

Telehealth Videoconferencing Psychotherapy in Rural Primary Care

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The effectiveness of telehealth videoconferencing psychotherapy (TVCP) for a rural sample obtaining services through a primary care setting in Texas was examined by combining single-case and group research methods. Patients were assessed periodically over the course of treatment with the Clinical Outcomes in Routine Evaluation – Short Form B (CORE-B), Patient Health Questionnaire – 9 (PHQ-9), and SF-12 health survey. Group analyses included paired-samples *t* tests of pre- and posttreatment mean scores for all outcome variables. Reliable improvement (Improved) and clinically significant change (Recovered) were assessed for all patients on the CORE-B scales and the PHQ-9. Results of 4 single-case analyses were compared with group results to uncover clinical insights. TVCP produced statistically significant results on all mental health outcomes for the sample despite reductions in perceived physical health quality. Single-case analyses of 4 female patients provided a more differentiated representation of treatment response and context for group results. Comparison of single-case and group results suggested treatment response was dependent upon type and severity of diagnoses, severity of physical health issues, and situational context. Clinical and methodological conclusions of the study are discussed with implications for science and practice.

Keywords: primary care, psychotherapy, rural, single-case, telehealth

Rural populations face significant barriers to obtaining much needed mental health treatment (Gamm, Stone, & Pittman, 2010; Smalley et al., 2010). In addition to barriers such as transportation issues, high poverty rates, minimal insurance coverage, and poor health, there are also issues that vary from state to state such as the level of funding for mental health programs and the ratio of mental health professionals to the population. A national study found that 66.8% of primary care physicians were unable to refer their patients to mental health specialists—a lack of mental health providers was cited as one of the primary reasons (Cunningham, 2009). To focus on Texas, where the current study took place, recent data show that of the 50 states,

Texas ranks 48th on mental health expenditures (Kaiser Family Foundation, 2014) and it typically has one of the worst proportions of population to mental health professionals, which results in a high number of mental health professional shortage areas (MHPSAs; Trust for America's Health, 2015). In 2014 there were a number of differences between the number of mental health workers in metropolitan versus nonmetropolitan areas; with most mental health providers found in metropolitan areas, not in rural areas where they are most needed (Texas Department of State Health Services, 2015).

Rural populations are challenged with seeking and accepting mental health treatment because of cultural stigma and fear of decreased anonymity (Health Resources and Services Administration, 2005; Smalley et al., 2010). Together, barriers to availability, accessibility, and acceptability of mental health treatment contribute to a state of poor mental health for many rural residents (Gamm et al., 2010). In one study, approximately 34% to 41% of rural patients seen in primary care had a mental health disorder (Sears, Evans, & Kuper, 2003). Several studies have reported that the prevalence of mental health problems such as depression, sub-

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stance abuse, domestic violence, incest, child abuse, and suicide are serious risks to individuals in rural areas that often occur at equal or higher rates than in urban residents (Eberhardt & Pamuk, 2004).

Fortunately, behavioral telehealth services, such as telehealth videoconferencing psychotherapy (TVCP), appear to be viable modes of quality mental health care delivery to rural settings (Backhaus et al., 2012; Griffiths, Blignault, & Yellowlees, 2006; McCord et al., 2011; Reese, Conoley, & Brossart, 2006; Richardson, Frueh, Grubaugh, Egede, & Elhai, 2009; Schopp, Demiris, & Glueckauf, 2006) that have received strong federal support (President's New Freedom Commission on Mental Health, 2003; Wasem & Puskin, 2000). There also is recognition that mental health disparities for rural residents could be reduced by integrating behavioral health services into primary care settings (National Association of State Medicaid Directors, 2008; Smalley et al., 2010). Presumably, as the value and utility of behavioral telehealth services is accepted by mental health providers, such services may become more readily integrated into rural primary care settings and offer a solution to the barriers of availability, accessibility, and acceptability that limit mental health treatment for rural populations.

With the growing provision of behavioral telehealth across the country, there is an increased need to evaluate the effectiveness of this service modality for rural residents in primary care settings (Richardson et al., 2009). Empirical evaluation of behavioral telehealth and TVCP is still early in its development (Backhaus et al., 2012). Initially, behavioral telehealth research focused on patient and provider satisfaction (e.g., Reese et al., 2006) as well as differences in the therapeutic alliance between these technological approaches and face-to-face psychotherapy (Reese, Conoley, & Brossart, 2002; Richardson et al., 2009). However, a review of TVCP funded by the National Institutes of Health concluded that currently there are few studies that focus on rural samples (Richardson et al., 2009). The need for further research into the effectiveness of TVCP is evident and important for promoting the value of this technological modality to meet the mental health care needs of rural residents.

Although current research on using various technologies to deliver psychological treatments to rural patients is limited, most studies report such therapy to be positively received by patients and to perform as well as face-to-face therapy. For example, a pilot study examining psychotherapy for depression with rural HIV-infected patients reported those receiving teletherapy had greater decreases on their depression scores than the control group which did not receive teletherapy, although participants in both conditions were able to access medical and mental health services commonly available to persons living with HIV disease (Ransom et al., 2008). In addition, 23% of those that received teletherapy had clinically meaningful change whereas only 9% of those in the control group had similar levels of change. Another study providing cognitive-behavioral therapy (CBT) for rural Latinos found that those randomly assigned to receive CBT reported greater reductions in depressive symptoms than those receiving "enhanced usual care" (Dwight-Johnson et al., 2011, p. 940).

Other studies have examined satisfaction with therapy along with symptom reduction, such as the investigation of 21 rural survivors of domestic violence and sexual assault (Gray et al., 2015). The patients reported statistically significant reductions in posttraumatic stress symptoms and depressive symptoms along with high levels of satisfaction with their therapy delivered via videoconferencing technology. Openshaw and colleagues (2012) also examined satisfaction with therapy and found that their sample of 17 rural women reported high levels of perceived empathy after therapy as well as high levels of satisfaction with their therapy. Thus, most studies with rural patients typically report beneficial treatment effects as well as high levels of satisfaction with treatment delivered via distance technologies. However, research with large samples is currently lacking and increased methodological variety would be beneficial for future research.

There are a few meta-analyses that examine telehealth applications for mental health issues. For instance, a study on posttraumatic stress-related symptoms reported that when telehealth interventions were compared with a wait-list condition the mean effect size was large and significant ($d = 1.01, p < .05$), but when telehealth treatment was compared with a face-to-

face treatment the results suggested that telehealth interventions were less effective than face-to-face treatment (Sloan, Gallagher, Feinstein, Lee, & Pruneau, 2011). When pre- to posttreatment posttraumatic stress symptoms were examined, the results suggested that there was usually a large reduction in posttraumatic stress disorder symptoms, but the authors also noted there was a lot of variability between studies. When depression symptoms were examined the results were similar except that the telehealth interventions appeared to be as effective as face-to-face treatment.

Another meta-analysis on pain management found that telehealth approaches produced successful pain management, but the authors mentioned that there were few studies with high levels of control and the level of pain intensity was typically only reduced by a small amount (McGeary, McGeary, Gatchel, Allison, & Hersh, 2013). Another meta-analysis examined the differences in the efficacy of telehealth psychotherapy versus non telehealth approaches for depression (Osenbach, O'Brien, Mishkind, & Smolenski, 2013). Overall there was no evidence suggesting that real-time psychotherapy over telecommunication technologies was less effective than nontelehealth psychotherapy.

In evaluating the effectiveness of TVCP, it is important that "multiple types of research evidence" be used to exhibit treatment efficacy, effectiveness, and clinical utility of psychological treatments with findings that are generalizable (APA Presidential Task Force on Evidence-Based Practice, 2006, p. 274). The large majority of TVCP research conducted to date has been group research (Backhaus et al., 2012). The advantage of group research is that large numbers of participants allow for high levels of power to find a statistically significant average effect for a treatment's effectiveness (Cohen, 1988), and if strong designs such as randomized clinical trials are used, they can establish causal relationships as well (Tucker & Reed, 2008).

