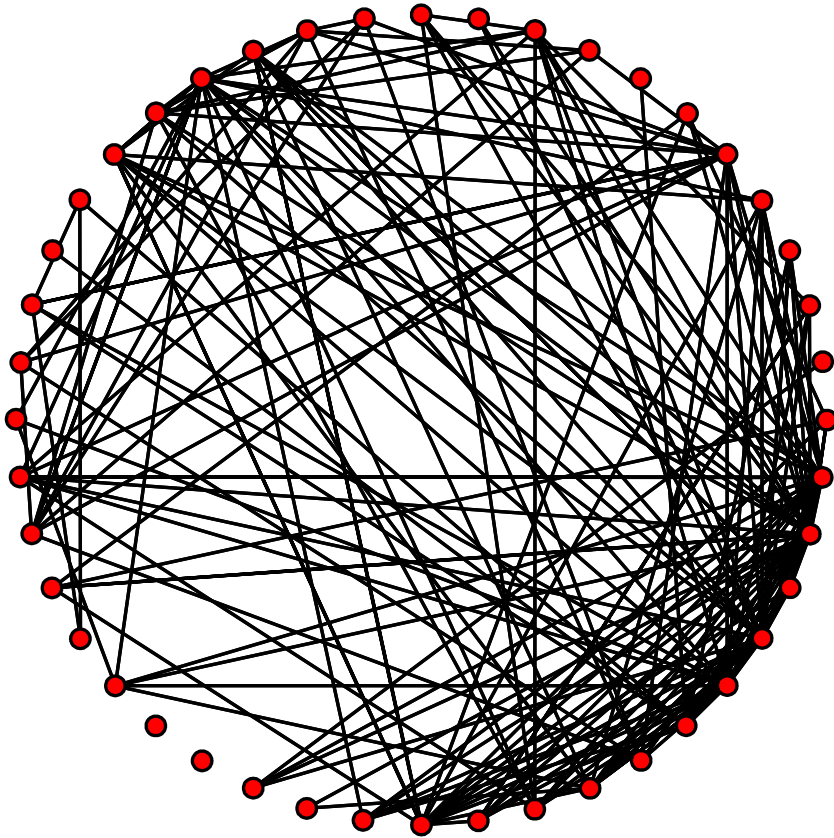


Supplemental Materials Figure 1. Clinical trials and meta-analyses appearing in PubMed including the term “mindfulness.”

