Psychological Intervention in Individuals with Subthreshold Depression: Individual Participant Data Meta-Analysis of Treatment Effects and Moderators

Supplement

Table of Contents

S1. Definition of psychological interventions.	2
S2. Search strings	2
S3. Requested IPD variables.	6
S4. Specification of the statistical analyses.	7
S5. PRISMA flowchart	9
S6. References of the included studies	10
S7. Participant descriptives at baseline	16
S8. Missing outcome data in the included IPD.	16
S9. Effects on symptom severity, response, and deterioration (two-stage IPD-MA).	20
S10. Effects on symptom severity, response, and deterioration (atypical interventions excluded).	21
S11. Effects on symptom severity (combined analysis of IPD and aggregate data studies)	22
S12. Funnel plot of treatment effects at post-test	22
S13. Effects on symptom severity after correction for small-study effects/publication bias	22
S14. Results of study-level moderator analyses.	23
S15. Response and deterioration rates conditional on baseline PHQ-9 scores	24
References	25

In line with our protocol (Ebert et al., 2018), psychological interventions were defined as:

"The application of psychological mechanisms and interpersonal stances derived from psychological principles for the purpose of assisting people to modify their behaviours, cognitions, emotions and/or other personal characteristics in directions that the participants deem desirable." (Campbell et al., 2013; Norcross, 1990)

S2. Search strings.

PubMed:

Psychotherapy [MH] OR psychotherap*[All Fields] OR cbt[All Fields] OR "behavior therapies"[All Fields] OR "behavior therapy"[All Fields] OR "behavior therapeutic"[All Fields] OR "behavior therapeutical"[All Fields] OR "behavior therapeutics"[All Fields] OR "behavior therapeutist"[all Fields] OR "behavior therapeutists"[All Fields] OR "behavior treatment"[All Fields] OR "behavior treatments"[All Fields] OR "behaviors therapies"[All Fields] OR "behaviors therapy"[All Fields] OR "behaviors therapeutics"[All Fields] OR "behaviors therapeutic"[All Fields] OR "behaviors therapeutical" [All Fields] OR "behaviors therapeutist" [All Fields] OR "behaviors therapeutists" [All Fields] OR "behaviors treatment" [All Fields] OR "behaviors treatments" [All Fields] OR "behavioral therapies" [All Fields] OR "behavioral therapy"[All Fields] OR "behavioral therapeutics"[All Fields] OR "behavioral therapeutic"[All Fields] OR "behavioral therapeutical"[All Fields] OR "behavioral therapeutist"[All Fields] OR "behavioral therapeutists"[All Fields] OR "behavioral treatment" [All Fields] OR "behavioral treatments" [All Fields] OR "behaviour therapies" [All Fields] OR "behaviour therapy"[All Fields] OR "behaviour therapeutic"[All Fields] OR "behaviour therapeutical"[All Fields] OR "behaviour therapeutics" [All Fields] OR "behaviour therapeutist" [all Fields] OR "behaviour therapeutists"[All Fields] OR "behaviour treatment"[All Fields] OR "behaviour treatments"[All Fields] OR "behaviours therapies"[All Fields] OR "behaviours therapy"[All Fields] OR "behaviours therapeutics"[All Fields] OR "behaviours therapeutic"[All Fields] OR "behaviours therapeutical"[All Fields] OR "behaviours therapeutist"[All Fields] OR "behaviours therapeutists" [All Fields] OR "behaviours treatment" [All Fields] OR "behaviours treatments" [All Fields] OR "behavioural therapies" [All Fields] OR "behavioural therapy" [All Fields] OR "behavioural therapeutics" [All Fields] OR "behavioural therapeutic" [All Fields] OR "behavioural therapeutical" [All Fields] OR "behavioural therapeutist" [All Fields] OR "behavioural therapeutists" [All Fields] OR "behavioural treatment" [All Fields] OR "behavioural treatments" [All Fields] OR "cognition therapies" [All Fields] OR "cognition therapie" [All Fields] OR "cognition therapy"[All Fields] OR "cognition therapeutical"[All Fields] OR "cognition therapeutic"[All Fields] OR "cognition therapeutics" [All Fields] OR "cognition therapeutist" [All Fields] OR "cognition therapeutists" [All Fields] OR "cognition treatment"[All Fields] OR "cognition treatments"[All Fields] OR psychodynamic[All Fields] OR Psychoanalysis[MH] OR psychoanalysis[All Fields] OR psychoanalytic*[All Fields] OR counselling[All Fields] OR counseling[All Fields] OR Counseling[MH] OR "problem-solving"[All Fields] OR mindfulness[All Fields] OR (acceptance[All Fields] AND commitment[All Fields]) OR "assertiveness training"[All Fields] OR "behavior activation"[All Fields] OR "behaviors activation"[All Fields] OR "behavioral activation"[All Fields] OR "cognitive therapies" [All Fields] OR "cognitive therapy" [All Fields] OR "cognitive therapeutic" [All Fields] OR "cognitive therapeutics" [All Fields] OR "cognitive therapeutical" [All Fields] OR "cognitive therapeutist" [All Fields] OR "cognitive therapeutists"[All Fields] OR "cognitive treatment"[All Fields] OR "cognitive treatments"[All Fields] OR "cognitive restructuring"[All Fields] OR (("compassion-focused"[All Fields] OR "compassion-focussed"[All Fields]) AND (therapy[SH] OR therapies[All Fields] OR therapy[All Fields] OR therape*[All Fields] OR therapis*[All Fields]OR Therapeutics [OR treatment*[All Fields])) OR ((therapy[SH] OR therapies[All Fields] OR therapy [All Fields] OR therape*[All Fields] OR therapis*[All Fields] OR Therapeutics[MH] OR treatment*[All Fields]) AND constructivist*[All Fields]) OR "metacognitive therapies"[All Fields] OR "metacognitive therapy"[All Fields] OR "metacognitive therapeutic"[All Fields] OR "metacognitive therapeutics"[All Fields] OR "metacognitive

therapeutical"[All Fields] OR "metacognitive therapeutist"[All Fields] OR "metacognitive therapeutists"[All Fields] OR "metacognitive treatment" [All Fields] OR "metacognitive treatments" [All Fields] OR "meta-cognitive therapies" [All Fields] OR "meta-cognitive therapy" [All Fields] OR "meta-cognitive therapeutic" [All Fields] OR "meta-cognitive therapeutics"[All Fields] OR "meta-cognitive therapeutical"[All Fields] OR "meta-cognitive therapeutist"[All Fields] OR "meta-cognitive therapeutists" [All Fields] OR "meta-cognitive treatment" [All Fields] OR "meta-cognitive treatments" [All Fields] OR "solution-focused therapies" [All Fields] OR "solution-focused therapy" [All Fields] OR "solution-focused therapeutic"[All Fields] OR "solution-focused therapeutics"[All Fields] OR "solution-focused therapeutical"[All Fields] OR "solution focused therapies"[All Fields] OR "solution focused therapy"[All Fields] OR "solution focused therapeutic"[All Fields] OR "solution focused therapeutics"[All Fields] OR "solution focused therapeutical" [All Fields] OR "solution-focussed therapies" [All Fields] OR "solution-focussed therapy" [All Fields] OR "solution-focussed therapeutic"[All Fields] OR "solution-focussed therapeutics"[All Fields] OR "solution-focussed therapeutical"[All Fields]OR "solution focussed therapies"[All Fields] OR "solution focussed therapy"[All Fields] OR "solution focussed therapeutic" [All Fields] OR "solution focussed therapeutics" [All Fields] OR "solution focussed therapeutical"[All Fields] OR "self-control therapies"[All Fields] OR "self-control therapy"[All Fields] OR "self-control therapeutics" [All Fields] OR "self-control therapeutical" [All Fields] OR "self-control therapeutic" [All Fields] OR "selfcontrol training" [All Fields] OR "self-control trainings" [All Fields] OR "self control therapies" [All Fields] OR "self control therapy"[All Fields] OR "self control therapeutics"[All Fields] OR "self control therapeutical"[All Fields] OR "self control therapeutic"[All Fields] OR "self control training"[All Fields] OR "self control trainings"[All Fields] AND

