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Supplementary information

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Technology-assisted cognitive-behavioral therapy for perinatal depression delivered by lived-experience peers: a cluster-randomized noninferiority trial

In the format provided by the authors and unedited

Supplementary Materials

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Characteristic	THP-TAP (N=423)	WHO-THP (N=418)
Age (Mean, SD)	27.14(5.14)	27.15(4.93)
Occupational status		
Housewife	409(96.7%)	404(96.7%)
Manual	0(0%)	1(0.2%)
Partially skilled	2(0.5%)	6(1.4%)
Professionals	7(1.7%)	5(1.2%)
Unskilled	5(1.2%)	2(0.5%)
Education		
None	39(9.2%)	34(8.1%)
Primary	52(12.3%)	32(7.7%)
Middle-High	219 (51.8%)	239 (57.2%)
Intermediate	62(14.7%)	71(17.0%)
University	51(12.1%)	42(10.0%)
Number of children (Mean, SD)	1.99(1.26)	1.99(1.32)
Previous miscarriages or still birth (Mean, SD)	1.64(0.94)	1.47(0.93)
Occupational status of husband		
Employed	395(93.4%)	391(93.5%)
Unemployed	28(6.6%)	27(6.5%)
PHQ-9 scores (mean, SD)	16.89 (4.56)	16.22 (4.47)
GAD-7 scores (mean, SD)	11.73 (3.74)	11.77 (4.12)
WHO-DAS scores (mean, SD)	20.60 (8.63)	19.99 (8.59)

Supplementary Table S1: Baseline characteristics of participants in per-protocol population

Data are number (%) or mean (SD)
THP-TAP=Technology-assisted peer-delivered Thinking Healthy Programme
WHO-THP=World Health Organization's Thinking Healthy Programme
PHQ-9=Patient Health Questionnaire (9-items)
GAD-7=Generalised Anxiety Disorder (7-items)
WHO-DAS=World Health Organization Disability Assessment Schedule
SD=Standard Deviation

Supplementary Table S2: Summary statistics of subgroup analysis of primary outcome (remission from MDE at 3-months postnatal) in the per-protocol population

		n/N (%) of participants with events		Risk difference * (95%CI)
Variable	**Subgroup**	**THP-TAP**	**WHO-THP**	
PHQ-9	≤17 years	201/217(92.6%)	212/242(87.6%)	4.96(-0.79,10.71)
	>17 years	188/204(92.2%)	133/168(79.2%)	12.82(5.67,19.96)
Age	≤27 years	214/240(89.2%)	197/232(84.9%)	4.22(-2.58,11.02)
	>27 years	175/181(96.7%)	148/178(83.1%)	13.30(7.80,18.80)
Parity	0	112/121(92.6%)	100/114(87.7%)	4.70(-3.90,13.30)
	≥1	277/300(92.3%)	245/296(82.8%)	9.53(4.69,14.37)
Household income	≤25000	216/236(91.5%)	199/238(83.6%)	7.97(2.29,13.64)
(Pakistani rupees)	>25000	173/185(93.5%)	146/172(84.9%)	8.59(1.31,15.88)

THP-TAP=Technology-assisted peer-delivered Thinking Healthy Programme
WHO-THP=World Health Organization's Thinking Healthy Programme
MDE=Major Depressive Episode (MDE) Module.
PHQ-9=Patient Health Questionnaire (9-items).
* Risk difference was calculated using generalised estimating equation model.

Supplementary Table S3: Summary statistics from unadjusted analysis of continuous secondary outcomes in per protocol population

		N, mean (SD)		Mixed model analysis	
Secondary outcomes	**Visit**	**THP-TAP**	**WHO-THP**	**Difference (95%CI)**	**p value**
PHQ-9 scores	3 months	421,3.25(4.26)	410,4.24(5.66)	-1.05(-1.87,-0.22)	0.0134
	6 months	421,3.18(4.37)	410,3.41(4.76)	-0.29(-1.12,0.54)	0.4956
GAD-7 scores	3 months	421,2.91(3.86)	410,2.94(3.85)	-0.02(-0.65,0.61)	0.9477
	6 months	421,2.83(3.85)	410,2.75(3.67)	0.09(-0.53,0.72)	0.7701
WHO-DAS scores	3 months	421,3.35(5.28)	410,3.98(6.24)	-0.66(-1.53,0.21)	0.1351
	6 months	421,2.78(5.36)	410,2.66(5.12)	0.10(-0.77,0.97)	0.8240