## Running head: EMPIRICAL STATUS OF MINDFULNESS

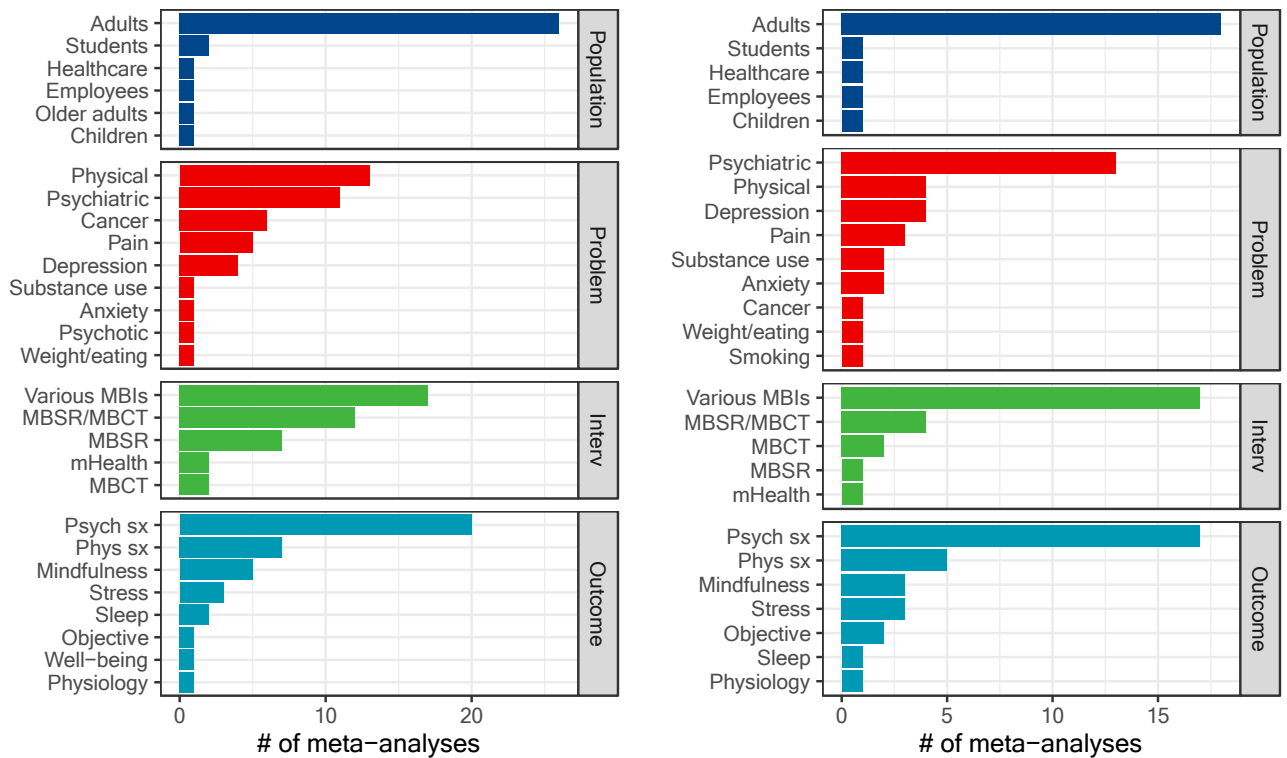


Supplemental Materials Figure 2. PRISMA flow diagram



Supplemental Materials Figure 3. Network figure of the 44 meta-analyses and their overlapping studies. Each node represents a meta-analysis and each line represents one or more studies that are shared between meta-analyses.

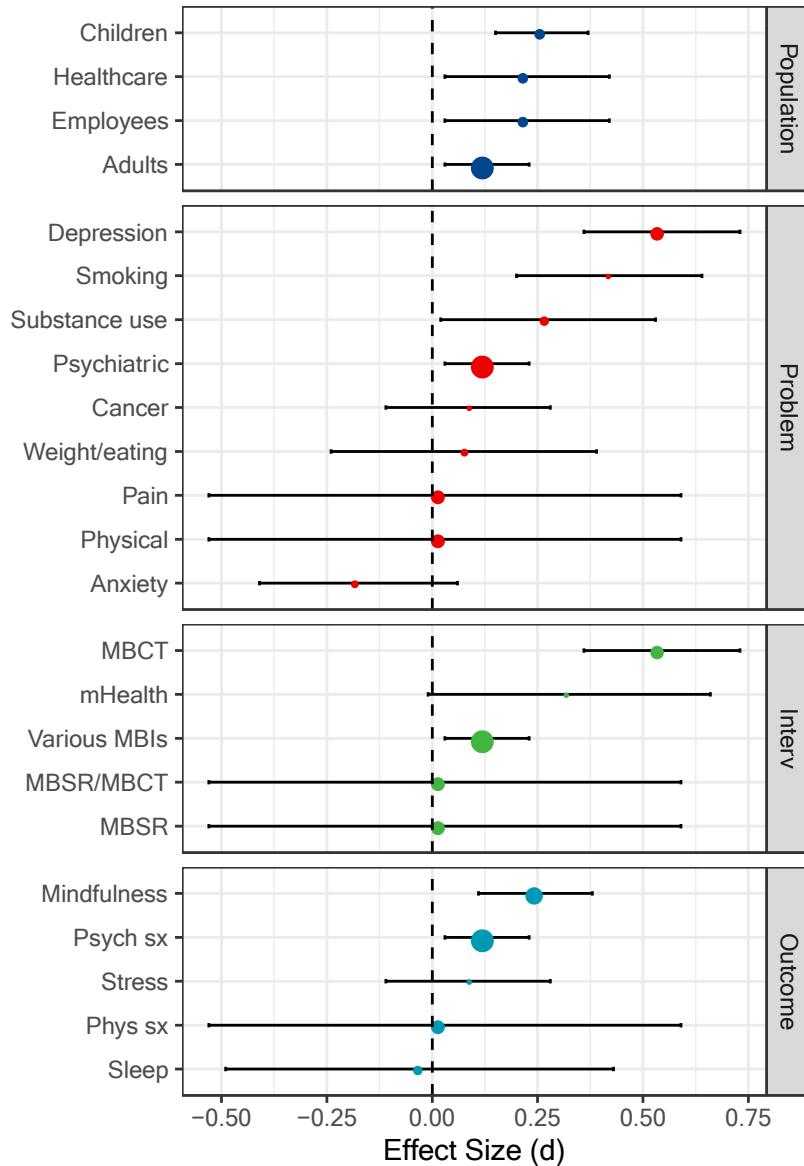
Running head: EMPIRICAL STATUS OF MINDFULNESS



Supplemental Materials Figure 4. Number of meta-analyses reporting effect sizes across PICOS subcategories. Left panel reflects comparisons with passive controls and right panel reflects comparisons with active controls. MBSR = mindfulness-based stress reduction; MBCT = mindfulness-based cognitive therapy; mHealth = mobile health; Psych sx = psychiatric symptoms; Phys = physical symptoms; Interv = intervention.

