

Shorter communication

Videoconferencing-based cognitive-behavioral therapy for obsessive-compulsive disorder

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Abstract

Obsessive-compulsive disorder (OCD) is a prevalent, chronic and disabling anxiety disorder. Despite the efficacy and strength of pharmacologic interventions for OCD, medications are not always well accepted or effective, making an efficacious psychosocial alternative especially attractive. Cognitive-behavioral therapy (CBT) has been established as an effective treatment for adult OCD, yet access to such treatment is limited, especially in rural areas. Technological advances allow for therapy to be provided in a real-time format over a videoconferencing network. This method allows therapists to provide state-of-the-art treatment to patients who would not otherwise have access to it. This paper presents three cases of OCD successfully treated via videoconferencing CBT. The presence of OCD was established via structured clinical interview and clinician-rated outcome measures were completed by evaluators blinded to the method of treatment. A multiple baseline across individuals design was used to support the internal validity of the CBT outcome data. Patient ratings of therapeutic alliance were high across all three cases. Information gathered from qualitative interviews post-treatment confirmed quantitative measures finding high levels of patient satisfaction. This pilot study suggests that videoconferencing-based CBT is a promising method to bring appropriate treatment to thousands who live far distances from well-trained therapists.

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Introduction

Obsessive-compulsive disorder (OCD) includes recurrent and persistent, ideas, thoughts, or images that are experienced as intrusive and inappropriate (obsessions) and/or repetitive behaviors or mental acts that a person feels driven to perform in response to an obsession and/or discomfort (compulsions) (DSM-IV, American Psychiatric Association, 2000). The Epidemiologic Catchment Area Study (ECA) revealed a lifetime prevalence of 2.5% in five US communities, making OCD more common than schizophrenia, bipolar

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disorder, and panic disorder (Karno, Golding, Sorenson, & Burnam, 1988). Nearly identical rates of OCD have been observed among urban and rural dwellers (2.00% and 2.07%, respectively; George, Hughes, & Blazer, 1986).

Empirically supported interventions for OCD include serotonin reuptake inhibiting medication and cognitive-behavioral therapy (CBT). Serotonin re-uptake inhibitors (SRIs) are now established as the first line medications treatments for OCD (March, Frances, Carpenter, & Kahn, 1997). Despite the efficacy and strength of pharmacologic interventions for OCD, medications are not always well accepted or effective, making an efficacious psychosocial alternative especially attractive.

Expert consensus guidelines recommend that individuals with OCD receive cognitive-behavioral therapy for their OCD symptoms (March et al., 1997). However, many patients with OCD do not receive CBT. Data from the Epidemiologic Catchment Area Survey indicate that only 7% of men and 12% of women with OCD sought help for their condition within the specialized mental system, the only likely place where CBT for OCD might be available (Leon, Portera, & Weissman, 1995). A recent Canadian study also indicates that only 36% of individuals with OCD ever discussed their condition with any health professional (Mayerovitch et al., 2003).

It is also likely that many patients with OCD who receive “CBT” do not receive treatment from a clinician sufficiently trained to deliver manual-based CBT for OCD (Nakagawa et al., 2000). Clearly, many practicing clinicians simply have not had adequate training in CBT. A survey of directors of clinical psychology training programs concluded that only one-half of the adult-only programs provided any meaningful training in empirically validated CBT for depression and anxiety disorders (Crits-Christoph, Frank, Chambless, Brody, & Karp, 1995). Those rare clinicians who have obtained specialized CBT training in OCD frequently work in specialty care clinics located in urban settings (Barlow, Levitt, & Bufka, 1999) resulting in treatment shortages in many areas of the United States, especially in rural areas.

One potential remedy for the lack of CBT resources in rural settings is to encourage rural practitioners to seek training in CBT for OCD. Barlow and colleagues (1999) recommend that practitioners aiming to acquire competency in a particular empirically supported psychosocial treatment begin by studying an available treatment manual, attending lengthy didactic presentations, and treating one (or more) pilot cases with direct supervision. They also indicate that this standard clearly exceeds the type of training included in most continuing education programs.

