Article:
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Supplement

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eMethods

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eTable 1 List of moderators with definitions

eTable 1. List of moderators with definitions

Moderators	*Definitions*
Sex	Female vs
	Male
Age	Continuous (in years)
Educational Level	Uneducated/ Illiterate vs
	Primary education (i.e., primary school) vs
	Secondary (i.e., hig school) vs
	Tetriary education (i.e., University degree and above)
Employment	Unemployed vs Employed vs Student vs Other
Relationship Status	not in a relationship vs In a relationship
Baseline depression severity	Scores of depressive symptoms at baseline (continuous)
Presence of specific depressive symptoms	Based on questionnaires or a clinical diagnostic interview
- Depressed mood	No vs Yes
- Loss of interest in daily activities	insomnia or hypersomnia; No vs Yes
- Sleep problems	No vs Yes
- Tiredness	No vs Yes
- Appetite change	decreased, or increased appetite; No vs Yes
- Sense of worthlessness/ guilt	No vs Yes
- Concentration problems	No vs Yes
- Psychomotor symptoms	agitation or retardation; No vs Yes
- Suicidality	suicidal thoughts and/ or behaviours; No vs Yes
Problematic alcohol drinking	alcohol harmful or hazardous drinking >=8 AUDIT or a diagnostic interview; No vs Yes
Domestic violense	presense of intimate partner violence at baseline; No vs Yes
Comorbid physical disorder	Psysical disorder like HIV, diabetes, low/high blood pressure, and heart-related problems; No vs Yes

***Abbreviations**: AUDIT (Alcohol Use Disorders Identification Test) HIV = Human Immunodeficiency Virus*

eResults

eTable 2 Description of interventions

eTable 2 Description of the intervention content and use of antidepressants		
Study	**Description of the intervention**	**Antidepressants Use**
Abas et al. 2018[1]	The TENDAI intervention - 6 weekly sessions: - The first two focused on adherence to HIV medication - The 3-6 sessions focused on follow classical PST for depression (i.e., psychoeducation about depression; eliciting, listing, and reflecting on participants' problems; selection of one problem to focus on; brainstorming solutions and examination of their importance and feasibility; choosing a solution and planning to implement it over next week; subsequent evaluation of progress; generation of new solutions or tackling different problems).	After session 3, two participants of the intervention group received antidepressants.
Chowdhary et al. 2016[2]	The Health Activity program (HAP) – 6 up to a maximum of 8 weekly sessions including psychoeducation, behavioral assessment, activity monitoring, activity structuring, problem solving and activation of social networks: - The first two sessions focused on engaging and establishing an effective counselling relationship and psychoeducation. - Sessions 3-5 included Assessing behavioral activation targets; encouragement of activation; identifying barriers to activation and ways to overcome these barriers; problem solving; and other need-based strategies (e.g., relaxation, addressing rumination, dealing with interpersonal triggers). - The final phase of the intervention included review of patient's progress and relapse prevention strategies.	For ethical reasons, all patients who were identified with depression had this diagnosis communicated to the doctors treating them who were given mental health gap training (which includes prescription of antidepressants). However, there was no further engagement with these teams, no communication between the doctors and counsellors and antidepressants were almost never prescribed (and when they were, they were in sub-optimal dose/duration).
Fuhr et al. 2019[3]	The Adapted version of Thinking Healthy Programme (for the first version see below Rahman et al. 2008) et – 6 up to a maximum of 14 sessions delivered in different phases: - The perinatal phase (2nd/ 3rd trimester of pregnancy) – 6 sessions: - Early infancy (2 months after childbirth) – 1 to 4 sessions - Middle infancy (3-4 months after childbirth) – 2 sessions - Late infancy (5-6 months after childbirth – 2 sessions The main adaptation concerned the technique of cognitive restructuring, which was replaced by greater emphasis on behavioural activation. This adaptation was deemed necessary because non-specialists found it hard to master cognitive restricting.	See explanation of Chowdhary et al. 2016. Next, a prescription of antidepressants was very unlikely due to the perinatal period
Jordans et al. 2019[4]	The Health Activity program (HAP) for details, the reader is referred to the trial of Chowdhary et al. 2016 (see above).	The patients may have (though small chance) received pharmacological meds from the mhGAP trained healthworker, but there is information

		available, as the treatment plan was not combined treatment.
Lund et al. 2019[5]	A Counselling Intervention based on the principles of Cognitive Behavioural Therapy including 6 sessions on psychoeducation, problem solving, behavioural activation, cognitive restructuring, relaxation training, and birth preparation: - 1st session: psychoeducation about depression - 2nd session: problem solving to address everyday problems (e.g., employment, housing, conflict with partners, HIV diagnosis, factors associated with perinatal depression) and choosing alternative solutions for these problems - 3rd session: behavioural activation - 4th session: cognitive restructuring - 5th session: a birth preparation session - 6th session: termination of the intervention, review, and evaluation of the previous sessions Overall, the content of the sessions was aimed to promote resilience and support women's coping with adverse life circumstances.	None of the patients received antidepressants
Matsuzaka et al. 2017[6]	An Interpersonal counseling intervention comprised of 3 to 4 sessions in total, which focused on 4 interpersonal problem areas: prolonged grief, interpersonal disputes, role transitions, and interpersonal deficits.	Patients were not on antidepressants. The ongoing treatment with antidepressants was an exclusion criterion
Nakimul-Mpungu et al. 2020[7]	Group Supportive Psychotherapy comprised of 8 sessions: - 1st session: addressed issues related to group process, ground rules, and expectations - 2nd session: psychoeducation about triggers, symptoms, and treatment options for depression - 3rd & 4th sessions: participants shared interpersonal problems - 5th session: positive coping strategies and skills to manage depressive thoughts and worries - 6th session: Problem-solving skills and skills for coping with stigma and discrimination - 7th & 8th sessions: trained participants in income-generating skills	Patients were antidepressant-naïve
Patel et al. 2017[8]	The Health Activity program (HAP) for details, the reader is referred to the trial of Chowdhary et al. 2016 (see above).	See explanation of Chowdhary et al. 2016. Next, a prescription of antidepressants was very unlikely due to the perinatal period
Petersen et al. 2014[9]	An Interpersonal Psychotherapy Intervention with components of Cognitive Behavioral Therapy. The intervention was delivered in 8 weekly sessions focusing on grief related to HIV/ AIDS losses, interpersonal conflicts that particularly involve abuse, life transitions, financial stress, and externalized stigma. Each session comprised several steps:	The authors did not measure such use, but such use is extremely unlikely given the low rate of anti-depressant prescriptions in South Africa

