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Treatment of Depressive Symptoms in Diverse, Rural and Vulnerable Older Adults

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Abstract

BACKGROUND/OBJECTIVES—We examined the effects of home-delivered CBT on depressive symptoms among rural, diverse and vulnerable older adults. Furthermore, we differentiated depression into its two salient aspects: psychological and somatic.

METHOD—Data came from a randomized controlled experiment of cognitive-behavior therapy (CBT) on 134 individuals residing in rural Alabama.

RESULTS—CBT resulted in significantly lower depressive symptom severity scores. When depressive symptoms were categorized as psychological or somatic, CBT was found to significantly improve the former but not the latter. Notably, there was a trend toward somatic symptom improvement.

CONCLUSION—CBT can be an effective treatment for depression in a hard-to-reach group of older adults. Home-delivery affords advantages but is also an expensive delivery modality. Diverse older adults responded to the CBT intervention.

Keywords

Depression; CBT; rural; diversity

INTRODUCTION

The United States Census Bureau (U.S. Census Bureau, 2010) older adults are more likely to live inside a metropolitan or micropolitan area than outside; however, among people who live outside these areas (i.e., those who live in an area with a population of less than 10,000), older adults are disproportionately represented. Older adults make up 17.2 percent of the 19.5 million people who live outside of these areas (compared to 13 percent in the total population).

A review of depression in late life reported prevalence estimates of major depressive disorder ranging from one to four percent; however, it was noted that eight to 16 percent of older adults living in the community experience clinically significant, life-limiting symptoms of depression (Blazer, 2003). In addition, older adults living in rural communities

are one of the greatest at-risk groups for experiencing mental health problems (Chalifoux *et al.*, 1996). Furthermore, suicide rates are higher in rural counties and rural-dwelling older adults' suicide rates increase as the rurality of their residence increases (Fiske *et al.*, 2006). It has been suggested that the increased risk for this group is due to a number of factors including the isolating effects of neighborhood stability, lack of community resources and health services, and decreased social support due to younger cohorts migrating to urban areas (Crowther *et al.* 2010).

Both psychological and somatic aspects of depression are important factors for clinical consideration among older adults. Notably, a recent meta-analysis found that the phenomenology of depression differs between younger and older adults, with the latter expressing a greater somatic presentation (Hegeman *et al.*, 2012). Furthermore, Drayer *et al* (2005) found that psychological symptoms of depression are more predictive of non-depression-symptom somatic complaints than were participants' medical comorbidities. These findings provide insight into the association of medical illness and depressive disorders in older adults and highlight the importance of somatic aspects of depression in this population.

There is currently a substantial evidence base for the psychotherapeutic treatment of depression in older adults. An evidenced-based review of psychological treatments for geriatric depression indicated that six treatments were efficacious: behavioral therapy, cognitive behavioral therapy (CBT), cognitive bibliotherapy, problem-solving therapy, brief psychodynamic therapy, and reminiscence therapy (Scogin *et al.*, 2005). Among these, CBT is the most extensively researched treatment for depression with older adults. The examination of the effects of evidence-based therapeutic intervention on both aspects is meaningful given the importance of both psychological and somatic symptoms of depression in older adults.

The PEARL (Project to Enhance Aged Rural Living) study was a randomized control trial assessing the efficacy of CBT in improving quality of life and reducing negative psychological symptoms among ethnically diverse, rural-dwelling, older adults (Scogin *et al.*, 2007). The therapy was based on the treatment manual of Thompson, Gallagher-Thompson, and Dick (Thompson *et al.*, 1995) and incorporated several of the recommendations noted above regarding provision of CBT to rural, older adults. Significant effects were seen on quality of life and psychological symptoms following treatment (Scogin *et al.*, 2007); the analyses reported in this initial report used only a summary score (GSI) from the SCL-90 to reflect overall psychological symptoms whereas the present secondary analysis will focus on the depression scale of the instrument.

The increasing number of older adults, the disproportionately high number of older adults who reside in rural areas, and the at-risk nature regarding the mental health of this group requires vigilance on the part of the mental health community to provide psychological services to this section of the population. To date, there is a paucity of research on the efficacy of home-based, manualized, CBT treatments on symptoms of depression among rural-dwelling older adults. The PEARL study data represent an opportunity to conduct a secondary examination of the effects of manualized CBT on symptoms of depression in a

unique group because the data were collected from a sample of ethnically-diverse older adults living in rural Alabama.