(Depressive Disorder[MH] OR Depression[MH]OR dysthymi*[All Fields] OR "affective disorder"[All Fields]OR "affective disorders"[All Fields] OR "mood disorder"[All Fields] OR "mood disorders"[All Fields] OR depression*[All Fields] OR depressive*[All Fields] OR "dysthymic disorder"[MeSH Terms]) Limits: RCTs

Embase:

#1

'psychotherapy'/exp OR 'psychotherapy' OR 'psychotherapies' OR 'psychotherapeutics' OR 'psychotherapeutical' OR 'cognitive therapy'/exp OR 'cognitive behavior therapy'/exp OR 'behavior therapy'/exp OR 'cognitive behavioural therapy OR 'cognitive behavioural therapies' OR cognitive behavioral therapy OR 'cognitive behavioral therapies' OR 'behavior therapy' OR 'behavior therapies' OR 'behaviour therapy' OR 'behaviour therapies' OR 'cognition therapy' OR 'cognitive therapies' OR 'cognitive therapy' OR 'cognitive therapeutic' OR 'cognitive therapeutics' OR 'cognitive therapeutical' OR 'cognitive therapeutist' OR 'cognitive therapeutists' OR 'cognitive treatment' OR 'cognitive treatments' OR 'cognitive restructuring' OR 'cognition therapies' OR 'cognition therapie' OR 'cognition therapeutical' OR 'cognition therapeutic' OR 'cognition therapeutics' OR 'cognition therapeutist' OR 'cognition therapeutists' OR 'cognition treatment' OR 'cognition treatments' OR 'behavior therapeutic' OR 'behavior therapeutical' OR 'behavior therapeutics' OR 'behavior therapeutist' OR 'behavior therapeutists' OR 'behavior treatment' OR 'behavior treatments' OR 'behavior therapies' OR 'behaviors therapey' OR 'behaviors therapeutics' OR 'behaviors therapeutical' OR 'behaviors therapeutist' OR 'behaviors therapeutists' OR 'behaviors treatment' OR 'behaviors treatments' OR 'behavioral therapies' OR 'behavioral therapy' OR 'behavioral therapeutics' OR 'behavioral therapeutic' OR 'behavioral therapeutical' OR 'behavioral therapeutist' OR 'behavioral therapeutists' OR 'behavioral treatment' OR 'behavioral treatments' OR 'behaviour therapeutic' OR 'behaviour therapeutical' OR 'behaviour therapeutics' OR 'behaviour therapeutist' OR 'behaviour therapeutists' OR 'behaviour treatment' OR 'behaviour treatments' OR 'behaviours therapies' OR 'behaviours therapy' OR 'behaviours therapeutics' OR 'behaviours therapeutical' OR 'behaviours therapeutist' OR 'behaviours therapeutists' OR 'behaviours treatment' OR 'behaviours treatments' OR 'behavioural therapies' OR 'behavioural therapy' OR 'behavioural therapeutics' OR 'behavioural therapeutic' OR 'behavioural therapeutical' OR 'behavioural therapeutist' OR 'behavioural therapeutists' OR 'behavioural treatment' OR 'behavioural treatments' OR 'behavior activation' OR 'behaviors activation' OR 'behavioral activation' OR 'behaviour activation' OR 'behaviours activation' OR 'behavioural activation' OR 'psychoanalytic therapy'/exp OR 'psychodynamic' OR 'psychodynamical' OR 'psychoanalysis' OR 'psychoanalytical' OR 'counselling'/exp OR 'counseling'/exp OR 'counselling' OR 'counseling' OR 'problem-solving' OR 'problem solving' OR 'supportive therapy' OR 'metacognitive therapy' OR 'metacognitive therapies' OR 'metacognitive therapeutic' OR 'metacognitive therapeutics' OR 'metacognitive therapeutical' OR 'metacognitive therapeutist' OR 'metacognitive therapeutists' OR 'metacognitive treatment' OR 'meta-cognitive treatments' OR 'meta-cognitive therapy' OR 'meta-cognitive therapies' OR 'meta-cognitive therapeutic' OR 'meta-cognitive therapeutics' OR 'meta-cognitive therapeutical' OR 'meta-cognitive therapeutist' OR 'meta-cognitive therapeutists' OR 'meta-cognitive treatment' OR 'meta-cognitive treatments' OR 'solution-focused therapies' OR 'solution focused therapies' OR 'solution-focussed therapies' OR 'solution focused therapies' OR 'solution focused therapy' OR 'solution focused therapy' OR 'solution-focussed therapy' OR 'solution focused therapy' OR 'solution-focused therapeutic' OR 'solution focused therapeutic' OR 'solution-focussed therapeutic' OR 'solution focussed therapeutic' OR 'solution-focused therapeutics' OR 'solution focused therapeutics' OR 'solution-focussed

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'compassion-focused' OR 'compassion focussed' OR 'compassion focused' OR 'constructivist' OR 'constructivists'

#3 'therapies' OR 'therapy' OR 'therapeutics' OR 'therapist' OR 'treatment' OR 'treatments' #4 Combine: #2 AND #3

#5: #1 OR #4

#6

'depressive disorder'/exp OR 'depression'/exp OR 'depressive' OR 'major depression'/exp OR 'major depressive disorder'/exp OR 'depression' OR 'depressive' OR 'dysthymic disorder'/exp OR 'dysthymic disorder' OR 'dysthymia'/exp OR 'dysthymic' OR 'mood disorder'/exp OR 'affective disorder'/exp OR 'affective disorder' OR 'affective disorders' OR 'mood disorder' OR 'mood disorders' Combine: #5 AND #6

Limits: RCTs

PsycINFO:

