Comparison of the Effectiveness of Cognitive Behavioral Therapy for Depression among Older Versus Younger Veterans: Results of a National Evaluation

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Objectives. The effectiveness of cognitive behavioral therapy for depression (CBT-D) among older adults in routine clinical settings has received limited attention. The current article examines and compares outcomes of older versus younger veterans receiving CBT-D nationally.

Method. Patient outcomes were assessed using the Beck Depression Inventory–II and World Health Organization Quality of Life-BREF. Therapeutic alliance was assessed using the Working Alliance Inventory-Short Revised.

Results. A total of 764 veterans aged 18–64 and 100 veterans aged 65+ received CBT-D; 68.0% of older and 68.3% of younger patients completed all sessions or finished early due to symptom relief, and mean depression scores declined from 27.0 (standard deviation [SD] = 10.7) to 16.2 (SD = 12.4) in the older group and from 29.1 (SD = 11.2) to 17.8 (SD = 13.5) in the younger group. Within-group effect sizes were d = 1.01 for both groups. Significant increases in quality of life and therapeutic alliance were observed for both groups.

Discussion. CBT-D resulted in significant improvements in depression and quality of life among older patients. Outcomes and rate of attrition were equivalent to younger patients. Findings indicate that CBT-D is an effective and acceptable treatment for older veterans in real-world settings with often high levels of depression.

Key Words: Cognitive behavioral therapy—Department of Veterans Affairs—Depression—Geriatrics—Older adults—Veterans.

INTRODUCTION

Under treatment of depression and other mental illnesses among older adults is a major public health concern and is on course to become an even greater societal concern in the years ahead due to the projected increase in the older adult population (U.S. Department of Health and Human Services, 1999). Untreated depression in older adults is associated with poorer quality of life (Doraiswamy, Khan, Donahue, & Richard, 2002; Karlin & Fuller, 2007), significantly increased mortality (Cuipers & Schoevers, 2004), increased suicide rate (Conwell, 1995; Conwell, Olsen, Caine, & Flannery, 1991), exacerbation of and/or delay in recovery from medical illness, and considerable economic, social, family, and overall societal costs (Karlin & Fuller, 2007; Katon, Lin, Russo, & Unutzer, 2003; Moussavi et al., 2007). Contributing to the significant undertreatment of depression and other mental health conditions is the fact, for decades, older adults have been found to utilize mental health services at very low rates, rates substantially lower than those documented for younger individuals (Byers, Arean, & Yaffe, 2012; Karlin, Duffy, & Gleaves, 2008; Karlin & Norris, 2006).

Among specific patient and provider barriers associated with the limited utilization and delivery of mental health services (and psychological services, in particular) among older individuals is the belief among health care providers and older adults alike that depression and other mental health conditions are natural concomitants of the aging process and that mental health treatments, particularly psychotherapy, are less effective for older than younger adults (Alvidrez & Areán, 2002; Karlin & Duffy, 2004). This belief may limit older adults from seeking and health care providers from referring older patients for psychotherapy and other specialty mental health services (Alvidrez & Areán, 2002; Koenig, 2007). In fact, primary care providers have been shown to be significantly less likely to refer their older than their younger patients for specialty mental health care (Koenig, 2007; Tai-Seale, McGuire, Colenda, Rosen, & Cook, 2007). Moreover,
limited confidence in mental health treatment for older adults may contribute to limited interest among mental health professionals to work with older clients and in turn to the major shortage in geriatric mental health professionals (Institute of Medicine, 2012; Jeste et al., 1999; Lee, Volans, & Gregory, 2003).

Over the past several decades, research has identified several pharmacological and psychotherapeutic treatments to be efficacious for older adults. Specifically, randomized controlled trials (RCTs) have indicated that cognitive behavioral therapy (CBT), a structured, time-limited, present-focused approach to psychotherapy that helps patients learn and apply specific strategies to modify unhelpful cognitions and behaviors that are associated with depression (Beck, Rush, Shaw, & Emery, 1979), is an efficacious treatment for late-life depression (e.g., Laidlaw, 2001; Laidlaw et al., 2008; Scogin, Welsh, Hanson, Stump, & Coates, 2005; Thompson, Gallagher, & Breckenridge, 1987). One comparative outcome study of older adults found that the combination of CBT and medication was more efficacious in reducing depressive symptoms than medications alone (Thompson, Coon, Gallagher-Thompson, Sommer, & Koin, 2001). Furthermore, CBT may yield better outcomes with older adults when certain adjustments are made to the therapy process that account for age-related changes, including slowing of pace, lengthening of therapy, using multiple modalities for teaching cognitive and behavioral skills, and simplifying of therapy terms (Karlin, 2011; Knight, 1996; Thompson, Davies, Gallagher, & Krantz, 1986).