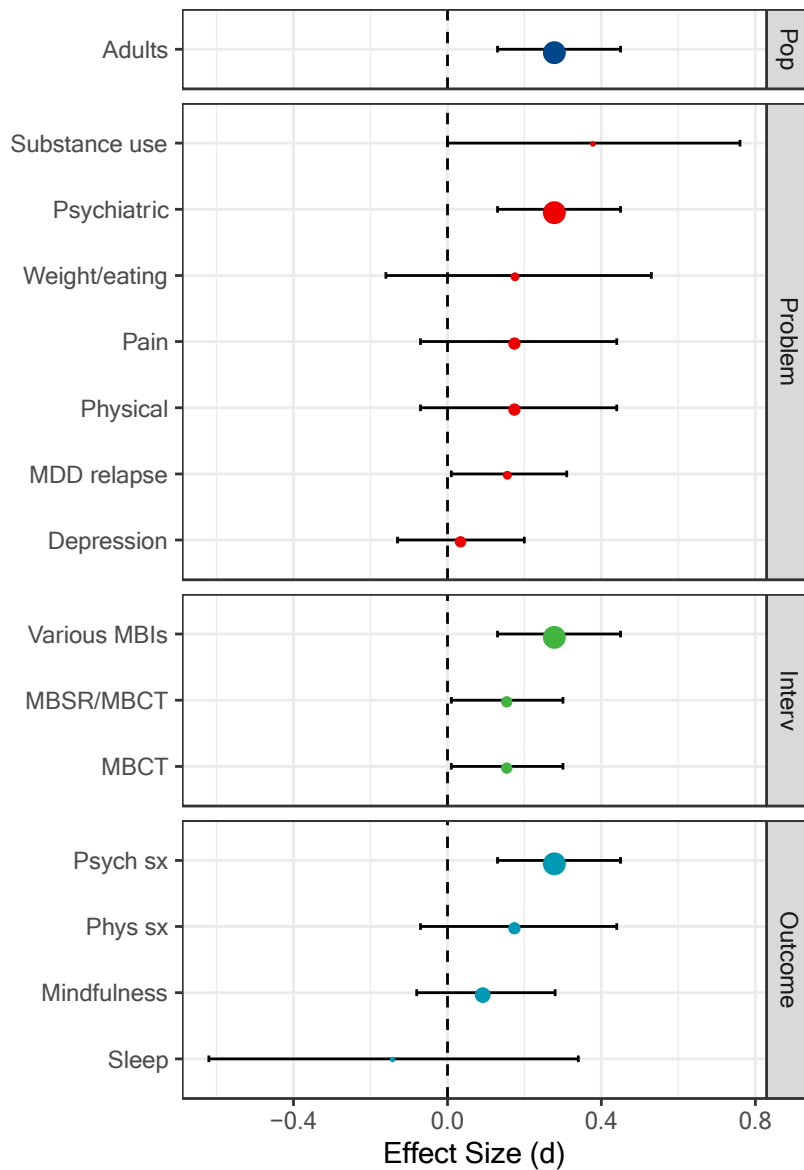


## Running head: EMPIRICAL STATUS OF MINDFULNESS



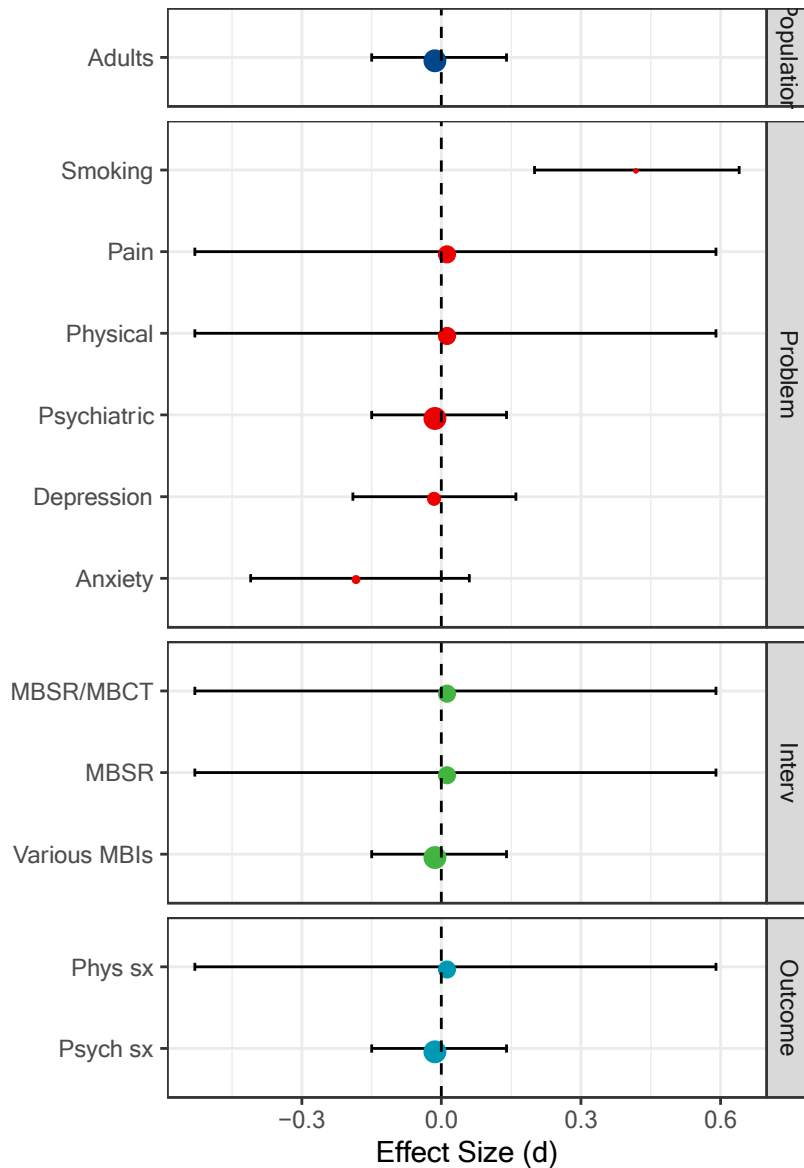
Supplemental Materials Figure 5. Comparisons with specific active controls at post-treatment based on the largest number of studies. The size of each point is relative to the number of primary studies it represents. MBSR = mindfulness-based stress reduction; MBCT = mindfulness-based cognitive therapy; mHealth = mobile health; Psych sx = psychiatric symptoms; Phys = physical symptoms; Interv = intervention.