	- 1st step: a common trigger or exacerbating factor using a vignette - 2nd step: sharing individual problems by participants who identified with the vignette - 3rd step: Problem solving and cognitive restructuring techniques for exacerbating factors and promoting adaptive thoughts in case of negative automatic thoughts. Also, behavioral activation for social isolation - Identification of problems to work during the coming week	
Rahman et al. 2008[10]	The Thinking Healthy Programme - 16 sessions organised in 5 phases: - 4 weekly sessions (Preparing for the baby) in the last month of pregnancy, which focused on mother's mood and personal health - 3 fortnightly sessions (The baby's arrival) in the first postnatal month, which focused on mother-infant relationship, - 9 monthly sessions (Early, Middle and Late Infancy), which focused on relationship of mother with significant others This intervention used the CBT principles of active listening, identifying negative automatic thoughts, replacing maladaptive with adaptive thoughts, practicing adaptive thoughts and behaviours, and homework assignments.	Patients did not receive antidepressants – perinatal period
Sikander et al. 2019[11]	The Adapted version of Thinking Healthy Programme - for details, the reader is referred to the trial of Fuhr et al. 2019 (see above).	Patients did not receive antidepressants – perinatal period

eTable 3 Risk of bias assessment

eTable 3. Risk of bias assessment			
Study	**Randomization process** Risk *Supportive "quote" from the study and other arguments*	**Deviations from the intended interventions** Risk *Supportive "quote" from the study and other arguments*	**Outcome Measurement** Risk *Supportive argument*
Abas et al., 2018[1]	Low risk *"Randomization was conducted by participants selecting one numbered card at random from a bag; each number had been pre-allocated to either the intervention or EUC arm"*	Low risk *"The supervising psychologist and a research psychologist independently rated fidelity in a random 15% of recordings (24 sessions) using a therapist checklist. Six evaluations were conducted each of a session 1, 2, 3 and 4 of the intervention. Sessions were rated on the presence or absence of key competencies for each session."*	High risk *Self-report and no blinding.*
Chowdhary et al. 2016[2]	Low risk *"Those who consented were randomly allocated in a 1:1 ratio to receive either enhanced usual care (EUC) or EUC plus HAP using a computer-generated allocation sequence, stratified by primary health center and gender."* *The senior author of this study confirmed that the allocation was conducted by an independent researcher.*	Low risk *Adequate training and supervision through the trial.* *"Nineteen lay counsellors were recruited from the local community and trained and supervised by the therapists and were based in 11 primary health centers. Further details of the recruitment, training and competency of the lay counsellors are published elsewhere."*	Low risk *Self-report administered by blinded assessors.*
Fuhr et al. 2019[3]	Low risk *"The randomization list, in randomly sized blocks of four or six that were stratified by area of residence (urban or rural), was generated by an independent statistician who had no subsequent involvement in the trial. The randomization code was concealed from participants and researchers before allocation by use of sequentially numbered opaque sealed envelopes that were administered after provision of consent, to inform participants of their group"*	Low risk *Extensive training, supervision through the trial.;* *Fidelity to intervention was controlled.* *"Each received 25–40 h of classroom-based training that focused on intervention content and relationship-building skills. (…) A clinical internship period of 2 months followed the training (…) During the trial, Sakhis continued to receive fortnightly group supervision sessions (…) Audio recordings of a random sample of 5% of sessions,*	Low risk *Self-report administered by blinded assessors.*

		stratified by phase, were rated on the Therapy Quality Scale22 by independent raters who were experienced in CBT.")	
Jordans et al. 2019[4]	Low risk *"Randomization was done by the research coordinator in Kathmandu (N.P.L.) by using computer-generated random numbers (in SPSS Version 22 for Windows). A list of numbers (1–400) was randomized so that each number corresponded to either the treatment or control group. The ID code of each new eligible participant was sent to the research coordinator, who then matched it to the next number on the list. For those allocated to the treatment condition, the ID code was sent to the study field coordinator and clinical supervisor so that they could connect these respondents to research assistant and community counsellors, respectively*."	Low risk *Extensive training and supervision through the trial.* *"The counsellors received a base training which included 400 h of classroom learning, 150 h of clinical supervision, 350 h of practice and 10 h of personal therapy spread out over 6 months. (...) Bi-weekly supervision by the same trainer was delivered for the counsellors during the trials."*	Low risk *Self-report administered by blinded assessors.*
Lund et al. 2019[5]	Low risk *"Randomization was conducted using a computer-generated random number sequence stratified by clinic of recruitment, in blocks of 60 (30 control and 30 intervention). The data management system automatically allocated numbers from the random number list to study participants. Once the baseline assessment was completed, the fieldworker informed the participant that she would either receive an appointment to attend the first session with the CHW counsellor or receive a phone call to check on her progress."*	Low risk *Adequate training and supervision through the trial; Fidelity to intervention was controlled.* *"The intervention was provided by six CHWs who were recruited from a local non-governmental organization (NGO) and worked full-time on the study. The CHWs received five days of training by a clinical social worker in basic counselling and delivery of the intervention. Subsequently, the CHWs received weekly group-based supervision from the clinical social worker (Munodawafa, Lund, & Schneider, 2017). A fidelity checklist was developed by the trial team and included 10 items, divided into three sections: (i) the introduction to each session (ii) exploration of the topic of each session, and lastly (iii) ending."*	Low risk *Clinician-rated instrument administered by blinded assessors.*
Matsuzaka et al. 2017[6]	Low risk *"A statistician not involved in the recruitment process carried out the randomization using a computer algorithm based on Aitchison's compositional distance."*	Low risk *Adequate training and supervision through the trial.* *"We conducted a 3-day training to the 42 community health workers employed at the Health Unit, divided into three groups. (...)* *They were supervised through the trial by the same trainers in 2 different groups in 2-h long twice a month supervision meetings. Supervisors were also available by telephone, mobile messages or email.")*	Low risk *Self-report administered by blind assessors.*

