



THE JOURNAL OF CLINICAL PSYCHIATRY

THE OFFICIAL JOURNAL OF THE AMERICAN SOCIETY OF CLINICAL PSYCHOPHARMACOLOGY

Supplementary Material

Article Title: The Efficacy of Measurement-Based Care for Depressive Disorders: Systematic Review and Meta-Analysis of Randomized Controlled Trials

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DOI Number: <https://doi.org/10.4088/JCP.21r14034>

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Supplementary Material

Appendix 1. Search Strategy

MEDLINE

Publication Dates: Jan. 1, 1946-July 1, 2020

exp Patient Reported Outcome Measures/ OR *"Outcome Assessment (Health Care)"/ OR measurement-based care.ti,ab,kw. OR feedback informed treatment.ti,ab,kw. OR patient reported OR outcome measure*.ti,ab,kw. OR continuous assessment.ti,ab,kw. OR monitoring treatment progress.ti,ab,kw. OR routine outcome monitoring.ti,ab,kw. OR progress monitoring.ti,ab,kw. OR patient level feedback.ti,ab,kw. OR patient focused research.ti,ab,kw. OR outcome* assessment.ti,ab,kw. OR outcome-based care.ti,ab,kw. OR collaborative care.ti,ab,kw. OR care management.ti,ab,kw. OR measurement feedback system.ti,ab,kw. OR measurement-based.ti,ab,kw. OR self-rating.ti,ab,kw. OR self report.ti,ab,kw.

AND

exp Antidepressive Agents/ OR antidepress*.ti,ab,kw. OR exp psychotherapy/ OR psychotherapy.ti,ab,kw.

AND

depressive disorder/ or exp depressive disorder, major/ or exp depressive disorder, treatment-resistant/ or exp dysthymic disorder/ OR *Depression/ OR depress*.ti,ab,kw.

AND

randomized controlled trial.pt. OR RCT.ti,ab,kw. OR random*.ti,ab,kw.

RESULT: 1802

Embase

Publication Dates: Jan. 1, 1980-July 1, 2020

exp patient-reported outcome/ OR exp outcome assessment/ OR measurement-based care.ti,ab,kw. OR feedback informed treatment.ti,ab,kw. OR patient reported outcome measure*.ti,ab,kw. OR continuous assessment.ti,ab,kw. OR monitoring treatment progress.ti,ab,kw. OR routine outcome monitoring.ti,ab,kw. OR progress monitoring.ti,ab,kw. OR patient level feedback.ti,ab,kw. OR patient focused research.ti,ab,kw. OR outcome* assessment.ti,ab,kw. OR outcome-based care.ti,ab,kw. OR collaborative care.ti,ab,kw. OR care management.ti,ab,kw. OR measurement feedback system.ti,ab,kw. OR measurement-based.ti,ab,kw. OR self-rating.ti,ab,kw. OR self report.ti,ab,kw.

AND

exp antidepressant agent/ OR antidepress*.ti,ab,kw. OR exp psychotherapy/ OR psychotherapy.ti,ab,kw.

AND

depression/ OR depress.ti,ab,kw.

AND

exp randomized controlled trial/ OR (random* and control*).ti,ab,kw. OR RCT.ti,ab,kw.