Obtaining the training recommended by Barlow et al. would also involve significant expense. Given that OCD patient flow is limited in rural settings, the cost and time required to develop competency in CBT for OCD may not be seen as a worthwhile investment for many rural practitioners. This is may be especially true for primary care physicians who provide a large portion of mental health care in rural settings (Hartley, Bird, & Dempsey, 1999). Even if a rural practitioner were interested in pursuing extended training in CBT for OCD, supervision would likely be difficult to arrange. Finally, if a rural practitioner did invest the time and money into developing expertise in treating OCD with CBT, skills may atrophy with limited case-flow.

In sum, there are significant barriers to disseminating state-of-the-art psychosocial treatment for OCD, especially in rural areas. Strong evidence for the value of CBT for OCD has been in place for nearly 30 years (Emmelkamp & Kraanen, 1977), yet the vast majority of practitioners still do not possess these skills. Given rural training and dissemination challenges outlined above, an alternative method to provide CBT for OCD to patients in these areas is to take advantage of currently available technology (telemedicine).

The field of telemedicine has been established for some time and its utility is well documented, particularly in delivering services to underserved populations in rural areas (McGee & Tangalos, 1994; Puskin, 1995). Several telepsychiatry methods, including Internet-based (Carlbring, Ekselius, & Andersson, 2003; Kenardy, McCafferty, & Rosa, 2003; Lange, Van de Van, Schrieken, & Emmelkamp, 2001), multimedia computer programs (Wright et al., 2002), and telephone-based treatment (Greist et al., 2002; Swinson, Fergus, Cox, & Wickwire, 1995), have all shown positive outcomes for anxious patients.

Videoconferencing may be an especially valuable method of technology-based mental health service delivery given that it offers the closest proxy to “gold standard” face-to-face therapy. Videoconferencing involves the use of specialized equipment that provides real-time televised interaction between the clinician and the patient. The cost of stand-alone professional videoconferencing equipment can range from approximately \$4000–18,000 per unit depending on features. Computer-based systems that include software and camera

can be obtained for approximately \$300. Picture quality and speech delay problems can occur with these units and since computer-based units use the worldwide web, the security of the conversations may not be assured.

Anecdotal reports over the past decade describe the use of videoconferencing methods to deliver psychotherapy to rural mental health populations (Frueh et al., 2000). Recent studies support the value of videoconferencing CBT for anxiety disorders. One recent study from rural Canada compared the effectiveness of videoconferencing versus face-to-face delivery of CBT for rural dwelling patients with panic disorder (Bouchard et al., 2004). The large majority of participants were panic free post-treatment and no significant differences in outcome were observed between face-to-face versus videoconferencing CBT. Recently, Pelletier (2003) reported significant improvement among five patients with social phobia given videoconferencing-based CBT. Positive outcomes were also reported for a videoconferencing-based single-session group CBT for combat-related PTSD (Deitsch, Frueh, & Santos, 2000). Other single case studies have also found positive results using videoconferencing-based CBT for anxiety disorders (Cowain, 2000; Manchanda & McLaren, 1998). In addition to improved anxiety symptoms, favorable working alliances were also reported in many of the above studies (Bouchard et al., 2004; Manchanda & McLaren, 1998).

To date, no studies have examined the feasibility or effectiveness of videoconferencing-based CBT for OCD. However, videoconferencing has been used to assess OCD symptoms. Baer et al. (1995) reported high acceptance levels and near-perfect inter-rater agreement on OCD, anxiety, and depression rating scale scores among OCD patients assessed both traditionally and via videoconferencing. To date, two telemedicine-based methods have been used to deliver treatment to persons with OCD. Taylor et al. (2003) recently reported positive results among 33 OCD patients given telephone-delivered CBT. Effect sizes and attrition levels were similar to those obtained in other trials of CBT delivered via face-to-face office-based sessions. Because of potential difficulty assessing and intervening with significant depression and suicidality via the telephone, patients meeting criteria for current major depression were excluded from this trial. This limitation, although likely necessary, is significant given that approximately one quarter of treatment seeking OCD patients meet concurrent criteria for major depression at intake (Brown, Campbell, Lehman, Grisham, & Mancill, 2001).