The results of group research on treatment effectiveness represent the average response to treatment, or stated another way, the results portray how an "average" patient would respond to the treatment under study. The average patient typically is not representative of those presenting for care in everyday clinical practice (Barlow, Nock, & Hersen, 2009). Researchers have noted that the overreliance on large group

studies becomes especially problematic when it is not clear how the results apply to individual patients (Goldfried & Wolfe, 1998). This disconnect between group research findings and their practical application to a particular patient historically has been a point of distaste and debate for clinicians and academics that has contributed to the scientist-practitioner divide in the field of psychology (Barlow & Nock, 2009; Goldfried & Wolfe, 1998).

Researchers have noted the limitations of large group research and have sought ways to address those shortcomings. For example, Barlow and Nock (2009) ask psychotherapy researchers whether "Rather than simply critiquing nomothetic methodologies, can we enrich these methodologies with a complementary focus on the individual?" (p. 20). They advocated for supplementing group designs with single-case experimental (SCE) studies. SCE studies have been recognized as an important methodological tool that can be used to promulgate the effectiveness of psychotherapy (APA Presidential Task Force on Evidence-Based Practice, 2006) and as a design that is useful for studying technology-based behavioral health interventions (Dallery, Cassidy, & Raiff, 2013). This design has a strong appeal to clinicians and is methodologically sound (Barlow et al., 2009).

There are multiple benefits to combining quantitative SCE designs with group comparison designs. By combining group and single-case research methods, one has multiple angles from which to view the results. The idiographic methods may explain the particulars of individual phenomena, whereas the nomothetic methods are focused on finding the "generalities that are common to a class of particulars and deriving theories or laws to account for these generalities" (Robinson, 2011, p. 32). This complementary approach could lead to "a more differentiated explanation of findings and extrapolation of their implications for application to and dissemination in practice" (Dattilio, Edwards, & Fishman, 2010, p. 431).

Researchers have argued that this blending of single-case and group is an efficient way to communicate psychotherapy outcome results to both scientists and practitioners simultaneously (Barlow & Nock, 2009; Dattilio et al., 2010). The goal of this blended approach is that there will be (a) a more comprehensive and reliable portrayal of treatment results, (b) balance be-

tween internal and external validity, and (c) enhanced communication between scientists and practitioners about treatment efficacy and its clinical utility (APA Presidential Task Force on Evidence-Based Practice, 2006). As a more comprehensive and multidimensional evidence base is produced, communication between scientists and practitioners should improve empirically based practice.

Purpose of the Study

This study presents findings from an ongoing assessment of psychotherapeutic outcomes of a rural sample receiving TVCP through a primary care setting in the Brazos Valley of Texas. The purpose of this study was (a) to assess the effectiveness of TVCP on a variety of psychological and physical health indicators when delivered to a rural sample obtaining mental health treatment through a primary care clinic in Central Texas, and (b) to illustrate the benefits of analyzing single cases in combination with group analyses as a multidimensional evaluation of psychotherapeutic outcomes that may appeal to researchers and clinicians alike.

Method

Context

Texas has one of the largest rural populations in the country, and it is the state with the greatest proportion of counties designated as MHPSA (Health Resources and Services Administration Data Warehouse, 2014; Trust for America's Health, 2015). The Brazos Valley community health survey conducted in 2010 indicated that the rates of those with depressive symptoms matching either "other depressive syndrome" or a "major depressive syndrome" were 10.4% for Whites, 24.6% for Blacks, and 12.9% for Hispanics (Brossart et al., 2013). Such findings highlight the high need for mental health services within MHPSAs.

Participants

All patients received behavioral telehealth services free of cost. According to standard clinic procedures, all patients are first evaluated by a physician before being referred for behavioral telehealth treatment. As a result, 93% of

the sample was treated with psychotropic medications in addition to behavioral telehealth services.

The sample consisted of 52 patients (women = 40, men = 12) receiving health care services from a primary care facility in a rural town in the Brazos Valley (Texas). Eleven patients (women = six, men = five) dropped out of treatment after only one or two sessions and were therefore excluded from the study. The remaining 41 patients who attended three or more sessions were included in the study. Patients attended a mean of 11.10 sessions ($Mdn = 9$, $SD = 7.89$), with a range of 3 to 40 sessions for the entire sample. Table 1 presents the demographic information for the sample of 41 patients.

We used the What Works Clearinghouse (WWC) proposed standards for SCE studies to select individuals who had enough data to be analyzed as single-cases (Kratonchwill et al., 2010). Four patients met the requirements for inclusion. Specifically, the WWC selection criteria require that patients had a minimum of three baseline and five intervention data points per phase on the Clinical Outcomes in Routine Evaluation – Short Form B (CORE-B) measure.

All four patients analyzed by single-case methods were Caucasian women who reported being unemployed. Two women reported they received social security disability benefits, one woman was a student, and the other woman was a stay-at-home mother. The mean age for these four female patients was 37.8 years ($SD = 9.6$). Three of the four women were diagnosed with a severe clinical mood disorder along with another psychological disorder and/or physical pain. All three women diagnosed with a severe clinical mood disorder also reported a history of trauma (i.e., sexual and/or physical abuse) and were taking psychotropic medications. The other woman analyzed by single-case methods was diagnosed with an Adjustment Disorder with mixed anxiety and depression, but also reported physical pain and was taking medication for her pain symptoms. These four patients participated in a mean of 14.75 ($Mdn = 14$, $SD = 1.7$) sessions of TVCP.

Treatment

Two master's-level practitioners (one male, one female) provided weekly TVCP (both had

Table 1
Demographics of Patients Receiving Treatment

Patient characteristics	Women (<i>n</i> = 34)	Men (<i>n</i> = 7)	Total (<i>N</i> = 41)
Age			
<i>M</i>	41.12	40.57	41.02
<i>SD</i>	12.87	12.88	12.71
Range	14–57	15–55	14–57
Ethnicity			
Caucasian	29 (70.50%)	6 (14.50%)	35 (85%)
African-American	2 (5%)	0	2 (5%)
Latino	2 (5%)	0	2 (5%)
Asian	0	1 (2.50%)	1 (2.50%)
Biracial	1 (2.50%)	0	1 (2.50%)
Employment status			
Employed	3	0	3 (7.30%)
Unemployed	18	5	23 (56.10%)
Disabled (SSI and/or SSDI)	9	1	10 (24.40%)
Students	4	1	5 (12.20%)
Diagnoses (i.e. comorbidity)			
Depressive disorder	28	6	34
Posttraumatic stress disorder	8	1	9
Panic disorder	9	1	10
Anxiety disorder	7	1	8
Bipolar disorder	2	0	2
Schizophrenia	0	2	2
Bereavement	5	3	8
ADHD	0	3	3
Pain ^a	9	2	11
Comorbidity	24 (60%)	6 (15%)	30 (75%)
Taking psychotropic medications	32 (78%)	6 (15%)	38 (93%)
Sessions			
<i>M</i>	11.18	10.14	11.10
<i>SD</i>	8.21	5.79	7.79
Range	3–40	3–17	3–40

Note. *M* = mean; *SD* = standard deviation; SSI = social security insurance disability benefits; ADHD = attention-deficit/hyperactivity disorder.