(DE "Psychotherapy" OR "Psychotherapy" OR "psychotherapies" OR "psychotherapeutic" OR "psychotherapeutical" OR "psychotherapeutics" OR DE "Behavior Therapy" OR DE "Cognitive Behavior Therapy" OR "CBT" OR "behavior therapies" OR "behavior therapy" OR "behavior therapeutic" OR "behavior therapeutical" OR "behavior therapeutics" OR "behavior therapeutist" OR "behavior therapeutists" OR "behavior treatment" OR "behavior treatments" OR "behaviors therapies" OR "behaviors therapy" OR "behaviors therapeutics" OR "behaviors therapeutic" OR "behaviors therapeutical" OR "behaviors therapeutist" OR "behaviors therapeutists" OR "behaviors treatment" OR "behaviors treatments" OR "behavioral therapies" OR "behavioral therapy" OR "behavioral therapeutics" OR "behavioral therapeutic" OR "behavioral therapeutical" OR "behavioral therapeutist" OR "behavioral therapeutists" OR "behavioral treatment" OR "behavioral treatments" OR "behaviour therapies" OR "behaviour therapy" OR "behaviour therapeutic" OR "behaviour therapeutical" OR "behaviour therapeutics" OR "behaviour therapeutist" OR "behaviour therapeutists" OR "behaviour treatment" OR "behaviour treatments" OR "behaviours therapies" OR "behaviours therapy" OR "behaviours therapeutics" OR "behaviours therapeutic" OR "behaviours therapeutical" OR "behaviours therapeutist" OR "behaviours therapeutists" OR "behaviours treatment" OR "behaviours treatments" OR "behavioural therapies" OR "behavioural therapy" OR "behavioural therapeutics" OR "behavioural therapeutic" OR "behavioural therapeutical" OR "behavioural therapeutist" OR "behavioural therapeutists" OR "behavioural treatment" OR "behavioural treatments" OR "cognition therapies" OR "cognition therapie" OR "cognition therapy" OR "cognition therapeutical" OR "cognition therapeutic" OR "cognition therapeutics" OR "cognition therapeutist" OR "cognition therapeutists" OR "cognition treatment" OR "cognition treatments" OR "cognitive therapies" OR "cognitive therapy" OR "cognitive therapeutic" OR "cognitive therapeutics" OR "cognitive therapeutical" OR "cognitive therapeutist" OR "cognitive therapeutists" OR "cognitive treatment" OR "cognitive treatments" OR "cognitive restructuring" OR DE "Emotion Focused Therapy" OR DE "Psychoanalysis" OR "psychoanalysis" OR "psychoanalytic" OR "psychoanalytical "OR DE "Psychodynamic Psychotherapy" OR "psychodynamic" OR DE "Psychotherapeutic Counseling" OR "counselling" OR "counseling" OR "problem-solving" OR "problem solving" OR "mindfulness" OR ("acceptance" AND "commitment") OR "assertiveness training" OR "behavior activation" OR "behaviors activation" OR "behavioral activation" OR "behaviour activation" OR "behaviours activation" OR "behavioural activation" OR "metacognitive therapies" OR "metacognitive therapy" OR "metacognitive therapeutic" OR "metacognitive therapeutics" OR "metacognitive therapeutical" OR "metacognitive therapeutist" OR "metacognitive therapeutists" OR "metacognitive treatment" OR "metacognitive treatments" OR "meta-cognitive therapies" OR "meta-cognitive therapy" OR "meta-cognitive therapeutic" OR "meta-cognitive therapeutics" OR "meta-cognitive therapeutical" OR "meta-cognitive therapeutist" OR "meta-cognitive therapeutists" OR "meta-cognitive treatment" OR "meta-cognitive treatments" OR DE "Solution Focused Therapy" OR "solutionfocused therapies" OR "solution-focused therapy" OR "solution-focused therapeutic" OR "solution-focused therapeutics" OR "solution-focused therapeutical" OR "solution-focussed therapies" OR "solution-focussed therapy" OR "solution-focussed therapeutic" OR "solution-focussed therapeutics" OR "solution-focussed therapeutical" OR "solution focused therapies" OR "solution focused therapy" OR "solution focused therapeutic" OR "solution focused therapeutics" OR "solution focused therapeutical" OR "solution focussed therapies" OR "solution focussed therapy" OR

"solution focussed therapeutic" OR "solution focussed therapeutics" OR "solution focussed therapeutical" OR "selfcontrol therapies" OR "self-control therapy" OR "self-control therapeutics" OR "self-control therapeutical" OR "selfcontrol therapeutic" OR "self-control training" OR "self-control trainings" OR "self-control therapies" OR "self-control therapeutics" OR "self

therapy" OR "self control therapeutics" OR "self control therapeutical" OR "self control therapeutic" OR "self control trainings" OR (("compassion-focused" OR "compassion-focussed" OR "compassion focussed") OR "compassion focussed" OR "therapis" OR "therapis" OR "therapis" OR "therapist" OR

(DE "Depression (Emotion)" "depressive disorder" OR "depression" OR "depressions" OR "depressive" OR DE "Major Depression" OR "major depression" OR "major depressive disorder" OR DE "Dysthymic Disorder" OR "Dysthymia" OR " dysthymic disorder" OR DE "Affective Disorders" OR "Affective Disorder" OR "affective disorders" OR "Mood Disorder" OR "Mood disorders")

Limits: Methodology is ME=(treatment outcome/clinical trial): papers

Cochrane:

#1 MeSH descriptor: [Depressive Disorder] explode all trees : 6, 777

- #2 ''depress*'' (Word variations have been searched) : 51, 768
- #3 #1 or #2 : 51, 783
- #4 "major depressive disorder" (Word variations have been searched) : 5, 435

#5 #3 or #4 : 51, 783

#6 MeSH descriptor: [Dysthymic Disorder] explode all trees : 129

#7 "dysthymi*" (Word variations have been searched) : 649

#8 #6 or #7 : 649 #9 #5 or #8 : 51, 800

#9 #5 01 #0 . 51, 000

#10 "mood disorder" (Word variations have been searched) :4, 034

#11 "affective disorder" (Word variations have been searched) : 2, 882

#12 #10 or #11 : 6, 055

#13 #9 or #12 : 53, 227

#14 MeSH descriptor: [Psychotherapy] explode all trees : 13, 568

#15 "psychotherap*" (Word variations have been searched) : 7, 758

#16 "CBT" (Word variations have been searched) : 2, 029

#17 "Cognitive Behav* therap* (Word variations have been searched) : 8, 893

#18 #14 or #15 or #16 or #17 : 20, 795

#19 'psychodynamic'' (Word variations have been searched) : 469

#20 MeSH descriptor: [Psychoanalysis] explode all trees : 13

#21 "psychoanaly*" (Word variations have been searched) : 345

#22 MeSH descriptor: [Counseling] explode all trees : 2, 783

#23 "counseling*" (Word variations have been searched) : 6, 913

#24 "problem solving" (Word variations have been searched) : 2, 867

#25 #18 or #19 or #20 or #21 or #22 or #23 or #24 : 28, 149

#26 "acceptance commitment" (Word variations have been searched) : 168

#27 "assertiveness training" (Word variations have been searched) :231

#28 "behavior activation" (Word variations have been searched) : 663

#29 "mindfulness" (Word variations have been searched) : 466

#30 "metacognitive therap*" (Word variations have been searched) :56

#31 "solution focused therap*" (Word variations have been searched) :858

#32 "self control training" (Word variations have been searched): 5850

#33 #25 or #26 or #27 or #28 or #29 or #30 or #31 or #32 : 32, 748

#34 "Randomized Controlled Trial":ti,ab,kw (Word variations have been searched) : 120, 901

#35 #13 and #33 and #34 in Trials: 4,614

Limit: publication year: 1970-2018

Corresponding authors were asked to provide the following data, if available:

- **Demographics:** age, sex, ethnicity, country of birth, education, employment, marital status, income, children
- Intervention details: randomized group, number of treatment sessions completed, number of weeks of treatment
- **Clinical indicators:** current diagnosis of depression, prior diagnosis of depression, number of previous depressive episodes, currently receiving antidepressants, previous psychotherapy, comorbid anxiety disorder, specific anxiety disorder, comorbid mental health disorder, comorbid physical health disorder, chronic medical condition
- **Outcome measures:** diagnosed depression (baseline, post, follow-ups), depressive symptom severity (baseline, post, follow-ups), anxiety (baseline, post, follow-ups), other symptom scales
- Psychosocial measures: Quality of life, measures of interpersonal functioning
- **Other:** measures of attitude, mastery

Common metrics conversion

For all assessment points, if feasible, depression symptom severity scores were transformed into a "common metric" using the generalized partial credit model by Wahl et al. (2014). This common metric is standardized to have a population mean of θ =50, as well as a population SD of σ =10, thus facilitating joint analyses. Using the depression common metric, we also converted symptom severities back to PHQ-9 scores, which was used to (1) ascertain close to symptom-free status consistently across all trials (defined as PHQ-9<5); and (2) estimate predicted treatment effects at clinically meaningful cut-points defined by PHQ-9 score ranges (mild: 5-9; moderate 10-14; moderately severe: 15-19; severe: 20-27; Kroenke et al., 2001), based on the fitted additive mixed model.

