Therapist Adherence to Manualized Cognitive-Behavioral Therapy for Anger Management Delivered to Veterans With PTSD Via Videoconferencing*

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Therapist adherence to a manualized cognitive-behavioral anger management group treatment (AMT) was compared between therapy delivered via videoconference (VC) and the traditional in-person modality, using data from a large, randomized controlled trial comparing the effectiveness of AMT for veterans with combat-related posttraumatic stress disorder. Therapist adherence was rated for the presence or absence of process and content treatment elements. Secondary analyses were conducted using a repeated measures ANOVA. Overall adherence to the protocol was excellent (M = 96%, SD = 1%). Findings indicate that therapist adherence to AMT is similar across delivery modalities and VC is a viable service delivery strategy that does not compromise a therapist’s ability to effectively structure sessions and manage patient care. © 2011 Wiley Periodicals, Inc. J Clin Psychol 67:629–638, 2011.

Keywords: posttraumatic stress disorder; cognitive-behavioral therapy; therapist adherence; videoconferencing technology; telemental health services

Posttraumatic stress disorder (PTSD) is a prevalent mental health problem among veterans and returning service members from Iraq and Afghanistan (Richardson, Frueh, & Acierno, 2010). Many veterans with combat-related PTSD exhibit impaired social functioning (Dohrenwend et al., 2006; Evans, McHugh, Hopwood, & Watt, 2003). A common feature of combat-related PTSD is disregulated anger (Jakupcak et al., 2007; Novaco & Chemtob, 2002; Orth & Wieland, 2006), which complicates the treatment of PTSD. Research endeavors have demonstrated the efficacy of cognitive-behavioral therapy (CBT) for the treatment of PTSD (Bryant et al., 2008; Harvey, Bryant, & Tarrier, 2003; Ponniah & Hollon, 2009; Schnurr et al. 2007) and anger (Deffenbacher, 2006; DiGiuseppe & Tafrate, 2003). However, there are a limited number of research studies investigating process outcomes of group CBT with veteran populations. Veterans with PTSD are in great need of increased access to appropriate evidence-based treatments (EBTs) for anger. As a result, the Veterans Affairs (VA) is making dedicated efforts to expand access to EBTs for veterans and active duty returning troops.

One challenge in reaching this population is that 40% of service members leaving active duty return to rural or remote areas, where access to EBTs and specialized psychological...
treatments for PTSD and anger are often limited or nonexistent (Tanielian & Jaycox, 2008). The current disparities in rural mental health care are predicted to increase over the next several decades (Committee on the Future of Rural Health Care, Institute of Medicine, 2004; New Freedom Commission on Mental Health, 2003). In the field of mental health, telemental health (TMH) technology has introduced a potential solution to the persistent problem of access to mental health care in rural and remote areas. To bridge this gap, psychological services delivered via videoconference (VC) are becoming a widespread and acceptable means of providing care to the large number of people living in rural areas of the United States. The delivery of mental health treatments via VC is a feasible means of service delivery to rural areas where practitioners with highly specialized skill sets are less likely to be located; however, despite its growing utilization, the evidence-base for VC delivery is still being established.

Although there is an abundance of evidence for TMH applications involving remote psychiatric assessment (e.g., Shore, Savin, Orton, Beals, & Manson, 2007), consultation (e.g., Hilty, Nesbitt, Kuenneth, Cruz, & Hales, 2007), and psychoeducation (e.g., Morland & Greene, 2006), relatively fewer studies have rigorously examined the provision of psychotherapeutic EBTs. Those studies that have involved EBTs support the use of VC for effective mental health care (Frueh et al., 2000; Hilty, Marks, Urness, Yellowlees, & Nesbitt, 2004; Monnier, Knapp, & Frueh, 2003), including CBT groups conducted with veterans suffering from PTSD (Bolton et al., 2004; Frueh et al., 2007b; Morland et al., 2010; Morland, Pierce, & Wong, 2004; Tuerk, Yoder, Ruggiero, Gros, & Acieno, 2010).

There have been few studies conducted to examine the question of whether VC delivery of psychotherapy produces outcomes that are as good as or comparable to those from face-to-face care (e.g., Ruskin et al., 2004). Noninferiority designs are the most rigorous way to answer that question (Greene, Morland, Durkalski, & Frueh, 2008). This specific research methodology focuses on assessing the equivalency of treatment conditions and differs from standard superiority trials. In one of the first noninferiority randomized clinical trials (RCTs) of TMH psychotherapy, we compared the effectiveness of a manualized CBT intervention for anger management with combat veterans with PTSD delivered via VC to the same intervention delivered with the therapist in-person (NP) (Morland et al., 2010). The RCT investigated the equivalency of the two modalities on clinical outcomes, patient satisfaction, attrition, treatment adherence, treatment expectancy, and group therapeutic alliance. Few significant group differences were found across outcome domains at posttreatment and 3-month and 6-month follow-up. The results of this study support the hypothesis that a manualized group anger management treatment is as clinically effective when delivered via VC as when conducted in-person.