Depressive symptomology was assessed at pre- and post-treatment and was evaluated in comparison to a minimal support control (MSC) group. Depressive symptoms were also categorized as psychological or somatic to determine whether a specific pattern of improvement would be evidenced. The following hypotheses were tested:

1. Depression symptoms as measured by the SCL-90-R would improve significantly more from pretreatment to post-treatment for those receiving CBT relative to the MSC condition.
2. Psychological symptoms of depression would improve significantly more from pretreatment to post-treatment for those receiving CBT relative to the MSC condition.

We also examined the effect of CBT on somatic symptoms of depression. This was an exploratory research question.

METHODS

Participants and Recruitment

Inclusion criteria for participation were: (a) 65 years or older, (b) a T-score of 55 or below on the Quality of Life Inventory (QOLI; Frisch, 1992), (c) a T-score of greater than 45 on the Global Severity index (GSI) of the Symptoms Checklist-90-R using norms for non-patient adults and (d) residence outside of the cities of Tuscaloosa and Montgomery, Alabama. Fifteen participants residing in the city limits of Tuscaloosa and Montgomery were inadvertently randomized into the study because they otherwise met inclusion criteria and were recruited through existing referral mechanisms as were two participants 64 years of age. We decided to include these participants in analyses rather than exclude them to maintain the integrity of our random assignment. Exclusion criteria were: (a) a self-reported history of schizophrenia, bipolar disorder, or current substance abuse, (b) currently receiving psychotherapy, or (c) significant cognitive impairment as indicated by a score of 23 or less (16 or less for those with less than a ninth grade education) on the Mini-Mental Status Examination (MMSE; Folstein *et al.*, 1975).

Participants were recruited using several different methods. Older adults were recruited at public and private home health care agencies, senior centers, church organizations, hospitals with associated home health care groups, and service providers such as physicians and pharmacists. In addition, advertisements and feature stories were placed in local print media. These recruitment efforts emphasized that the study was designed to evaluate the effects of a program to improve quality of life among rural older adults. An acronym, PEARL (Project to Enhance Aged Rural Living), was used to encourage interest in the study.

Measures

Background Information—Information was obtained on age, sex, race, marital status, educational attainment, income, and subjective financial burden (see Table 1).

Outcome measures—The Symptoms Checklist-90-R (SCL-90-R; Derogatis *et al.*, 1976) Depression subscale is often used as an outcome measure in treatment studies for depression. The SCL-90-R comprises nine subscales: anxiety, depression, psychoticism, paranoid ideation, phobic anxiety, somatization, obsessive compulsivity, hostility and interpersonal sensitivity. The Hopkins Symptom Checklist-20 (HSCL-20; Derogatis *et al.*, 1974), derived from the SCL-90 includes the full 13-item depression subscale on the SCL-90-R plus seven additional items that represent DSM-IV-TR criteria for depression (see Table 2). This scale has been successful in detecting differences in depression severity change between treatment groups in a study of a home-based intervention targeting depression in older adults (Ciechanowski *et al.*, 2004).

Depression symptoms were further divided into those more somatic in nature and those more psychological in nature to explore whether the treatment had a differential effect in this sample of older adults. We were interested in this distinction because our participants were generally in poor health and evidencing multiple chronic health conditions. This categorization followed similar efforts undertaken with the Beck Depression Inventory (Steer *et al.*, 1999). The categorized symptoms are listed in Table 2.

Treatment delivery—Treatment delivery was assessed through reviews of audiotaped CBT sessions. An early (Session 2–8) and late (Session 9–16) session was randomly selected and reviewed by an independent team using the Cognitive Therapy Scale (Young and Beck, 1980). The CTS is an 11-item measure with two subscales. The General Therapeutic Skills subscale assesses areas such as therapist understanding, interpersonal effectiveness, and pacing of the session. The Specific Cognitive Therapy Skills subscale assesses areas such as focus on key cognitions and behaviors, application of cognitive-behavioral techniques, and quality of homework assigned. Each item is rated on a scale from 0–6, with 3 indicating satisfactory administration. The results of these reviews suggested that the CBT was delivered competently. The mean scores across therapists on the general skills subscale was 3.9 and the mean score on the specific skills was 3.7. There were no significant differences among the therapists on the CTS.

