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BRIEF CLINICAL REPORT

Culturally adapted and lay-delivered cognitive behaviour therapy for older adults with depressive symptoms in rural China: a pilot trial

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Abstract

Background: Late-life depression issues in developing countries are challenging because of understaffing in mental health. Cognitive behavioural therapy (CBT) is effective for treating depression.
Aim: This pilot trial examined the adherence and effectiveness of an eight-session adapted CBT delivered by trained lay health workers for older adults with depressive symptoms living in rural areas of China, compared with the usual care.
Method: Fifty with screen-positive depression were randomly assigned to the CBT arm or the care as usual (CAU) arm. The primary outcomes were the session completion of older adults and changes in depressive symptoms, assessed using the Geriatric Depression Scale (GDS).
Results: The majority (19/24) of participants in the CBT arm completed all sessions. Mixed-effect linear regression showed that the CBT reduced more GDS scores over time compared with CAU.
Conclusion: Lay-delivered culturally adapted CBT is potentially effective for screen-positive late-life depression.

Keywords: community-based treatment; lay health worker; primary care; psychological therapy; public mental health

Introduction

In China, approximately two in five elders meet screen-positive depression (Li *et al.*, 2014). Although cognitive behavioural therapy (CBT) is an effective treatment for late-life depression (Jayasekara *et al.*, 2015), CBT for elders in rural China is rare due to a shortage of counsellors and treatment manuals. Furthermore, older adults may have limited education and their depressive symptoms are often associated with or expressed as somatic problems (Yin *et al.*, 2020). Adapting CBT and training lay health workers as counsellors may fill this gap.

This pilot study aimed to test whether an adapted CBT-based intervention delivered by lay health workers had good adherence for older adults and could significantly reduce depressive symptoms.

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Method

First, we recruited, trained and selected ten rural primary care health workers (village doctors, see Supplementary material), who had almost no experience in psychological therapies, as lay counsellors in Mianzhu, Sichuan province, China. We then screened elders' mental health and conducted a pilot, parallel group, one-to-one randomized, usual-care controlled trial with masked outcome assessment to improve depression symptoms in the villages where the counsellors worked.

Participants

Undergraduates, majoring in psychology and fluent in dialect, screened adults aged 60 years or older after informed consent ($n = 724$; see Fig. S1 in Supplementary material).

Screen tools were the Center for Epidemiologic Studies Depression Scale (CES-D; range 0–60; details in Supplementary material), Geriatric Depression Scale (GDS; range 0–30) and the Mini-Mental State Examination (MMSE; range 0–30).

The enrolment criteria for the trial were: (a) 60 years old or older; (b) CES-D score >15; (c) GDS score >9; and (d) MMSE score >17. The exclusion criteria were: (a) lifetime psychosis; (b) significant suicide risk; and (c) poor physical condition (e.g. cancer, dementia) or impairment in communication. We used two depression scales because parallel screening could reduce the false-positive rate.

Those who met all the criteria were invited to take part in the trial. After signing new consent forms, participants were randomly assigned to the CBT arm or care as usual (CAU) arm.

CBT intervention

Therapist training, session format, supervision and a qualitative evaluation of therapy is detailed in the Supplementary material and a previous paper (Tang *et al.*, 2015). Some adaptions from traditional CBT were that: (1) counsellors were suggested or encouraged to flexibly replace jargon in CBT with dialectics, proverbs and other attuned words (e.g. '*labeling*' to '*wear tinted colored glasses*', '*homework*' to '*mind prescription*'); (2) older adults decided the place (home/clinic); (3) each session started with a physical health examination to address somatic complaints; (4) behavioural activations were tailored to improve adherence in daily life (e.g. going to temple regularly with neighbours, filling in the diary of activities by family members or using symbols if older adults were unable to write).

Health workers delivered the eight, 45-minute, weekly individual therapies.

A research assistant, with a master's in psychology, monitored the counsellors' fidelity to the manual by reviewing 25% of recordings. A licensed psychologist held a weekly, face-to-face group supervision and provided individual urgent supervision.

CAU control

Usual care was door-to-door chronic disease management for all older adults or out-patient services in clinics. Counsellors were encouraged to provide psychosocial education and referrals for CAU participants with severe mental problems.