^a Pain was not diagnosed as a psychological disorder, but was a presenting concern causing significant psychological distress.

three years of counseling experience). Both were enrolled in a counseling psychology doctoral program under the supervision of a licensed psychologist. The treatment intervention was considered “treatment-as-usual” because treatment fidelity was not evaluated. Theoretical orientations and techniques included cognitive-behavioral, existential-humanistic, biopsychosocial, and psychodynamic-interpersonal. Each intervention was tailored to the individual patient’s needs depending on the practitioner’s theoretical style and patient diagnosis. Patients were diagnosed by their therapist (after their third session) and a treatment plan was established based on the patient’s goals, presenting concerns, and diagnoses.

Outcome Measures

The CORE-B (CORE System Group, 1998) is an 18-item questionnaire derived from the longer, 34-item CORE-Outcome Measure (CORE-OM) that was developed in the United Kingdom to inform practice based on evidence. This self-report instrument utilizes a 5-point Likert-type scale (0 = *not at all*, 1 = *only occasionally*, 2 = *sometimes*, 3 = *often*, 4 = *most or all of the time*) to assess for Global Distress experienced by a patient over the last week. Factor analysis of the CORE-OM and CORE-B suggest that both measures assess four domains of general mental health, including Symptoms (anxiety, depression, trauma, and

physical symptoms), Risk (of harm to self and others), Well-being (affective state, self-esteem, and coping), and Functioning (general, interpersonal, and coping; Evans et al., 2002). Total scores on the CORE-B range between 0 and 72, with mean scores calculated for each domain (subscale) and the Global Distress scale. Higher scores on all scales indicate greater psychological distress.

Convergent validity has been supported in comparisons with instruments such as the Beck Depression Inventory-I and the Hamilton Rating Scale for Depression, and it also has been evaluated against the SCID diagnosis of depression with the results suggesting that depression correlated with the general ratings of dysfunction and distress on the CORE-OM (Barkham et al., 2010). Prior research also has developed clinical cut-off scores and a reliable change index (Barkham et al., 2010). Internal consistency reliability for the current sample was $\alpha = .89$ for the CORE-B obtained during the intake session.

The Patient Health Questionnaire-9 (PHQ-9; Kroenke, Spitzer, & Williams, 2001) was used to assess patients' depressive symptoms. The nine self-report questions on the PHQ-9 reflect the *Diagnostic and Statistical Manual of Mental Disorders*, fourth edition, text revision (*DSM-IV-TR*; American Psychiatric Association, 2000) criteria for depressive disorders. Each item is presented on a 4-point Likert-type scale (0 = *not at all*, 1 = *several days*, 2 = *more than half the days*, 3 = *nearly every day*) that asks respondents to rate the frequency of mental health symptoms they experienced over the previous 2-week period. Scores range from 0–27, with scores between 0 and 4 indicating the absence of depression, 5–9 mild depression, 10–14 moderate depression, 15–19 moderately severe depression, and ≥ 20 severe depression (Kroenke et al., 2001).

Studies of the PHQ-9 suggest this measure has exhibited convergent validity with the Mental Component Summary score of the SF-36 Health Survey (Milette, Hudson, Baron, & Thombs, 2010), mental health scale of the SF-20 Health Survey (Kroenke et al., 2001), and the Beck Depression Inventory – II (Titov et al., 2011). The PHQ-9 has also exhibited discriminant validity with Physical Health Component Summary score of SF-36 Health Survey (Milette et al., 2010) and the physical health scale of SF-20 Health Survey (Kroenke et al., 2001). The PHQ-9 has exhibited

excellent test–retest reliability (Zuithoff et al., 2010) and consistently high internal consistency with coefficient alphas ranging from .89–.92 (Kroenke et al., 2001). The internal consistency reliability of the PHQ-9 obtained during the intake session produced a coefficient $\alpha = .91$ for the current sample.

Version 2 of the Short Form-12 General Health Survey (SF-12; Ware, Kosinski, & Keller, 1996; Ware, Kosinski, Turner-Bowker, & Gandek, 2002) was used to assess patients' physical and mental health. This 12-item Likert-style self-report measure is a short version of the SF-36 General Health Survey (Ware, Kosinski, & Keller, 1994), which is commonly used to assess health related quality of life. The SF-12 has been validated in many studies within primary care and medical settings (e.g., Lenert, Sherbourne, Sugar, & Wells, 2000; Wells & Sherbourne, 1999) because it provides information about health issues that interfere with daily functioning across various domains. Test–retest reliability coefficients for the Physical Component Summary (PCS) and the Mental Health Component Summary (MCS) have ranged between $r = .86$ – $.89$ and $r = .76$ – $.77$, respectively (Ware et al., 1996).

The MCS score was used as a general indicator of Mental Health and the PCS score was used as a general indicator of Physical Health. Both the PCS and MCS have scores ranging from 0–100, with a mean of 50 and a standard deviation of 10 in the general population (Ware et al., 1996). Higher scores on each scale reflect higher quality of life along with less distress and perceived limitations in general life roles. Internal consistency reliabilities of the SF-12 MCS and PCS subscales (abbreviated hereafter as MCS-12 and PCS-12) obtained during the intake session for the current sample were $\alpha = .78$ and $\alpha = .89$, respectively.

Procedure

Timeline and measurement schedule. Figure 1 displays the study timeline, measurement schedule, and the flow of participants through the study. Routine assessment included the PHQ-9 and the SF-12 administered during the intake session and every four sessions thereafter. Part way through the current study, the CORE-B was incorporated into the routine clinical assessment. As seen in Figure 1, two CORE-B baseline assessments administered

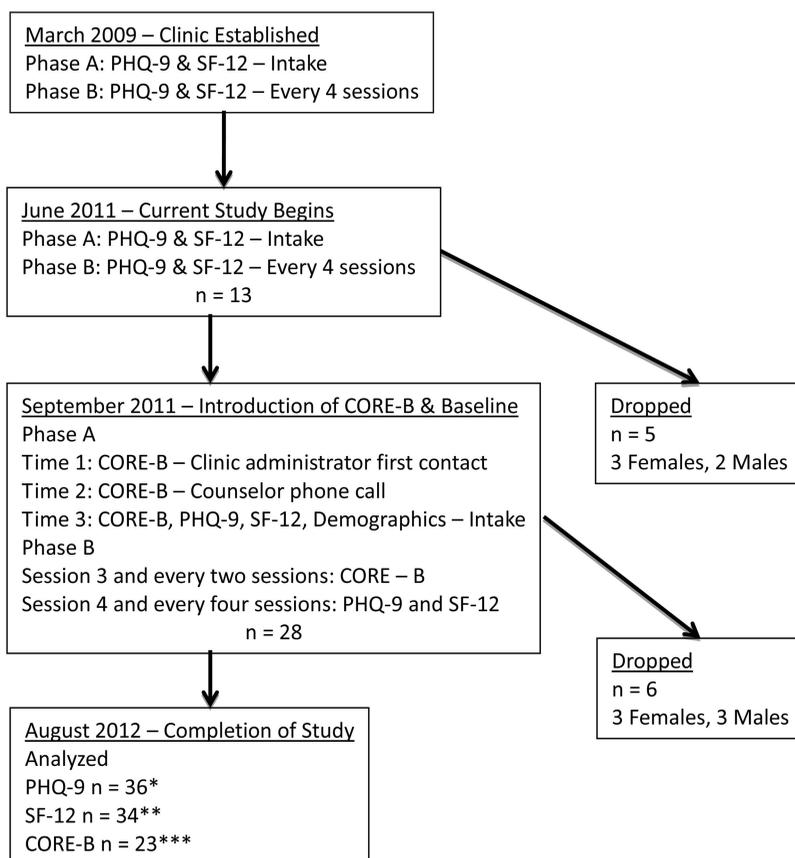


Figure 1. Study timeline, measurement schedule, and flow of participants through the study. Phase A = pretreatment; Phase B = treatment. * Five patients participated in three treatment sessions and did not complete the PHQ-9 or the SF-12. ** Two Spanish speakers did not complete SF-12 or the CORE-B. *** Thirteen patients entered treatment before introduction of the CORE-B and did not complete the CORE-B. PHQ-9 = Patient Health Questionnaire – 9; SF-12 = Short Form-12 General Health Survey; CORE-B = Clinical Outcomes in Routine Evaluation – Short Form B.

over the phone were included prior to the intake session. Routine administration of the CORE-B was conducted every two sessions during treatment.