RESULT: 4257

PsycINFO

Publication Dates: 1980-July 1, 2020

DE "Patient Reported Outcome Measures" OR TI "measurement-based care" OR TI "feedback informed treatment" OR TI "patient reported outcome measure*" OR TI "continuous assessment" OR TI "monitoring treatment progress" OR TI "routine outcome monitoring" OR TI "progress monitoring" OR TI "patient level feedback" OR TI "patient focused research" OR TI "outcome* assessment" OR TI "outcome-based care" OR TI "care management" OR TI "measurement feedback system" OR TI "measurement-based" OR TI "self-rating" OR TI "self report" OR AB "measurement-based care" OR AB "feedback informed treatment" OR AB "patient reported outcome measure*" OR AB "continuous assessment" OR AB "monitoring treatment progress" OR AB "routine outcome monitoring" OR AB "progress monitoring" OR AB "patient level feedback" OR AB "patient focused research" OR AB "outcome* assessment" OR AB "outcome-based care" OR AB "care management" OR AB "measurement feedback system" OR AB "measurement-based" OR AB "self-rating" OR AB "self report" OR KW "measurement-based care" OR KW "feedback informed treatment" OR KW "patient reported outcome measure*" OR KW "continuous assessment" OR KW "monitoring treatment progress" OR KW "routine outcome monitoring" OR KW "progress monitoring" OR KW "patient level feedback" OR KW "patient focused research" OR KW "outcome* assessment" OR KW "outcome-based care" OR KW "care management" OR KW "measurement feedback system" OR KW "measurement-based" OR KW "self-rating" OR KW "self report"

AND

TI "depress*" OR AB "depress*" OR KW "depress*" OR (DE "Major Depression") AND (DE "Major Depression" OR DE "Depression (Emotion)" OR DE "Treatment Resistant Depression" OR DE "Late Life Depression" OR DE "Long-term Depression (Neuronal)")

AND

(DE "Antidepressant Drugs" OR DE "Bupropion" OR DE "Citalopram" OR DE "Fluoxetine" OR DE "Fluvoxamine" OR DE "Iproniazid" OR DE "Isocarboxazid" OR DE "Lithium Carbonate" OR DE "Methylphenidate" OR DE "Mianserin" OR DE "Moclobemide" OR DE "Molindone" OR DE "Nefazodone" OR DE "Nialamide" OR DE "Nomifensine" OR DE "Paroxetine" OR DE "Phenelzine" OR DE "Pheniprazine" OR DE "Pipradrol" OR DE "Serotonin Norepinephrine Reuptake Inhibitors" OR DE "Sertraline" OR DE "Sulpiride" OR DE "Tranlycypromine" OR DE "Trazodone" OR DE "Tricyclic Antidepressant Drugs" OR DE "Venlafaxine" OR DE "Zimeldine") OR DE "Antidepressant Drugs" OR TI "antidepress*" OR AB "antidepress*" OR KW "antidepress*" OR DE "psychotherapy" OR TI "psychotherapy" OR AB "psychotherapy*" OR KW "psychotherapy" OR TI "therapy" OR AB "therapy" OR KW "therapy"

AND

DE "Randomized Controlled Trials" OR TI "random*" OR AB "random*" OR KW "random*" OR TI "RCT" OR AB "RCT" OR KW "RCT"

RESULT: 712

ClinicalTrials.gov

Publication Dates: first posted on or before July 1, 2020

"depression" OR "depressive disorder"

AND

"measurement-based" OR "patient reported outcome measure" OR "feedback informed treatment" OR "continuous assessment" OR "routine outcome monitoring" OR "monitoring treatment progress" OR "progress monitoring" OR "patient level feedback"

RESULT: 148

CNKI

(AB='基于评估的治疗'+ '患者报告的结果评估'+ '结果评估'+ '反馈信息处理'+ '患者报告结果评估'+ '连续评估'+ '监测治疗进展'+ '常规结果监测'+ '进度监测'+ '患者反馈'+ '患者焦点研究'+ '结果评估'+ '结局评估'+ '基于结果的治疗'+ '协作治疗'+ '合作治疗'+ '治疗管理'+ '评估反馈系统'+ '基于评估的'+ '自评') AND (AB='抗抑郁药'+ '抗抑郁'+ '心理治疗') AND (AB='抑郁症'+ '难治性抑郁症'+ '情绪障碍'+ '恶劣心境障碍'+ '抑郁') AND (AB='随机对照试验'+ 'RCT'+ '随机')