A handful of meta-analyses of RCTs have further supported the findings that CBT is an efficacious treatment for reducing depression in older patients (Areán & Cook, 2002; Cuijpers, van Straten, & Smit, 2006; Mackin & Areán, 2005; Pinquart, Duberstein, & Lyness, 2007; Scogin & McElreath, 1994; Wilson, Mottram & Vassilas, 2008). Effect size estimates of these studies have indicated a moderate to large effect of CBT for depression with elders. For instance, a meta-analysis of nine controlled studies conducted by Cuijpers and colleagues (2006) found that CBT had an overall effect size of 0.70 (95% confidence interval of 0.48–0.92).

A much larger body of research has demonstrated CBT to be efficacious in treating depression in younger samples (e.g., DeRubeis et al., 2005; Elkin et al., 1989; Tang, DeRubeis, Beberman, & Pham, 2005). CBT has also been shown to generally be as efficacious as psychotropic medications for depression with adults in the short term (DeRubeis, Gelfand, Tang, & Simons, 1999) and often more efficacious than medications in the long term (for a review, see DeRubeis, Siegle, & Hollon, 2008; Hollon, Stewart, & Strunk, 2006).

Notwithstanding the empirical evidence suggesting CBT to be an efficacious treatment for depression in older adults, available data are primarily from controlled research studies with relatively healthy older individuals and involved the delivery of the therapy by highly trained therapists, many of whom have significant background or expertise in geropsychology or aging issues. There is a dearth of data on the effectiveness of CBT for depression with older adults presenting for treatment in routine, real-world clinical settings and delivered by nonexpert CBT therapists, and on the extent to which older patients who initiate CBT remain in treatment. There are also limited data on the impact of CBT on outcomes beyond depression symptoms, such as quality of life. In addition, there is an even greater paucity of research directly comparing the effects of CBT (initially established primarily with younger individuals) with older versus younger adults.

In an effort to promote the availability and accessibility of CBT for depression for older and younger veterans, the Veterans Health Administration (VHA), which operates the largest integrated health care system in the nation, has implemented a national CBT-D dissemination and implementation initiative, as part of a series of large-scale evidence-based psychotherapy dissemination and implementation initiatives (Karlin & Cross, 2013). This initiative includes a national training program that provides competency-based training in CBT for depression to core VHA mental health providers who treat veteran patients with depression (Karlin et al., 2012). The training program includes specific training on adapting CBT for depression with older veterans, and the therapy manual and other program materials include cases and vignettes related to the application of CBT-D with older veterans.

The purpose of the present article is to examine and compare the effectiveness of CBT for depression with older (age 65 and older) versus younger (age 18–64) veterans in routine clinical settings throughout the VA health care system. Specifically, the article examines the impact of CBT-D delivered by therapists receiving competency-based training in the VA CBT for Depression Training Program on both depression and quality of life in older and younger age groups, based on national program evaluation data. This article also examines the quality and strength of the therapeutic alliance with older and younger patients over the course of treatment. In addition, the article evaluates the effect of therapeutic alliance on changes in depression severity during CBT-D treatment among older versus younger patients. To our knowledge, this article is among the first to compare changes in depression and quality of life and to examine the therapeutic alliance in both younger and older adults and to do so using a large, diverse national sample of veterans. The current article also seeks to examine the extent to which older veterans receiving CBT-D remain in therapy and whether there are age group differences in retention.
METHOD

Program Description

CBT-D treatment protocol and training program description.—The CBT-D treatment protocol was developed specifically for veterans and military servicemembers and is intended to be administered in approximately 12–16 individual psychotherapy sessions. Briefly, the protocol focuses on (a) developing an individualized CBT case conceptualization to identify specific cognitive and behavioral strategies that best meet the patient’s goals, (b) developing a strong therapeutic alliance, (c) structuring sessions to encourage adherence to the CBT treatment model, and (d) teaching patients specific CBT skills. The protocol and training methods have been described in detail elsewhere (Karlin et al., 2012).

The training program is designed around a CBT for depression protocol and manual that has been adapted specifically for veterans and military servicemembers (see Wenzel, Brown, & Karlin, 2011). The training is intended for VA mental health staff (psychologists, psychiatrists, clinical social workers, advanced practice nurses with specialty training and background in mental health, licensed professional counselors, and marriage and family therapists) and consists of two core components. The first component is participation in a 3-day workshop that emphasizes both CBT theory, as well as specific core CBT-D strategies. The workshop involves listening to didactic presentations, viewing video CBT recordings of expert CBT therapists, practicing skills using role-plays in small groups, and rating of other therapists implementing the CBT-D protocol followed by group discussion. The workshop includes specific content on adapting CBT for older veterans. Didactic content focuses on common issues that are observed when treating this population, such as socializing older adults into treatment using a collaborative model, slowing the pace of the session, presenting information using multiple modalities, providing and eliciting more summaries, and involving family members, as appropriate. The workshop also focuses on adapting behavioral strategies for older veterans with physical limitations, including adapting activity scheduling to include identification of activities that brought past pleasure and meaning and adapting these themes to the patient’s current life circumstances and abilities, as well as simplifying cognitive restructuring strategies. Demonstration role-plays of CBT with older veterans, specifically, are also presented during the workshop. (For further information on adapting CBT for older adults, see Gallagher-Thompson, Steffen, & Thompson, 2007; Karlin, 2011).