Procedure

Persons interested in participating were contacted by telephone and given a brief overview of the project. The Time 1 assessment included a detailed description of study procedures and participant informed consent, followed by gathering of demographic information and the SCL-90-R. For a more complete description of the procedures see the larger study from which this secondary analysis was derived (Scogin *et al.*, 2007).

Research assistants conducted standardized assessments in participants' homes. Measures were read to participants to minimize problems associated with low literacy and sensory limitations. Participants received a \$25 gift card for the completion of each assessment. All assessments were audio-taped and 20% were reviewed to ensure adherence to the assessment protocol.

Participants were randomized to CBT or the minimal support condition (MSC) following baseline assessment. The randomization process involved stratifying participants based on

two variables: site location (Tuscaloosa or Montgomery) and race (African-American or Caucasian). Among each of the four stratified groups, assignment to CBT or MSC was decided based on a random number table. Research assistants were blind to assignment at the time of baseline assessment.

Following randomization, participants in the CBT condition were assessed on the SCL-90-R at mid-treatment and immediately posttreatment (Time 2). The mid-treatment assessment served as an endpoint for those who received partial treatment. Those assigned to the MSC were assessed a second time at approximately three-months following randomization. Thus, the controlled comparison in this study was between the Time 1 and Time 2 assessments for the two conditions.

Treatment

The therapists were five licensed MSW clinical social workers (two African American and three Caucasian) without prior CBT experience. Training of the therapists was conducted by the first author and consultants over four sessions that included 12 hours of didactic instruction and 12 hours of experiential training. Feedback was provided during this training period until competency was achieved based on CTS scores above 3 on the 11 items with mock clients. Thereafter, weekly group supervision was conducted with the therapists.

CBT—Treatment followed the manual developed by Thompson, Gallagher-Thompson and Dick (Thompson *et al.*, 1995) for the delivery of CBT to older adults. The standard course of treatment was 16 sessions, with the opportunity to extend treatment to 20 sessions if needed. A participant was considered to have completed treatment after 16 sessions or when the therapist following consultation with the PI and participant determined it was appropriate to discontinue treatment and conduct a posttreatment assessment. Twice-weekly sessions were planned for the first month, with weekly sessions planned for the remainder of the treatment. Major components of the treatment included activity scheduling, identifying and changing unhelpful thoughts, relaxation, and assertiveness. The treatment protocol included modifications for use with vulnerable older adults such as providing in-session cue cards as memory aids, slowing down the pace of the therapy process, simplification of homework assignments, and the inclusion of a therapy facilitator where available. The average number of sessions attended by CBT participants was 11.7. The average time to complete treatment was 5.3 months. Of the 70 participants assigned to the CBT condition, seven did not have a first CBT session and 12 withdrew prior to receiving a posttreatment assessment. Of the 64 participants assigned to the MSC condition, 14 withdrew prior to receiving a posttreatment assessment. The overall attrition rate was 25% and for the CBT condition it was 27%.

Participants were asked to identify a family member or friend that could serve as a treatment facilitator. The only inclusion criterion for facilitators was an MMSE score of 24 or higher (or 16 or higher for those with up to an eighth grade education). Involvement of a facilitator was not a requirement for participation in the study as many of the participants could not identify someone to serve in this role but were otherwise eligible. Thirty-six percent of the participants involved a facilitator that completed at least a Time 1 assessment. For MSC participants, facilitators completed assessments only. For CBT participants, facilitators

engaged in a combination of individual and conjoint sessions. Four individual sessions with facilitators were planned within the first month of the participant's treatment. The first two sessions were on ways in which to facilitate the participant's attainment of CBT goals such as reminding them to complete unhelpful thought diaries or identify pleasant events. Sessions three and four were devoted to teaching facilitators general problem-solving skills that could be applied to the facilitation role. Additionally, the facilitators attended four conjoint sessions with the older adult participant in which he or she was made familiar with the specific treatment goals. These sessions were spaced as evenly as possible across the course of treatment. The average number of sessions attended by the 26 facilitators was 2.5 (range 0–8). We compared the response of participants who had a facilitator and those who did not on our major outcomes and found no differences and therefore do not consider this in subsequent analyses (Scogin *et al.*, 2009).