(AB='Measurement-based Care'+ 'Patient Reported Outcome Measures'+ 'Outcome Assessment'+ 'Feedback informed treatment'+ 'Patient reported'+ 'continuous assessment'+ ' monitoring treatment progress'+ ' routine outcome monitoring '+ ' progress monitoring'+ ' patient level feedback '+ ' patient focused research '+ 'outcome assessment'+ 'outcome measure'+ 'outcome-based care'+ 'collaborative care'+ 'collaborative treatment'+ 'care management'+ 'measurement feedback system'+ 'measurement-based'+ 'self-rating') AND (AB='antidepressant '+ 'antidepress'+ 'psychotherapy') AND (AB='depressive disorder'+ 'treatment resistant depression'+ 'mood disorders'+ ' dysthymic disorder '+ 'depression') AND (AB=' randomized controlled trial '+ 'RCT'+ 'random')

Result: 888

Hand search using "depression" + "measurement-based care"

Result: 5

Wanfang Database

(全部:(主题: "基于评估的治疗"+"患者报告的结果评估"+"结果评估"+"反馈信息处理"+"患者报告结果评估"+"连续评估"+"监测治疗进展"+"常规结果监测"+"进度监测"+"患者反馈"+"患者焦点研究"+"结果评估"+"结局评估"+"基于结果的治疗"+"协作治疗"+"合作治疗"+"治疗管理"+"评估反馈系统"+"基于评估的"+"自评") AND (主题: "抗抑郁药"+"抗抑郁"+"心理治疗") AND (主题: "抑郁症"+"难治性抑郁症"+"情绪障碍"+"恶劣心境障碍"+"抑郁") AND (主题: "随机对照试验"+"RCT"+"随机"))*Date:-2019

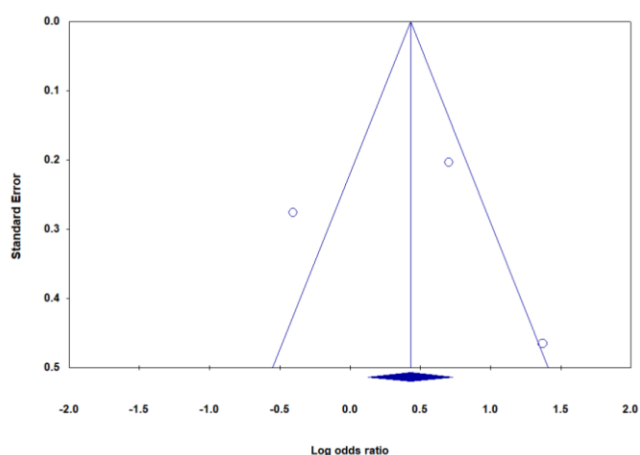
(ALL:(Topic: 'Measurement-based Care'+ 'Patient Reported Outcome Measures'+ 'Outcome Assessment'+ 'Feedback informed treatment'+ 'Patient reported'+ 'continuous assessment'+ ' monitoring treatment progress'+ ' routine outcome monitoring '+ ' progress monitoring'+ ' patient level feedback '+ ' patient focused research '+ 'outcome assessment'+ 'outcome measure'+ 'outcome-based care'+ 'collaborative care'+ 'collaborative treatment'+ 'care management'+ 'measurement feedback system'+ 'measurement-based'+ 'self-rating') AND (Topic: 'antidepressant '+ 'antidepress'+ 'psychotherapy') AND (Topic: 'depressive disorder'+ 'treatment resistant depression'+ 'mood disorders'+ ' dysthymic disorder '+ 'depression') AND (Topic: ' randomized controlled trial '+ 'RCT'+ 'random'))*Date:-2019

Result: 1010

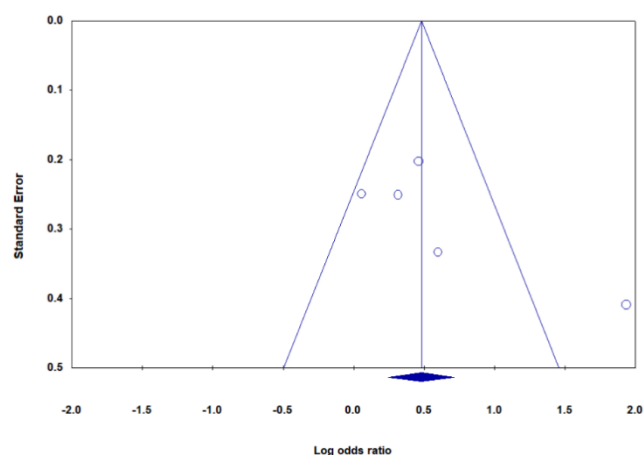
Hand search using "depression" + "measurement-based care"