Nakimuli - Mpungu et al. 2020[7]	Low risk *"Randomisation of health centres was achieved by urn (health centre managers separately picked a paper containing the intervention allocation from a basket; ratio 1:1".*	Low risk Adequate training and supervision through the trial. *"Strategies to ensure treatment fidelity in both treatment groups included the use of standardized intervention materials, structured health worker training, ongoing supervision, and training a larger number of LHWs than was required in order to avoid potential disruptions due to illness or job transfers. (...) Formal training consisted of eight training modules delivered in a 5-day training workshop that employed active learning techniques including role plays, brainstorming sessions, and small group discussions."*	High risk *Self-report and no blinding*
Patel et al. 2017[8]	Low risk *"An independent statistician generated a randomization list in randomly sized blocks (...). Assignments were sealed in sequential numbered opaque envelopes by independent support staff that were opened as each consenting eligible patient was enrolled by trained health assistants."*	Low risk Extensive training and supervision through the trial. Fidelity to intervention was controlled. *"An international expert in behavioral activation (SD) trained and provided ongoing supervision for five local specialists, who in turn provided onsite training and supervision for lay counsellors. Training of lay counsellors involved a 3 week participatory workshop covering both HAP and CAP treatments, followed by an internship phase of 6 months (...) 11 counsellors who met competency standards as assessed by standardized roleplays and therapy quality measures participated in the trial. They received weekly peer-led supervision in groups of four to six that involved rating of a randomly selected (using a random selection strategy stratified by counsellor and phase of session) 10% of recorded sessions on the HAP Therapy Quality Scale (TQS) and individual supervision twice monthly."*	Low risk *Self-report administered by blinded assessors.*
Petersen et al. 2014[9]	Low risk *"Following recruitment of the final sample, participants were allocated to an intervention and control arm using computer generated random allocation by the third author, who had no knowledge of the participant scores."*	Low risk *Extensive training and supervision through the trial.* *"Training was conducted by a clinical psychologist and clinical psychology trainees. It took place over four days. (...) Adopting the apprenticeship model which has been shown to be the most appropriate training model within a task shifting approach in LMIC (Murray et al., 2011), the lay HIV counsellors were supported through via weekly supervision sessions with the clinical psychology trainees for the first two months and then on a monthly basis. Exposure to the intervention was measured through an attendance register."*	Low risk *Self-report administered by blinded assessors.*

Rahman et al. 2008[10]	*Low risk* *"All the units were eligible for randomization, which was done by an independent trial center in Islamabad, before recruitment of participants. These administrative units were assigned by random allocation with a table of random numbers by a researcher who was not involved in the study and who was unaware of the identity of the Union Councils."*	*Low risk* *Adequate supervision and training. Competence of peers was ascertained.* *"We used a manual (with step-by-step instructions for each session) to train the health workers and for them to keep for reference. (...) These health workers in both groups received monthly supervision and were monitored by the research team to ensure that they were attending the scheduled visits. (...) The training was short (2 days followed by a 1-day refresher after 4 months) and therefore feasible on a large scale. However, an important component of the training process was the monthly half-day group supervision, which, for this study, was provided by experienced members of the research team."*	Low risk *Clinician-rated instrument administered by blinded assessors.*
Sikander et al. 2019[11]	Low risk *"The randomization list for village clusters, which was stratified by 11 union councils (the smallest administrative unit of the subdistrict), was prepared by an independent statistician (HAW, who had no subsequent involvement in the trial) by use of a computerized randomization sequence."*	Low risk *Adequate supervision and training. Competence of peers was ascertained.* *"Razakaars received group classroom and field supervision during the trial, to ensure fidelity. Trainers assessed their competency with a checklist based on the ENACT rating scale, both immediately after training and 6 months after training."*	Low risk *Self-report administered by blinded assessors.*
Note 1. Domains missing outcome data and selection of the reported result from the RoB 2.0 were not assessed. Incomplete outcome data were addressed by the IPD meta-analysis and selective reporting was not relevant for our study since we had access to the full datasets of the trials. ***Note 2. The independent reviewers who conducted the risk of bias assessment had almost perfect agreement - 93.75% (Cohen's k: 0.85). As per protocol, any disagreement was solved through discussion or consultation with the primary authors of the trials.***			

eTable 4 Depression Severity – Two stage IPDMA

eTable 4 *Effects on depression severity of task-shifted psychotherapy versus controls in adults with depressive symptoms in LMICs, two-stage IPD*