Following the workshop, all training participants participate in weekly, 90-min telephone-based consultation sessions in small groups of four consultees led by an expert CBT-D training consultant. The training consultation phase lasts 6 months. Therapist competence and adherence is carefully assessed during training consultation using the Cognitive Therapy Rating Scale (CTRS; Young & Beck, 1980), the gold-standard therapist rating scale for CBT. Additional information related to therapist competence and adherence, as well as other training outcomes, are reported elsewhere (Karlin et al., 2012). Each consultee recruited at least 1–2 patients who are seeking treatment for depression. Any veteran is eligible to participate so long as they are diagnosed with depression, were not in acute crisis, and were able to participate in psychotherapy. Therapists participating in the CBT-D Training Program recruited veterans seen in or referred to their current practice setting (e.g., typically general or specialty mental health settings). Patients with comorbid mental health and/or medical conditions were permitted so long as the depression was the primary focus for seeking treatment. All patients provided consent for participation and for the use of audiotape sessions during consultation.

CBT-D training materials.—A comprehensive, stand-alone therapist manual, Cognitive Behavioral Therapy for Depression in Veterans and Military Servicemembers: Therapist Manual (Wenzel et al., 2011), was provided to the training participants that explains in detail the theoretical and applied components of the protocol. Several fictitious cases were included throughout the manual representing composites of depressed veterans and military servicemembers that have been derived from the authors’ clinical experience. One of these cases in the manual was an older adult to illustrate the application of CBT with this population. A corresponding therapist training video (U.S. Department of Veterans Affairs, 2010) has also been developed that includes therapist-patient scenes, didactic instructions, and commentaries that illustrate how to deliver core components of CBT for depression in older and younger veterans and military servicemembers by an expert CBT-D therapist. Several other books specifically written for developing CBT skills (Beck, 1996; Greenberger & Padesky, 1995; Wright, Basco, & Thase, 2006) were also provided to therapists when they enrolled in the training program.

Participants

There were 864 patients treated for depression with CBT by 471 therapists in the CBT-D Training Program. Therapists came from a total of 237 practice sites throughout all states in the United States and all 21 Veterans Integrated Service Networks (VISN), or regions, of the VA health care system. There were generally 1–2 therapists trained at each site. Of the 864 patients, 207 (24%) were women, 656 (76%) were men, and one (<1%) did not indicate gender. Of the 864 patients, 100 (12%) were ≥65 years of age and 764 (88%) were <65 years of age. Mean age of the total sample was approximately 51 years (SD = 13.0) and ranged from 21 to 91 years. The mean age for younger and older patients
was 48 (SD = 11.2) and 71 (SD = 6.6) years, respectively. In response to a question on race, 672 (78%) identified themselves as Caucasian/White, 120 (14%) identified themselves as African American/Black, 38 (4%) identified themselves as Asian, American Indian, Alaskan Native, Pacific Islander, or other race/ethnicity, 26 (3%) self-identified as multiracial, and 8 (1%) did not indicate race/ethnicity. In response to the question, “Do you consider yourself to be Hispanic/Latino?” 804 (93%) answered “no,” 46 (5%) answered “yes,” and 14 (2%) did not answer.

Among patients who answered specific demographic questions, the older cohort was significantly \( \chi^2 (1) = 17.9, p < .001 \) more likely to be male (93% vs. 74%), significantly \( \chi^2 (1) = 4.17, p < .041 \) more likely to be non-Hispanic (99% vs. 94%), and significantly \( \chi^2 (2) = 11.6, p = .003 \) more likely to have a high-school-level education or less (30% vs. 21%) than the younger cohort. There was a trend that a greater proportion of older patients identified themselves as White/Caucasian (86%) compared with younger patients (78%), but this difference was not significant \( \chi^2 (1) = 3.77, p = .052 \). The demographic characteristics of patients by age group are presented in Table 1.

### Measures

**Depression.**—The Beck Depression Inventory-II (BDI-II; Beck, Steer, & Brown, 1996; Beck, Steer, & Garbin, 1988) was used to assess the severity of depression. The BDI-II is a self-report, 21-item measure, with items scored on a 0–3 scale to reflect the absence or severity of symptoms. The BDI-II total score ranges from 0 to 63, with higher scores indicating greater depression severity. Cutoffs for minimal, mild, moderate, and severe symptoms of depression are 0–13, 14–19, 20–28, and 29–63, respectively (Beck, 1996). The BDI-II has been used extensively in research and clinical contexts and has been shown to be a valid and reliable measure of depression in both younger adults (Beck et al., 1988) and older adults (Segal, Coolidge, Cahill, & O’Riley, 2008). The BDI-II was administered by therapists before or at the beginning of each therapy session.

