

## Telephone Administered Cognitive-behavioral Therapy for the Treatment of Depression in a Rural Primary Care Clinic

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*The purpose of this study was to pilot a telephonically delivered cognitive-behavioral therapy to treat moderate to severe depression in patients from rural primary care settings where specialized mental health care is scarce. The goal was to obtain preliminary evidence of safety and efficacy. Depression is treated principally in primary care, however the outcomes are poor. Outcomes for depression in rural primary care settings are worse than in urban settings in part due to lack of access to specialized mental health care. This study examined the potential utility and safety of telephone-administered Cognitive-Behavior Therapy (T-CBT) for the treatment of depression in a rural primary care setting. Eight patients from a rural primary care clinic with significant depression were enrolled in 8 weeks of T-CBT administered by trained psychologists. Patients showed significant improvements in diagnostic status, as well as reductions in depression based the Beck Depression Inventory-II and the Hamilton Rating Scale for Depression, and there were no adverse events or problems with patient safety.*

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**KEY WORDS:** mood disorders; unipolar; cognitive therapy; tele-mental health; psychotherapy.

The purpose of this study was to examine the feasibility, safety, and potential utility of delivering cognitive behavioral therapy (T-CBT) by telephone for the treatment of moderate to severe depression in patients from rural primary care settings where specialized mental health care is scarce. The goal was to obtain preliminary evidence of safety and efficacy. The one-year prevalence rate of depressive disorders is between 5–10% (Kessler et al., 2003). The vast majority of depressed patients are treated in primary care, where up to 20% of patients have depressive disorders (Katon & Schulberg, 1992). The course of depression in primary care is poor, with most patients showing little improvement over 1–2 years (Wagner et al., 2000; Wells, Burnam, Rogers, Hays, & Camp, 1992). While it has been suggested

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that the poor outcomes for depression in primary care are due to the failure of PCPs to identify patients with depression (Lecrubier, 2001), a growing body of empirical literature has consistently shown that screening for depression and informing PCPs of screening results do not improve outcomes (Callahan et al., 1994; Dowrick & Buchan, 1995; Whooley, Stone, & Soghikian, 2000; Williams et al., 1999).

As many as two-thirds of depressed primary care patients would prefer psychotherapy or counseling over antidepressant medication (Brody, Khaliq, & Thompson, 1997; Churchill et al., 2000; Dwight-Johnson, Sherbourne, Liao, & Wells, 2000; Priest, Vize, Roberts, Roberts, & Tylee, 1996). However, most patients referred to psychotherapy never follow-up on and many of those who do come for a first session drop out soon thereafter (Weddington, 1983). Numerous barriers to care may reduce access, including problems related to transportation problems, child care, lack of time, distance from services and/or a lack of available services (Alvidrez & Azocar, 1999; Hollon et al., 2002). Barriers are far worse in rural areas, where three-quarters of rural PCPs report problems in making referrals due to absence of available services, long appointment waiting times, and/or services being located too far away from the patient (Geller, 1999; Hartley, Korsen, Bird, & Agger, 1998; Little et al., 1998; Rost, Humphrey, & Kelleher, 1994). In an observational study of 435 rurally residing individuals with depression, no successful referrals were found over the course of a year (Fortney, Rost, & Zhang, 1998). Two-thirds of the patients with major depressive disorder continued to meet diagnostic criteria at the end of the year (Rost et al., 1998).

Telephone-administered counseling is being used increasingly by Health Maintenance Organizations (HMOs) and commercial vendors. Offering counseling or psychotherapy over the telephone has the potential to extend the accessibility of these services to patients in rural communities. A growing literature supports the efficacy of telephone-administered psychotherapy to improve outcomes in primary care and extend treatment to medical populations with barriers to treatment (Mohr et al., 2005; Mohr et al., 2000; Simon, Ludman, Tutty, Operskalski, & Von Korff, 2004). However, perhaps the greatest barrier to psychotherapy is residence in a rural community where mental health care is usually scarce to non-existent (Yuen, Gerdes, & Gonzales, 1996). This is the first study to examine telephone-administered psychotherapy to treat depression among patients in rural areas.