## Running head: EMPIRICAL STATUS OF MINDFULNESS



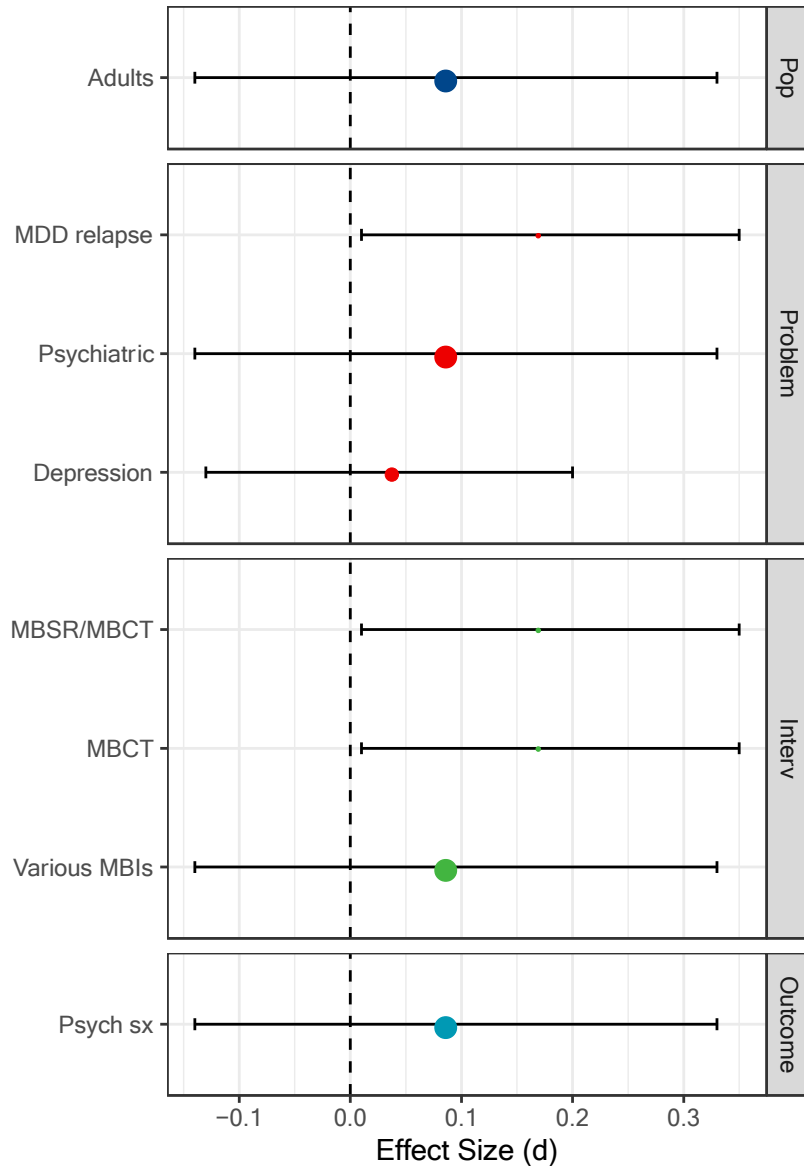
Supplemental Materials Figure 6. Comparisons with specific active controls at follow-up based on the largest number of studies. The size of each point is relative to the number of primary studies it represents. MBSR = mindfulness-based stress reduction; MBCT = mindfulness-based cognitive therapy; mHealth = mobile health; Psych sx = psychiatric symptoms; Phys = physical symptoms; MDD = major depressive disorder; Pop = population; Interv = intervention.

## Running head: EMPIRICAL STATUS OF MINDFULNESS



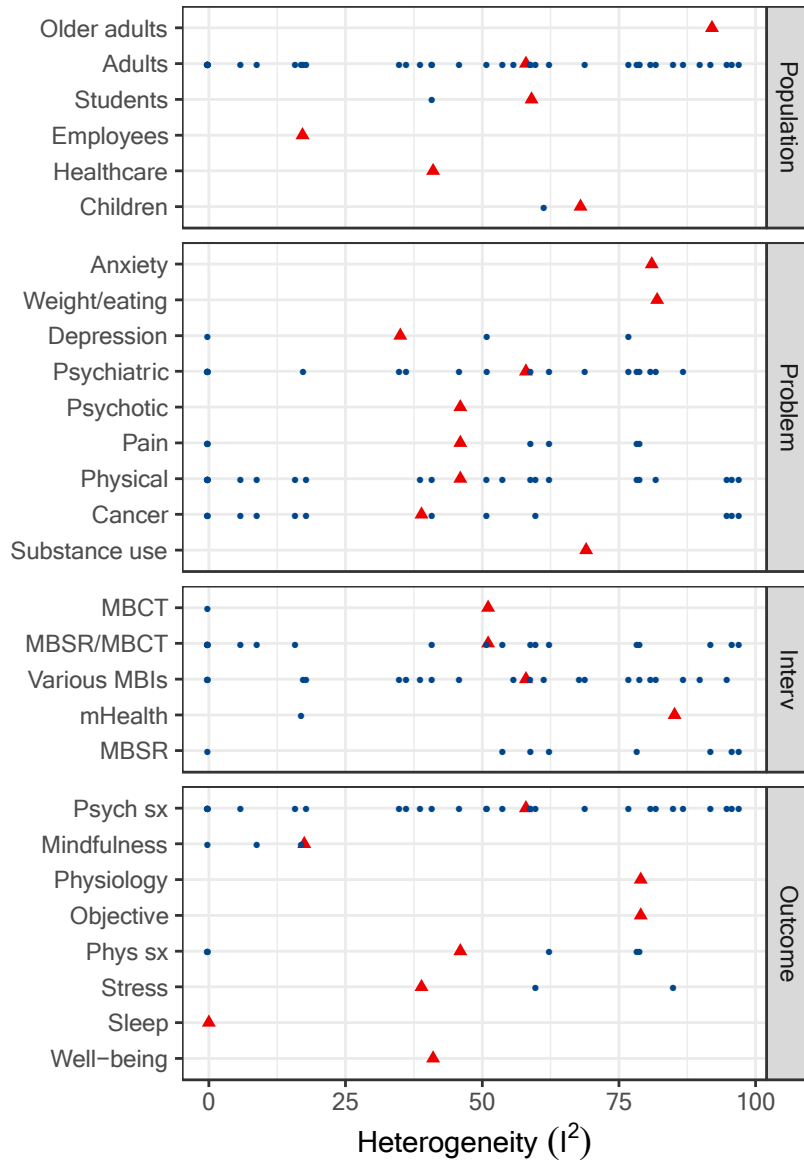
Supplemental Materials Figure 7. Comparisons with evidence-based treatments at post-treatment based on the largest number of studies. The size of each point is relative to the number of primary studies it represents. MBSR = mindfulness-based stress reduction; MBCT = mindfulness-based cognitive therapy; mHealth = mobile health; Psych sx = psychiatric symptoms; Phys = physical symptoms; Pop = population; Interv = intervention.