**Quality of life.**—The World Health Organization Quality of Life-BREF (WHOQOL-BREF) was used to assess quality of life. The WHOQOL-BREF is an abbreviated 26-item, self-report version of the WHOQOL-100 scale. The WHOQOL-BREF consists of four subscales that measure the following major quality of life domains: physical, psychological, social relationships, and environment. Research studies have indicated that the WHOQOL-BREF has good test–retest reliability, content validity, as well as discriminate validity (Skevington, Sartorius & Amir, 2004; World Health Organization, 1993). The WHOQOL-BREF has been shown to have good psychometric properties with older adults (von Steinbüchel, Lischetzke, Gunny, & Eid, 2006). The WHOQOL was administered during the 1st session, 7th session (approximately the midpoint of treatment), and the final session (at or following the 10th session).

**Therapeutic alliance.**—The Working Alliance Inventory-Short Revised (WAI-SR; Hatcher & Gillaspy, 2006) was used to measure the strength of the therapeutic alliance. The WAI-SR is a 12-item, client-rated measure of the therapeutic alliance that has been abbreviated from the 36-item Working alliance Inventory (Horvath & Greenberg, 1989). The WAI-SR consists of three subscales that measure the following three aspects of the therapeutic alliance: goals (agreement on the goals of therapy), tasks (agreement on the agenda of therapy), and bond (the development of a relational bond between client and therapist). Research studies have indicated that the WAI-SR has good psychometric properties in a variety of settings (Munder, Wilmers, Leonhart, Linster, & Barth, 2010; Perdrix, Roten, Kolly, & Rossier, 2010). The WAI-SR was administered after sessions 1, 3, 7, and 11.

### Program Evaluation Procedures

Therapists delivering CBT-D to veterans provided the following information to the CBT-D Training Program Evaluation Team: demographic form, release of information and consent to audiotape forms, data from the program evaluation measures, and data on the total number of completed therapy sessions for each patient, as well as reasons, if any, for failure to complete the CBT-D protocol (e.g., 10 or more sessions). Each therapist participating in the training program was assigned a unique ID by program staff, and each patient was assigned a code number by the therapist. Information linking the identity of specific patients with the information that was collected for program evaluation purposes was not provided to the Program Evaluation

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**Table 1. Demographic Information by Age Group**

<table>
<thead>
<tr>
<th>Demographic variable</th>
<th>Age &lt; 65 (n = 764)</th>
<th>Age ≥ 65 (n = 100)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
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<tr>
<td>Male</td>
<td>73.7% (n = 563)</td>
<td>93.0% (n = 93)</td>
</tr>
<tr>
<td>Female</td>
<td>26.2% (n = 200)</td>
<td>7.0% (n = 7)</td>
</tr>
<tr>
<td>Race</td>
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<td></td>
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<tr>
<td>White/Caucasian</td>
<td>76.7% (n = 586)</td>
<td>86.0% (n = 86)</td>
</tr>
<tr>
<td>African American/Black</td>
<td>14.8% (n = 113)</td>
<td>7.0% (n = 7)</td>
</tr>
<tr>
<td>American Indian/Alaskan Native</td>
<td>1.1% (n = 9)</td>
<td>1.0% (n = 1)</td>
</tr>
<tr>
<td>Asian</td>
<td>1.0% (n = 8)</td>
<td>0.0% (n = 0)</td>
</tr>
<tr>
<td>Pacific Islander</td>
<td>0.5% (n = 4)</td>
<td>0.0% (n = 0)</td>
</tr>
<tr>
<td>Other</td>
<td>2.0% (n = 15)</td>
<td>1.0% (n = 1)</td>
</tr>
<tr>
<td>Multiracial</td>
<td>2.7% (n = 21)</td>
<td>5.0% (n = 5)</td>
</tr>
<tr>
<td>Hispanic/Latino ethnicity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not Hispanic/Latino</td>
<td>92.5% (n = 707)</td>
<td>97.0% (n = 97)</td>
</tr>
<tr>
<td>Hispanic/Latino</td>
<td>5.9% (n = 45)</td>
<td>1.0% (n = 1)</td>
</tr>
<tr>
<td>Education</td>
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<tr>
<td>High school or less</td>
<td>21.1% (n = 161)</td>
<td>30.0% (n = 30)</td>
</tr>
<tr>
<td>Some college</td>
<td>51.6% (n = 394)</td>
<td>34.0% (n = 34)</td>
</tr>
<tr>
<td>College graduate</td>
<td>26.3% (n = 201)</td>
<td>36.0% (n = 36)</td>
</tr>
</tbody>
</table>
**EFFECTIVENESS OF CBT WITH OLDER VERSUS YOUNGER VETERANS**

Team. The Institutional Review Board (IRB) at Stanford University determined that this program did not qualify as human research and was exempt from further IRB review.