Baseline assessment. During the baseline assessment period (Phase A), patients were given the CORE-B by the clinic administrator upon initial contact with the primary care facility. Following a physician's referral for behavioral telehealth services, the counselor attempted to contact the patient to confirm the therapy appointment. When patients were reached by telephone, the counselor confirmed the appointment and administered the CORE-B verbally. Not all patients could be contacted for initial screening assessments with the

CORE-B, but all patients completed the CORE-B in addition to the PHQ-9 and SF-12 prior to beginning the initial intake session.

Design. This study utilized a within-subjects group design to evaluate the effectiveness of TVCP for this rural sample at pre- and posttreatment periods. The addition of a planned baseline period before the intake (pretreatment assessment) and a repeated measurement schedule allowed for single-case quantitative analyses of four patients with AB contrasts. Based on the number of phases (eight) and data points per phase (three baseline, five intervention), the single-case design *Meets Standards with Reservations* for methodological soundness in terms of the WWC criteria for sin-

gle-case studies (see Kratochwill et al., 2010). Analyses of the four cases included (a) graphing of each patient's CORE-B Global Distress scale scores over time by phase, (b) visual analysis of graphed data by two raters, and (c) and simple mean shift regression of all CORE-B scale scores. Visual analysis of the four patients' graphed CORE-B Global Distress scale data was conducted by two raters using four categories of effect sizes: *none*, *small*, *moderate*, and *large*. Visual analysis is an important method for judging the effectiveness of single-case time-series data that can be combined with statistical techniques to improve reliability of judgments (Brossart, Parker, Olson, & Mahadevan, 2006). Interrater agreement for the two raters was 100%.

Results

Missing Data

Overall, total missing data for all measures was minimal given that a large portion of assessment was therapist-administered. Missing data were most likely the result of patients overlooking items when completing the measures on their own after a session. On the PHQ-9, 1% of total PHQ-9 data were missing. Total scores for the PHQ-9 were summed despite missing item data. Consequences of dealing with missing data in this fashion for individual PHQ-9 scores would result in lower

depression scores. On the SF-12, 0.1% of total data were missing. Total scores on the SF-12 were summed despite missing item-level data and would result in slight improvements in the scores of perceived quality of mental (MCS) and physical (PCS) health. On the CORE-B, 2% of total data were missing. Mean scale scores were used on the CORE-B Global Distress and subscales. Thus, depending on the scale and missing item, CORE-B scores may be an over or under correction to a score, but the impact of missing items should be minimal with only 2% missing on these variables.

Group Outcomes

Table 2 presents the results for paired-samples *t* tests of patients' pre- and posttreatment mean scores on the PHQ-9, CORE-B Global Distress scale, MCS-12, and PCS-12. Table 3 contains the results for paired-samples *t* tests of patients' pre- and posttreatment mean scores on the four CORE-B subscales (Well-Being, Symptoms, Functioning, Risk). Included in both tables are mean difference statistics with 95% confidence intervals (CIs) and Cohen's *d* effect sizes. All variables indicated a statistically significant improvement except for the PCS-12, which had a statistically significant worsening at posttreatment. Table 4 displays the type of improvement in terms of clinically sig-

Table 2
Paired Samples *t* Test Results for PHQ-9, CORE-B Global Distress Scale, MCS, and PCS

Measure	PHQ-9	CORE-B	MCS	PCS
<i>N</i>	36	23	34	34
M_1 (<i>SD</i>)	17.42 (6.23)	2.40 (.72)	31.08 (13.18)	45.47 (15.94)
M_2 (<i>SD</i>)	9.58 (6.52)	1.61 (.92)	41.39 (15.28)	41.73 (14.82)
M_{diff} (<i>SE</i>)	7.84 (6.07)	.78 (.75)	-10.31 (16.18)	3.74 (9.74)
M_{diff} 95% <i>CI</i>	5.78, 9.89	.46, 1.11	-15.95, -4.66	.34, 7.14
<i>t</i> (<i>df</i>)	7.75 (35)***	5.02 (22)***	-3.72 (33)*	2.24 (33)*
<i>d</i>	1.29	1.05	-.64	.38

Note. The variation in sample size resulted from (a) the initiation of the study with the PHQ-9 before introducing the CORE-B, and (b) Spanish speakers who completed the PHQ-9 but not the CORE-B or SF-12. PHQ-9 = Patient Health Questionnaire - 9; CORE-B = Clinical Outcomes in Routine Evaluation - Short Form B; MCS = Mental Health Component Summary; PCS = Physical Component Summary; M_1 = pretreatment mean; M_2 = posttreatment mean; *SD* = standard deviation; M_{diff} = mean difference; *SE* = standard error of mean difference; *CI* = confidence intervals; *t* = *t* statistic; *df* = degrees of freedom; *d* = Cohen's *d*. For the CORE B and the PHQ-9, higher scores indicate more distress or depression. Higher scores on the PCS indicate greater quality of life with less distress. For the MCS, higher scores indicate fewer health issues that interfere with daily functioning.

* $p < .05$. *** $p < .001$.

Table 3
Paired Samples *t* Tests Results for CORE-B Subscales

Measure	Well-being	Symptoms	Functioning	Risk
<i>N</i>	23	23	23	13
<i>M</i> ₁ (<i>SD</i>)	2.77 (.83)	2.39 (.83)	2.41 (.88)	1.15 (.80)
<i>M</i> ₂ (<i>SD</i>)	1.75 (1.11)	1.90 (1.20)	1.57 (1.11)	.42 (.70)
<i>M</i> _{diff} (<i>SE</i>)	1.02 (.98)	.49 (1.06)	.84 (.98)	.73 (.92)
<i>M</i> _{diff} 95% <i>CI</i>	.60, 1.45	.03, .95	.41, 1.26	.17, 1.29
<i>t</i> (<i>df</i>)	4.98 (22)***	2.22 (22)*	4.09 (22)***	2.84 (12)*
<i>d</i>	1.04	.46	.85	.79

Note. The variation in sample size is the result of clients not endorsing risk items at pretreatment. CORE-B = Clinical Outcomes in Routine Evaluation – Short Form B; *M*₁ = pretreatment mean; *M*₂ = posttreatment mean; *SD* = standard deviation; *M*_{diff} = mean difference; *SE* = standard error of mean difference; *CI* = confidence intervals; *t* = *t* statistic; *df* = degrees of freedom; *d* = Cohen’s *d*. Higher scores indicate a worsening of the construct measured for the CORE-B subscales.

* *p* < .05. *** *p* < .001.

nificant and reliable change (see Jacobson & Truax, 1991). No variable had an individual who deteriorated, but a sizable percentage (ranging from 31% to 43%) of the patients were unchanged. This left 57% to 69% of the patients exhibiting some type of improvement that would classify them as Improved or Recovered.