SD=Standard deviation.
THP-TAP=Technology-assisted peer-delivered Thinking Healthy Programme
WHO-THP=World Health Organization's Thinking Healthy Programme
PHQ-9=Patient Health Questionnaire (9-items)
GAD-7=Generalised Anxiety Disorder (7-items)
WHO-DAS=World Health Organization Disability Assessment Schedule

Supplementary Table S4: Summary statistics from adjusted analysis of continuous secondary outcomes in per protocol population

		N, mean (SD)		Mixed model analysis*	
Secondary outcomes	**Visit**	**THP-TAP**	**WHO-THP**	**Difference (95%CI)**	**p value**
PHQ-9 scores	3 months	421,3.25(4.26)	410,4.24(5.66)	-1.00(-1.82,-0.19)	0.0155
	6 months	421,3.18(4.37)	410,3.41(4.76)	-0.25(-1.06,0.57)	0.5524
GAD-7 scores	3 months	421,2.91(3.86)	410,2.94(3.85)	-0.05(-0.67,0.57)	0.8730
	6 months	421,2.83(3.85)	410,2.75(3.67)	0.06(-0.56,0.68)	0.8406
WHO-DAS scores	3 months	421,3.35(5.28)	410,3.98(6.24)	-0.68(-1.55,0.18)	0.1196
	6 months	421,2.78(5.36)	410,2.66(5.12)	0.08(-0.79,0.94)	0.8617

SD=Standard deviation.
THP-TAP=Technology-assisted peer-delivered Thinking Healthy Programme
WHO-THP=World Health Organization's Thinking Healthy Programme
PHQ-9=Patient Health Questionnaire (9-items)
GAD-7=Generalised Anxiety Disorder (7-items)
WHO-DAS=World Health Organization Disability Assessment Schedule
* Covariates in the adjusted linear mixed models include age, parity, household income and PHQ-9 at baseline

Supplementary Table S5: Summary statistics from unadjusted analysis of continuous secondary outcomes with missing values imputed in intention to treat population

		N, mean (SD)		Mixed model analysis	
Secondary outcomes	**Visit**	**THP-TAP**	**WHO-THP**	**Difference (95%CI)**	**p value**
PHQ-9 scores	3 months	487,3.30(4.02)	493,4.30(5.36)	-1.05(-1.79,-0.31)	0.0130
	6 months	487,3.17(4.10)	493,3.40(4.40)	-0.28(-1.02,0.47)	0.4867
GAD-7 scores	3 months	487,2.95(3.67)	493,3.02(3.63)	-0.06(-0.62,0.50)	0.7345
	6 months	487,2.85(3.61)	493,2.76(3.39)	0.10(-0.47,0.66)	0.7247
WHO-DAS scores	3 months	487,3.37(5.00)	493,4.12(5.91)	-0.78(-1.57,0.02)	0.0673
	6 months	487,2.81(5.03)	493,2.74(4.74)	0.04(-0.75,0.84)	0.7849

SD=Standard deviation.
THP-TAP=Technology-assisted peer-delivered Thinking Healthy Programme
WHO-THP=World Health Organization's Thinking Healthy Programme
PHQ-9=Patient Health Questionnaire (9-items)
GAD-7=Generalised Anxiety Disorder (7-items)
WHO-DAS=World Health Organization Disability Assessment Schedule

Supplementary Table S6: Summary statistics from unadjusted analysis of continuous secondary outcomes with missing values imputed in per-protocol population

		N, mean (SD)		Mixed model analysis	
Secondary outcomes	**Visit**	**THP-TAP**	**WHO-THP**	**Difference (95%CI)**	**p value**
PHQ-9 scores	3 months	423,3.25(4.25)	418,4.24(5.61)	-1.05(-1.87,-0.23)	0.0130
	6 months	423,3.17(4.37)	418,3.41(4.72)	-0.29(-1.12,0.53)	0.4823
GAD-7 scores	3 months	423,2.91(3.85)	418,2.95(3.81)	-0.04(-0.66,0.58)	0.8902
	6 months	423,2.84(3.85)	418,2.75(3.64)	0.09(-0.53,0.71)	0.7717
WHO-DAS scores	3 months	423,3.35(5.27)	418,3.98(6.19)	-0.66(-1.52,0.21)	0.1380
	6 months	423,2.78(5.35)	418,2.66(5.08)	0.10(-0.77,0.96)	0.8291