Crisis intervention

Counsellors were trained to assess suicide risk in each CBT session and routine visit. Counsellors should immediately initiate a crisis intervention for those reporting suicidal ideation or behaviour, and inform their family members and research assistants.

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Outcomes and assessments

The primary outcome was adherence to intervention (completion of sessions) and the changes in GDS scores over eight weeks. The secondary outcome was changes in anxiety and social relationships, assessed using the Self-rating Anxiety Scale (SAS; range 20–100) and domain 3 of the World Health Organization Quality of Life-BREF (WHOQOL-BREF; range 4–20), respectively.

Assessors, selected from interviewers in screen procedures, assessed outcomes at the baseline, week 4 and week 8 (or after the eighth session).

Sample size

The sample size was 50 because of convention and estimation for a future large-scale trial (see Supplementary material).

Randomization and masking

The participants were stratified by the treatment site in a one-to-one allocation using random block sizes. Only the assessors and data analysts were masked to the arm assignments (see Supplementary material).

Data analyses

Simple chi-squared test, Fisher's exact test and generalized *t*-test for unequal variances were used to compare baseline characteristics. Mixed-effect linear regressions with treatment, time (weeks since baseline), and treatment × time interaction examined the effects of treatment. Missing scores were imputed using the 'last observation carried forward' method. All analyses followed the intention-to-treat principle. The significance level was .05. The software used was Stata 15.0.

Results

Characteristics of elders

We randomized 50 participants (age: mean 70.5 ± 5.6 years, range 64–90; female: 24): 24 to the CBT arm and 26 to the CAU arm (see Fig. S1 in the Supplementary material). The imbalanced numbers across the two arms were because a couple was enrolled, and they shared the same ID number during the randomization to avoid interfering with each other. The two arms were comparable on demographic characteristics and the GDS scores at baseline ($p = .38$; Tables S1 and S2 in Supplementary material). However, the CBT arm were more anxious ($t = 2.02$, $p = .05$) and had lower social relationships ($t = -2.23$, $p = .03$).

There were no difference in baseline demographics and GDS scores between those with complete ($n = 49$) *vs* incomplete data ($n = 1$, week 8, in the CAU arm).

Delivery of CBT

The intervention started on 7 December 2014 and ended on 17 February 2015. In the CBT arm, 19 of 24 participants completed eight sessions. There was no difference in baseline GDS scores between the three who refused or missed initially and the others who received at least one session [13.33 (*SD* 3.21) *vs* 13.86 (3.21), $p = .81$]. The difference in GDS scores was not significant between the five who withdrew and the retention group (14.00 ± 2.55 *vs* 13.74 ± 3.72, $p = .88$).

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Table 1. Mixed models to test the effect of cognitive behavioural therapy (CBT) intervention on severity of depressive symptoms, anxiety symptoms and social relationships ($n = 50$)

	Scores on the GDS		Scores on the SAS		Score on the social relationship domain of the WHOQOL-BREF	
Variables	β (95% CI)	p	β (95% CI)	p	β (95% CI)	p
CBT	3.65 (0.21, 7.10)	.038	−1.89 (−5.04, 1.26)	.240	0.17 (−0.92, 1.27)	.756
Week	0.04 (−0.21, 0.29)	.760	−0.55 (−0.89, −0.20)	.002	0.04 (−0.09, 0.18)	.526
CBT × Week	−0.79 (−1.39, −0.19)	.010				

GDS, Geriatric Depression Scale; SAS, Self-Rating Anxiety Scale; WHOQOL-BREF, World Health Organization Quality of Life-BREF assessment; CI, confidence level. All regressions were adjusted for the elders' sex (male/female), age (64–69/70–79/80–90), education (unschooled/primary school/middle school or above), marital status (married/single, divorced or widowed), and the number of self-reported chronic diseases.

Effect on outcomes

Over 8-week follow-up, the difference-in-difference between the CBT arm and the CAU arm was −2.08 GDS score points (95% CI, −5.03 to 0.87). The proportion of participants with GDS scores >9 was higher in the CBT arm than in the CAU arm (9 out of 24 *vs* 3 out of 26; $\chi^2 = 4.61$, $p = .032$). The absolute benefit was 25.5%. The number needed to treat (NNT) was 3.92. The effect size (crude *RR*) was 3.25 (95% CI, 1.00 to 10.61).