The PHQ-9 group mean for this sample (*n* = 36) was in the moderately severe range of depression symptoms at pretreatment and after treatment the group mean was in the mild range

of depression symptoms. The largest changes were seen on the PHQ-9 and CORE-B scores with effect sizes of *d* = 1.29 and 1.05, respectively. At pretreatment, the group mean MCS-12 was in a range much lower than patient samples with serious mental health problems (e.g., 37.03; Ware et al., 1996). After treatment, the average MCS-12 indicated a statistically significant improvement in perceived mental health quality. On the PCS-12, the group pretreatment mean was comparable to patient sam-

Table 4
Clinically Significant and Reliable Change – PHQ-9, CORE-B, CORE-B Well-Being, CORE-B Symptoms, CORE-B Functioning, and CORE-B Risk

Classification	PHQ-9 ^a	CORE-B ^a	Well-being	Symptoms ^b	Functioning ^b	Risk ^c
Recovered						
<i>N</i>	(8/35)	(7/22)	(12/23)	(6/21)	(7/21)	(7/12)
%	23%	32%	52%	29%	33%	58.3%
Improved						
<i>N</i>	(16/35)	(6/22)	(3/23)	(7/21)	(5/21)	(1/12)
%	46%	27%	13%	33%	24%	8.3%
Unchanged						
<i>N</i>	(11/35)	(9/22)	(8/23)	(8/21)	(9/21)	(4/12)
%	31%	41%	35%	38%	43%	33.3%
Deteriorated						
<i>N</i>	(0/0)	(0/0)	(0/0)	(0/0)	(0/0)	(0/0)
%	0%	0%	0%	0%	0%	0%

Note. PHQ-9 = Patient Health Questionnaire – 9; CORE-B = Clinical Outcomes in Routine Evaluation – Short Form B.

^a One patient was not included in the total count for either clinically significant or reliable change because that patient did not score in the clinical range at onset of treatment. ^b Two patients were not included in the total count for either clinically significant or reliable change because they did not score in the clinical range at onset of treatment. ^c Eleven patients were not included in the total count for either clinically significant or reliable change because they did not score in the clinical range at onset of treatment.

ples with minor medical problems (e.g., 47.42; Ware et al., 1996). After treatment, the group mean PCS-12 score indicated a statistically significant decline in perceived physical health quality.

Individual Cases

Patient #1. Patient #1 was a stay-at-home mother of five children diagnosed with PTSD and MDD who participated in 17 treatment sessions. Her primary presenting concerns were anxiety, panic attacks, and depression that resulted from childhood sexual abuse and ongoing domestic (physical and emotional) abuse from her husband that continued throughout the course of therapy. She was taking antidepressant and anti-anxiety medication prior to beginning psychotherapy, but her symptoms continued at elevated levels. Her goals for psychotherapy included processing of childhood sexual abuse, better communication with her children, and coping with symptoms of anxiety. Treatment of Patient #1 involved learning coping skills for anxiety, emotional regulation, and self-care (e.g., relaxation exercises, time alone, sleep hygiene) as well as improving assertive communication skills with her children. The therapist also provided psychoeducation about the effects of trauma and helped her process relationship issues.

Over the course of treatment, Patient #1 was judged by raters to have made small therapeutic gains in overall psychological distress according to visual analysis of the graphed CORE-B Global Distress scale scores. Although her score improvement on this scale approached statistical significance, the simple mean shift regression results of the CORE-B Global Distress scale indicated a nonsignificant mean difference between phases, $t(1,9) = 1.89, p = .09, d = 1.25, r_{auto} = .09$. Simple mean shift regression results of her CORE-B subscale scores indicated that Patient #1 experienced statistically significant improvements in Well-Being, $t(1,9) = 3.20, p = .01, d = 2.13$ and Risk, $t(1,9) = 3.13, p < .01, d = 2.09$, along with statistically nonsignificant improvements in Functioning, $t(1,9) = 1.70, p = .12, d = 1.13$, and a decline in Symptoms, $t(1,9) = -0.91, p = .39, d = -0.61$.

After treatment, Patient #1 was classified as Recovered according to the CORE-B Risk sub-

scale (pre = 1.00, post = 0) and the PHQ-9 (pre = 18, post = 4), Improved on the CORE-B Functioning (pre = 2.67, post = 1.67) and Well-Being (pre = 4.00, post = 2.50) subscales, but remained Unchanged on the CORE-B Global Distress (pre = 2.61, post = 2.06) and Symptoms (pre = 2.50, post = 2.83) scales. Despite a slight decline in perceived physical health (PCS: pre = 58.40, post = 56.79), Patient #1 experienced large improvements in perceived mental health quality (MCS: pre = 26.10, post = 35.18). However, it is important to note that although Patient #1 improved on the MCS-12, she exhibited a post-treatment mean score on this measure in a range comparable with that of patient samples with serious mental health problems (e.g., 37.03; Ware et al., 1996). Overall, her results suggested that Patient #1 made partial improvements on some outcomes, but remained unchanged on others.

Patient #2. Patient #2 was a single woman diagnosed with an Adjustment Disorder with mixed anxiety and depressed mood who also was experiencing physical pain issues. Her primary presenting concerns were anxiety and depressive symptoms related to familial conflict and adjustment to the divorce of her parents. She was not prescribed psychotropic medication for her symptoms. Her goals for treatment included improving strained family relationships, adjusting to the stress of her parents' divorce, and improving her self-esteem. Treatment with Patient #2 utilized interpersonal and existential theoretical orientations.

After 15 sessions, Patient #2 was judged by raters to have made large therapeutic gains in overall psychological distress according to visual analysis of the graphed CORE-B Global Distress scale scores. The simple mean shift regression results suggested that Patient #2 made large statistically significant improvements between phases in overall psychological distress according to the CORE-B Global Distress scale, $t(1,9) = 5.11, p < .001, d = 3.41; r_{auto} = .60^*$. It is important to note that although gains on this scale are large, there was significant positive autocorrelation ($r_{auto} = .60^*$) that could have inflated p values. Simple mean shift regression results of the CORE-B subscale scores indicated that Patient #2 experienced statistically significant improvements in Well-Being, $t(1,9) = 3.00, p = .01, d = 2.00$, Func-

tioning, $t(1,9) = 6.14, p < .001, d = 4.10$, and Risk, $t(1,9) = 3.13, p = .01, d = 2.09$, along with a statistically nonsignificant improvement in Symptoms, $t(1,9) = 1.78, p = .11, d = 1.18$.

After treatment, Patient #2 was rated as Recovered on the PHQ-9 (pre = 6, post = 1), CORE-B Global Distress scale (pre = 2.06, post = 0), and on all subscales of the CORE-B (Well-Being: pre = 3.00, post = 0; Symptoms: pre = 1.33, post = 0; Functioning: pre = 2.33, post = 0; Risk: pre = 2.00, post = 0). Furthermore, Patient #2 experienced improvements in perceived physical health (PCS: pre = 43.04, post = 47.92) and mental health (MCS: pre = 44.90, post = 57.48) quality after treatment. Taken together, her results suggested that Patient #2 made large therapeutic gains on all outcomes.

Patient #3. Patient #3 was a physically disabled, single woman diagnosed with MDD who was experiencing significant physical health issues (i.e., multiple bypass surgeries, diabetes) along with pain and anxiety. This patient had limited social support and a history of sexual abuse. This patient was prescribed antidepressant medication before beginning psychotherapy. She participated in 10 treatment sessions. Her goals for treatment included reducing symptoms of depression and anxiety while increasing her self-esteem. Treatment of Patient #3 included cognitive-behavioral and interpersonal therapy techniques to help her improve her self-esteem, maladaptive cognitions, and strained relationships.

Over the course of treatment, Patient #3 was judged by raters to have made small therapeutic gains in overall psychological distress according to visual analysis of the graphed CORE-B Global Distress scale scores. The simple mean shift regression results suggested that she made statistically nonsignificant improvements between phases in overall psychological distress according to the CORE-B Global Distress scale, $t(1,6) = 0.87, p = .42, d = 0.71; r_{\text{auto}} = .44$. Simple mean shift regression results of the CORE-B subscale scores indicated that Patient #3 made statistically nonsignificant improvements in Well-Being, $t(1,6) = 0.19, p = .86, d = 0.16$, and Functioning, $t(1,6) = 0.64, p = .55, d = 0.52$, in addition to a reduction in Symptoms, $t(1,6) = -0.09, p = .93, d = -0.07$, and Risk, $t(1,6) = -0.24, p = .82, d = -0.20$.