Result: 8

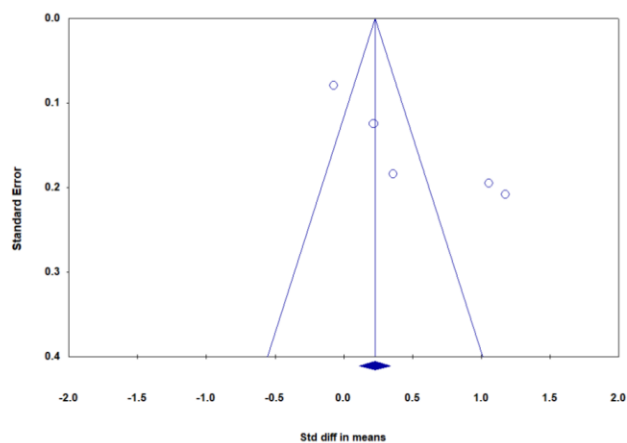
Supplementary Figure 1. Funnel plot for clinical response.



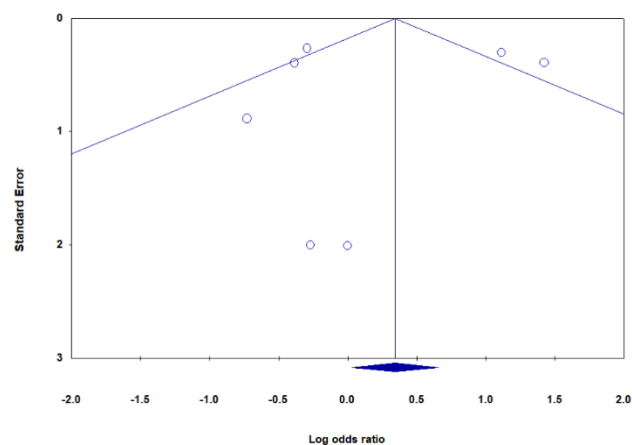
Supplementary Figure 2. Funnel plot for clinical remission.



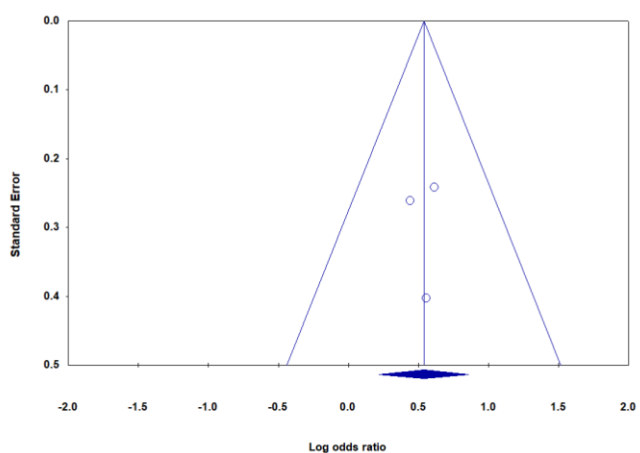
Supplementary Figure 3. Funnel plot for standardized mean difference.



Supplementary Figure 4. Funnel plot for attrition.



Supplementary Figure 5. Funnel plot for medication adherence.



Appendix 2. PUBLICATION BIAS REPORTS

RESPONSE

Classic fail-safe N

This meta analysis incorporates data from 3 studies, which yield a z-value of 2.85133 and corresponding 2-tailed p-value of 0.00435. The fail-safe N is 4. This means that we would need to locate and include 4 'null' studies in order for the combined 2-tailed p-value to exceed 0.050.