Missing data handling

Assuming missingness at random (MAR), missing data were handled using multiple imputation (fully conditional specification, FCS; MICE algorithm; Buuren & Groothuis-Oudshoorn, 2011). Multilevel two-stage imputation models with heteroscedastic errors were used to account for the nested data structure, as described by Resche-Rigon and White (2018). Highly collinear variables were dropped as predictors, as well as variables with systematically missing information ("structural zeros").

A total of m=50 imputation sets were generated. For the moderator analyses, substantive model compatible FCS models were constructed for each putative moderator. These models allowed for treatment-covariate interactions in the examined moderator, as well as for the influence of further auxiliary variables.

Imputation uncertainty in the parameter estimation was incorporated by mixing draws from the posterior distribution of each model fitted in the multiply imputed data (Zhou & Reiter, 2010).

IPD meta-analysis

All IPD-MA models (one-stage and two-stage) were implemented in a Bayesian framework using Gibbs sampling (JAGS version 4.3.0; Plummer, 2012), employing stratified trial intercepts and trial-specific error terms (Riley & Debray, 2021). A binomial logit-link model (i.e., logistic regression) was used for all binary outcomes (50% symptom reduction, close to symptom-free status, reliable improvement, reliable deterioration). All models were adjusted for the baseline symptom severity, values of which were centred around the cluster (viz., trial) means.

A weakly informative Half-Cauchy prior was used to model the between-study heterogeneity variance τ^2 , as prespecified in the statistical analysis plan (Harrer et al., 2024), p. 5). To accommodate studies with outcomes that were not convertible to the depression common metric, the IPD-MA model was extended into a hierarchical related regression (Sutton et al., 2008; Riley et al., 2008). This allowed to synthesize all available effects within a common framework, while leaving all other parameter specifications intact. An exact model formula is provided in the statistical analysis plan (Harrer et al., 2024).

For binary outcome measures, marginal estimates of the relative risk (*RR*) were obtained from the hierarchical logistic models using *G*-computation (Keil et al., 2018). Standardized mean differences (SMDs; Cohen's *d*) were calculated for the effects on depressive symptom severity, using study's pooled endpoint SD as the standardizing denominator.

Our sensitivity analysis including both IPD and aggregate data only studies was restricted to depressive symptom severity outcomes, since results on 50% symptom reduction, reliable change and close to symptom-free status could not be calculated from the aggregate data. Sensitivity analyses controlling for small-study effects and/or selective publication were implemented in a two-stage framework, and employed three different approaches. We calculated adjusted effects based on (1) Duval and Tweedie's (2000) "trim-and-fill" procedure, (2) a limit meta-analysis (Rücker et al., 2011), and (3) a three-parameter selection model (McShane et al., 2016). For (3), the selection cut-point was set to the conventional significance threshold (p<0.05).

Treatment-Covariate Interactions (Moderator Analysis)

Effect modifiers on depressive symptom severity were examined by adding treatment-covariate interaction terms (including main effects) to the main IPD-MA model. Covariates were centred around their cluster-specific mean to avoid an amalgamation of between- and within-study information (Fisher et al., 2017). Moderator analyses were only conducted for symptom severity at the first post-treatment assessment point available in each study. As putative effect modifiers on a participant level, we explored initial symptom severity, anxiety symptom severity, sex, age, ethnicity, education, employment status, relationship status, presence of chronic medical conditions, history of MDD, intake of anti-depressive medication, and previous psychotherapy experience. Furthermore, we also examined study-level moderators of the effect. Variables in this analysis included the country of origin, publication year, intervention format, type of delivery, risk of bias, and target group.

A more fine-grained analysis was performed to investigate baseline symptom severity as a predictor of differential treatment effects. In this analysis, we fitted an additive model with replicate cubic regression splines for both treatment groups (K=10 basis functions; Cho et al., 2022; Wood, 2016), which also allow to capture potentially non-linear interactions. This was used to better understand how predicted treatment benefits vary along with individuals' initial symptom severity, as measured by the PHQ-9.



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[†]*did not provide individual participant data.*

S7. Participant descriptives at baseline.

	Cont	rol (N=5	,201)	Interve	Intervention (<i>N</i> =5,470)			Overall (<i>N</i> =10,671)		
	M/ prop.	SD	N	M/ prop.	SD	N	M/ prop.	SD	Ν	
PHQ-9 [†]	8.66	4.25	4,586	8.89	4.38	4,883	8.78	4.32	9,469	
GAD-7 [‡]	6.63	4.49	2,129	6.80	4.60	2,075	6.72	4.54	4,204	
Chronic Medical Condition, yes	0.83	0.58	2,297	0.84	0.61	2,380	0.84	0.60	4,677	
Age, years	52.95	18.84	5,007	52.65	18.61	5,345	52.79	18.72	10,352	
Education, higher	0.50	0.50	4,644	0.47	0.50	4,933	0.48	0.50	9,577	
Ethnicity, non-white	0.36	0.48	2,597	0.37	0.48	2,773	0.37	0.48	5,370	
Depressive Medication, yes	0.17	0.37	2,686	0.16	0.37	2,686	0.16	0.37	5,372	
Employment, <i>yes</i>	0.56	0.50	3,739	0.55	0.50	4,047	0.55	0.50	7,786	
History of MDD, <i>yes</i>	0.39	0.49	1,678	0.40	0.49	1,837	0.40	0.49	3,515	
Previous Psychotherapy, <i>yes</i>	0.39	0.49	1,398	0.39	0.49	1,501	0.39	0.49	2,899	
Relationship, <i>yes</i>	0.79	0.41	4,156	0.80	0.40	4,521	0.80	0.40	8,677	
Sex, male	0.32	0.47	5,127	0.32	0.47	5,461	0.32	0.47	10,588	

Note. Values were calculated based on the non-imputed IPD. [†]Patient Health Questionnaire 9, with values converted from another questionnaire using the depression common metric if not assessed in the trial. [‡]Generalized Anxiety Disorder 7, with values converted from another questionnaire using the anxiety common metric if not assessed in the trial.

S8. Missing outcome data in the included IPD.

Study	Cont	rol Group	Interv	vention Group
Study	N	Missings	N	Missings
Post-Test				
- Albert, 2019	51	6 (11.8%)	51	10 (19.6%)
- Allart, 2007	42	1 (2.4%)	69	6 (8.7%)
- Apil, 2014	39	11 (28.2%)	52	14 (26.9%)
- Barrett, 2001	72	6 (8.3%)	76	13 (17.1%)
- Batterham, 2017	575	217 (37.7%)	574	318 (55.4%)
- Bø, 2023	126	13 (10.3%)	120	7 (5.8%)
- Buntrock, 2015	204	13 (6.4%)	202	20 (9.9%)
- Cook, 2019	77	15 (19.5%)	82	30 (36.6%)
- Dozeman, 2012	89	5 (5.6%)	90	4 (4.4%)
- Ebert, 2018	102	5 (4.9%)	102	21 (20.6%)
- Gilbody, 2017	361	37 (10.2%)	344	82 (23.8%)
- Haringsma, 2006	26	9 (34.6%)	31	5 (16.1%)
- Hoorelbeke, 2017	10	0 (0%)	9	0 (0%)
- Imamura, 2014	208	26 (12.5%)	213	70 (32.9%)
- Irwin, 2022	87	3 (3.4%)	94	11 (11.7%)
- Karyotaki, 2022	29	9 (31%)	19	7 (36.8%)
- Klein, 2016	368	74 (20.1%)	355	77 (21.7%)
- Konnert, 2009	26	3 (11.5%)	32	12 (37.5%)
- Krebber, 2016	60	5 (8.3%)	61	2 (3.3%)
- Lara, 2010	95	27 (28.4%)	200	142 (71%)