Despite the recent research on whether TMH service delivery affects therapeutic outcomes, research is just beginning to examine how TMH may influence the delivery of psychological treatments and the psychotherapeutic process. One concern is that the delivery of mental health services via VC may influence the clinician’s ability to build rapport with patients, communicate empathy, and complete structured activities (i.e., social skills training, role-playing, anxiety management training). For example, Greene et al. (2010) found that treatment satisfaction, credibility, homework completion, attrition, and therapeutic alliance were consistent across treatment modalities in all domains except for participant-therapist alliance; however, these differences were small enough as to not impact treatment outcome.

Another concern about the use of VC for the delivery of manualized psychological treatments is that it may have a negative effect on the therapist’s adherence to the treatment protocol and fidelity of treatment, thus potentially altering therapeutic processes and weakening the impact of treatment. This concern is particularly important given the role VC delivery is playing in delivering highly specialized EBTs that require the therapists to follow complex protocols. However, there is currently a lack of research on therapist adherence to manualized treatments delivered via VC. Only one prior study of mental health services delivered via VC has included measures of therapist adherence (Frueh et al., 2007a) and it is limited by a small sample size, relatively few overall therapy sessions, and the inclusion of only one therapist. Morland et al. (2010) and Greene et al. (2010) suggest that VC delivery of CBT therapy can be as clinically effective as in-person delivery, with similar process
outcomes and only a small reduction in therapeutic alliance. This current study examines another important aspect of that RCT by seeking to determine if therapists adhere to manual-based treatment protocols as effectively when delivering EBTs via VC, as compared with in-person delivery.

The purpose of the present study was to evaluate ratings of therapist adherence to a manualized CBT anger management group intervention when delivered via VC and NP. Specifically, we used secondary analyses of a RCT to compare ratings of therapist adherence in structuring sessions, implementing session activities, providing feedback to patients, dealing with difficulties that arose, developing rapport with patients, and conveying empathy to patients across our two modes of delivery. We hypothesized that therapist adherence to the intervention would not be significantly different between the VC and NP conditions.

Method

Study Design

The current study conducted secondary analyses of a larger RCT (Morland et al., 2010) to examine differences in therapist adherence ratings across the two treatment modalities. The RCT employed a noninferiority design to determine if the clinical (i.e., anger symptom severity) and process (i.e., therapeutic alliance) outcomes of a CBT anger management intervention conducted with male combat veterans with PTSD were as good in the VC condition as those in the NP condition. Therapist adherence to the anger management group intervention was rated on process and content elements for both delivery modalities. The protocol was approved by the VA Institutional Review Board (IRB).

Participants

The participants enrolled in the study were 125 male veterans, predominantly from the Vietnam War era, who met Diagnostic and Statistical Manual, Fourth Edition, Text Revision (DSM-IV-TR) diagnostic criteria for current or lifetime PTSD (American Psychiatric Association, 1994), as assessed by the Clinician Administered PTSD Scale (CAPS; Blake et al., 1995). The 10-item Trait Scale (T-ANG) of the State-Trait Anger Expression Inventory-2 (STAXI-2; Spielberger, 1999) was used to screen for anger difficulties. The T-ANG measures individual differences in the disposition to experience anger and yields a continuous measure of anger severity, ranging from 10–40. Veterans who received a score of 20 or higher (70th percentile or higher) on the T-ANG, indicating moderate to severe anger problems, were eligible to participate in the study. The Structured Clinical Interview for DSM-IV (First, Spitzer, Gibbon, & Williams, 1997) was also conducted to determine veterans’ eligibility and comorbidities. Veterans who were psychotic or actively abusing alcohol, prescription medication, or other substances were excluded from the study. In addition, veterans who had not been on a stable medication regimen for at least 2 months were excluded from participating in the study. Neither the initial clinical evaluations nor the informed consent process were conducted using any application of VC.