SD=Standard deviation.
THP-TAP=Technology-assisted peer-delivered Thinking Healthy Programme
WHO-THP=World Health Organization's Thinking Healthy Programme
PHQ-9=Patient Health Questionnaire (9-items)
GAD-7=Generalised Anxiety Disorder (7-items)
WHO-DAS=World Health Organization Disability Assessment Schedule

Supplementary Table S7: Summary statistics from analysis of binary secondary outcome in per protocol population

		n/N (%) of participants with events		Generalised mixed model analysis			
				Crude analysis		Adjusted analysis*	
Secondary outcome	**Visit**	**THP-TAP**	**WHO-THP**	**Odds Ratio (95%CI)**	**p value**	**Odds Ratio (95%CI)**	**p value**
Depression defined as PHQ-9≥10†	3 months	38/421(9.0)	70/410(17.1)	0.46(0.28,0.76)	0.0026	0.39(0.25,0.61)	<.0001
	6 months	38/421(9.0)	44/410(10.7)	0.81(0.47,1.38)	0.4323	0.78(0.49,1.25)	0.3066

THP-TAP=Technology-assisted peer-delivered Thinking Healthy Programme
WHO-THP=World Health Organization's Thinking Healthy Programme
* Covariates in the adjusted generalized linear mixed model include age, parity, household income and PHQ-9 at baseline.
† PHQ-9=Patient Health Questionnaire (9 items)

Supplementary Table S8: Summary statistics from unadjusted analysis of binary secondary outcome with missing values imputed in intention to treat population

		n/N (%) of participants with events		Generalised mixed model analysis	
Secondary outcome	**Visit**	**THP-TAP**	**WHO-THP**	**Odds Ratio (95%CI)**	**p value**
Depression defined as PHQ-9≥10†	3 months	46/487(9.4)	82/493(16.6)	0.50(0.32,0.77)	0.0019
	6 months	42/487(8.6)	51/493(10.3)	0.80(0.50,1.28)	0.3460

THP-TAP=technology-assisted peer-delivered Thinking Healthy Programme
WHO-THP=World Health Organization's Thinking Healthy Programme
† PHQ-9=Patient Health Questionnaire-9

Supplementary Table S9: Summary statistics from unadjusted analysis of binary secondary outcome with missing values imputed in per protocol population

		n/N (%) of participants with events		Generalised mixed model analysis	
Secondary outcome	**Visit**	**THP-TAP**	**WHO-THP**	**Odds Ratio (95%CI)**	**p value**
Depression defined as PHQ-9≥10†	3 months	38/423(9.1)	71/418(17.0)	0.46(0.30,0.71)	0.0004
	6 months	38/423(9.0)	45/418(10.7)	0.78(0.50,1.24)	0.2980

THP-TAP=technology-assisted peer-delivered Thinking Healthy Programme
WHO-THP=World Health Organization's Thinking Healthy Programme
† PHQ-9=Patient Health Questionnaire-9

Table S10: Trial implementation costs

Summary costs (2022)				
	Trial costs		**Optimised costs if the intervention were to be rolled out**	
	THP-TAP	**WHO-THP**	**THP-TAP**	**WHO-THP**
Designing the app	PKR 30,278,313	-	-	-
	$ 147,793	-	-	-
Delivery of the intervention	PKR 6,907,341	PKR 5,913,917	-	-
	$ 33,716	$ 28,867	-	-
Per patient cost of delivering the intervention PKR	PKR 14,183	PKR 11,996	PKR 5,013	PKR 9,057
Per patient cost of delivering the intervention USD	$ 69	$ 59	$24	$44
Per patient costs by category				
	Trial costs		**Optimised costs if the intervention were to be rolled out**	
	THP-TAP	**WHO-THP**	**THP-TAP**	**WHO-THP**
Tablet costs and server maintenance	PKR 8,307	-	PKR 619	-
Printing costs	-	PKR 3,943	-	PKR 3,288
Training costs	PKR 164	PKR 480	PKR 10	PKR 6
Supervision costs	PKR 2,218	PKR 2,451	PKR 379	PKR 324
Monitoring costs	PKR 79	PKR 162	PKR 5	PKR 22
Peer/LHW incentives	PKR 3,415	PKR 4,960	PKR 4,000	PKR 5,417
Total	PKR 14,183	PKR 11,996	PKR 5,013	PKR 9,057