	Contr	ol Group	Interv	vention Group
Study	Ν	Missings	Ν	Missings
		0		0
- Le, 2011	105	13 (12.4%)	112	18 (16.1%)
- Mossey, 1996	49	8 (16.3%)	52	14 (26.9%)
- Muñoz, 2007	20	1 (5%)	21	1 (4.8%)
- Nobis. 2015	16	1 (6.2%)	14	7 (50%)
- Otero, 2014	84	0 (0%)	89	0 (0%)
- Pibernik, 2015	69	4 (5.8%)	74	3 (4.1%)
- Pols. 2017	133	24 (18%)	90	15 (16.7%)
- Pot. 2010	88	0 (0%)	83	0 (0%)
- Reynolds, 2014	122	26 (21.3%)	125	28 (22.4%)
- Rovner, 2007	101	6 (5.9%)	105	13 (12.4%)
- Sanabria-Mazo, 2023	23	2 (8.7%)	33	12 (36.4%)
- Sander, 2020	146	23 (15.8%)	149	47 (31.5%)
- Spek. 2007	100	35 (35%)	201	67 (33.3%)
- Van Bastelaar, 2011	55	9 (16.4%)	54	24 (44.4%)
- Van't Veer, 2009	84	7 (8.3%)	86	21 (24.4%)
- Vázguez. 2012	63	0 (0%)	70	0 (0%)
- Vázguez, 2017a	10	1 (10%)	22	2 (9.1%)
- Vázquez, 2017b	9	0 (0%)	20	1 (5%)
- Vázguez, 2022a	40	0 (0%)	70	3 (4.3%)
- Vázguez, 2022b	40	1 (2.5%)	69	1 (1.4%)
- Vázguez, 2023a	31	4 (12.9%)	58	7 (12.1%)
- Vázquez, 2023b	32	3 (9.4%)	54	1 (1.9%)
- Williams, 2000	132	14 (10.6%)	130	19 (14.6%)
- Wong. 2018	116	2 (1.7%)	115	11 (9.6%)
- Yang. 2015	50	0 (0%)	27	0 (0%)
- Zhang, 2014	119	17 (14.3%)	121	12 (9.9%)
				(••••)
Up to 6 months				
- Albert, 2019	51	5 (9.8%)	51	11 (21.6%)
- Almeida, 2020	153	18 (11.8%)	154	48 (31.2%)
- Apil. 2014	39	9 (23.1%)	52	16 (30.8%)
- Barrett. 2001	72	21 (29.2%)	76	24 (31.6%)
- Batterham. 2017	575	285 (49.6%)	574	343 (59.8%)
- Bø. 2023	126	26 (20.6%)	120	24 (20%)
- Buntrock, 2015	204	29 (14.2%)	202	50 (24.8%)
- Cook 2019	77	19 (24.7%)	82	35 (42.7%)
- Dozeman 2012	89	19 (21.3%)	90	35 (38.9%)
- Ebert 2018	102	11(10.8%)	102	30 (29 4%)
- Eurukawa 2012	60	1(17%)	58	5 (8 6%)
- Hankin 2023	110	16(134%)	115	14(122%)
- Haringsma 2006	26	9 (34 6%)	31	7 (22.6%)
- Hoorelbeke 2017	10	3 (30%)	9	0(0%)
- Imamura 2014	208	34(16.3%)	213	67 (31 5%)
- Irwin 2022	87	5 (5 7%)	94	24 (25 5%)
- Karvotaki 2022	20	9 (31%)	10	6 (31.6%)
- Klein 2016	368	94 (25 5%)	355	89 (25 1%)
- Konnert, 2009	26	7 (26.9%)	32	13 (40.6%)

Charles	Contr	ol Group	Intervention Group		
Study	Ν	Missings	Ν	Missings	
		-		-	
- Krebber, 2016	60	12 (20%)	61	13 (21.3%)	
- Lara, 2010	95	26 (27.4%)	200	136 (68%)	
- Le, 2011	105	20 (19%)	112	31 (27.7%)	
- Mossey, 1996	49	8 (16.3%)	52	13 (25%)	
- Muñoz. 2007	20	1 (5%)	21	0 (0%)	
- Nobis, 2015	16	2 (12.5%)	14	9 (64.3%)	
- Oosterbaan 2013	28	6(214%)	26	4 (15.4%)	
- Otero 2014	84	0(0%)	89	0(0%)	
- Pibernik 2015	60	10(145%)	74	5 (6.8%)	
- Pols 2017	133	27(20.3%)	00	11(12.2%)	
Reynolds 2014	100	A1 (33.6%)	125	11 (12.270) 15 (36%)	
Powner 2007	101	(35.0%)	105	45(3070)	
Sandar 2020	101	11(10.976)	140	13(14.370)	
Van Pastolaar 2011	140 55	25(17.170)	149 54	33(33.070)	
- Van Bastelaar, 2011	55	9(10.4%)	54 70	23(42.0%)	
- Vazquez, 2012	122	0(0%)	120	0(0%)	
- Williams, 2000	132	30(27.3%)	130	31(23.8%)	
- Wong, 2018	110	13(11.2%)	115	30 (20.1%)	
- Yang, 2015	50	2 (4%)	27	0(0%)	
- Zhang, 2014	119	22 (18.5%)	121	17 (14%)	
Up to 12 months					
- Albert, 2019	51	10 (19.6%)	51	11 (21.6%)	
- Allart, 2007	42	7 (16.7%)	69	11 (15.9%)	
- Almeida, 2020	153	34 (22.2%)	154	43 (27.9%)	
- Apil, 2014	39	9 (23.1%)	52	16 (30.8%)	
- Basanovic, 2019	100	54 (54%)	102	59 (57.8%)	
- Batterham. 2017	575	341 (59.3%)	574	408 (71.1%)	
- Bø. 2023	126	31 (24.6%)	120	28 (23.3%)	
- Buntrock, 2015	204	46 (22.5%)	202	72 (35.6%)	
- Dozeman, 2012	89	27 (30.3%)	90	43 (47.8%)	
- Gilbody 2017	361	77 (21.3%)	344	109 (31 7%)	
- Irwin 2022	87	10(115%)	94	29 (30.9%)	
- Karvotaki 2022	29	8 (27.6%)	19	4(211%)	
- Klein 2016	368	111(30.2%)	355	105(29.6%)	
- Konnert 2009	26	7 (26.9%)	32	13(40.6%)	
- Krebber 2016	60	18 (30%)	61	17(27.0%)	
	105	24(22.0%)	112	32(28.6%)	
- Le, 2011 Mossoy, 1006	105	24(22.970) 8(16.3%)	52	32(20.070)	
- Muñoz 2007	49 20	0(10.376)	02 01	10(34.070) 1(4.8%)	
- Mulloz, 2007	20	0(070) 6(21.4%)	21	1(4.070) 2(115%)	
Otoro 2014	20 04	0(21.470)	20	5(11.570)	
Dihormile 2015	60	0(0/0)	74	0(0/6)	
- Pibernik, 2015 Dala 2017	122	9(15%)	74 00	1 (9.5%)	
$- r \cos, 2017$	122	∠I (ID.070)	90 02	TO (10.7%)	
- FOT, 2010	00 100	$\cup (\cup 70)$	03 105	$\cup (0.70)$	
- reynolas, 2014	122	41(33.0%)	125	55(42.4%)	
- Sanabria-Miazo, 2023	23	4(11.4%)	33	12 (30.4%)	
- Sander, 2020	146	29 (19.9%)	149	55 (30.9%)	