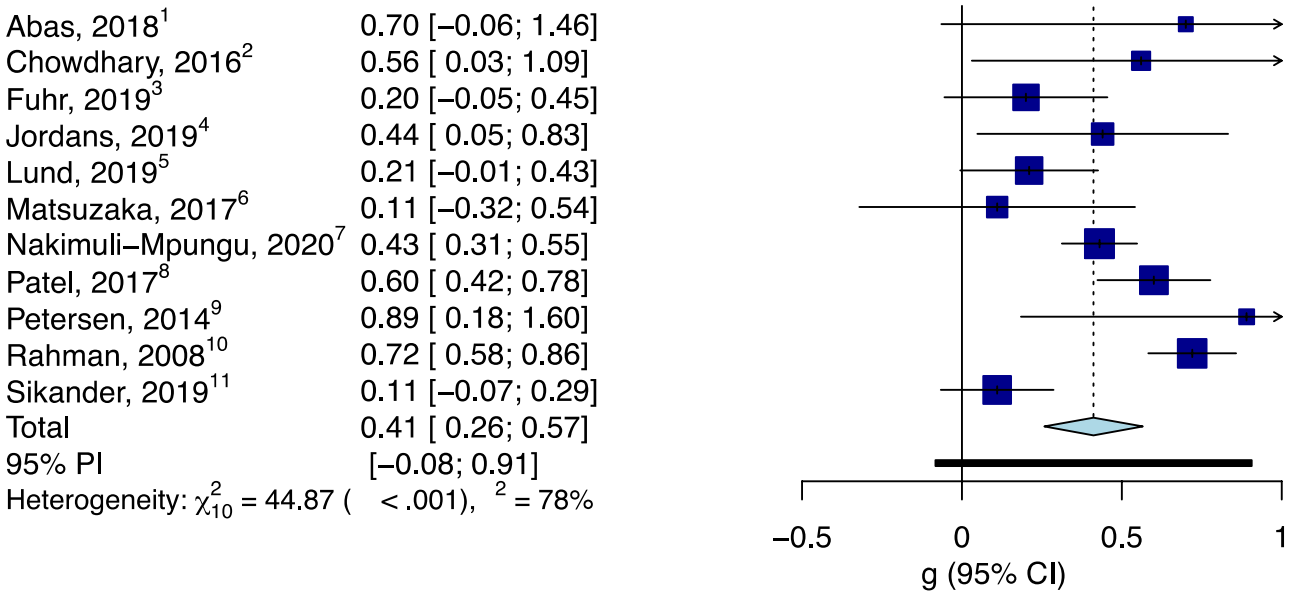
	Full Sample						Complete Case Analysis					
Outcomes	**N**	**g**	**95% CI[b]**	**I^2%**	**95%CI%**	**p[c]**	**N**	**g**	**95% CI[b]**	**I^2%**	**95%CI%**	**p[c]**
Main effects	11	0.32	0.18 – 0.46	74	53 – 86	< 0.001	11	0.42	0.26 – 0.56	78	60 - 87	< 0.001
Sensitivity analysis (PHQ-9 only)	8	0.31	0.12 – 0.49	67	30 – 84	0.003	8	0.37	0.18 – 0.57	67	30 – 84	0.003
Sensitivity analysis – Clinical sample	9	0.35	0.21 – 0.49	70	42 – 84	< 0.005	9	0.45	0.30 – 0.60	69	41 – 84	< 0.001
Subgroups												
Target group												
General population vs	4	0.38	0.16 – 0.62	45	0 – 81		4	0.47	0.25 – 0.69	33	0 – 76	
People living with HIV vs	3	0.44	0.08 – 0.79	40	N/A	0.59	3	0.51	0.25 – 0.77	1	N/A	0.58
Women with perinatal depression	4	0.24	0.01 – 0.48	89	73 – 95		4	0.31	0.03 – 0.60	92	82 – 96	
Depression diagnosis												
MDD or dysthymia vs	4	0.43	0.20 – 0.65	78	40 – 92	0.24	4	0.57	0.37 – 0.77	73	24 – 90	0.06
Elevated depressive symptoms	7	0.26	0.08 – 0.43	69	31 – 86		7	0.31	0.13 – 0.49	69	32 – 86	
Type of control												
Enhanced usual care vs	7	0.26	0.08 – 0.43	69	31 – 86	0.24	7	0.31	0.13 – 0.49	69	32 – 86	0.06
Other	4	0.43	0.20 – 0.65	78	40 – 92		4	0.57	0.37 – 0.77	73	24 – 90	
Outcome measure												
PHQ-9 vs	8	0.31	0.12 – 0.49	67	30 – 84	0.80	8	0.38	0.18 – 0.57	67	30 – 84	0.63
Other	3	0.34	0.11 – 0.58	88	N/A		3	0.46	0.18 – 0.74	89	N/A	
Intervention type												
CBT-based vs	8	0.32	0.15 – 0.49	79	60 – 89	0.71	8	0.41	0.22 – 0.60	83	68 – 91	0.95
Other	3	0.28	0.17 – 0.40	47	N/A		3	0.41	0.18 – 0.62	46	N/A	
LMICs												
Low vs	5	0.31	0.11 – 0.52	81	57 – 92		5	0.45	0.20 – 0.69	86	71 – 94	
Lower-middle vs	3	0.38	0.07 – 0.70	77	N/A	0.87	3	0.44	0.16 – 0.72	69	N/A	0.30
Upper-middle	3	0.26	-0.04 – 0.57	53	N/A		3	0.24	0.05 – 0.42	46	N/A	
Region												
Latin America vs	1	0.11	-0.32 – 0.54	N/A	N/A		1	0.11	-0.32 – 0.54	N/A	N/A	
South Asia	6	0.34	0.14 – 0.55	83	63 – 92	0.59	6	0.43	0.21 – 0.56	86	71 – 93	0.41
Sub-Sahara Africa	4	0.26	0.17 – 0.36	38	0 – 79		4	0.40	0.20 – 0.61	47	0 – 82	