MSC—Participants in this condition received brief weekly telephone calls from project staff research assistants. These supportive contacts were made over the course of three months. These calls served both as a means to monitor participants for deteriorating mental health and as an incentive for continued participation in the project. CBT techniques were not administered during these calls. Typically these calls lasted no more than five minutes unless concerns were expressed by the participant. Research assistants were instructed to be supportive in such cases but to refrain from providing advice or introducing counseling techniques.

Data Analyses

All analyses used a critical alpha level of .05 for determining statistical significance; exact levels are reported unless they are less than .001. The characteristics of the experimental and control conditions at Time 1 were compared to establish that randomization was successful. All continuous variables were compared simultaneously with a multivariate analysis of variance and categorical variables were compared using chi-square techniques. There were no significant differences in these comparisons.

For participants that did not complete a Time 2 assessment, the last observation was carried forward to provide a full randomized sample analysis. Attrition was examined by dummy coding participants as completers (1) or dropouts (0) and assessing the associations between this measure and the outcome variables. The purpose of these analyses was to determine if degree of study completion was related to trends in response. There were no interactions of missing data patterns and the primary variable.

One-way between-groups analyses of covariance (ANCOVA) were conducted to compare depression scores on the HSCL-20 between the treatment and MSC groups following treatment. Participants' scores on the pre-treatment administration of the HSCL-20 were used as covariates in these analyses.

RESULTS

After adjusting for pre-treatment scores, it was found that estimated depression scores for the treatment group ($M = 12.35$) were significantly lower than scores for the control group

($M = 15.38$), $F(1, 131) = 4.9$, $p = .03$, $\eta^2 = .04$. This suggests that those who were assigned to the CBT condition were experiencing significantly lower depression severity at Time 2. See Table 3 for raw score means and standard deviations.

Psychological and somatic symptom components of depression were examined by group with ANCOVAs adjusting for pre-treatment scores. Psychological symptoms improved significantly more for the treatment group, ($F(1, 131) = 4.57$, $p = .03$, $\eta^2 = .03$). Somatic symptoms were not significantly improved for the treatment group relative to the MSC (although close), $F(1, 131) = 3.31$, $p = .07$, $\eta^2 = .03$.

DISCUSSION

This secondary analysis provides evidence that home-delivered CBT can have effects on depression symptoms in a vulnerable, diverse and rural sample of older adults. These participants were recruited for the study because of problems with QOL, above average psychological symptoms and health conditions but most also experienced significant depressive symptoms. Consistent with the findings for QOL and overall psychological symptoms, CBT participants evidenced reduced HSCL-20 scores. These findings extend the literature on CBT's efficacy to a difficult to reach sample of older adults.

Categorizing depressive symptoms into those more psychological and those more somatic revealed that CBT's effect was more pronounced on psychological symptoms. This may be explained by the generally poor health experienced by these participants; it could be that symptoms such as fatigue, sleep disturbance, and appetite change are largely related to co-occurring medical conditions such as congestive heart failure and chronic respiratory conditions. Symptoms such as guilt, feelings of worthlessness and worrying were probably more amenable to the CBT techniques that included addressing unhelpful thoughts and relaxation training.

A few limitations should be noted when considering these findings. First, participants were not recruited on the basis of depression status and the effects of this on the experience of the participants are unknown. Most participants did evidence significant depressive symptoms. Second, the nature of the control group, minimal support contact, does not allow us to unequivocally attribute the experimental group changes to the specific effects of CBT. A different type of control, perhaps a comparative treatment such as client-centered psychotherapy, would provide a clearer picture of the specific effects of CBT. Third, we do not have follow-up data on these individuals and it would be useful to know how durable these effects are in a vulnerable group of older adults such as those involved in this investigation. Fourth, although statistically significant, the changes in depressive symptoms did not produce effects that rendered most participants depression-free. This would be an unrealistic goal but our findings suggest there is probably room for more improvement for many participants.