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C+dv	Cont	rol Group	Interv	ention Group
Study	N	Missings	N	Missings
- Spek, 2007	100	35 (35%)	201	78 (38.8%)
- Van't Veer, 2009	84	8 (9.5%)	86	22 (25.6%)
- Willemse, 2004	109	0 (0%)	107	0 (0%)
- Wong, 2018	116	15 (12.9%)	115	33 (28.7%)
- Yang, 2015	50	12 (24%)	27	4 (14.8%)
- Zhang, 2014	119	37 (31.1%)	121	35 (28.9%)
Up to 24 months				
- Albert, 2019	51	7 (13.7%)	51	12 (23.5%)
- Allart, 2007	42	5 (11.9%)	69	9 (13%)
- Apil, 2014	39	18 (46.2%)	52	29 (55.8%)
- Batterham, 2017	575	449 (78.1%)	574	473 (82.4%)
- Cook, 2019	77	16 (20.8%)	82	35 (42.7%)
- Haringsma, 2006	26	11 (42.3%)	31	6 (19.4%)
- Irwin, 2022	87	13 (14.9%)	94	32 (34%)
- Krebber, 2016	60	20 (33.3%)	61	16 (26.2%)
- Le, 2011	105	32 (30.5%)	112	36 (32.1%)
- Muñoz, 2007	20	0 (0%)	21	0 (0%)
- Oosterbaan, 2013	28	5 (17.9%)	26	7 (26.9%)
- Pols, 2017	133	17 (12.8%)	90	7 (7.8%)
- Reynolds, 2014	122	36 (29.5%)	125	45 (36%)
- Vázquez, 2016	82	3 (3.7%)	88	2 (2.3%)
- Zhang, 2014	119	18 (15.1%)	121	17 (14%)
-		· · ·		

	k	P	articipan	ts	Effect Size			Deletive Diele	Even	t Rate
		Total	lGs	CGs	(95% CrI)	95%-PI	τ (95% CrI)	Relative Risk	Intervention	Control
D	6		0)							
	i Seve		<i>D</i>)	4 5 40	0.40 [0.60 0.00]					
- Post-Test	47	9,418	4,875	4,543	-0.48 [-0.63; -0.33]	[-1.46; 0.49]	0.48 [0.37; 0.61]	-	-	-
- Up to 6 months	39	8,218	4,152	4,066	-0.28 [-0.40; -0.16]	[-0.95; 0.38]	0.32 [0.23; 0.43]	-	-	-
- Up to 12 months	33	7,740	3,903	3,837	-0.27 [-0.37; -0.16]	[-0.78; 0.24]	0.24 [0.16; 0.34]	-	-	-
- Up to 24 months	15	3,163	1,597	1,566	-0.18 [-0.41; 0.07]	[-1.07; 0.72]	0.39 [0.24; 0.60]	-	-	-
50% Symptom Redu	ction	(OR)								
- Post-Test	47	9,418	4,875	4,543	2.68 [1.88; 3.66]	[0.81; 40.87]	0.97 [0.70; 1.29]	1.75 [1.61; 1.90]	42% [39%; 44%]	24% [22%; 25%]
- Up to 6 months	39	8,218	4,152	4,066	1.91 [1.43; 2.46]	[1.06; 16.93]	0.68 [0.47; 0.93]	1.45 [1.33; 1.57]	43% [40%; 46%]	30% [27%; 32%]
- Up to 12 months	33	7,740	3,903	3,837	1.70 [1.30; 2.16]	[1.14; 12.79]	0.59 [0.38; 0.83]	1.34 [1.24; 1.44]	43% [41%; 46%]	32% [30%; 34%]
- Up to 24 months	15	3,163	1,597	1,566	1.29 [0.63; 2.15]	[0.39; 23.91]	0.94 [0.53; 1.51]	1.12 [1.01; 1.24]	48% [43%; 52%]	42% [38%; 47%]
Close to Symptom-F	ree St	atus (<i>O</i> l	7) †							
- Post-Test	42	8 701	4 512	4 189	2 39 [1 64 3 30]	[0.33 17.51]	0 97 [0 70 1 30]	1 54 [1 43 1 65]	48% [45%· 50%]	31% [29% 33%]
- Up to 6 months	34	7 267	3 674	3 593	1 73 [1 25: 2 28]	[0.38: 7.88]	$0.73 [0.50 \cdot 1.00]$	$1.31 [1.22 \cdot 1.41]$	49% [46%: 51%]	37% [35%: 39%]
- Up to 12 months	31	7 598	3 833	3 765	1 56 [1 17: 2 01]	[0.33; 7.33]	0.62 [0.40: 0.89]	1.01 [1.22, 1.11] 1.22 [1.15; 1.30]	52% [50%: 55%]	43% [41%: 45%]
- Up to 24 months	15	3,163	1,597	1,566	1.37 [0.64; 2.37]	[0.14; 13.18]	1.00 [0.58; 1.61]	1.12 [1.03; 1.23]	55% [52%; 59%]	49% [46%; 53%]
Poliable Improvemen	+ () E	2)								
Renable Improvement	11 (UN	0 410	4 075	4 5 4 2	0 F4 [1 00, 2 20]	[0 EE, 11 01]		1 00 [1 60, 0 00]	220/ [210/, 250/]	100/ [160/. 100/]
- Post-Test	47	9,410	4,075	4,545	2.54 [1.09; 5.52]		0.75 [0.50; 1.04]	1.00 [1.09; 2.00]	33% [31%; 33%]	10% [10%; 19%]
- Up to 6 months	39	8,218	4,152	4,000	1.70 [1.37; 2.21]	[0.55; 5.03]	0.50 [0.35; 0.80]	1.40 [1.33; 1.01]	31% [28%; 33%]	21% [19%; 23%]
- Up to 12 months	33	7,740	3,903	3,837	1.08 [1.31; 2.09]	[0.60; 4.70]	0.49 [0.28; 0.72]	1.44 [1.30; 1.58]	29% [27%; 31%]	20% [18%; 22%]
- Up to 24 months	15	3,163	1,597	1,566	1.30 [0.75; 1.97]	[0.25; 6.68]	0.72 [0.38; 1.19]	1.18 [1.03; 1.35]	35% [31%; 38%]	29% [25%; 33%]
Reliable Deterioratio	on (<i>OF</i>	?)								
- Post-Test	47	9,418	4,875	4,543	0.55 [0.37; 0.74]	[0.17; 1.79]	0.56 [0.00; 1.05]	0.60 [0.45; 0.75]	4% [3%; 5%]	7% [6%; 8%]
- Up to 6 months	39	8,218	4,152	4,066	0.67 [0.47; 0.90]	[0.26; 1.73]	0.44 [0.00; 0.82]	0.72 [0.55; 0.92]	5% [4%; 6%]	6% [5%; 8%]
- Up to 12 months	33	7,740	3,903	3,837	0.60 [0.43; 0.79]	[0.31; 1.14]	0.28 [0.00; 0.71]	0.63 [0.48; 0.79]	5% [4%; 6%]	7% [6%; 8%]
- Up to 24 months	15	3,163	1,597	1,566	0.66 [0.28; 1.21]	[0.10; 4.20]	0.77 [0.00; 1.54]	0.68 [0.43; 0.99]	5% [4%; 7%]	8% [6%; 10%]

S9. Effects on symptom severity, response, and deterioration (two-stage IPD-MA).