Egger's Test of the Intercept

In this case the intercept (B0) is 1.25855, 95% confidence interval (-91.48020, 93.99730), with $t=0.17243$, $df=1$. The 1-tailed p-value (recommended) is 0.44565, and the 2-tailed p-value is 0.89129.

REMISSION

Classic fail-safe N

This meta analysis incorporates data from 5 studies, which yield a z-value of 4.61903 and corresponding 2-tailed p-value of 0.00000. The fail-safe N is 23. This means that we would need to locate and include 23 'null' studies in order for the combined 2-tailed p-value to exceed 0.050.

Egger's Test of the Intercept

In this case the intercept (B0) is 5.68818, 95% confidence interval (-4.19552, 15.57189), with $t=1.83154$, $df=3$. The 1-tailed p-value (recommended) is 0.08221, and the 2-tailed p-value is 0.16442.

STANDARDIZED MEAN DIFFERENCE

Classic fail-safe N

This meta analysis incorporates data from 5 studies, which yield a z-value of 6.19746 and corresponding 2-tailed p-value of 0.00000. The fail-safe N is 45. This means that we would need to locate and include 45 'null' studies in order for the combined 2-tailed p-value to exceed 0.050.

Egger's Test of the Intercept

In this case the intercept (B0) is 8.10452, 95% confidence interval (2.25827, 13.95077), with $t=4.41175$, $df=3$. The 1-tailed p-value (recommended) is 0.01080, and the 2-tailed p-value is 0.02161.

Duval and Tweedie's Trim and Fill

The program is looking for missing studies based on a random effects model, and is looking for missing studies only to the left side of the mean effect (these parameters are set by the user). Using these parameters the method suggests that no studies are missing. Under the random effects model the point estimate and 95% confidence interval for the combined studies is 0.52513 (0.06300, 0.98727). Using Trim and Fill these values are unchanged.

ALL-CAUSE DISCONTINUATION

Classic fail-safe N

This meta analysis incorporates data from 7 studies, which yield a z-value of 1.60477 and corresponding 2-tailed p-value of 0.10855. Since the combined result is not statistically significant, the Fail-Safe N (which addresses the concern that the observed significance may be spurious) is not relevant.

Egger's Test of the Intercept

In this case the intercept (B0) is -0.35304, 95% confidence interval (-4.51414, 3.80806), with $t=0.21810$, $df=5$. The 1-tailed p-value (recommended) is 0.41799, and the 2-tailed p-value is 0.83598.

MEDICATION ADHERENCE

Classic fail-safe

This meta analysis incorporates data from 3 studies, which yield a z-value of 3.24099 and corresponding 2-tailed p-value of 0.00119. The fail-safe N is 6. This means that we would need to locate and include 6 'null' studies in order for the combined 2-tailed p-value to exceed 0.050.

Egger's Test of the Intercept

In this case the intercept (B0) is -0.07954, 95% confidence interval (-17.92785, 17.76877), with $t=0.05662$, $df=1$. The 1-tailed p-value (recommended) is 0.48200, and the 2-tailed p-value is 0.96399.

Supplementary Table 1. Post Hoc Sensitivity Analyses Exploring Potential Sources of Heterogeneity

Response

Adli removed (non-algorithm studies remain)

Model		Effect size and 95% interval			Test of null (2-Tail)		Heterogeneity				Tau-squared			
Model	Number Studies	Point estimate	Lower limit	Upper limit	Z-value	P-value	Q-value	df (Q)	P-value	I-squared	Tau Squared	Standard Error	Variance	Tau
Fixed	2	2.249	1.560	3.241	4.347	0.000	1.730	1	0.188	42.212	0.094	0.315	0.099	0.307
Random	2	2.475	1.355	4.518	2.950	0.003								

Guo removed (non-Chinese studies remain)