Procedures

All participants signed informed consent before study participation and after being provided with a full description of the study. The study period for the RCT on which these subsequent secondary analyses were based took place between August 2005 and October 2008. After completing the baseline clinical interviews, a computerized randomization program was used to assign participants to one of two treatment conditions: (a) group therapy delivered by a therapist via remote VC or (b) group therapy delivered by a therapist in-person. The treatment was delivered in “cohorts.” Each cohort was comprised of two treatment groups (one VC condition and one NP condition) at the same Community Based Outpatient Clinic (CBOC). All aspects of the two groups within each cohort were as similar as possible, except for the delivery modality (i.e., VC vs. NP). The AMT groups were conducted in the same conference
room and time of day at the local VA or CBOC, but on a different day of the week for both conditions within each cohort.

**Intervention**

Anger management group treatment (AMT; Reilly & Shopshire, 2002) is a manualized CBT intervention that has been found to be effective for treating anger in veterans with combat-related PTSD and substance abuse (Reilly, Clark, Shopshire, & Delucchi, 1995), culturally diverse male veterans with substance abuse problems (Clark, Reilly, Shopshire, & Campbelt, 1996), and male and female civilians with cocaine dependence (Reilly & Shopshire, 2000). The primary objectives of the AMT intervention are to teach participants how to monitor and identify cues to triggers to their anger and develop cognitive and behavioral coping strategies for individualized anger control plans. The same manualized 12-session AMT protocol was delivered to the veterans in both treatment conditions. Sessions comprised both process and content elements. Each session included agenda setting and homework assignment, as well as some didactic psychoeducation or skill development. Sessions also contained individualized process elements such as a check-in procedure, homework review, and individual event processing. The group treatment sessions were comprised of twice weekly, 90-minute sessions that occurred over the course of 6 weeks during the active treatment phase.

**Therapists**

The therapists were five doctoral level clinical psychologists with extensive experience delivering manualized treatments, conducting CBT groups with veterans, and treating patients with PTSD. However, the project therapists did not have previous experience delivering mental health services via TMH applications. The same therapist conducted both VC and NP groups within each cohort.

**Raters**

All treatment sessions were audiotaped and reviewed by the treatment clinical supervisor for monitoring protocol adherence. Either a trained group observer in real time or a trained clinical rater who listened to the therapy treatment tape rated the treatment adherence data analyzed in this study. A total of six raters were used to rate protocol adherence. All raters had clinical experience in both the VA and with group therapy. The raters were five doctoral-level psychologists and one master’s-level clinician enrolled in a doctoral program. The observers and raters were trained by the doctoral-level clinical supervisor on the adherence measure and the procedure for completing received copies of the treatment protocol and clinician manual to better understand and identify the different elements and components of the treatment. Due to the presence of the rater in the group sessions and the content of the tapes, it was not possible for the raters to be blind. For instance, a group member might mention the VC monitor during the audiotaped session, and so the rater listening to the tape would know that the tape recorded a VC group session. A senior doctoral-level clinician independent of the treatment listened to a random sample of 11% of the audiotapes to determine intrarater reliability, yielding a .96 intrarater agreement.

**Therapist Adherence Measure**

An adapted version of an adherence measure (Shopshire, Ouaou, Reilly, & Clark, 1998) that was previously developed for this treatment protocol was used to measure therapist adherence. This adherence measure assesses both the didactic, or content, and the process components of the patient-therapist interactions and requires trained raters to use the AMT manual as the standard for assessing adherence to the treatment intervention. The adherence measure includes 253 dichotomous items across twelve 90-minute sessions. The adherence measure is based on a “yes” (1), “no” (0), or “not applicable” (9) response format. Of the 253 items, 176 items (70%) assess adherence to didactic content (i.e., psycho-education, coping skills
training) and 77 items (30%) assess process aspects (i.e., process anger response, discuss person anger cues) of the group therapy protocol. The didactic items involve rating whether specific content of the didactic modules are reviewed. For example, didactic items in treatment session 1 include reviewing “the definition of anger”, “the definition of aggression”, “the definition of hostility”, and “when does anger become a problem.” An example of a process item includes rating whether “participants briefly share experiences/expectations/history with prior anger treatment.”

The adherence measure experienced minor modifications throughout the study. The preponderance of these modifications were added to give the clinician reminders to perform administrative tasks (i.e., announcing the procedure for the mid-treatment assessment). To more specifically document any nonadherence to the protocol, a few modifications served to provide more details for an existing item (i.e., “collect and review homework” was separated into two items). None of the modifications impacted the actual content of the intervention.

Adherence data was examined by session, comparing didactic and process variables by modality, for each of the 12 sessions. Of the 240 (120 NP and 120 VC) sessions that were audiotaped, 19 tapes (8%) were unable to be rated for adherence because of technical difficulties with the recorder or audio quality. Twenty-seven (11%) other tapes had minor technical difficulties (e.g., sound quality, tape ending early), which resulted in some missing data. Due to their shared content, sessions 9 and 10 were combined in the final analysis, yielding 220 session ratings.