Note. CGs = control groups; IGs = intervention groups; k=number of studies/effects. [†]Defined as scoring PHQ-9 < 5. This analysis only included studies which employed the PHQ-9, or some other instrument which could be converted into PHQ-9 scores using the common metric by Wahl et al. (2014).

	k	Р	articipan	its	Effect Size			Deletive Diele	Even	t Rate
		Total	lGs	CGs	(95% Crl)	95%-P1	τ (95% Cri)	Relative Risk	Intervention	Control
Depressive Sympton	n Seve	rity (<i>SM</i>	D)							
- Post-Test	38	8,052	4,219	3,833	-0.53 [-0.70; -0.37]	[-1.50; 0.43]	0.47 [0.35; 0.62]	-	-	-
- Up to 6 months	30	6,968	3,556	3,412	-0.31 [-0.45; -0.17]	[-1.02; 0.40]	0.34 [0.23; 0.46]	-	-	-
- Up to 12 months	23	6,137	3,128	3,009	-0.32 [-0.46; -0.19]	[-0.90; 0.25]	0.27 [0.17; 0.39]	-	-	-
- Up to 24 months	10	2,434	1,247	1,187	-0.21 [-0.56; 0.15]	[-1.37; 0.95]	0.48 [0.26; 0.79]	-	-	-
50% Symptom Redu	uction	(<i>OR</i>)								
- Post-Test	38	8,052	4,219	3,833	3.04 [2.05; 4,27]	[0.42; 22.06]	0.96 [0.67; 1.31]	1.90 [1.83; 1.95]	47% [46%; 49%]	25% [24%; 26%]
- Up to 6 months	30	6,968	3,556	3,412	2.04 [1.42; 2.75]	[0.42; 9.81]	0.75 [0.50; 1.05]	1.50 [1.43; 1.56]	45% [43%; 47%]	30% [28%; 31%]
- Up to 12 months	23	6,137	3,128	3,009	1.90 [1.31; 2.61]	[0.44; 8.18]	0.68 [0.42; 1.01]	1.42 [1.37; 1.48]	47% [46%; 48%]	33% [32%; 34%]
- Up to 24 months	10	2,434	1,247	1,187	1.42 [0.39; 3.01]	[0.07; 27.9]	1.21 [0.61; 2.14]	1.17 [1.12; 1.23]	49% [47%; 52%]	42% [38%; 44%]
Close to Symptom-I	Free St	tatus (<i>Ol</i>	R) †							
- Post-Test	38	8,052	4,219	3,833	3.26 [2.03; 4.82]	[0.37; 29.00]	1.05 [0.72; 1.47]	1.67 [1.63; 1.72]	52% [50%; 54%]	31% [30%; 32%]
- Up to 6 months	30	6,968	3,556	3,412	2.09 [1.36; 2.96]	[0.37; 11.69]	0.81 [0.52; 1.17]	1.37 [1.33; 1.42]	51% [48%; 53%]	37% [36%; 38%]
- Up to 12 months	23	6,137	3,128	3,009	1.95 [1.25; 2.81]	[0.36; 10.54]	0.78 [0.49; 1.16]	1.29 [1.26; 1.33]	55% [53%; 57%]	42% [41%; 44%]
- Up to 24 months	10	2,434	1,247	1,187	1.51 [0.38; 3.32]	[0.07; 34.41]	1.27 [0.66; 2.23]	1.10 [1.05; 1.15]	60% [56%; 62%]	54% [51%; 57%]
Reliable Improveme	nt (<i>OF</i>	ל)								
- Post-Test	38	8,052	4,219	3,833	3.43 [2.32; 4.82]	[0.56; 20.85]	0.87 [0.57; 1.23]	1.96 [1.88; 2.05]	36% [34%; 37%]	18% [17%; 19%]
- Up to 6 months	30	6,968	3,556	3,412	2.07 [1.45; 2.79]	[0.51; 8.33]	0.66 [0.40; 0.99]	1.48 [1.42; 1.56]	32% [30%; 33%]	22% [20%; 23%]
- Up to 12 months	23	6,137	3,128	3,009	2.11 [1.45; 2.88]	[0.58; 7.73]	0.60 [0.32; 0.95]	1.48 [1.42; 1.55]	32% [31%; 34%]	21% [20%; 23%]
Up to 24 months	10	2,434	1,247	1,187	1.60 [0.40; 3.54]	[0.08; 33.66]	1.23 [0.58; 2.21]	1.23 [1.15; 1.32]	38% [34%; 41%]	31% [27%; 34%]
Reliable Deterioratio	on (<i>Ol</i>	ዋ)								
- Post-Test	38	8,052	4,219	3,833	0.46 [0.28; 0.65]	[0.14; 1.55]	0.56 [0.00; 1.16]	0.59 [0.51; 0.69]	3% [3%; 4%]	6% [5%; 7%]
- Up to 6 months	30	6,968	3,556	3,412	0.65 [0.43; 0.92]	[0.22; 1.92]	0.49 [0.00; 0.93]	0.77 [0.65; 0.86]	5% [4%; 5%]	6% [5%; 6%]
- Up to 12 months	23	6,137	3,128	3,009	0.53 [0.36; 0.73]	[0.28; 1.02]	0.26 [0.00; 0.67]	0.59 [0.51; 0.66]	4% [3%; 4%]	6% [5%; 7%]
- Up to 24 months	10	2,434	1,247	1,187	0.56 [0.17; 1.23]	[0.07; 4.16]	0.75 [0.00; 1.79]	0.85 [0.58; 1.19]	6% [4%; 8%]	7% [6%; 9%]
,	10	2,101	1,211	1,101	0.000 [0.21, 1.20]	[0.01, 1.10]	5.1.5 [5.50, 1.15]	0.00 [0.00, 1.15]		[0 . 0, 0 . 0]

S10. Effects on symptom severity, response, and deterioration (atypical interventions excluded).

Note. Analyses are based on one-stage IPD-MA models. Studies investigating an "atypical" treatment format ("bottom-up" therapies such as bias modification, cognitive trainings; or stepped care interventions) were excluded. CGs = control groups; IGs = intervention groups; k=number of studies/effects. [†]Defined as scoring PHQ-9 < 5. This analysis only included studies which employed the PHQ-9, or some other instrument which could be converted into PHQ-9 scores using the common metric by Wahl et al. (2014).

Time	k	SMD (95% Crl)	95% PI	<i>î</i> (95% Crl)	\hat{eta}_{AD} (95% CrI) †
Post-Test	57	-0.45 [-0.58; -0.32]	[-1.37; 0.47]	0.45 [0.36; 0.57]	0.20 [0.02; 0.38]
Up to 6 months	44	-0.27 [-0.38; -0.16]	[-0.91; 0.38]	0.31 [0.23; 0.41]	0.15 [-0.05; 0.35]
Up to 12 months	38	-0.25 [-0.35; -0.16]	[-0.74; 0.23]	0.23 [0.16; 0.32]	0.15 [-0.05; 0.36]
Up to 24 months	16	-0.18 [-0.40; 0.05]	[-1.03; 0.67]	0.38 [0.23; 0.57]	0.12 [-0.32; 0.56]

S11. Effects on symptom severity (combined analysis of IPD and aggregate data studies).

Note. k=number of studies/effects; SMD=standardized mean difference (Cohen's *d*); PI=prediction interval. Results based on two-stage models. For studies not providing IPD, effect sizes (SMDs) and their sampling variance were calculated from information included in the published reports. †This column shows the effect difference and credible interval between IPD and aggregate data only (AD) studies, estimated by two-stage Bayesian meta-regression.

S12. Funnel plot of treatment effects at post-test.



Note. The funnel plot shows effect sizes and their standard error at post-test. Studies which did not provide IPD are shown in light blue. The x-axis indicates the SMD.