**Statistical Analyses**

Differences in categorical demographic variables between older (age ≥ 65) and younger (age 18–64) patient groups were assessed for significance using chi-square tests. Differences were assessed in depression status at baseline (using an independent samples t-test) and in demographic variables (using chi-square tests), and between patients who did and those who did not complete CBT-D treatment. Differences in the same set of baseline variables were also assessed between patients who provided WAI-SR data at one or more time points and those who did not. Cronbach’s alpha on the WAI-SR was calculated for both older and younger patients.

All patient data were included in intention-to-treat (ITT) mixed-effects model (Raudenbush & Bryk, 2002) analysis of change in depression symptom severity. Mixed-effects models were specified to account for the data structure of assessment points nested within individual patients and patients nested within individual therapists. The effects of gender, education level, minority race, and Hispanic ethnicity on baseline depression severity and effects of these variables on change in symptom severity during treatment were also assessed using mixed-effects models, controlling for age group. A mixed-effects model was then specified including all of these demographic variables to control for differences in the older versus younger patient age cohorts to estimate the fully adjusted effect of older age (≥65) on change in depression severity during treatment. The effects of missing demographic variable data were accounted for by creating dummy variables for “missing,” which were compared against the reference category along with other comparison categories, for each corresponding demographic variable. In addition, baseline to final session changes in outcome measures among patients who completed CBT-D were also calculated, along with 95% confidence intervals around mean changes, and calculation of Cohen’s d effect sizes. Also, mixed-effects models were specified to estimate the main effects of average WAI-SR total score and average subscale scores on change in BDI-II scores during CBT-D treatment. In these mixed-effects models, interaction effects were also specified for age (older versus younger) by each WAI-SR score. Total WAI-SR score and each of three subscale scores were tested separately, before and after adjusting for other demographic variables.

**RESULTS**

**Patients**

Of the 864 patients, 545 (63%) completed 10 or more CBT sessions, 45 (5%) finished early due to symptom relief, 177 (20%) dropped out of therapy prior to completion, 30 (3%) were lost to follow-up because their therapist dropped out of training, 39 (5%) were unable to attend regularly, 17 (2%) were lost to follow-up for unknown reasons, 2 (>1%) died prior to completion of therapy, and 8 (1%) were not lost to follow-up but did not provide BDI-II scores during the later phase of treatment. For the entire sample, 68.3% of the younger patients and 68.0% of the older patients completed all sessions or finished early due to symptom relief (see Table 2); 20% of the younger patients and 20.1% of the older patients dropped out of therapy. There were no significant differences in baseline levels of depression or in demographic variables between those who completed CBT-D treatment and those who did not. There were also no significant differences in these variables between patients who provided WAI-SR data and those who did not.

**Patient Outcomes**

ITT analysis using mixed-effects regression model estimation resulted in a decrease in BDI-II score from 29.2 at baseline to 17.9 at final assessment $[t(470) = -22.3, p < .001]$ among younger patients. The random effect for baseline patient BDI-II score variance attributable to therapist was not statistically significant and was therefore removed from the model. Older patients had a significantly lower estimated average baseline BDI-II score of 26.3 [mean difference = −2.9; $t(862) = 2.64, p = .009$]. Older patients had an estimated final assessment average BDI-II score of 16.3, indicating a trivial 1.3 point smaller $t(862) = 0.95, p = .34$ decrease in BDI-II scores during treatment. Overall, these mixed-model effect estimates indicate that both age groups achieved a very similar (39% among younger patients and 38% among older patients) average decrease in BDI-II scores from baseline to final assessment. There were no

| Table 2. Reasons for Patient Attrition and Missing Data by Age Group |
|-------------------|------------------|------------------|
| Patient status    | Age < 65 (n = 764) | Age ≥ 65 (n = 100) |
| Completed CBT course | 62.8% (n = 480) | 65.0% (n = 65) |
| Finished early due to symptom relief | 5.5% (n = 42) | 3.0% (n = 3) |
| Dropped out of therapy | 20.5% (n = 157) | 20.0% (n = 20) |
| Therapist dropped out of consultation | 3.4% (n = 26) | 4.0% (n = 4) |
| Died prior to completion of therapy | 0.3% (n = 2) | 0.0% (n = 0) |
| Lost to follow-up for unknown reason | 1.8% (n = 14) | 3.0% (n = 3) |
| Unable to attend sessions regularly | 4.6% (n = 35) | 4.0% (n = 4) |
| Therapist extended consultation (no final BDI-II score) | 0.9% (n = 7) | 1.0% (n = 1) |
| Patient did not provide final BDI-II but completed other measures | 0.1% (n = 1) | 0.0% (n = 0) |

**Note.** BDI-II = Beck Depression Inventory, Second Edition; CBT = cognitive behavioral therapy.
significant differences in baseline BDI-II score by gender, education level, race, or ethnicity. These demographic variables were not associated with significant differences in change in BDI-II score during treatment. The fully adjusted mixed-effects model controlling for all of these demographic variables indicates that older patients (≥65), on average, had baseline BDI-II scores that were −2.97 points lower than younger patients’ baseline scores \( t(854) = -2.61, p = .01 \). The fully adjusted model estimates that older patients’ achieved a reduction in BDI-II scores during treatment that was, on average, 1.06 points lesser than the reduction achieved by younger patients, which was not a significant difference \( t(854) = 0.74, p = .46 \).