## Running head: EMPIRICAL STATUS OF MINDFULNESS



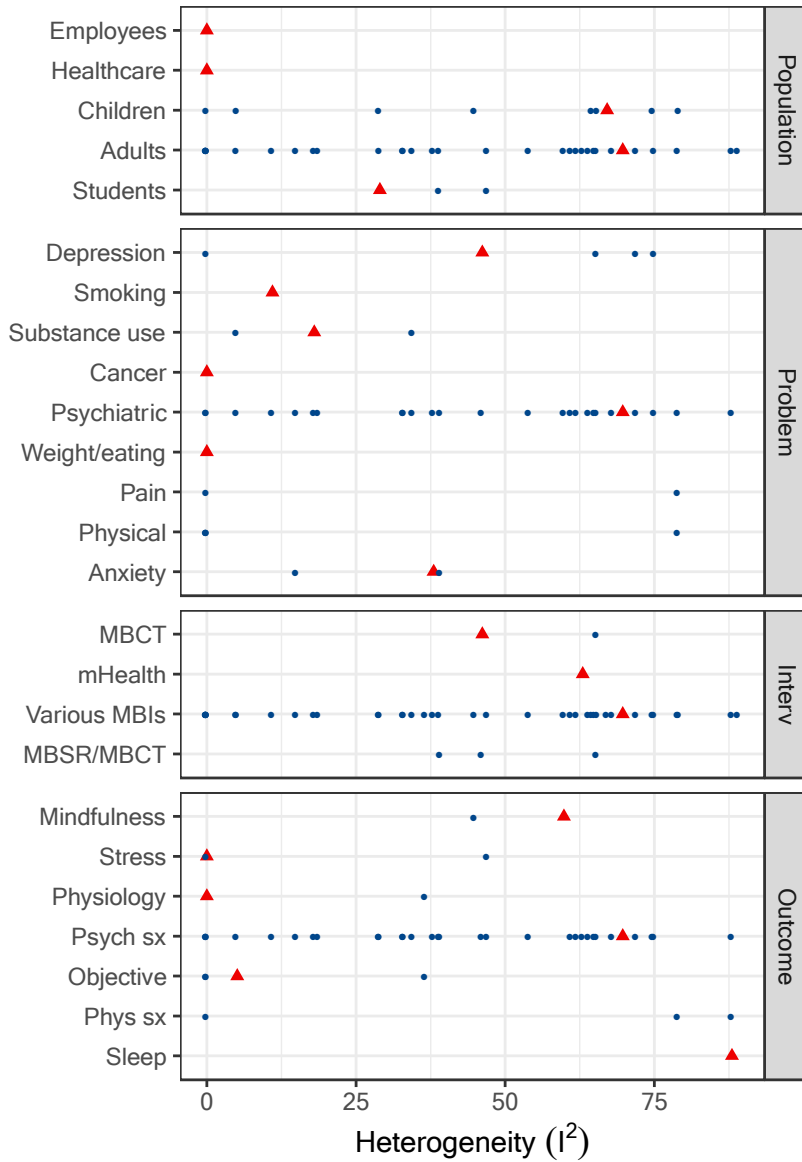
Supplemental Materials Figure 8. Comparisons with evidence-based treatments at follow-up based on the largest number of studies. The size of each point is relative to the number of primary studies it represents. MBSR = mindfulness-based stress reduction; MBCT = mindfulness-based cognitive therapy; Psych sx = psychiatric symptoms; MDD = major depressive disorder; Pop = population; Interv = intervention.