S13. Effects on symptom severity after correction for small-study effects/publication bias.

	k	SMD (95% CI)	β ² (95% CI)	95% PI	NNT§
Trim-and-Fill Method [†]	48	-0.46 [-0.62; -0.29]	88.6% [85.7%; 90.8%]	[-1.47; 0.56]	6.92
Limit Meta-Analysis [‡]	47	-0.30 [-0.50; -0.10]	82.6% [–]	[-1.26; 0.65]	11.22
Selection Model [°]	47	-0.57 [-0.77; -0.36]	90.7% [85.5%; 94.3%]	[-1.45; 0.32]	5.41

Note. k=number of studies/effects; SMD=standardized mean difference (Cohen's *d*); PI=prediction interval. Analyses were conducted in studies reporting effects on depressive symptom severity at post-test. Results are based on a two-stage IPD-MA model, with the betweenstudy heterogeneity variance estimated using restricted maximum likelihood (REML; Viechtbauer, 2005). §For effects on depressive symptom severity, NNTs were estimated using the method by Furukawa and Leucht (2011), with control group event rates (CERs) imputed from reliable improvement rates in the CGs (two-stage model; see S7); † k=1 study/ effect added; ‡ For the limit meta-analysis, the value under l^2 refers to the G^2 heterogeneity statistic; *Step-function selection model with cutpoint at p=0.1. The selection model parameter test was not significant: χ^2 =1.004 (p=0.316). The model was fitted using maximum likelihood estimation.

					0	P (0)
	n _{eff}	SMD (95%-CI)	95%-PI	τ (95% CrI)	Q	P(Q)
Risk of Bias					0.822	0.662
- Low Risk	33	-0.51 [-0.70: -0.33]	[-1.52: 0.50]	0.49 [0.35: 0.65]		
- High Risk	12	-0.38 [-0.65: -0.11]	[-1.32: 0.55]	0.40 [0.22: 0.65]		
- Some Concerns	8	-0.38 [-0.74; -0.03]	[-1.48; 0.73]	0.42 [0.20; 0.75]		
Target Group					42.793	< 0.001
- Adults (Gen. Population)	16	-0.39 [-0.55; -0.22]	[-0.99; 0.21]	0.27 [0.16; 0.42]		
- Older Adults (Gen. Population)	15	-0.15 [-0.28; -0.01]	[-0.57; 0.28]	0.19 [0.08; 0.33]		
- Informal Caregivers	8	-1.35 [-1.72; -1.02]	[-2.34; -0.36]	0.36 [0.11; 0.74]		
- Diabetes Patients	4	-0.33 [-0.90; 0.10]	[-1.96; 1.29]	0.28 [0.00; 0.84]		
- Pregnant Women	4	-0.32 [-0.63; 0.03]	[-1.26; 0.62]	0.13 [0.00; 0.51]		
- University Students	4	-0.59 [-1.28; 0.09]	[-3.10; 1.92]	0.47 [0.12; 1.18]		
- Chronic Pain Patients	2	-0.32 [-1.34; 0.71]	-	0.30 [0.00; 1.53]		
Intervention Type					13.325	0.020
- Cognitive Behavior Therapy	26	-0.56 [-0.74; -0.38]	[-1.39; 0.28]	0.39 [0.26; 0.56]		
- Stepped Care	7	-0.09 [-0.30; 0.10]	[-0.54; 0.36]	0.14 [0.00; 0.37]		
- Problem Solving	6	-0.34 [-0.56; -0.13]	[-0.77; 0.09]	0.11 [0.00; 0.38]		
- Other	6	-0.33 [-0.98; 0.32]	[-2.42; 1.76]	0.68 [0.33; 1.27]		
- Behavioral Activation	5	-0.72 [-1.44; -0.04]	[-2.96; 1.51]	0.61 [0.22; 1.30]		
- Bias Modification	3	-0.38 [-1.60; 0.71]	[-11.96; 11.20]	0.68 [0.21; 1.87]		
Control Group					3.304	0.508
- Care As Usual	28	-0.49 [-0.71; -0.29]	[-1.55; 0.56]	0.50 [0.35; 0.69]		
- Waitlist	10	-0.30 [-0.52; -0.09]	[-0.97; 0.36]	0.27 [0.09; 0.51]		
- Educational Material [†]	8	-0.64 [-1.04; -0.25]	[-1.84; 0.57]	0.45 [0.22; 0.82]		
- Other Controls [‡]	5	-0.49 [-1.14; 0.11]	[-2.46; 1.48]	0.53 [0.20; 1.13]		
- Placebo	2	-0.07 [-0.82; 0.71]	-	0.19 [0.00; 1.16]		
Delivery Type					4.161	0.244
- Face-to-Face	22	-0.38 [-0.60; -0.17]	[-1.31; 0.54]	0.43 [0.29; 0.61]		
- Internet	15	-0.48 [-0.66; -0.31]	[-1.05; 0.09]	0.25 [0.12; 0.42]		
- Other	9	-0.28 [-0.63; 0.05]	[-1.48; 0.91]	0.50 [0.28; 0.80]		
- Telephone/Video Conference	7	-0.95 [-1.59; -0.36]	[-2.82; 0.91]	0.66 [0.28; 1.26]		
Publication Year					2.275	0.131
- Before 2015	28	-0.36 [-0.53; -0.18]	[-1.22; 0.51]	0.41 [0.29; 0.56]		
- Since 2015	25	-0.57 [-0.79; -0.37]	[-1.58; 0.43]	0.47 [0.32; 0.67]		

S14. Results of study-level moderator analyses.

Note. n_{eff} = number of effects. In studies with multiple distinct intervention arms, relevant comparisons were pooled separately; numbers of n_{eff} therefore add up to values higher than K=50 (i.e., the total number of studies). Double-counting was avoided by randomly splitting the control group for each comparison. †Includes information material on healthy life-style, depression, stress management, sleep, and/or aging. ‡Includes sham conditions and relaxation.

S15. Response and deterioration rates conditional on baseline PHQ-9 scores.

Baseline Symptom Severity	Fve	onte		M	Fyent	Rate	
(PHO 0 Score)			, 				NNT
(110-9 30010)	CGS	105	CGS	105	Cus	105	
50% Symptom Reduction							
- 5-9 (mild)	703	1.131	2,755	2,825	25.5%	40.0%	6.89
- 10-14 (moderate)	319	685	1,444	1,584	22.1%	43.2%	4.73
- 15-19 (moderately-severe)	76	240	361	442	21.1%	54.3%	3.01
- 20-27 (severe)	15	56	79	108	19.0%	51.9%	3.04
Close to Symptom-Free Status [†]							
- 5-9 (mild)	1,314	1,759	2,755	2,825	47.7%	62.3%	6.86
- 10-14 (moderate)	237	583	1,444	1,584	16.4%	36.8%	4.90
- 15-19 (moderately-severe)	30	122	361	442	8.3%	27.6%	5.18
- 20-27 (severe)	4	21	79	108	5.1%	19.4%	6.95
Reliable Improvement							
-5-9 (mild)	160	414	2 755	2 825	61%	14 7%	11 74
-10-14 (moderate)	355	735	1 444	1 584	24.6%	46.4%	4 58
- 15-10 (moderately-severe)	145	314	361	1,304 442	40.2%	71.0%	3 24
- 20-27 (severe)	44	84	79	108	40.2 <i>%</i>	77.8%	4.53
Reliable Deterioration							
- 5-9 (mild)	177	129	2,755	2,825	6.4%	4.6%	53.81
- 10-14 (moderate)	58	36	1,444	1,584	4.0%	2.3%	57.34
- 15-19 (moderately-severe)	12	5	361	442	3.3%	1.1%	45.60
- 20-27 (severe)	0	0	79	108	0.0%	0.0%	-

Note. Analyses were restricted to studies including assessments of the PHQ-9 at baseline, or instruments convertible to the PHQ-9 as per the common metric by Wahl et al. (2014; k=47). CGs = control groups; IGs = intervention groups; k=number of studies/effects. [†]Defined as scoring PHQ-9 < 5.

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