For younger patients who completed \( (n = 522) \) treatment (10 or more sessions, or fewer sessions due to achieving symptom relief), there was a reduction in BDI-II scores from 29.1 \( (SD = 11.2) \) at baseline to 17.8 \( (SD = 13.5) \) at final assessment \( t(521) = -22.4, p < .001, d = 1.01 \), a 39% average decline in BDI-II scores. For older patients who completed treatment \( (n = 68) \), there was a reduction in mean BDI-II scores from 27.0 \( (SD = 10.7) \) at baseline to 16.2 \( (SD = 12.4) \) at final assessment \( t(67) = -7.61, p < .001, d = 1.01 \), a 40% average decline in BDI-II scores.

Descriptive data on baseline versus final assessment scores on the BDI-II and on the WHOQOL, physical, psychological, social, and environmental quality of life subscales, and WHOQOL total scores for patients who completed treatment in each age group are displayed in Table 3. WAI-SR total scores and Goal, Task, and Bond therapeutic alliance subscale scores from the end of session 1 versus the final assessment are also displayed in Table 3. For younger patients, Cronbach’s alpha for WAI-SR total scores, and Goal, Task, and Bond subscale scores, respectively, were 0.92, and 0.86, 0.82, and 0.82. For older patients, Cronbach’s alpha for WAI-SR total scores, and Goal, Task, and Bond subscales, respectively, were 0.91, and 0.83, 0.82, and 0.85. All baseline to final assessment changes in WAI-SR and WHOQOL total and subscale scores were statistically significant \( p < .05 \), with the exception of physical quality of life for older patients.

Average WAI-SR total and all subscale scores were significantly associated with reductions in BDI-II scores during CBT-D treatment for older and younger patients. The magnitude of these associations was significantly greater among older patients for WAI-SR total score and for the Goal subscale score, and marginally significantly greater among older patients for the Bond subscale (see Table 4). The effects of WAI-SR total and subscale scores (tested separately) were essentially identical before and after controlling for demographic variables.

**Discussion**

The goal of this evaluation was to examine depression and quality of life outcomes among older versus younger patients who completed CBT-D treatment for depression. The fully adjusted model estimates that older patients (≥65), on average, had baseline BDI-II scores that were −2.97 points lower than younger patients’ baseline scores \( t(854) = -2.61, p = .01 \). The fully adjusted model estimates that older patients’ achieved a reduction in BDI-II scores during treatment that was, on average, 1.06 points lesser than the reduction achieved by younger patients, which was not a significant difference \( t(854) = 0.74, p = .46 \).

For younger patients who completed \( (n = 522) \) treatment (10 or more sessions, or fewer sessions due to achieving symptom relief), there was a reduction in BDI-II scores from 29.1 \( (SD = 11.2) \) at baseline to 17.8 \( (SD = 13.5) \) at final assessment \( t(521) = -22.4, p < .001, d = 1.01 \), a 39% average decline in BDI-II scores. For older patients who completed treatment \( (n = 68) \), there was a reduction in mean BDI-II scores from 27.0 \( (SD = 10.7) \) at baseline to 16.2 \( (SD = 12.4) \) at final assessment \( t(67) = -7.61, p < .001, d = 1.01 \), a 40% average decline in BDI-II scores.

Descriptive data on baseline versus final assessment scores on the BDI-II and on the WHOQOL, physical, psychological, social, and environmental quality of life subscales, and WHOQOL total scores for patients who completed treatment in each age group are displayed in Table 3. WAI-SR total scores and Goal, Task, and Bond therapeutic alliance subscale scores from the end of session 1 versus the final assessment are also displayed in Table 3. For younger patients, Cronbach’s alpha for WAI-SR total scores, and Goal, Task, and Bond subscale scores, respectively, were 0.92, and 0.86, 0.82, and 0.82. For older patients, Cronbach’s alpha for WAI-SR total scores, and Goal, Task, and Bond subscales, respectively, were 0.91, and 0.83, 0.82, and 0.85. All baseline to final assessment changes in WAI-SR and WHOQOL total and subscale scores were statistically significant \( p < .05 \), with the exception of physical quality of life for older patients.