After treatment, Patient #3 had Improved on the Well-Being subscale (pre = 3.50, post = 2.25), but remained Unchanged on the CORE-B Global Distress scale (pre = 2.78, post = 2.11) and CORE-B Risk (pre = 0.50, post = 1.00), Functioning (pre = 3.17, post = 3.25), and Symptoms (pre = 3.17, post = 2.33) subscales. Patient #3 also experienced a slight increase (worsening) in depression symptoms on the PHQ-9 (pre = 17, post = 21), but reported very small improvements in perceived mental (MCS: pre = 33.55, post = 36.95) and physical health quality (PCS: pre = 19.83, post = 20.92). It is important to note that Patient #3 scored considerably worse on the PCS-12 than patient samples diagnosed with serious medical problems (PCS = 38.75; Ware et al., 1996), suggesting physical pain negatively impacted daily living and subsequently negatively influenced treatment outcomes. Overall, her results suggested that Patient #3 made small therapeutic gains on only one outcome.

Patient #4. Patient #4 was a divorced woman diagnosed with Bipolar Disorder, PTSD, and a Substance Abuse Disorder who also was experiencing physical pain. Her primary presenting problems included anxiety, anger, and depression symptoms that resulted from a history of childhood sexual abuse and a long history of domestic abuse as an adult. She was taking a mood stabilizer for Bipolar Disorder. Her goals for treatment included reducing anxiety symptoms and anger. She also was interested in understanding relationship issues and patterns that contributed to domestic abuse and further anger. Treatment involved learning coping skills for emotional regulation, cognitive-behavioral techniques to improve assertive communication skills, and interpersonal counseling intended to promote insight about unhelpful relationship patterns.

After 17 counseling sessions, Patient #4 was judged by raters to have made large therapeutic gains in overall psychological distress according to visual analysis of the graphed CORE-B Global Distress scale scores. The simple mean shift regression results suggested that she made large statistically significant improvements between phases in overall psychological distress as measured by the CORE-B Global Distress scale, $t(1,9) = 5.15, p < .001, d = 3.34; r_{\text{auto}} = .55$. Simple mean shift regression results of the CORE-B subscale scores indicated that Patient

#4 experienced statistically significant improvements in Well-Being, $t(1,9) = 5.15, p < .001, d = 3.34$, Functioning, $t(1,9) = 7.39, p < .001, d = 4.93$, and Risk, $t(1,9) = 4.22, p < .01, d = 2.81$, along with improvements in Symptoms, $t(1,9) = 1.84, p < .10, d = 1.23$, that approached statistical significance.

After treatment, Patient #4 was categorized as Recovered on the CORE-B Global Distress scale (pre = 3.17, post = 1.24) and on the CORE-B Well-Being (pre = 3.00, post = 1.67) and Functioning subscales (pre = 2.67, post = 0.67). In addition, Patient #4 had Improved on the CORE-B Symptoms (pre = 3.33, post = 1.83) and Risk (pre = 2.50, post = 0.50) subscales. Despite a slight worsening in perceived physical health quality (PCS: pre = 58.40, post = 56.79) and depression symptoms (PHQ-9: pre = 13, post = 15), Patient #4 experienced large gains in perceived mental health quality (MCS: pre = 36.26, post = 51.89). Overall, her results suggested that Patient #4 made large therapeutic gains on the majority of mental health outcomes.

Discussion

This study combined single-case and group quantitative research methods to (a) evaluate the effectiveness of TVCP for a rural sample in a primary care setting in Texas and (b) illustrate the benefits of using group and single-case designs to appeal to researchers and clinicians. Overall, results of this study indicated that TVCP was effective for improving the mental health of this rural sample—75% of whom were diagnosed with two or more co-occurring psychiatric disorders.

To summarize, the group results indicated that TVCP contributed to large, statistically significant reductions in depression symptoms and overall psychological distress, with important reductions in level of risk. The clients also exhibited statistically significant reductions in distress from anxiety, depression, and trauma. Similar large increases were seen in well-being and functioning, which suggested improved social relationships, general life roles, and coping abilities. The sample also reported large, statistically significant improvements in overall perceived mental health quality. However, in contrast to the overall improvements exhibited in mental health outcomes, the group results indi-

cated a statistically significant worsening of physical health and greater interference of physical health issues in daily activities after treatment. In spite of the improvements made by most in this sample it is important to note that there were large percentages of patients that remained Unchanged, which ranged from 43% to 31% depending upon the variable examined.

The reasons for the group decline on the PCS-12 are unclear, and it is difficult to interpret why a large proportion of patients remained Unchanged on various outcome measures. In a multivariate study like this one, multiple outcome variables complicate the ability to draw inferences about reasons for unsuccessful treatment outcomes because patients may fall into multiple categories on multiple outcomes (e.g., Recovered on Well-Being, Improved on Depression, but Unchanged on Risk). Even if follow-up analyses were conducted to compare subgroups of treatment response categories (e.g., Recovered, Improved, Unchanged), results remain at the group level. Thus, information about a particular patient's treatment response or the degree to which group results might reflect any particular patient's treatment response would remain unclear.

To obtain clinically useful data from group results, we examined individuals from the group and described their unique characteristics and treatment responses. This step was accomplished with the narrative description of each patient presented in the single-case results. The four individual cases analyzed by single-case methods were demographically representative of the average patient with regard to ethnicity, gender, and severity of mental health issues. These patients experienced partial improvements on some mental health outcomes instead of on all mental health outcomes, as suggested by the group level of analysis. Specifically, two patients displayed large improvements on most mental health outcomes and two patients experienced small gains on some outcomes and no gains on others. Of the two patients who made large gains over the course of treatment, one patient (#4) matched the group with regard to severe mental health (i.e., Bipolar Disorder, Substance Abuse, childhood sexual abuse, domestic abuse) whereas another patient (#2) experienced mild symptoms (i.e., Adjustment Disorder) not representative of the average patient in this sample. Taken together the results sug-

gest that (a) TVCP is likely effective for helping patients with mild to moderate mental health symptoms for the majority of outcomes, and (b) TVCP will likely be effective in producing partial improvements on some mental health outcomes for patients with severe mental health issues. When a patient is not making large, consistent gains on all expected outcomes, there may be benefits experienced by the patient on some outcomes. For example, Patient #1 continued to experience psychological distress and symptoms of anxiety, but she improved on the CORE-B Functioning and Well-Being subscales and Recovered on the CORE-B Risk subscale and the PHQ-9.

Unlike the group results, the single-case findings highlighted the unique characteristics of each patients' situational factors, type of diagnosis, and severity of symptoms. For example, Patient #1 continued to experience symptoms of anxiety that were likely the result of ongoing domestic abuse, PTSD, and the responsibility of caring for five children. Given her situation and diagnosis, improvements on the PHQ-9, and CORE-B Risk, Well-Being, and Functioning subscales may have been the most realistic expectation of treatment response for Patient #1.

Limitations

In contrast to a strong efficacy study, as is typical for effectiveness field studies, we were not able to establish strong internal validity for the results with the group or single-case design. The group design lacked an experimental control group, random assignment, inclusionary/exclusionary criteria (e.g., comorbidity and medication), manualized protocol administration, and treatment fidelity checks, which could promote causal inferences about the effects of treatment. The single-case design lacked sufficient baseline points to establish with confidence the degree of stability in the baseline period, it did not monitor extraneous variables, and it lacked three demonstrations of a clear effect from visual analysis of the graphed outcome variable (CORE-B Global Distress).