## METHODS

### Participants

Participants were recruited from a rural Veterans Administration (VA) Community Based Outpatient Clinic (CBOC) in Northern California. Patients were identified by providers as in need of mental health treatment for depression, but were unable to access care either due to geographic distance from their residence to the CBOC or because care was not currently available. Additional inclusion criteria were: (1) a score of 16 or greater on the Beck Depression Inventory-II (BDI-II) (Beck, Steer, & Brown, 1996), (2) had at least one chronic medical

illness, (3) absence of psychopathology for which telephone therapy might be contraindicated (e.g., current substance abuse, thought disorder, bipolar disorder, current post-traumatic stress disorder, current active suicidality (suicide ideation + plan + intent) assessed using the Structured Clinical Interview for the DSM-IV (SCID) (First, Spitzer, Gibbon, & Williams, 1995), (4) at least 18 years of age, and (5) ability to speak and read English.

### **Procedure**

Interested patients were verbally consented over the phone using a structured consent process and were mailed a written consent form and self-report measures, which were returned by post. Consented patients meeting criteria were entered into the study. Post-treatment assessment was conducted within 3 days of treatment completion.

### **Assessment**

All assessments were conducted by telephone pre- and post-treatment, except for the neuropsychological assessment, which was conducted only at baseline.

The SCID (First et al., 1995) modules for affective disorders, PTSD, substance abuse, and a screen for psychosis were administered by telephone. SCID administration by telephone is highly correlated with face-to-face administration (Simon, Revicki, & VonKorff, 1993).

The Beck Depression Inventory-II (BDI-II) (Beck et al., 1996) was mailed to patients with a stamped return envelope at baseline and a few days before the post-treatment assessment. Patients were asked to complete the BDI on the same day as the post-treatment telephone interview.

Depression was also assessed using a version of the Hamilton Rating Scale for Depression (HRSD) designed and validated for telephone administration (Potts, Daniels, Burnam, & Wells, 1990). The clinical evaluators maintained intraclass correlations greater than .91.

A brief telephone-administered neuropsychological assessment was conducted to screen for dementia. This consisted of Symbol Digit Modalities Test, the California Verbal Learning Test, Digit Span, and the Controlled Oral Word Association Test (Sprenn & Strauss, 1998). Patients who scored lower than the 5th percentile on two out of the four tests were determined to have cognitive impairments that would contraindicate T-CBT and were therefore excluded.

Use of antidepressant medication was obtained by patient self-report and verified through the computerized patient records system.

### **Telephone Cognitive-Behavioral Therapy (T-CBT)**

T-CBT teaches standard CBT techniques, including behavioral activation, cognitive restructuring, (Beck, 1995). There are also modules that teach patients pacing activities, time management, planning and organization, including increasing pleasant events, assertiveness and anger management training, and increasing intimacy,

which can be selected depending on the patient's needs. Patients were assigned to eight weekly 50-min. sessions.

Adaptation to the telephone is relatively simple. Therapists are trained to pay greater attention to voice quality as a non-verbal indicator of mood, since visual cues are absent. When the patient is silent, the therapist assess for increasing anxiety with a question such as "Since I can't see you, it is hard for me to tell what is going on for you right now. Is the silence useful in letting you think about what we have been talking about, or is it making you uncomfortable?" A patient workbook is also used to support education about depression and CBT theory and procedures, to facilitate communication, and to serve as a reminder between sessions of topics covered and homework (Mohr et al., 2000).

### **Therapists**

The therapists were three PhD level psychologists with prior training and experience in administering T-CBT. The three therapists were supervised weekly by a skilled CBT therapist, who also listened to randomly selected tapes over the course of each treatment.

### **Safety**

Safety was monitored by (1) asking therapists weekly about suicidality and (2) monitoring suicidality at post-treatment on the BDI and HRSD. Safety plans included contacting the patient's primary care physician and calling local police to perform a safety check or to hospitalize the patient.

### **Data Analysis**

Data were analyzed using dependent *t*-tests and ANOVAs.

## **RESULTS**

### **Patient Characteristics**

Of the 15 people screened, 1 was excluded because he did not reach depression criteria, 5 were excluded due to cognitive impairment, and 1 decided not to participate. The eight enrolled patients were Caucasian male veterans with a mean age of 56.75 years ( $SD = 10.1$ ). We note that our difficulty obtaining minority subjects was likely due to the rural region from which we recruited, which is populated largely by Caucasians. Four participants were currently taking an antidepressant medication and four were not. All patients also had at least one co-morbid chronic medical condition, including hepatitis C, diabetes, cancer, asthma, chronic pain, amputated limb, etc.