I^2: heterogeneity index; BDI: Beck Depression Inventory; g = Hedges' g; N: Number of studies; N/A: Not Applicable

[b] 95% CI: 95% Confidence Intervals; p: p-value

[c] p-value between groups

eFigure 1 Depression Severity – Two stage-IPDMA, complete case sample



eTable 5 Response and Remission – Two-stage IPDMA

eTable 5. *Odds Ratio of response and remission of task-shifted psychotherapy versus controls in adults with depressive symptoms in LMICs, two-stage IPD*

	Response						Remission					
Outcomes	**N**	**OR**	**95% CI[b]**	**I^2%**	**95%CI%**	**p[c]**	**N**	**OR**	**95% CI[b]**	**I^2%**	**95%CI%s**	**p[c]**
Full sample												
Main effects	11	2.11	1.58 – 2.82	70	44 – 84	< 0.001	11	1.87	1.34 – 2.61	73	50 - 85	0.002
Sensitivity analysis (PHQ-9 only)	8	2.03	1.42 – 2.91	87	8 – 81	0.002	8	1.97	1.12 – 2.88	67	31 – 84	0.02
Sensitivity analysis – Clinical sample	9	2.31	1.71 – 4.79	58	15 – 79	0.01	9	2.02	1.43 – 2.85	61	22 – 80	0.001
Subgroups												
Target group												
General population vs	4	5.55	1.48 – 5.16	9	0 – 86		4	1.84	0.75 – 4.50	66	8.74 3	
People living with HIV vs	3	2.91	1.64 – 5.16	0	N/A	0.15	3	2.59	0.42 – 15.9	23	N/A	0.70
Women with perinatal depression	4	1.73	0.83 -3.60	88	70 – 95		4	1.74	0.85 – 3.56	88	71 – 95	
Depression diagnosis												
MDD or dysthymia vs	4	2.76	1.81 – 4.20	0	0 – 85	0.08	4	2.16	0.88 – 5.26	62	0 – 88	0.51
Elevated depressive symptoms	7	1.88	1.23 – 2.88	70	35 – 86		7	1.73	1.10 – 2.72	70	33 – 86	
Type of control												
Enhanced usual care vs	7	1.88	1.23 – 2.88	70	20.13 6	0.08	7	1.73	1.10 – 2.72	70	33 – 86	0.51
Other	4	2.76	1.81 – 4.20	0	0 – 85		4	2.16	0.88 – 5.26	62	0 – 88	
Outcome measure												
PHQ-9 vs	8	2.03	1.41 – 2.91	58	15 – 79	0.78	8	1.97	1.12 – 2.88	67	31 – 84	0.02
Other	3	2.22	0.64 – 7.73	87	N/A		3	2.06	0.70 – 6.08	81	N/A	
Intervention type												
CBT-based vs	8	2.00	1.36 – 2.95	78	58 – 89	0.09	8	1.94	1.31 – 2.88	79	59 – 89	0.70
Other	3	2.65	2.23 – 3.15	0	N/A		3	1.62	0.24 – 11.1	18	N/A	
LMICs												
Low vs	5	2.21	1.96 – 4.07	80	52 – 91		5	1.84	0.93 – 3.63	84	64 – 93	
Lower-middle	3	2.41	0.91 – 6.35	52	N/A	0.47	3	2.29	0.83 – 6.32	60	N/A	0.69
Upper-middle	3	1.63	0.57 – 4.61	19	N/A		3	1.58	0.25 – 9.98	17	N/A	
Region												
Latin America vs	1	2.40	0.94 – 6.10	N/A	N/A		1	0.97	0.36 – 2.59	N/A	N/A	
South Asia vs	6	2.12	1.34 – 3.34	79	53 – 90	0.97	6	1.95	1.19 – 3.23	83	65 – 92	0.40
Sub-Sahara Africa	4	2.11	0.88 – 5.02	59	0 -86		4	2.04	0.78 – 5.32	13	0 – 87	
Complete cases												
Main effects	11	2.41	1.73 – 3.34	72	49 – 85	< 0.001	11	2.15	1.51 – 3.07	73	50 – 85	< 0.001
Sensitivity analysis (PHQ-9 only)	8	2.31	1.61 – 3.31	52	0 – 78	< 0.001	8	1.96	1.23 – 3.13	64	23 – 83	0.01
Sensitivity analysis – Clinical sample	9	2.65	1.92 - 3.67	62	23 – 81	< 0.001	9	2.37	1.66 – 3.40	58	16 – 79	< 0.001
Subgroups												