The sample was relatively small and predominantly composed of Caucasian patients, most of whom were women. A small, homogenous sample size constrains the external validity of the study's results. This sample was largely unemployed and approximately one quarter of

patients reported receiving social security disability benefits. As such, these findings could generalize to other similar rural, female Caucasian samples of lower socioeconomic status.

Another important limitation of this design is related to the experience level of psychotherapists, which used supervised doctoral level students conducting treatment-as-usual. Some research suggests that treatment response is directly mediated by therapist experience level (Stein & Lambert, 1995). It is not known how the results would differ if more experienced therapists had participated in this study.

Conclusion

The patients in this sample suffered from severe and complicated mental health issues. The poor mental health quality of rural patients has been consistently cited in the literature (Smalley et al., 2010) and it presents treatment challenges for clinicians working with this population. The results suggest that TVCP offered through a primary care setting may be an effective treatment modality that has the potential to reduce mental health disparities in rural populations. The impact of this study was particularly meaningful at the local community level because previous investigations have found a high prevalence of depression in the region of Texas where this study was conducted (Brossart et al., 2013). Most of this study's sample experienced very large reductions in depression symptoms and significant reductions in risk. The impact of TVCP made a tangible difference for this small, rural community by improving the access and availability of mental health care. This study illustrates one example of how key partnerships can impact rural health care delivery concomitantly revealing the effectiveness, clinical utility, and feasibility of providing TVCP in rural primary care settings to reduce mental health disparities.

References

- American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders: DSM-IV-TR*. Washington, DC: Author.
- APA Presidential Task Force on Evidence-Based Practice. (2006). Evidence-based practice in psychology. *American Psychologist*, *61*, 271-285. <http://dx.doi.org/10.1037/0003-066X.61.4.271>

- Backhaus, A., Agha, Z., Maglione, M. L., Repp, A., Ross, B., Zuest, D., . . . Thorp, S. R. (2012). Videoconferencing psychotherapy: A systematic review. *Psychological Services, 9*, 111–131. <http://dx.doi.org/10.1037/a0027924>
- Barkham, M., Mellor-Clark, J., Connell, J., Evans, C., Evans, R., & Margison, F. (2010). Clinical Outcomes in Routine Evaluation (CORE) – The CORE measures and system: Measuring, monitoring and managing quality evaluation in the psychological therapies *Developing and delivering practice-based evidence* (pp. 175–219). Malden, MA: Wiley-Blackwell.
- Barlow, D. H., & Nock, M. K. (2009). Why can't we be more idiographic in our research? *Perspectives on Psychological Science, 4*, 19–21. <http://dx.doi.org/10.1111/j.1745-6924.2009.01088.x>
- Barlow, D. H., Nock, M., & Hersen, M. (2009). *Single case experimental designs: Strategies for studying behavior for change* (3rd ed.). Boston, MA: Pearson/Allyn & Bacon.
- Brossart, D. F., Parker, R. I., Olson, E. A., & Mahadevan, L. (2006). The relationship between visual analysis and five statistical analyses in a simple AB single-case research design. *Behavior Modification, 30*, 531–563. <http://dx.doi.org/10.1177/0145445503261167>
- Brossart, D. F., Wendel, M. L., Elliott, T. R., Cook, H. E., Castillo, L. G., & Burdine, J. N. (2013). Assessing depression in rural communities. *Journal of Clinical Psychology, 69*, 252–263. <http://dx.doi.org/10.1002/jclp.21949>
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Erlbaum.
- CORE System Group. (1998). *CORE system (information management) handbook*. Rugby, UK: Core System Group.
- Cunningham, P. J. (2009). Beyond parity: Primary care physicians' perspectives on access to mental health care. *Health Affairs, 28*, w490–w501. <http://dx.doi.org/10.1377/hlthaff.28.3.w490>
- Dallery, J., Cassidy, R. N., & Raiff, B. R. (2013). Single-case experimental designs to evaluate novel technology-based health interventions. *Journal of Medical Internet Research, 15*, e22. <http://dx.doi.org/10.2196/jmir.2227>
- Dattilio, F. M., Edwards, D. J. A., & Fishman, D. B. (2010). Case studies within a mixed methods paradigm: Toward a resolution of the alienation between researcher and practitioner in psychotherapy research. *Psychotherapy: Theory, Research, Practice, Training, 47*, 427–441. <http://dx.doi.org/10.1037/a0021181>
- Dwight-Johnson, M., Aisenberg, E., Golinelli, D., Hong, S., O'Brien, M., & Ludman, E. (2011). Telephone-based cognitive-behavioral therapy for Latino patients living in rural areas: A randomized pilot study. *Psychiatric Services, 62*, 936–942. http://dx.doi.org/10.1176/ps.62.8.pss6208_0936
- Eberhardt, M. S., & Pamuk, E. R. (2004). The importance of place of residence: Examining health in rural and nonrural areas. *American Journal of Public Health, 94*, 1682–1686. <http://dx.doi.org/10.2105/AJPH.94.10.1682>
- Evans, C., Connell, J., Barkham, M., Margison, F., McGrath, G., Mellor-Clark, J., & Audin, K. (2002). Towards a standardised brief outcome measure: Psychometric properties and utility of the CORE-OM. *The British Journal of Psychiatry, 180*, 51–60. <http://dx.doi.org/10.1192/bjp.180.1.51>
- Gamm, L. G., Stone, S., & Pittman, S. (2010). Mental health and mental disorders - a rural challenge: A literature review. *Rural Healthy People 2010: A companion document to Healthy People 2010* (Vol. 2, pp. 97–113). College Station, TX: The Texas A&M University System Health Science Center.
- Goldfried, M. R., & Wolfe, B. E. (1998). Toward a more clinically valid approach to therapy research. *Journal of Consulting and Clinical Psychology, 66*, 143–150. <http://dx.doi.org/10.1037/0022-006X.66.1.143>
- Gray, M. J., Hassija, C. M., Jaconis, M., Barrett, C., Zheng, P., Steinmetz, S., & James, T. (2015). Provision of evidence-based therapies to rural survivors of domestic violence and sexual assault via telehealth: Treatment outcomes and clinical training benefits. *Training and Education in Professional Psychology, 9*, 235–241. <http://dx.doi.org/10.1037/tep0000083>
- Griffiths, L., Blignault, I., & Yellowlees, P. (2006). Telemedicine as a means of delivering cognitive-behavioural therapy to rural and remote mental health clients. *Journal of Telemedicine and Telecare, 12*, 136–140. <http://dx.doi.org/10.1258/135763306776738567>
- Health Resources and Services Administration. (2005). *Mental health and rural America: 1994–2005*. Rockville, MD: Author.
- Health Resources and Services Administration Data Warehouse. (2014). *HPSA find*. Retrieved from <http://datawarehouse.hrsa.gov/tools/analyzers/hpsafind.aspx>
- Jacobson, N. S., & Truax, P. (1991). Clinical significance: A statistical approach to defining meaningful change in psychotherapy research. *Journal of Consulting and Clinical Psychology, 59*, 12–19. <http://dx.doi.org/10.1037/0022-006X.59.1.12>
- Kaiser Family Foundation. (2014). *State mental health agency, per capita mental health services expenditures*. Retrieved from <http://kff.org/other/state-indicator/smha-expenditures-per-capita/#table>