Average WAI-SR total and all subscale scores were significantly associated with reductions in BDI-II scores during CBT-D treatment for older and younger patients. The magnitude of these associations was significantly greater among older patients for WAI-SR total score and for the Goal subscale score, and marginally significantly greater among older patients for the Bond subscale (see Table 4). The effects of WAI-SR total and subscale scores (tested separately) were essentially identical before and after controlling for demographic variables.
Table 4. Fixed Effects of WAI-SR Total and Subscale Scores on Change in BDI-II Scores During CBT-D Treatment

<table>
<thead>
<tr>
<th>WAI-SR domain score</th>
<th>Effect (standard error)</th>
<th>t-score (p value)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model: Goal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intercept</td>
<td>−11.1 (0.5)</td>
<td>−22.05 (&lt;.001)</td>
</tr>
<tr>
<td>Age ≥ 65</td>
<td>1.2 (1.4)</td>
<td>0.88 (.381)</td>
</tr>
<tr>
<td>Goal</td>
<td>−3.3 (0.9)</td>
<td>−3.87 (&lt;.001)</td>
</tr>
<tr>
<td>Age × Goal</td>
<td>−4.9 (2.2)</td>
<td>−2.29 (.023)</td>
</tr>
<tr>
<td>Model: Task</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intercept</td>
<td>11.0 (0.5)</td>
<td>−21.98 (&lt;.001)</td>
</tr>
<tr>
<td>Age ≥ 65</td>
<td>0.9 (1.4)</td>
<td>0.65 (.515)</td>
</tr>
<tr>
<td>Task</td>
<td>−4.2 (0.7)</td>
<td>−5.76 (&lt;.001)</td>
</tr>
<tr>
<td>Age × Task</td>
<td>−2.1 (1.8)</td>
<td>−1.14 (.256)</td>
</tr>
<tr>
<td>Model: WAI-SR Total</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intercept</td>
<td>−11.2 (0.5)</td>
<td>−22.06 (&lt;.001)</td>
</tr>
<tr>
<td>Age ≥ 65</td>
<td>0.5 (1.4)</td>
<td>0.33 (.742)</td>
</tr>
<tr>
<td>WAI-SR Total</td>
<td>−2.4 (0.8)</td>
<td>−3.00 (.003)</td>
</tr>
<tr>
<td>Age × WAI-SR Total</td>
<td>−3.5 (2.0)</td>
<td>−1.75 (.081)</td>
</tr>
</tbody>
</table>

Notes. BDI-II = Beck Depression Inventory, Second Edition; CBT-D = cognitive behavioral therapy for depression; WAI-SR = Working Alliance Inventory-Short Revised.

WAI-SR total scores and subscale scores were the average score obtained at sessions 1, 3, 7, and 11. The metric used for WAI-SR score effect estimation was average item score on the scale from 1.0 to 5.0. WAI-SR total and subscale scores were centered on the sample means. Effects are adjusted for gender, education level, race, and ethnicity.

Younger veterans receiving CBT from therapists participating in a competency-based training program as part of a national VA CBT-D dissemination and implementation initiative. To our knowledge, this article represents one of the only evaluations to compare the effectiveness of CBT-D between older and younger adults in real-world settings across a large number of sites. The current findings reveal significant and equivalent reductions in depressive symptoms for older and younger individuals. For both groups, there was an average overall reduction of close to 40% in BDI-II scores from early phase to later phase of treatment and an identical effect size of 1.01, which compares favorably to effect sizes reported in RCTs of CBT with older (e.g., Cuijpers et al., 2006; Pinquart et al., 2007) and younger adults (e.g., Cuijpers, Smit, Bohlmeijer, Hollon, & Andersson, 2010). In addition, we found CBT-D to yield significant improvements in overall quality of life for both groups. Overall, these results suggest that CBT-D is equally effective for older and younger patients.

The present findings are particularly noteworthy given that veterans seeking treatment for depression in VHA typically have high levels of depression, as reflected by baseline BDI-II scores that were close to the severe range, and have complex conditions frequently characterized by multiple medical and mental health comorbidities. Unlike RCTs, these results reflect results from routine clinical settings with greater external validity and lack of specific exclusionary criteria.

Furthermore, observed scores on the WAI-SR were quite high and increased over time for all three alliance domains and in both age groups. Two of the WAI-SR subscales (Goal and Task) focus on agreement between the therapist and the patient on the goals and tasks of therapy. The high (and increasing) scores on these domains suggest that the CBT approach was well accepted by both older and younger patients.

It is particularly noteworthy that the therapeutic alliance was found to be associated with depression outcomes among both younger and older patients and that the magnitude of the association between alliance and depression outcomes was greater for older than for younger patients. Although previous research has demonstrated a positive association between the therapeutic alliance and outcomes (Horvath & Bedi, 2002; Horvath, Del Re, Flückiger, & Symonds, 2011; Krupnick et al., 1996), there has been very limited empirical examination of this relationship among older adults, with inconclusive findings (Hyer, Kramer & Sohlene, 2004; Marmar, Gaston, Gallagher, & Thompson, 1989). Of note, the current findings are consistent with clinical reports and theoretical conjecture of the important role of the therapeutic alliance in older adults given more common experiences of loss, reduced social resources, and/or social isolation in later life; further, older adults are generally less accustomed to CBT or psychotherapy, in general, and therefore may begin therapy with less firmly rooted goals for or attachment to therapy (Hyer et al., 2004; Karlin, 2011; Scogin, 1999). Consequently, the current findings add important knowledge to the psychotherapy treatment literature, suggesting that the therapeutic alliance is, indeed, a critical contextual variable in CBT and warrants particular clinical attention with older adults.