The mixed-effect regression indicated a decrease in GDS scores over time in the CBT arm compared with the CAU (group×time interaction: β = −0.79, 95% CI, −1.39 to −0.19; Table 1).

However, only time fixed effect on SAS scores was significant, indicating a similar decrease over time between the two arms. The between-group effect on anxiety and social relationships was not at a statistically significant level (Table 1).

Adverse events

No significant increases in suicidal ideation (Table S3 in Supplementary material), suicidal behaviors, hospitalization or death occurred.

Discussion

As one of the pioneer trials to improve rural elders' depressive symptoms, we adapted CBT to match the older adults' needs, education levels and linguistic habits, and health workers' clinical expertise. Cultural attunement was achieved by bicultural counsellors through balancing clinical flexibility and adherence to the treatment manual. The retention rate demonstrated good adherence. The significant changes in the GDS score revealed potential effectiveness to reduce depressive symptoms over eight sessions.

Our study adds evidence to prevent late-life depression in low- or middle- income areas by remaining both cognitive and behavioural strategies of CBT. A trial in India proved that problem-solving therapy and behavioural treatment for insomnia provided by lay counselors could prevent major depression among elders with sub-syndromal depressive symptoms. Another Chinese team also developed a behaviour activation-based intervention for late-life depression that was delivered by postgraduate nursing students (Xie *et al.*, 2017). As our counsellors were from the local context, our intervention design may be culturally sensitive and scale-up easily. Moreover, Xie *et al.* (2017) did not test the significance of the true intervention effect using methods for repetition data.

The change in anxiety and social relationships was non-significant. The reason for this may be that the CBT arm scored worse at baseline and our intervention was targeted for depression.

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There were limitations. First, we used self-report scales to screen and assess the outcome. The therapy process quality was not assessed using a structured form. An insufficient sample size led to the results being under-powered. Finally, the effect size of the intervention was small, and modifications of the manual were needed.

Conclusions

The culture-adapted CBT conducted by trained lay health workers had good adherence and was temporarily effective for treating older adults with screen-positive depression in rural China.

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Conflicts of interest. None.

Ethics statement. This study was approved by the Review Board of the School of Social Development and Public Policy, Beijing Normal University. Oral and written informed consent was obtained from older adults before screening and randomization. Trained interviewers read consent forms and asked for their voluntary decision with voice recorded.

Supplementary material. To view supplementary material for this article, please visit: https://doi.org/10.1017/S1352465820000818

References

Jayasekara, R., Procter, N., Harrison, J., Skelton, K., Hampel, S., Draper, R., & Deuter, K. (2015). Cognitive behavioural therapy for older adults with depression: a review. *Journal of Mental Health*, *24*, 168–171. doi: 10.3109/09638237.2014.971143

Li, D., Zhang, D. J., Shao, J. J., Qi, X. D., & Tian, L. (2014). A meta-analysis of the prevalence of depressive symptoms in Chinese older adults. *Archives of Gerontology and Geriatrics*, *58*, 1–9. doi: 10.1016/j.archger.2013.07.016

Tang, X., Yang, F., Tang, T., Yang, X., Zhang, W., Wang, X., ... & Qu, Z. (2015). Advantages and challenges of a village doctor-based cognitive behavioral therapy for late-life depression in rural China: a qualitative study. *PLoS One*, *10*, e0137555. doi: 10.1371/journal.pone.0137555

Xie, J., He, G., Ding, S., Pan, C., Zhang, X., Zhou, J., & Iennaco, J. D. (2017). A randomized study on the effect of modified behavioral activation treatment for depressive symptoms in rural left-behind elderly. *Psychotherapy Research*, *29*, 372–382. doi: 10.1080/10503307.2017.1364444

Yin, Y., Yuan, J., & Qu, Z. (2020). Associations between hassles, coping styles, and depressive symptoms among older adults [Chinese]. *Journal of Chinese Mental Health*, *34*, 39–44.

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