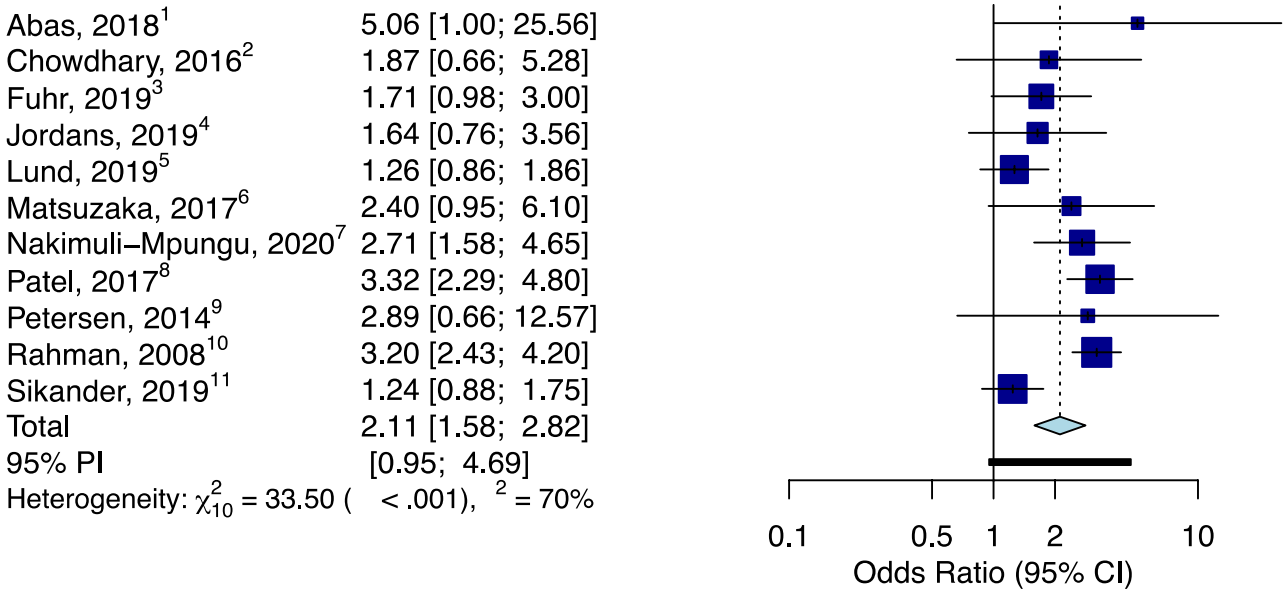
Target group												
General population vs	4	3.03	2.06 – 4.47	0	0 -85	0.07	4	2.10	0.87 – 5.09	56	0 – 86	0.04*
People living with HIV vs	3	3.79	2.09 – 6.70	0	N/A		3	3.95	1.73 – 9.04	0	N/A	
Women with perinatal depression	4	1.88	0.78 – 4.54	89	75 – 95		4	1.89	0.84 – 4.25	89	73 – 95	
Depression diagnosis												
MDD or dysthymia vs	4	3.46	2.41 – 4.96	0	0 – 85	0.02*	4	2.97	1.37 – 6.42	33	0 – 77	0.13
Elevated depressive symptoms	7	2.56	1.27 – 3.32	71	38 – 87		7	1.85	1.16 – 2.95	68	29 – 86	
Type of control												
Enhanced usual care vs	7	2.56	1.27 – 3.32	71	38 – 87	0.02*	7	1.85	1.16 – 2.95	68	29 – 86	0.13
Other	4	3.46	2.41 – 4.96	0	0 – 85		4	2.97	1.37 – 6.42	33	0 – 77	
Outcome measure												
PHQ-9	8	2.31	1.61 – 3.31	52	0 – 78	0.83	8	1.96	1.23 – 3.13	64	23 – 83	0.43
Other	3	2.53	0.46 – 13.7	90	N/A		3	2.59	0.73 – 9.14	81	N/A	
Intervention type												
CBT-based vs	8	2.24	1.45 – 3.46	79	60 – 89	0.05	8	2.15	1.42 – 3.25	79	59 – 89	0.91
Other	3	3.37	2.22 – 5.12	0	N/A		3	2.28	0.26 – 19.6	42	N/A	
LMIC												
Low vs	5	2.65	1.32 – 5.33	81	55 – 92	0.32	5	2.29	1.08 – 4.83	84	64 – 93	0.64
Lower-middle vs	3	2.88	1.39 – 6.00	2	N/A		3	2.55	0.93 – 6.96	53	N/A	
Upper-middle	3	1.69	0.44 – 6.46	42	N/A		3	1.63	0.28 – 9.57	7	N/A	
Region												
Latin America vs	1	2.78	10.2 – 7.60	N/A	N/A	0.97	1	1.03	0.36 – 2.96	N/A	N/A	0.35
South Asia vs	6	2.46	1.54 – 3.91	77	48 – 90		6	2.20	1.30 – 3.72	83	63 – 92	
Sub-Sahara Africa	4	2.42	0.77 – 7.60	73	25 – 90		4	2.47	0.93 – 6.60	33	0 – 76	

I^2: heterogeneity index; BDI: Beck Depression Inventory; N: Number of studies; N/A: Not Applicable; OR: Odds Ratio