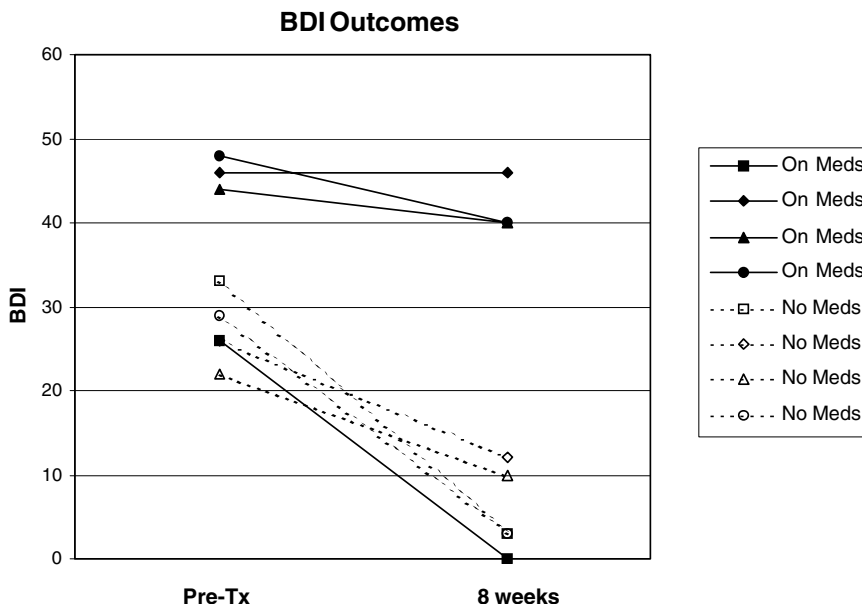


Fig. 1. Individual patient outcomes for the Beck Depression Inventory (BDI).

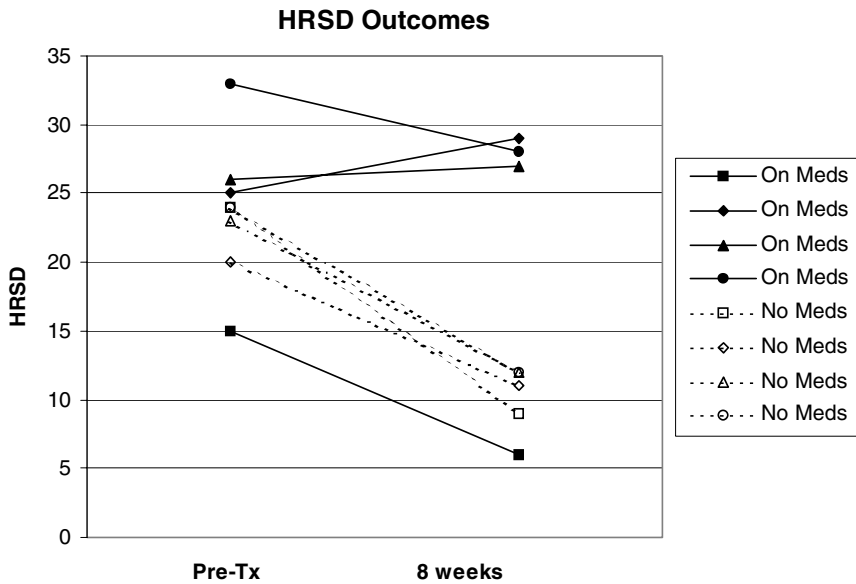
### Outcome

Figures 1 and 2 show the BDI and HRSD for each patient. As a group, the patients showed a significant reduction on the BDI-II, from a pre-treatment mean of 34.25 ( $SD = 10.26$ ) to a post-treatment mean of 19.25 ( $SD = 19.32$ ),  $t(7) = 3.80$ ,  $p = .007$ . Similarly, there were significant reductions on the HRSD, from a pre-treatment mean of 23.75 ( $SD = 5.12$ ) to a post-treatment mean of 16.75 ( $SD = 9.52$ ),  $t(7) = 3.01$ ,  $p = .02$ .