Table S11: Unit costs

Category	Unit cost 2022 PKR	Unit cost 2022 USD
THP-TAP		
Specialist trainers who train the peer trainers for THP-app, hourly rate	PKR 200.00	$ 0.98
Peer trainers who train the volunteers to deliver the THP-app intervention hourly rate	PKR 100.00	$ 0.49
Stipend for each visit to a patient received by peer volunteers	PKR 500.00	$ 2.44
Cost of 56 tablets for the THP-app intervention	PKR 2,717,790.36	$ 13,265.93
Server monthly maintenance cost for the THP-app	PKR 66,397.53	$ 324.10
WHO-THP		
Specialist trainers who train the national trainers for the THP-WHO	PKR 600.00	$ 2.93
National trainers who train the LHWs in how to deliver the intervention, 250PKR hourly rate	PKR 303.32	$ 1.48
LHWs allowance for every visit they deliver the intervention	PKR 500.00	$ 2.44
LHWs allowance for attending the training session	PKR 400.00	$ 1.95
LHWs allowance for attending a supervision	PKR 1,000.00	$ 4.88
LHWs hourly rate	PKR 177.08	$ 0.86
Printing costs for booklets for patients and supervision materials	PKR 1,944,009	$ 17,766.87
Both		
Lunch cost for attending training	PKR 200.00	$ 0.98
All prices have been adjusted to 2022. World Bank estimate for average exchange rate in 2022, 1USD to PKR: 204.87		

Table S12: Comparing assumptions used in the optimised cost estimation with the trial

	Optimized scenario assumption	Trial
Birth rate is assumed to be 124 per 1000 per year	0.12	NA
Prevalence of depression assumed to be 32% of pregnant women (27% - 37%)	0.32	NA
Population of an area covered by LHWs	1700	NA
Population of an area covered by peers	1000	NA
Depressed pregnant women in LHW (annual)	67	NA
Depressed pregnant women in peers area (annual)	40	NA
Workload LHW (annual) assumes all depressed pregnant women in area are seen	67	7
Workload peers (annual) assumes all depressed pregnant women in area are seen	40	6
Remaining career of LHW, therefore does not need retraining (years)	23.5	NA
Time a peer stays with the programme (years)	3	NA
Total patients seen by LHW over career	1585	NA
Total patients seen by a peer, over their time as a peer	119	NA
Total visits for each patient	8	7
Life of tablet (years)	3.0	NA
Length of intervention for patient receiving THP-APP (months)	3	3
Patients the server supports in THP-APP	1000	487
Visit incentive for peers and LHWs	PKR 500	PKR 500
Monitoring visits for peer delivering the intervention (annual)	2	5
Monitoring visits for LHW delivering the intervention (annual)	5	5
Tablet	PKR 50,000	PKR 48,532
Printing the health calendar, glossy and ring bound (1 per patient)	PKR 3000	PKR 3000
Printing of supervision materials, reference manual and session log forms (per patient cost)	PKR 287.50	PKR 287.50
THP-APP training and supervision		
Training the peer trainers		
Sessions	4	4
Hours per session	4	4
Specialist trainers	1	2
Peer trainers	12	4
Training the peers		
Sessions	4	4
Hours per session	4	4
Peer trainers	1	2
Peers	12	8
Supervision of peer trainers		
Number per year	12	11
Hours per session	2	2
Supervisors (specialist trainers)	1	2
Supervisees (peer trainers)	12	4
Supervision of peers		
Number per year	12	11
Hours per session	2	2
Supervisors (peer trainers)	1	2
Supervisees (peers)	12	8
WHO-THP training and supervision		
Training the national trainers		
Sessions	5	3
Hours per session	5	5
Specialist trainers	2	2
National trainers	12	3
Training the LHWs		
Sessions	5	5
Hours per session	5	5
National trainers	2	2
LHWs	12	13
Supervision of national trainers		
Number per year	12	12
Hours per session	2	2
Supervisors (specialist trainers)	2	1
Supervisees (national trainers)	12	3
Supervision of LHWs		
Number per year	12	11
Hours per session	2	2
Supervisors (national trainers)	2	2
Supervisees (LHWs)	12	13

Table S13. Themes related to acceptability of THP-TAP in participant women and peers