**Telecommunications Technology**

The study therapists remained at an office in the Honolulu VA for the VC condition and traveled to the clinical site for the NP condition. A Tandberg model 880 system, which used digital cameras with scanning and zoom capabilities and multiple microphones, was employed to communicate with participants via VC technology. The highest quality video transmission was ensured through the use of line speeds of 384 kbits. A standardized form that identified the frequency and quality of technical difficulties and the impact on the treatment session was used to track and assess technical problems with the VC equipment or transmission throughout each group session for each cohort.

There was a staff member from VA Information Resource Management Service available during the VC groups in the event of technical difficulties. The VA IRB required an observer to sit in on the group treatment during the remote VC sessions so that someone was available to intervene in cases of technological or clinical emergencies; otherwise, the observer was silent. The observer had minimal contact with participants aside from distributing handouts and adjusting the machines. In order to purposefully have no influence on the group process, the observer sat away from the group, in a position out of the visual line between the patients and telemonitor. The observer intervened only twice over the course of 240 group sessions: once to re-establish the VC connection and once to check on a veteran who briefly left the session for a “time-out.”

**Statistical Analyses**

Completed rater forms were evaluated based on the number of items endorsed and the total number of items possible for the given session. Items were omitted if there were technical difficulties, and rating forms were adjusted during the course of the study to account for changes in the protocol. No core elements of the adherence sheet were altered during the course of the study; however, as previously mentioned, there was some variability in rating forms across time. In order to account for differences in the number of possible items, proportions were tallied for each therapy session (e.g., total number of items endorsed/total number of items possible for the given session). A repeated-measures analyses of variance (ANOVA) was performed with one between-subjects factor of Therapist and three within-subjects factors of Modality (NP vs. VC), Domain of Ratings (Didactics vs. Process), and Sessions (11 AMT sessions). A custom model was developed to evaluate five specific effects.
The main effects were computed for Modality, Domain of Ratings, and Therapist and the interaction effects for Modality × Domain of Rating and Therapist × Modality. The significance level was set at $p < .05$. Effect sizes were estimated using partial $\eta^2$. In those cases where there were no more than 25% of cells with missing data, scores were imputed using means for data from the same cohort for the same domain of ratings across modalities and sessions. One cohort was dropped from the analyses because there was insufficient data to estimate process ratings. Therapist 1 was dropped from the analyses, as this clinician taught only one cohort. Analyses were conducted using SPSS (SPSS Inc., 2008).

Results

There were 125 (NP = 64 and VC = 61) veterans randomized to treatment that comprised the intent-to-treat (ITT) sample. Participant characteristics at baseline did not differ between groups (see Table 1). A significant rate of psychiatric comorbidity (54% current, 94% lifetime), in addition to PTSD, was found among the participants (Morland et al., 2010). The mean age of the sample was 54.7 years (standard deviation [SD] = 9.6) and 63% were married. The majority of the participants were of Pacific Islander (33%), Caucasian (33%), or Asian American (27%) descent. Almost all veterans (93%) reported combat exposure, with the majority (76%) having served in Vietnam. The veterans in the ITT sample that attended at least 9 of 12 treatment sessions ($N = 112$) were included in our completer sample (NP = 57 and VC = 55). No significant between-group differences were found on baseline characteristics between the completers and noncompleters.

Overall, therapist protocol adherence was excellent ($M = 96\%$, $SD = 1\%$) with little variability across therapists, modality, domain of ratings or sessions. In fact, no significant effects were found for any of the five specific effects tested: (a) Therapist, $F(3, 5) = 1.85$, $p = .26$, partial $\eta^2 = .53$; (b) Modality, $F(1, 5) = 0.26$, $p = .63$, partial $\eta^2 = .05$; (c) Domain of Ratings, $F(1, 5) = 3.03$, $p = .14$, partial $\eta^2 = .38$; (d) Modality × Domain Interaction, $F(1, 5) = 1.07$, $p = .35$, partial $\eta^2 = .18$; and (e) Therapist × Modality Interaction, $F(1, 5) = 1.88$, $p = .25$, partial $\eta^2 = .53$.

Discussion

The provision of EBTs to returning military with PTSD residing in rural locations is a significant challenge to the VA and clinicians treating this population. Although the ability to detect and treat the psychiatric disorders that result from combat exposure has improved, it is becoming increasingly important to take the necessary steps to ensure that EBTs are accessible and effectively provided to all military populations in need of services, regardless of location. To maintain the effectiveness of established treatments now provided via new communication technologies that “unite” distant treatment providers with rural clients, it is important that the shift in communication modality does not interfere with therapists’ ability to adhere to the manualized interventions when conducting evidence-based group treatments with veterans. The focus on adherence serves as a proxy for the transmission of key content and processes components of psychological treatments that are thought to underlie therapeutic gains.