There was a significant interaction by medication, on the HRSD.  $F(1,6) = 8.91$ ,  $p = .02$  but not the BDI ( $p = .18$ ). Patients not on antidepressant medications showed decreases on the HRSD from 22.8 ( $SD = 1.89$ ) at baseline to 11.0 ( $SD = 1.41$ ) at post-treatment. In contrast, patients on medications showed little change, with a pre-treatment HRSD of 24.8 ( $SD = 7.41$ ) and post-treatment HRSD of 22.5 ( $SD = 11.03$ ).

The large standard deviations at baseline for the patients receiving medications suggests this is not a homogeneous group. Visual inspection of the figures suggests that the poor outcomes are related to depression severity, with patients with a BDI above 40 and an HRSD of 25 or more are less likely to do well. A post-hoc analysis found patients who were below these cutoffs at baseline did significantly better than the patients above the cutoff on both the BDI,  $F(1,6) = 11.97$ ,  $p = .02$  and the HRSD,  $F(1,6) = 21.13$ ,  $p = .004$ .

At baseline, four patients met criteria for major depressive disorder (MDD) and four were in partial remission. There was a significant improvement in



**Fig. 2.** Individual patient outcomes for the Hamilton Rating Scale for Depression (HRSD).

diagnostic status at post-treatment, as three patients had full remissions, three had partial remissions, and two patients still met MDD criteria (Wilcoxon signed rank test for repeated measures  $Z = -2.24, p = .03$ ).

There were no adverse events during the treatment. No patients became actively suicidal, and, as such, we did not employ any of the emergency safety measures.

## DISCUSSION

This study found significant reductions in depressive symptoms in a sample of eight severely depressed rural patients with co-morbid medical illnesses treated with 8 weeks of T-CBT. This extends previous similar findings among patients with mild depression (Lynch et al., 1997; Miller & Weissman, 2002; Mohr et al., 2000) to a more severely depressed sample of patients. In addition to significant symptoms of depression, these patients also had a number of characteristics associated with a poorer prognosis, including presence of a chronic co-morbid medical illness, veteran status, and previous history of psychiatric diagnosis (Hays, Wells, Sherbourne, Rogers, & Spritzer, 1995; Hedrick et al., 2003). Furthermore, these patients lived in very rural areas. Most patients required several hours of driving to reach the nearest primary care clinic, and one patient, who did not have a car, reported that a clinic visit required one day of hitchhiking, and an overnight stay in town. There were no adverse events or emergencies, suggesting that T-CBT may be safe, in spite of the geographic distances between provider and patient.

While we did not collect formal data on satisfaction, patients did receive a brief exit interview evaluating satisfaction and asking for suggestions for improvement. While several patients commented that they were initially skeptical of the telephone administration, all expressed considerable satisfaction with the use of the telephone. Several patients commented that the treatment was not long enough. Therapists also mentioned that they were initially skeptical of the telephone administration, but found that they were quickly able to form a therapeutic bond with the patients and were generally satisfied with this method of treatment delivery.

While anecdotal evidence suggested some satisfaction with the telephone delivery, the data indicated that many patients did not obtain full symptom relieve. Furthermore, those who were severely depressed (e.g., BDI > 40) showed no improvement in treatment. Those who did not improve were also taking antidepressant medications, suggesting physician and patient attempts to treat the depression. We note that pharmacy records indicated that the dosages of the antidepressants did not meet accepted criteria as adequate (Simon et al., 1995). This failure of an 8-session treatment model to produce improvement in more severely depressed patients is consistent with data on brief face-to-face treatments offered to veterans (Hedrick et al., 2003). We believe that longer treatment may result in more substantial and more consistent improvements.

There are several methodological weaknesses in the present study that should be considered in interpreting these data. Because there is no control group, the possibility that these improvements reflect the natural history of depression and not related to the treatment cannot be ruled out. Small sample sizes are potentially unstable, leaving open the possibility that these findings are idiosyncratic to this sample. The study was conducted with Caucasian male veterans and therefore cannot be generalized to other ethnic groups or to women. As such, these findings should not be used as an indication that T-CBT is effective. However, the safety and efficacy of T-CBT in this sample is sufficient to support more rigorous testing. A validated model of T-CBT for depression could prove to be a useful tool in reducing barriers to care (Hollon et al., 2002), and extending treatment to patients in rural communities without adequate mental health care.

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