Theme	Illustrative Quotes	Implication for Intervention
Ease of use for Peers	"…it is like having an expert with us who has full knowledge of the subject." (Peer)	The 'avatar' therapist facilitated delivery of intervention by peers without prior experience,
Engagement with intervention	"Their [avatars of depressed women] clothes, facial expressions, language, settings, and most importantly their problems, all mirrored what we were witnessing in our participants... so it touched their hearts." (Peer)	The realistic and relatable scenarios depicted by avatars enhanced participants' emotional engagement and connection with the content, potentially leading to better acceptance and integration of advice.
Addressing Sensitive Topics	"I find a couple of families very intimidating; I am glad that we have the App to show them otherwise I would have felt a bit hesitant explaining harmful effects of domestic abuse on pregnant women." (Peer)	The use of 'avatar' therapists in the app allowed sensitive topics, like interpersonal conflict, to be addressed more comfortably by peers
Behavioural Change and Motivation	"I saw Rashida, [avatar woman] how she started sharing her problems with her husband and asking for help with the housework. I did the same, and things started to change from that day onward." (Participant)	Observing positive behaviour in avatars motivated participants to adopt similar behaviours in their own lives, promoting real-life behavioural changes.
Positive Reinforcement	"I was never praised for the things I do for my family. I felt really encouraged when I received [virtual] flowers at the end of my sessions and kind words from my peer." (Participant)	The app's use of visual and verbal positive reinforcement encourages continued engagement and reinforces positive behaviour changes among participants.
Role of Peers in Reinforcing Learning	"Sometimes while watching the videos, my attention drifts away, but when I listened to her (peer), I understood what the doctor in the App was saying." (Participant)	Peers play an important role in reinforcing the information presented in the app, ensuring that participants grasp and retain important therapeutic content.

Supplementary Table S14: Competency of the peers immediately post- training, and after 6 months and one-year of working under supervision (n=50)