## Running head: EMPIRICAL STATUS OF MINDFULNESS



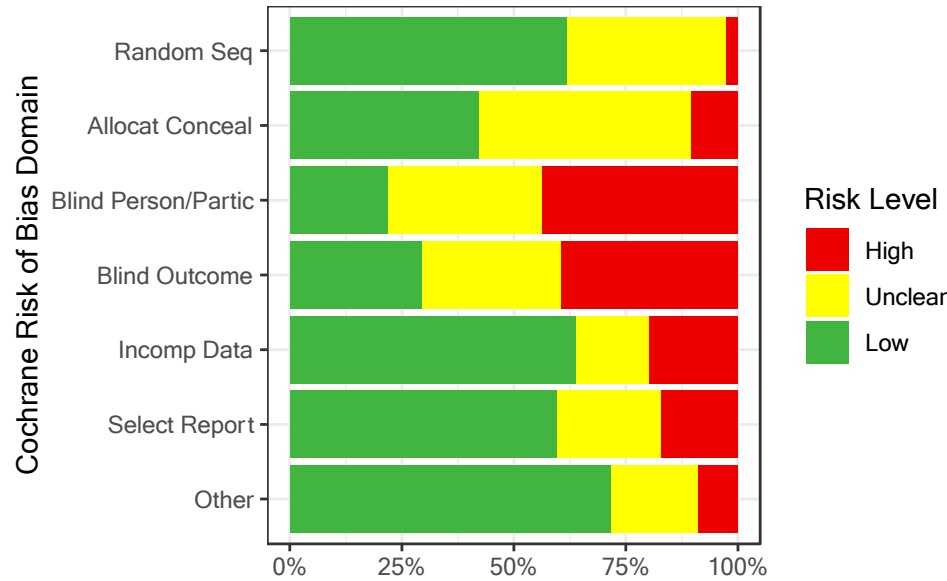
Supplemental Materials Figure 9. Estimates of heterogeneity for comparisons with passive controls. The representative estimate for each PICOS (i.e., based on the largest number of studies) is displayed as a red triangle. MBSR = mindfulness-based stress reduction; MBCT = mindfulness-based cognitive therapy; mHealth = mobile health; Psych sx = psychiatric symptoms; Phys = physical symptoms; Interv = intervention.

Running head: EMPIRICAL STATUS OF MINDFULNESS



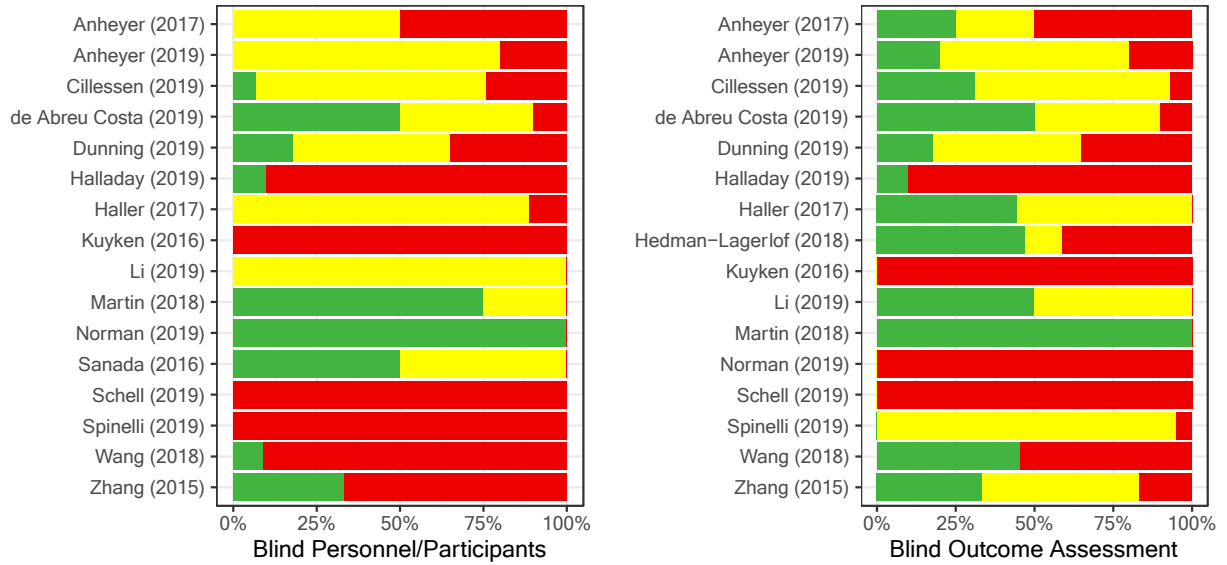
Supplemental Materials Figure 10. Estimates of heterogeneity for comparisons with active controls. The representative estimate for each PICOS (i.e., based on the largest number of studies) is displayed as a red triangle. MBSR = mindfulness-based stress reduction; MBCT = mindfulness-based cognitive therapy; mHealth = mobile health; Psych sx = psychiatric symptoms; Phys = physical symptoms; Interv = intervention.