The second previously studied telemedicine-based CBT intervention used to treat OCD is known as BT-STEPS[®] (Greist et al., 2002). This program uses a telephone interactive voice response system to direct OCD patients through a CBT program. BT-STEPS[®] assists the patient in the design and implementation of exposure and response prevention exercises via telephone activated voice-prompts. Several outcome studies of BT-STEPS[®] have shown positive results (Greist et al., 2002; Marks et al., 1998; Nakagawa et al., 2000). The largest of these compared OCD patients randomly assigned to therapist guided CBT, BT-STEPS[®], or a relaxation control (Greist et al., 2002). Clinician-guided therapy yielded better outcomes and higher satisfaction ratings compared to BT-STEPS[®], but both active conditions were superior to relaxation control. However, across various studies of BT-STEPS[®], only about half of those who complete the assessment module actually go on to participate in the self-conducted CBT treatment (Marks et al., 1998). Of those who do participate, many patients complete only a few sessions of CBT (Greist et al., 2002). Effect sizes with BT steps are also less than those typically obtained with face-to-face CBT. BT-steps also cannot respond to clinical nuances or marked changes in symptoms like a live therapist. However, BT-steps can be delivered inexpensively and a therapist is not required.

Videoconferencing-based CBT for OCD may overcome some of the attraction and retention difficulties associated with BT-STEPS[®] and concerns about treating depressed persons with OCD via the telephone. Videoconferencing-based CBT allows for visual assessment of depressive symptoms and is the most similar of the telemedicine-based treatments to “gold standard” face-to-face CBT. The present paper presents the first trial of videoconferencing-based CBT for OCD in the research literature.

Method

Subjects

Three persons seeking treatment for OCD at the University of Michigan Anxiety Disorders Program participated in the study. Patient 1 is a 19-year old University student with a 14-year history of checking and repeating rituals. Her primary concerns involve checking and counting related to fear of harm coming to

others. She reported a past episode of major depression. She was taking fluoxetine at a steady dose for 3 months at intake and her medication remained stable throughout the study period and at follow-up. Patient 2 is a 29-year old woman with a 4-year history of contamination concerns. Although she did report excessive washing behaviors, her primary response to her contamination obsessions involved compulsive reassurance seeking. She met criteria for recurrent major depression in partial remission and she also reported sub-clinical specific and social phobias at intake. She was taking paroxetine at intake and remained on a consistent dose throughout treatment. Her medications were adjusted and new medications were prescribed during the follow-up period. Patient 3 is a 39-year old female with a 13-year history of collecting and hoarding compulsions. Her home was nearly impossible to navigate at intake. She met structured interview criteria for recurrent major depressive disorder at baseline. She was not taking any anti-obsessional medications at baseline or throughout treatment and follow-up.

Study design

Following a multiple-baseline across individuals design, the patients were randomly assigned to a 1, 2, or 3-week baseline period prior to beginning the 12-week manualized CBT intervention. Sessions were delivered over a secure videoconferencing network using Polycom Viewstation™ teleconferencing equipment. The videoconferencing units were connected to 6 point-to-point ISDN lines providing 384 kilobits of information per second, which yielded clear images and minimal speech delay. Therapists were able to pan and zoom the units in order to better detect emotional states and to allow for a wider view of in-session exposure exercises. All sessions were 60 min in length and family members participated in sessions one, six, and 12. Exposure and response prevention therapy (ERP) was the primary intervention method. ERP was delivered in session and as homework. Although the additive value of cognitive methods to ERP is somewhat controversial (Foa, Franklin, & Kozak, 1998) brief cognitive interventions aimed at enhancing adherence to ERP exercises were