This study found that the use of VC did not impact therapist adherence to a manualized CBT anger management group psychotherapy when compared with traditional in-person delivery. In particular, no statistically significant differences in rates of therapist adherence to the treatment protocol were found between service delivery modes on content or process variables and treatment adherence was very high in both modalities (96%). These findings extend those of a prior smaller study (Frueh et al., 2007a) and indicate that mental health services can be delivered via a TMH application in a manner that maintains the fidelity of the manualized treatment protocol. This study provides support for the use of a VC modality and highlights the importance of VC interventions as a way to increase access to evidence-based care for veterans and returning Operation Iraqi Freedom/Operation Enduring Freedom service members residing in rural or remote locations. Given the high prevalence of newly
Table 1
Demographic Information and Psychiatric Diagnoses of the Total Sample and NP and VC Groups

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Total sample (N = 125)</th>
<th>NP group (N = 64)</th>
<th>VC group (N = 61)</th>
<th>p&lt;sup&gt;b&lt;/sup&gt;</th>
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<th>p&lt;sup&gt;c&lt;/sup&gt;</th>
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<td>PTSD severity (CAPS total)</td>
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<td>54.8 9.3</td>
<td>54.8 9.3</td>
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<td>STAXI-2 (baseline)</td>
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<td>80.2 17.1</td>
<td>77.8 15.4</td>
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<td>27.8 5.6</td>
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<td>AX</td>
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<td>56.7 12.0</td>
<td>55.0 10.3</td>
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<td>19 29.7</td>
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<td>41 67.2</td>
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<td>27 42.1</td>
<td>22 33.8</td>
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<td>10 15.6</td>
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<td>60 93.8</td>
<td>55 90.2</td>
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<td>35 54.7</td>
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<td>14 21.9</td>
<td>19 31.1</td>
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<td>.41</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mood</td>
<td>90 72.0</td>
<td>44 68.8</td>
<td>46 75.4</td>
<td>.41</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anxiety</td>
<td>32 25.6</td>
<td>13 20.3</td>
<td>19 31.1</td>
<td>.17</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Substance abuse</td>
<td>65 52.0</td>
<td>36 56.3</td>
<td>29 45.5</td>
<td>.38</td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

Note. NP = in-person condition; VC = videoconferencing condition; SD = standard deviation; AX = Anger Expression subscale of the STAXI-2; CAPS = Clinician-Administered PTSD Scale; PTSD = posttraumatic stress disorder; STAXI-2 = State-Trait Anger Expression Inventory; T-ANG = Trait Anger subscale of the STAXI-2.

<sup>a</sup>The total intent-to-treat sample (N = 125) was used. The variable breakdowns do not sum to 125 due to missing values.

<sup>b</sup>The p-values for the baseline differences between NP and VC groups were assessed via t tests for continuous variables.

<sup>c</sup>The p-values for the baseline differences between NP and VC groups were assessed via chi-square tests of independence for nominal/ordinal variables.

diagnosed PTSD and low rates of mental health treatment utilization in Iraq and Afghanistan veterans (Seal et al., 2010), additional studies on adherence to treatments for PTSD conducted via VC are necessary to increase access to EBTs for these veterans.
This study has several limitations. Results may not generalize to other populations, as this study only examined male VA treatment-seeking Vietnam veterans with PTSD. In addition, only one treatment was examined; other treatments may not be as easily translated into a VC service delivery model. Also, the raters of therapist adherence were not blind to the mode of treatment delivery. However, the findings of this study are encouraging and suggest that the delivery of manualized psychotherapy via VC equipment is a viable means of treatment.

A strength of this sample was that it included a large number of ethnoracial minorities (i.e., Asian Americans, Native Hawaiians, other Pacific Islanders). The current findings, coupled with the results of our primary clinical and process outcome findings (Greene et al., 2010; Morland et al., 2010), suggest that VC is a viable means of delivering mental health services to people with severe mental disorders living in rural or remote areas. Furthermore, our data suggest that VC delivery does not have to represent a compromise in the quality of care. These findings are reassuring in light of the increasing need for interventions that will alleviate existing shortages in access to health care in rural areas (Committee on the Future of Rural Health Care, Institute of Medicine, 2004; New Freedom Commission on Mental Health, 2003). Further research efforts are needed to expand these findings, including studies examining therapist adherence to VC interventions with other treatment approaches and other clinical populations.

References