Our results are consistent with other investigations of CBT for older adults (e.g., Ciechanowski *et al.*, 2004; Arean *et al.*, 2002) and bolster CBT's status as an evidence-based psychological treatment for depressed elders (Scogin *et al.*, 2012). Rural providers in

particular may enact CBT protocols with mobility-limited depressed older adults through home visits, if resources permit, or via telephone/internet as a next-best alternative. We also found with our lower health- and general literacy participants that focus on the behavioral aspects of CBT, that is engagement in rewarding activities, was often necessary but nonetheless efficacious. Finally, in this particular cohort, infusing elements of spirituality and religion into CBT content facilitated the therapeutic process.

The results of this study should encourage the consideration of CBT as a treatment for those who are among the most difficult to engage in treatment: older adults in rural environments with limited access to specialized services. Home-delivered CBT, while apparently effective, is an expensive intervention. Other means of delivery, including telehealth, should be explored for effectiveness.

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Table 1

Pretreatment Sample Characteristics (N = 134)

Variable	<i>M ± SD or N (%)</i>
Age	75.4 ± 7.1
Sex	
Female	111 (82.8)
Male	23 (17.2)
Race/ethnicity	
African-American/Black	77 (57.5)
Caucasian/White	57 (42.5)
Years of education	
0–8	49 (36.6)
9–11	33 (24.6)
12	29 (21.6)
13–16	20 (14.9)
17–20	3 (2.2)
Income	
\$0 – \$4999	3 (2.2)
\$5000 – \$9999	59 (44.0)
\$10000 – \$14999	25 (18.7)
\$15000 – \$19999	9 (6.7)
\$20000 – \$49999	11 (8.2)
\$50000 – \$70000>	3 (2.2)
Income Adequacy	
Not difficult	14 (10.4)
Not very difficult	17 (12.7)
Somewhat difficult	50 (37.3)
Very difficult	49 (36.6)
Marital status	
Never married	8 (6.0)
Married	27 (20.1)
Widowed	78 (58.2)
Divorced	12 (9.0)
Separated	8 (6.0)
Self-reported level of health	
Poor	46 (34.3)
Fair	60 (44.8)
Good	18 (13.4)
Very good	6 (4.5)
Excellent	2 (1.5)
Comorbidity	3.05 (1.3)
MMSE	24.9 ± 3.5

Note. Table includes 134 randomized participants who completed baseline. Missing data for participants in the following categories: income (24), income adequacy (4), marital status (1), self-reported level of health (2), comorbidity (7). Comorbidity is the number of reported chronic health conditions from a list of seven. MMSE = Mini-Mental State Examination.

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Table 2

Items of the HSCL-20 Categorized as Psychological or Somatic

Psychological	Somatic
Feelings of being trapped or caught	Poor appetite
Worrying too much about things	Trouble falling asleep
Feeling hopeless about the future	Overeating
Feeling lonely	Awakening early in the morning
Thoughts of ending your life	Sleep that is restless or disturbed
Crying easily	Feeling low in energy or slowed down
Blaming yourself for things	Loss of sexual interest or pleasure
Feeling blue	
Feeling no interest in things	
Feeling everything is an effort	
Feelings of worthlessness	
Feelings of guilt	
Thoughts of death or dying	

Note. HSCL-20 = Hopkins Symptom Checklist 20.

Table 3

Outcome Measures at Time 1 and Time 2 by Condition

Measure	Time	<i>M ± SD</i>	
		CBT Treatment Group	Minimal Support Control Group
HSCL-20	Time 1	16.54 ± 11.55	18.48 ± 10.46
	Time 2	11.73 ± 9.14	16.06 ± 12.32
Psychological Symptoms	Time 1	10.20 ± 8.09	11.25 ± 7.60
	Time 2	7.03 ± 6.50	9.80 ± 8.67
Somatic Symptoms	Time 1	6.34 ± 4.85	7.23 ± 4.37
	Time 2	4.70 ± 4.05	6.27 ± 4.49

Note. HSCL-20 = Hopkins Symptom Checklist-20