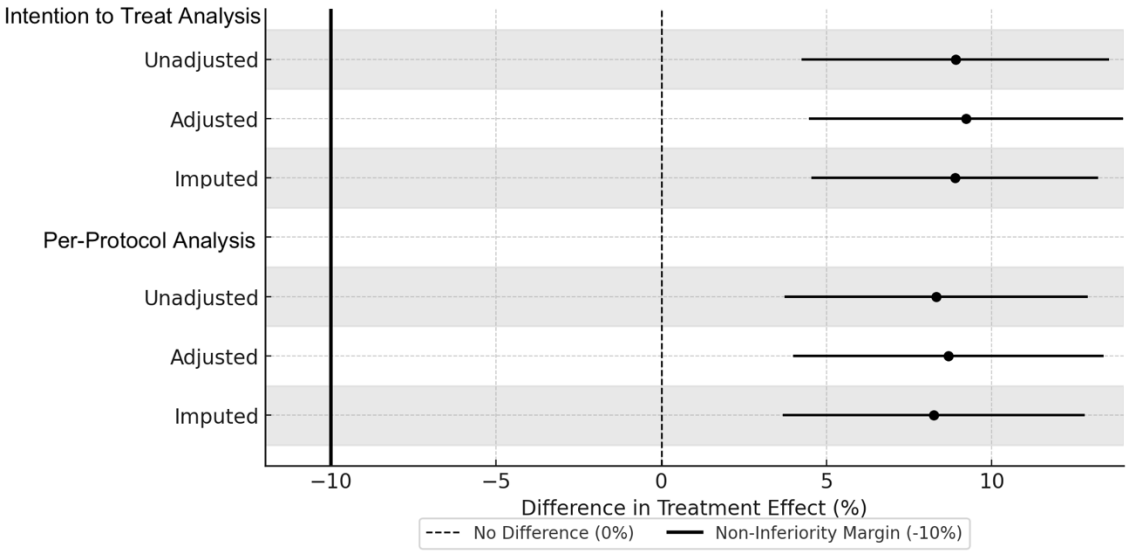
Foundational skills Domains	**Post-Training Competency levels (proportion of peers at levels 1 to 4)***				**6-months post training Competency levels (proportion of peers at levels 1 to 4)***				**12 months post training Competency levels (proportion of peers at levels 1 to 4)***			
	level 1	level 2	level 3	level 4	level 1	level 2	level 3	level 4	level 1	level 2	level 3	level 4
Non-verbal communication	0%	84%	12%	4%	0%	58%	32%	12%	0%	5%	48%	48%
Verbal communication	0%	88%	10%	2%	0 %	66%	34%	2%	0%	7%	55%	39%
Explain and promote confidentiality	0%	92%	6%	2%	0%	76%	24%	2%	0%	14%	68%	18%
Rapport building and self-disclosure	0%	96%	4%	0%	0%	86%	16%	0%	0%	0%	77%	23%
Exploration and normalisation of feelings	0%	100 %	0%	0%	0%	88%	14%	0%	0%	11%	75%	14%
Demonstrate empathy warmth, & geniuses	0%	96%	4%	0%	0%	68%	32%	2%	0%	5%	68%	27%
Assessment of harm, & developing response plan	0%	100 %	0%	0%	0%	98%	4%	0%	0%	48%	48%	5%
Connect to social functioning and impact on life	0%	96%	4%	0%	0%	92%	10%	0%	0%	20%	75%	5%
Explore client's explanation for problem	0%	100 %	0%	0%	0%	92%	10%	0%	0%	30%	66%	5%
Involvement of family and significant others	0%	96%	4%	0%	0%	62%	38%	2%	0%	7%	86%	7%
Collaborative goal setting	0%	86%	14%	0%	0%	88%	14	0%	0%	23%	68%	9%
Promote realistic hope for change	0%	90%	10%	0%	0%	76%	26%	0%	0%	9%	81%	9%
Incorporate coping mechanism and prior solution	0%	98%	2%	0%	0%	92%	8%	2%	0%	34%	59%	7%
Psychoeducation with local terminology	0%	90%	10%	0%	0%	30%	72%	0%	0%	0%	48%	52%
Elicitation of feedback	0%	100 %	0%	0%	0%	92%	10%	0%	0%	25%	68%	7%
Thinking Healthy Programme intervention delivery skills Domains	**Post Training Competency levels (proportion of peers at levels 1 to 4)***				**6 months post training Competency levels (proportion of peers at levels 1 to 4)***				**12 months post training Competency levels (proportion of peers at levels 1 to 4)***			
	Level 1	**level 2**	**level 3**	**level 4**	**Level 1**	**Level 2**	**Level 3**	**Level 4**	**Level 1**	**Level 2**	**Level 3**	**Level 4**
Mood & activity monitoring	0%	88%	0%	0%	0%	58%	44%	0%	0%	34%	64%	2%
Psychoeducation about thoughts, feelings, & behaviours	0%	62%	38%	0%	0%	16%	80%	6%	0%	0%	75%	25%
Linking thoughts, feelings & behaviours: connecting thoughts & feelings with personal experience	0%	94%	6%	0%	0%	38%	64%	0%	0%	9%	73%	18%
Linking thoughts, feelings & behaviours: connecting feelings with behviours	0%	84%	16%	0%	0%	26%	76%	0%	0%	2%	81%	16%
Identifying more difficult & unhelpful thoughts	0%	92%	8%	0%	0%	54%	46%	2%	0%	18%	68%	14%
Developing new thoughts, feeling, behaviours & associations: creating alternative thoughts	0%	92%	8%	0%	0%	70%	32%	0%	0%	20%	68%	11%
Developing new thoughts, feeling, behaviours & associations: differences between new & previous thoughts	0%	98%	2%	0%	0%	66%	36%	0%	0%	23%	61%	16%
Using thought records with in-session practice	0%	90%	10%	0%	0%	62	38%	2%	0%	23%	70%	7%
Reviewing thought records/homework	0%	86%	14%	0%	0%	64%	36%	2%	0%	27%	57%	16%
Using a role-play to build communication skills & improve relationships	0%	100 %	0%	0%	0%	80%	22%	0%	0%	86%	14%	0%
Stress management: introducing a new strategy (then practice & repeat)	0%	90%	10%	0%	0%	66%	32%	4%	0%	27%	36%	36%

Supplementary Table S15: Competency of the Community Health Workers post- training, and after 6 months and one-year of working under supervision (n=40)