## Running head: EMPIRICAL STATUS OF MINDFULNESS



Supplemental Materials Figure 11. Summary of Cochrane risk of bias assessment across 18 meta-analyses. Random seq = random sequence generation; Allocat Conceal = allocation concealment; Blind Person/Partic = blinding of personnel and participants; Blind Outcome = blinding of outcome assessment; Incomp Data = incomplete outcome data; Select Report = selective reporting; Other = other bias.

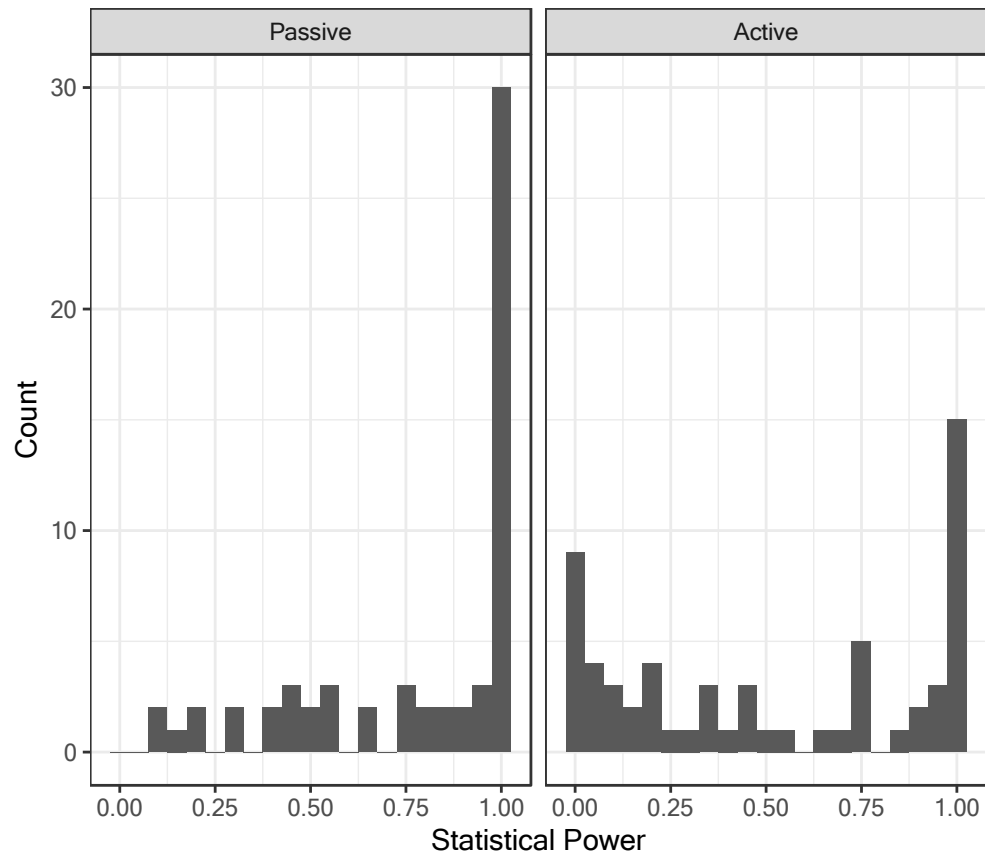
Running head: EMPIRICAL STATUS OF MINDFULNESS



Supplemental Materials Figure 12. Variability in Cochrane risk of bias assessment related to blinding of participants and personnel and blinding of outcome assessment. Green = low risk, yellow = unclear risk, red = high risk.



## Running head: EMPIRICAL STATUS OF MINDFULNESS



Supplemental Materials Figure 13. Statistical power in the included meta-analyses.