Model		Effect size and 95% interval			Test of null (2-Tail)		Heterogeneity				Tau-squared			
Model	Number Studies	Point estimate	Lower limit	Upper limit	Z-value	P-value	Q-value	df (Q)	P-value	I-squared	Tau Squared	Standard Error	Variance	Tau
Fixed	2	1.368	0.932	1.886	1.912	0.056	10.422	1	0.001	90.405	0.554	0.867	0.751	0.744
Random	2	1.180	0.339	3.489	0.239	0.765								

Yeung removed (psychiatric setting studies remain)

Model		Effect size and 95% interval			Test of null (2-Tail)		Heterogeneity				Tau-squared			
Model	Number Studies	Point estimate	Lower limit	Upper limit	Z-value	P-value	Q-value	df (Q)	P-value	I-squared	Tau Squared	Standard Error	Variance	Tau
Fixed	2	1.060	0.666	1.688	0.245	0.806	10.769	1	0.001	90.714	1.429	2.228	4.962	1.195
Random	2	1.559	0.274	8.861	0.501	0.616								

Remission

Non-algorithm studies only

Model		Effect size and 95% interval			Test of null (2-Tail)		Heterogeneity				Tau-squared			
Model	Number Studies	Point estimate	Lower limit	Upper limit	Z-value	P-value	Q-value	df (Q)	P-value	I-squared	Tau Squared	Standard Error	Variance	Tau
Fixed	3	1.670	1.252	2.227	3.492	0.000	15.541	2	0.000	87.131	0.497	0.609	0.371	0.705
Random	3	2.124	0.896	5.036	1.711	0.087								

Non-Chinese studies only

Model		Effect size and 95% interval			Test of null (2-Tail)		Heterogeneity				Tau-squared			
Model	Number Studies	Point estimate	Lower limit	Upper limit	Z-value	P-value	Q-value	df (Q)	P-value	I-squared	Tau Squared	Standard Error	Variance	Tau
Fixed	4	1.415	1.110	1.804	2.805	0.005	2.278	3	0.517	0.000	0.000	0.052	0.003	0.000
Random	4	1.415	1.110	1.804	2.805	0.005								

Psychiatric settings studies only

Model		Effect size and 95% interval			Test of null (2-Tail)		Heterogeneity				Tau-squared			
Model	Number Studies	Point estimate	Lower limit	Upper limit	Z-value	P-value	Q-value	df (Q)	P-value	I-squared	Tau Squared	Standard Error	Variance	Tau
Fixed	3	2.044	1.436	2.910	3.971	0.000	11.555	2	0.003	82.691	0.506	0.626	0.392	0.711
Random	3	2.478	1.019	6.027	2.002	0.045								

Standardized Mean Difference

Note: All 3 Chinese studies involved psychiatric clinic patients, while both non-Chinese studies involved primary care patients, so the results are the same

Psychiatric settings OR Chinese studies (Guo, Chen, Zhao remain)

Model		Effect size and 95% confidence interval					Test of null (2-Tail)		Heterogeneity				Tau-squared			
Model	Number Studies	Point estimate	Standard error	Variance	Lower limit	Upper limit	Z-value	P-value	Q-value	df (Q)	P-value	I-squared	Tau Squared	Standard Error	Variance	Tau
Fixed	3	0.831	0.113	0.013	0.610	1.052	7.380	0.000	10.566	2	0.005	81.071	0.164	0.202	0.041	0.405
Random	3	0.858	0.260	0.067	0.349	1.367	3.306	0.001								

Primary care studies OR non-Chinese studies (Wikberg & Yeung remain)

Model		Effect size and 95% confidence interval					Test of null (2-Tail)		Heterogeneity				Tau-squared			
Model	Number Studies	Point estimate	Standard error	Variance	Lower limit	Upper limit	Z-value	P-value	Q-value	df (Q)	P-value	I-squared	Tau Squared	Standard Error	Variance	Tau
Fixed	2	0.011	0.067	0.005	-0.120	0.143	0.167	0.867	3.894	1	0.048	74.323	0.032	0.060	0.004	0.178
Random	2	0.057	0.145	0.021	-0.228	0.342	0.393	0.695								