Foundational skills Domains	**Post Training Competency levels (proportion of peers at levels 1 to 4)***				**6 months post training Competency levels (proportion of peers at levels 1 to 4)***				**12 months post training Competency levels (proportion of peers at levels 1 to 4)***			
	level 1	level 2	level 3	level 4	level 1	level 2	level 3	level 4	level 1	level 2	level 3	level 4
Non-verbal communication	0%	50%	13%	37%	0%	28%	53%	20%	0%	0%	69%	31%
Verbal communication	0%	50%	23%	28%	0 %	38%	50%	13%	0%	3%	86%	11%
Explain and promote confidentiality	0%	75%	3%	23%	0%	58%	40%	3%	0%	0%	92%	8%
Rapport building and self-disclosure	0%	60%	13%	28%	0%	38%	58%	5%	0%	0%	97%	3%
Exploration and normalisation of feelings	0%	80%	3%	18%	0%	43%	53%	5%	0%	0%	86%	14%
Demonstrate empathy warmth, & geniuses	0%	90%	10%	0%	0%	33%	65%	3%	0%	0%	94%	6%
Assessment of harm, & developing response plan	0%	100%	0%	0%	0%	80%	20%	0%	0%	33%	64%	3%
Connect to social functioning and impact on life	0%	75%	15%	10%	0%	45%	53%	3%	0%	0%	97%	3%
Explore client's explanation for problem	0%	88%	13%	0%	0%	53%	48%	0%	0%	22%	72%	6%
Involvement of family and significant others	0%	83%	5%	13%	0%	40%	58%	3%	0%	6%	94%	0%
Collaborative goal setting	0%	73%	10%	18%	0%	58%	43%	0%	0%	0%	94%	6%
Promote realistic hope for change	0%	88%	13%	0%	0%	45%	53%	3%	0%	0%	100%	0%
Incorporate coping mechanism and prior solution	0%	70%	0%	30%	0%	50%	48%	3%	0%	8%	89%	3%
Psychoeducation with local terminology	0%	48%	43%	10%	0%	23%	70%	8%	0%	0%	94%	6%
Elicitation of feedback	0%	80%	0%	20%	0%	48%	48%	5%	0%	3%	94%	3%
Thinking Healthy Programme intervention delivery skills Domains	**Post Training Competency levels (proportion of peers at levels 1 to 4)***				**6 months post training Competency levels (proportion of peers at levels 1 to 4)***				**12 months post training Competency levels (proportion of peers at levels 1 to 4)***			
	Level 1	**level 2**	**level 3**	**level 4**	**Level 1**	**Level 2**	**Level 3**	**Level 4**	**Level 1**	**Level 2**	**Level 3**	**Level 4**
Mood & activity monitoring	0%	48%	28%	25%	0%	8%	58%	35%	0%	6%	36%	58%
Psychoeducation about thoughts, feelings, & behaviours	0%	45%	48%	8%	0%	8%	58%	35%	0%	0%	50%	50%
Linking thoughts, feelings & behaviours: connecting thoughts & feelings with personal experience	0%	65%	33%	3%	0%	18%	53%	30%	0%	0%	53%	47%
Linking thoughts, feelings & behaviours: connecting thoughts & feelings with personal experience	0%	63%	35%	3%	0%	5%	78%	18%	0%	0%	64%	36%
Identifying more difficult & unhelpful thoughts	0%	75%	25%	0%	0%	25%	58%	18%	0%	8%	56%	36%
Developing new thoughts, feeling, behaviours & associations: creating alternative thoughts	0%	70%	28%	3%	0%	30%	48%	23%	0%	0%	64%	36%
Developing new thoughts, feeling, behaviours & associations: differences between new & previous thoughts	0%	88%	10%	3%	0%	38%	43%	20%	0%	8%	53%	39%
Using thought records with in-session practice	0%	73%	28%	0%	0%	21%	39%	40%	0%	28%	39%	33%
Reviewing thought records/homework	0%	83%	18%	0%	0%	30%	55%	15%	0%	19%	42%	39%
Using a role-play to build communication skills & improve relationships	0%	95%	5%	0%	0%	43%	43%	15%	0%	36%	28%	36%
Stress management: introducing a new strategy (then practice & repeat)	0%	83%	18%	0%	0%	15%	68%	18%	0%	14%	53%	33%

*Level 1: Some harmful practice shown; Level 2: Some basic skills shown; Level 3: All basic skills shown
Level 4: All basic and some advanced skills shown

Supplementary Figure 1: Percentage difference and two-sided 95% confidence interval of remission at 3 months



This forest plot provides Percentage difference and two-sided 95% confidence interval of remission at 3 months timepoint; demonstrating consistent difference in effect sizes across unadjusted, adjusted and imputed datasets.

Supplementary Figure 2: Avatars representing virtual therapist and woman with peer-therapist

This panel provides a screenshot from the THP-TAP app.

Supplementary Fig 3: Conveying key messages through a narrative approach

This panel provides a screenshot from the THP-TAP app.