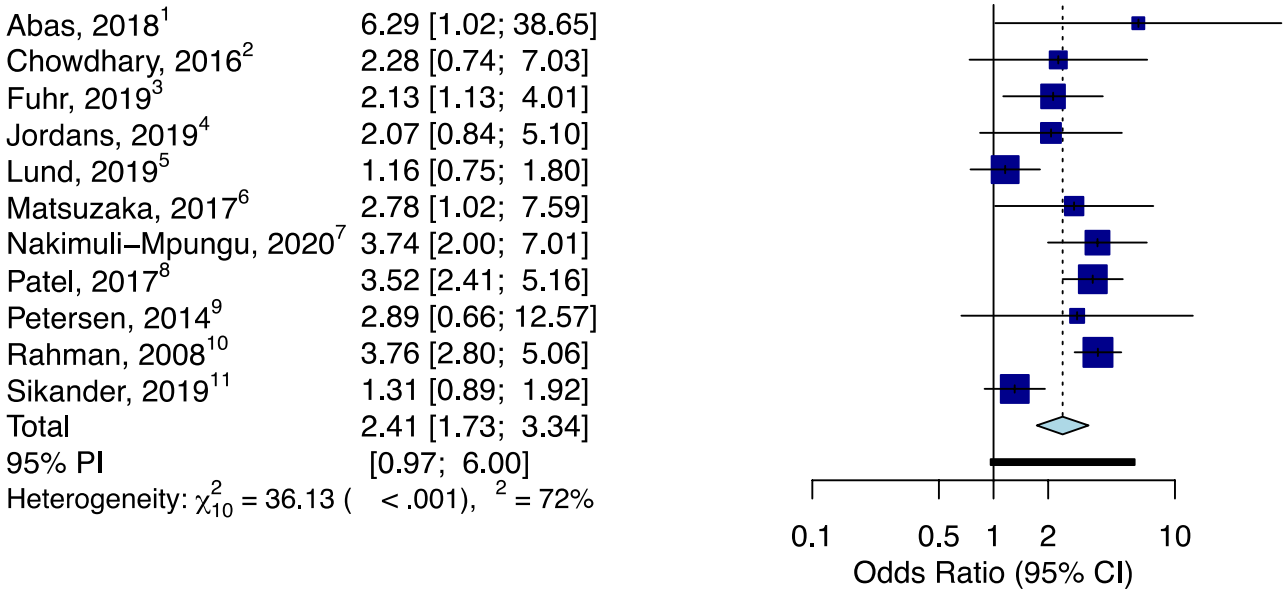
[b] 95% CI: 95% Confidence Intervals; p: p-value

[c] p-value between groups

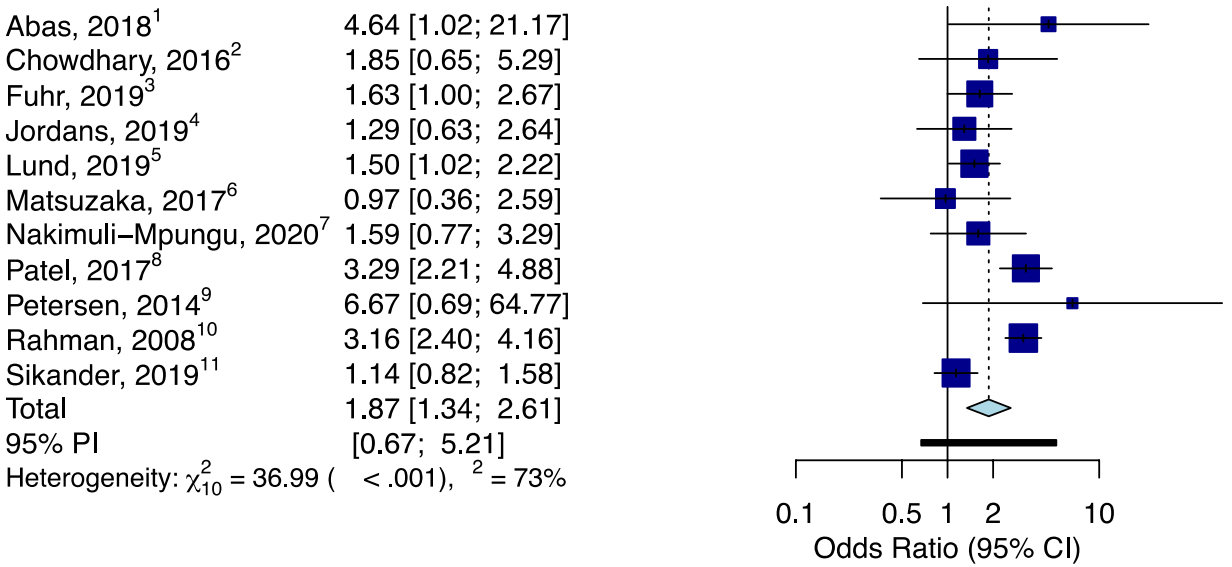
eFigure 2 Response – Two stage-IPDMA, full imputed sample



eFigure 3 Response – Two stage-IPDMA, complete case sample



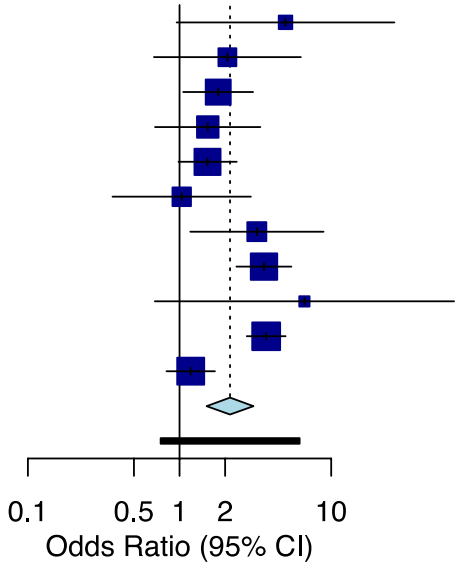
eFigure 4 Remission – Two stage-IPDMA, full imputed sample



eFigure 5 Remission – Two stage-IPDMA, complete case sample

Abas, 2018[1]	5.00 [0.96; 26.11]
Chowdhary, 2016[2]	2.07 [0.68; 6.32]
Fuhr, 2019[3]	1.80 [1.06; 3.06]
Jordans, 2019[4]	1.53 [0.69; 3.42]
Lund, 2019[5]	1.53 [0.98; 2.38]
Matsuzaka, 2017[6]	1.03 [0.36; 2.96]
Nakimuli–Mpungu, 2020[7]	3.24 [1.18; 8.90]
Patel, 2017[8]	3.60 [2.37; 5.47]
Petersen, 2014[9]	6.67 [0.69; 64.77]
Rahman, 2008[10]	3.73 [2.77; 5.01]
Sikander, 2019[11]	1.18 [0.82; 1.71]
Total	2.15 [1.51; 3.07]
95% PI	[0.75; 6.18]