- Kratochwill, T. R., Hitchcock, J., Horner, R. H., Levin, J. R., Odom, S. L., Rindskopf, D. M., & Shadish, W. R. (2010). *Single-case design technical documentation*. Retrieved from What Works Clearinghouse website: http://ies.ed.gov/ncee/wwc/pdf/wwc_scd.pdf
- Kroenke, K., Spitzer, R. L., & Williams, J. B. W. (2001). The PHQ-9: Validity of a brief depression severity measure. *Journal of General Internal Medicine, 16*, 606–613. <http://dx.doi.org/10.1046/j.1525-1497.2001.016009606.x>
- Lenert, L. A., Sherbourne, C. D., Sugar, C., & Wells, K. B. (2000). Estimation of utilities for the effects of depression from the SF-12. *Medical Care, 38*, 763–770. <http://dx.doi.org/10.1097/00005650-200007000-00008>
- McCord, C. E., Elliott, T. R., Wendel, M., Brossart, D. F., Cano, M., Gonzalez, G., & Burdine, J. N. (2011). Community capacity and teleconference counseling in rural Texas. *Professional Psychology: Research and Practice, 42*, 521–527. <http://dx.doi.org/10.1037/a0025296>
- McGeary, D. D., McGeary, C. A., Gatchel, R. J., Allison, S., & Hersh, A. (2013). Assessment of research quality of telehealth trials in pain management: A meta-analysis. *Pain Practice, 13*, 422–431. <http://dx.doi.org/10.1111/j.1533-2500.2012.00601.x>
- Milette, K., Hudson, M., Baron, M., Thombs, B. D., & the Canadian Scleroderma Research Group. (2010). Comparison of the PHQ-9 and CES-D depression scales in systemic sclerosis: Internal consistency reliability, convergent validity and clinical correlates. *Rheumatology, 49*, 789–796. <http://dx.doi.org/10.1093/rheumatology/kep443>
- National Association of State Medicaid Directors. (2008). *Serving the needs of Medicaid enrollees with integrated behavioral health services in safety net primary care settings*. Washington, DC: Author.
- Openshaw, D. K., Morrow, J., Law, D., Moen, D., Johnson, C., & Talley, S. (2012). Examining the satisfaction of women residing in rural Utah who received therapy for depression through teletherapy. *Journal of Rural Mental Health, 36*, 38–45. <http://dx.doi.org/10.1037/h0095814>
- Osenbach, J. E., O'Brien, K. M., Mishkind, M., & Smolenski, D. J. (2013). Synchronous telehealth technologies in psychotherapy for depression: A meta-analysis. *Depression and Anxiety, 30*, 1058–1067. <http://dx.doi.org/10.1002/da.22165>
- President's New Freedom Commission on Mental Health. (2003). *Achieving the promise: Transforming mental health care in America* (DHHS Pub. No SMA-03–3832). Rockville, MD: U.S. Department of Health and Human Services.
- Ransom, D., Heckman, T. G., Anderson, T., Garske, J., Holroyd, K., & Basta, T. (2008). Telephone-delivered, interpersonal psychotherapy for HIV-infected rural persons with depression: A pilot trial. *Psychiatric Services, 59*, 871–877. <http://dx.doi.org/10.1176/ps.2008.59.8.871>
- Reese, R. J., Conoley, C. W., & Brossart, D. F. (2002). Effectiveness of telephone counseling: A field based investigation. *Journal of Counseling Psychology, 49*, 233–242. <http://dx.doi.org/10.1037/0022-0167.49.2.233>
- Reese, R. J., Conoley, C. W., & Brossart, D. F. (2006). The attractiveness of telephone counseling: An empirical investigation of client perceptions. *Journal of Counseling & Development, 84*, 54–60. <http://dx.doi.org/10.1002/j.1556-6678.2006.tb00379.x>
- Richardson, L. K., Frueh, B. C., Grubaugh, A. L., Egede, L., & Elhai, J. D. (2009). Current directions in videoconferencing tele-mental health research. *Clinical Psychology: Science and Practice, 16*, 323–338. <http://dx.doi.org/10.1111/j.1468-2850.2009.01170.x>
- Robinson, O. C. (2011). The idiographic / nomothetic dichotomy: Tracing historical origins of contemporary confusions. *History & Philosophy of Psychology, 13*, 32–39.
- Schopp, L. H., Demiris, G., & Glueckauf, R. L. (2006). Rural backwaters or front-runners? Rural telehealth in the vanguard of psychology practice. *Professional Psychology: Research and Practice, 37*, 165–173. <http://dx.doi.org/10.1037/0735-7028.37.2.165>
- Sears, S. F., Evans, G. D., & Kuper, B. D. (2003). Rural social services systems as behavioral health delivery systems. In B. H. Stamm (Ed.), *Rural behavioral health care: An interdisciplinary guide* (pp. 109–120). Washington, DC: American Psychological Association. <http://dx.doi.org/10.1037/10489-008>
- Sloan, D. M., Gallagher, M. W., Feinstein, B. A., Lee, D. J., & Pruneau, G. M. (2011). Efficacy of telehealth treatments for posttraumatic stress-related symptoms: A meta-analysis. *Cognitive Behaviour Therapy, 40*, 111–125. <http://dx.doi.org/10.1080/16506073.2010.550058>
- Smalley, K. B., Yancey, C. T., Warren, J. C., Naufel, K., Ryan, R., & Pugh, J. L. (2010). Rural mental health and psychological treatment: A review for practitioners. *Journal of Clinical Psychology, 66*, 479–489.
- Stein, D. M., & Lambert, M. J. (1995). Graduate training in psychotherapy: Are therapy outcomes enhanced? *Journal of Consulting and Clinical Psychology, 63*, 182–196. <http://dx.doi.org/10.1037/0022-006X.63.2.182>
- Texas Department of State Health Services. (2015). *2014 trends, distribution, and demographics fact sheets*. Retrieved from <https://www.dshs.state.tx.us/chs/hprc/Publications/2014FactSheets.aspx>

- Titov, N., Dear, B. F., McMillan, D., Anderson, T., Zou, J., & Sunderland, M. (2011). Psychometric comparison of the PHQ-9 and BDI-II for measuring response during treatment of depression. *Cognitive Behaviour Therapy, 40*, 126–136. <http://dx.doi.org/10.1080/16506073.2010.550059>
- Trust for America's Health (Producer). (2015). *Key health data about Texas*. Retrieved from http://healthyamericans.org/states/?stateid_TX
- Tucker, J. A., & Reed, G. M. (2008). Evidentiary pluralism as a strategy for research and evidence-based practice in rehabilitation psychology. *Rehabilitation Psychology, 53*, 279–293. <http://dx.doi.org/10.1037/a0012963>
- Ware, J., Jr., Kosinski, M., & Keller, S. D. (1996). A 12-Item Short-Form Health Survey: Construction of scales and preliminary tests of reliability and validity. *Medical Care, 34*, 220–233. <http://dx.doi.org/10.1097/00005650-199603000-00003>
- Ware, J. E., Kosinski, M., & Keller, S. D. (1994). *SF-36 physical and mental health summary scales: A users manual*. Boston, MA: The Health Institute, New England Medical Center.
- Ware, J. E., Kosinski, M., Turner-Bowker, D., & Gandek, B. (2002). *Version 2 of SF-12 health survey*. Lincoln, RI: Quality Metric.
- Wasem, C., & Puskin, D. (2000). High-tech with the human touch: Using telehealth to reach America's children. *Professional Psychology: Research and Practice, 31*, 3–4. <http://dx.doi.org/10.1037/0735-7028.31.1.3>
- Wells, K. B., & Sherbourne, C. D. (1999). Functioning and utility for current health of patients with depression or chronic medical conditions in managed, primary care practices. *Archives of General Psychiatry, 56*, 897–904. <http://dx.doi.org/10.1001/archpsyc.56.10.897>
- Zuithoff, N., Vergouwe, Y., King, M., Nazareth, I., van Wezep, M. J., Moons, K. G., & Geerlings, M. I. (2010). The Patient Health Questionnaire-9 for detection of major depressive disorder in primary care: Consequences of current thresholds in a cross-sectional study. *BMC Family Practice, 11*, 1–7.

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