Moreover, the fact that the rate of dropout was relatively low and virtually identical between older and younger age groups further suggests that CBT was met with similar levels of acceptability between older and younger patients and provides additional support to a handful of studies that have indicated that newer cohorts of older adults have more positive attitudes toward psychotherapy (Gum et al., 2006; Landreville, Landry, Baillargeon, Guerette, & Matteau, 2002). Approximately 20% of both older and younger patients dropped out of therapy. The dropout rate would be 27% for both age groups if dropout were to include patients lost to follow-up and patients who did not attend sessions regularly or in time to finish data collection. This rate is virtually identical to the mean dropout rate found by Cuijpers (1998) in his review of six RCTs of CBT for late-life depression. The low dropout rate is especially significant in light of decades of research that has found older adults to substantially underutilize mental health services (e.g., Byers et al., 2012; Karlin et al., 2008). The current results suggest that when CBT (and perhaps other mental...
health services) are financially and physically accessible, as is the case with veterans enrolled in the VA health care system, older adults may be more inclined to utilize such services (Karlin & Norris, 2006).

The foregoing results have significant implications in relation to major policy developments that provide unprecedented opportunities for increased access to psychotherapy services, such as CBT, for older adults. For many years, since the inception of the Medicare program, Medicare has reimbursed outpatient psychotherapy and other psychological services at the rate of 50% while reimbursing general ambulatory medical services at the rate of 80% (Karlin & Duffy, 2004; Karlin & Humphreys, 2007). This 50% coinsurance requirement for Medicare beneficiaries who do not have supplemental insurance (the overwhelming majority of older adults) has served as a significant financial barrier to psychological services for those in the graying years. In 2009, after many years of advocacy by stakeholder and professional mental health organizations, Congress passed the Medicare Improvements for Patients and Providers Act, which eliminates Medicare’s 50% coinsurance requirement for psychological services through a phased reduction. The reduction will be fully phased in by 2014, at which time Medicare coverage of outpatient psychological services will be equivalent to the coverage for general ambulatory medical services. Accordingly, the results of the current evaluation suggest significant opportunities for effectively treating older adults who may present for treatment of depression and other mental health conditions in greater numbers and important need for qualified mental health professionals to treat older patients (Institute of Medicine, 2012).

Despite the important strengths of the current evaluation, including the large number of highly depressed patients treated in routine clinical settings at multiple locations across the nation, there are limitations that must be considered when interpreting the findings. First, given that this consisted of a real-world effectiveness evaluation, there was no control group, which limits the ultimate conclusions one may make regarding the effectiveness of the treatment. However, the observed effect sizes are comparable with those reported in RCTs; moreover, the large number of patients included in the evaluation and real-world design increases the generalizability of the findings relative to those of RCTs. Second, data on the veterans’ comorbid medical and mental health conditions, concurrent treatment, medication use, and disability status, all of which can impact outcomes, were not available. Third, although veterans were, as a whole, very much improved at the end of therapy, they were, on average, experiencing notable depressive symptoms in the mild range of the BDI-II at final evaluation. Although this is not uncommon following depression treatment, it is important to note given that residual symptoms are risk factors for future depressive episodes and further points to the potential value of booster sessions, as incorporated into this CBT-D protocol (Spadone & Corruble, 2010). Fourth, in comparing the two cohorts, the older cohort was found to be significantly more likely to be male, non-Hispanic, and less educated than the younger sample, reflecting the changing demographics in the veteran population; however, in the current sample, outcome was not predicted by baseline demographic variables. Moreover, the level of effectiveness is particularly encouraging in a sample that included a relatively large number of individuals with educational background of high-school education or less, further reflecting the real-world nature of this sample. Fifth, the current sample of older patients included only seven females; therefore, the current results may not generalize to older women. Sixth, patients included in the current sample were primarily from outpatient mental health settings; accordingly, the findings may not generalize to older (and younger) individuals in inpatient and long-term care (e.g., nursing home) settings. There is significant need for research on the effectiveness of CBT and other mental health treatments with older individuals in these settings. Lastly, it is important to note the relatively small percentage of older patients in the current sample, which is consistent with findings of underutilization of mental health services by older adults over the past several decades. It is possible that the older patients in the current sample were more able or motivated to participate in psychotherapy than the older patient population at large.

Overall, the current results suggest that CBT is an effective—and based on the high completion rates and high scores on the WAI-SR—well-accepted treatment for older veterans with depression. The wide availability of this effective and well-accepted therapy for older patients might help reduce the large gap between older individuals who would benefit from, but have not received, treatment for depression. It is hoped that the current results will encourage older adults to seek treatment, as well as encourage mental health practitioners to provide and primary care practitioners to refer for CBT with older patients.

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References

EFFECTIVENESS OF CBT WITH OLDER VERSUS YOUNGER VETERANS