Heterogeneity: χ^2_{10} = 36.66 (< .001), ^{2} = 73%



eTable 6 GRADE assessment of main outcomes

Question: Task-shared psychological interventions compared to Controls for depressive symptoms (all examined outcomes in this table are based on our main analysis using multiple imputed cases)
Setting: Adults living in LMICs

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Task-shared psychological interventions	Controls	Relative (95% CI)	Absolute (95% CI)		
Reduction in depressive symptom severity (assessed with: PHQ-9; Scale from: 0 to 27)												
11	randomised trials	not serious	serious[a]	not serious	not serious	none	2063	2055	-	SMD **0.32 SD higher** (0.26 higher to 0.38 higher)	⨁⨁⨁◯ Moderate	IMPORTANT
Response - 50% reduction of baseline symptoms (assessed with: the original scales used by the trials)												
11	randomised trials	not serious	serious[a]	not serious	not serious	none	1526/2063 (74.0%)	1222/2055 (59.5%)	**OR 2.11** (1.60 to 2.80)	**161 more per 1,000** (from 107 more to 210 more)	⨁⨁⨁◯ Moderate	IMPORTANT
Remission - scoring below the cut-off score of mild depressive symptoms (assessed with: the original scales used by the trials)												
11	randomised trials	not serious	serious[a]	not serious	not serious	none	1398/2063 (67.8%)	1128/2055 (54.9%)	**OR 1.87** (1.20 to 1.99)	**146 more per 1,000** (from 45 more to 159 more)	⨁⨁⨁◯ Moderate	IMPORTANT

CI: confidence interval; **OR:** odds ratio; **SMD:** standardized mean difference

Explanations

a. The heterogeneity is moderate to high (i.e., the I^2 ranged from 70 – 74% with associated 95%CI ranging from 44 – 86% across main analyses)

eReferences

1. Abas M, Nyamayaro P, Bere T, et al. Feasibility and acceptability of a task-shifted intervention to enhance adherence to HIV medication and improve depression in people living with HIV in Zimbabwe, a low income country in sub-Saharan Africa. *AIDS and Behavior*. 2018;22(1):86-101. doi:10.1007/s10461-016-1659-4
2. Chowdhary N, Anand A, Dimidjian S, et al. The healthy activity program lay counsellor delivered treatment for severe depression in India: Systematic development and randomised evaluation. *British Journal of Psychiatry*. 2016;208(4):381-388.
3. Fuhr DC, Weobong B, Lazarus A, et al. Delivering the Thinking Healthy Programme for perinatal depression through peers: An individually randomised controlled trial in India. *The Lancet Psychiatry*. 2019;6(2):115-127. doi:10.1016/S2215-0366(18)30466-8
4. Jordans MJ, Luitel NP, Garman E, et al. Effectiveness of psychological treatments for depression and alcohol use disorder delivered by community-based counsellors: two pragmatic randomised controlled trials within primary healthcare in Nepal. *The British Journal of Psychiatry*. 2019;215(2):485-493.
5. Lund C, Schneider M, Garman EC, et al. Task-sharing of psychological treatment for antenatal depression in Khayelitsha, South Africa: Effects on antenatal and postnatal outcomes in an individual randomised controlled trial. Article in Press. *Behaviour Research and*. 2019;doi:10.1016/j.brat.2019.103466
6. Matsuzaka C, Wainberg M, Norcini PA, et al. Task shifting interpersonal counseling for depression: a pragmatic randomized controlled trial in primary care. *BMC psychiatry*. Article. 2017;17(1) (no pagination). doi:10.1186/s12888-017-1379-y http://onlinelibrary.wiley.com/o/cochrane/clcentral/articles/826/CN-01396826/frame.html https://bmcpsychiatry.biomedcentral.com/track/pdf/10.1186/s12888-017-1379-y?site=bmcpsychiatry.biomedcentral.com
7. Nakimuli-Mpungu E, Musisi S, Wamala K, et al. Effectiveness and cost-effectiveness of group support psychotherapy delivered by trained lay health workers for depression treatment among people with HIV in Uganda: a cluster-randomised trial. *Lancet Glob Health*. Mar 2020;8(3):e387-e398. doi:10.1016/s2214-109x(19)30548-0
8. Patel V, Weobong B, Weiss H, et al. The Healthy Activity Program (HAP), a lay counsellor-delivered brief psychological treatment for severe depression, in primary care in India: a randomised controlled trial. *Lancet (london, england)*. Multicenter Study; Randomized Controlled Trial; Research Support, Non-U.S. Gov't. 2017;389(10065):176-185. doi:10.1016/S0140-6736(16)31589-6 http://onlinelibrary.wiley.com/o/cochrane/clcentral/articles/650/CN-01297650/frame.html
9. Petersen I, Hanass Hancock J, Bhana A, Govender K. A group-based counselling intervention for depression comorbid with HIV/AIDS using a task shifting approach in South Africa: a randomized controlled pilot study. *J Affect Disord*. Apr 2014;158:78-84. doi:10.1016/j.jad.2014.02.013
10. Rahman A, Malik A, Sikander S, Roberts C, Creed F. Cognitive behaviour therapy-based intervention by community health workers for mothers with depression and their infants in rural Pakistan: a cluster-randomised controlled trial. *Lancet*. Sep 13 2008;372(9642):902-9.
11. Sikander S, Ahmad I, Atif N, et al. Delivering the Thinking Healthy Programme for perinatal depression through volunteer peers: a cluster randomised controlled trial in Pakistan. Article. *The Lancet Psychiatry*. 2019;6(2):128-139. doi:10.1016/S2215-0366(18)30467-X