Table 1
CBT session content

Session	CBT
Session 1	Introductions/psychoeducation: OCD/behavior treatment overview (<i>Patients and family members present</i>)
Session 2	Psychoeducation: Externalizing OCD CBT: Analyzing OCD symptoms
Session 3	Psychoeducation: Principles of CBT CBT: Design and implement initial CBT assignments—Exposure and response prevention (ERP)
Session 4	Psychoeducation: Review causes of OCD CBT: ERP, Cognitive methods and coping statements
Session 5	Psychoeducation: Family life and OCD (preparing for session with family members) CBT: ERP, attitudes that help with CBT
Session 6	Psychoeducation: Family life and OCD CBT: ERP (<i>Patients and family members present</i>)
Session 7	Psychoeducation: Family life and OCD (debriefing of session with family members) CBT: ERP, Cognitive approaches
Session 8	Psychoeducation: Comorbidity and OCD CBT: ERP, Strategies for making CBT more effective
Session 9	Psychoeducation: Social life and OCD CBT: ERP, Dangers of improvement and secondary gain
Session 10	Psychoeducation: Lifestyles and OCD CBT: ERP, Mock CBT scenarios
Session 11	Psychoeducation: Preparing to end CBT: ERP, Mock CBT scenarios
Session 12	Psychoeducation: Review of CBT treatment CBT: ERP (<i>Patients and family members present</i>)

included in selected sessions. A detailed therapist manual guided CBT and participants received workbooks that included psychoeducational materials and CBT homework forms. Table 1 describes the session-by-session CBT program. All sessions were audio taped and reviewed for intervention fidelity using session-specific therapist adherence measures.

Measures

Diagnostic assessment was made via structured interview (SCID-I/P; First, Spitzer, Gibbon, & Williams, 1995). Interviewers blinded to whether subjects received face-to-face or videoconferencing-based CBT completed outcome assessments. The primary measure for assessing outcome was the Yale-Brown Obsessive Compulsive Inventory (Y-BOCS; Goodman et al., 1989a, b). Overall improvement with treatment was measured using the Clinical Global Improvement scale (NIMH, 1985), a single-item, 7-point scale.

Patient functioning was measured using the Work and Social Adjustment Scale (WSAS; Marks, 1986). This instrument assesses work, family relationships, social and leisure time, and economic functioning. Depressive symptoms were assessed using the Hamilton Depression Rating Scale (HDRS; Hamilton, 1960). Therapeutic alliance was measured using the Working Alliance Inventory (WAI; Horvath & Greenberg, 1989). Overall treatment satisfaction and the likelihood of the patient recommending the treatment to others with OCD was measured using two 0–6 Likert scales (0 = extremely unlikely/unsatisfied; 6 = extremely likely/satisfied).

Response to the videoconferencing format was measured using the telepresence and videoconference scale (Bouchard et al., 2004). This scale measures how natural the videoconferencing format seemed, how much the participant felt present with the therapist, and how actively they participated. The scales uses 0–100 percentage scale (0% = completely disagree; 100% = completely agree) to indicate how much the subject agrees with each of the 10 items. Finally, subjective impressions were obtained from open-ended qualitative interviews with participants post-treatment.

Results

Yale-Brown scores

All three patients completed the entire 12 weeks of treatment. Substantial decreases in total Y-BOCS scores were observed (Fig. 1). Three-month follow-up symptom ratings were available for patient 1 and patient 3. Patient 2 experienced hypomanic symptoms during the follow-up period and she did not follow-through with her follow-up assessment appointments. Follow-up ratings support the durability of videoconferencing-based CBT for OCD.

Additional outcomes

Table 2 presents outcome ratings for the other measures. Clinical global improvements ranged from 1 (very much improved) to 2 (much improved) post-treatment and at follow-up. The Hamilton Depression Rating Scale showed mixed results with one patient improving and one patient experiencing a sub-clinical worsening of depressive symptoms at follow-up. The post-treatment Working Alliance Inventory scores were very high for all participants. Finally, Telepresence and Videoconferencing Scale ratings were high and improved from pre- to post-treatment.

Summary

Results of this multiple baseline study suggest that manualized CBT for OCD can be effectively delivered via a videoconferencing network. The percentage of improvement in Y-BOCS scores ranged from 44% to 55% which compares favorably to rates of improvement observed in face-to-face CBT (Abramowitz, 1997). All participants experienced substantial improvement. Patient 2 experienced an abrupt increase in symptoms associated with an unplanned encounter with a challenging contaminant just before the end of her treatment but she was able to master it quickly once this item was added to the exposure program. Work and Social

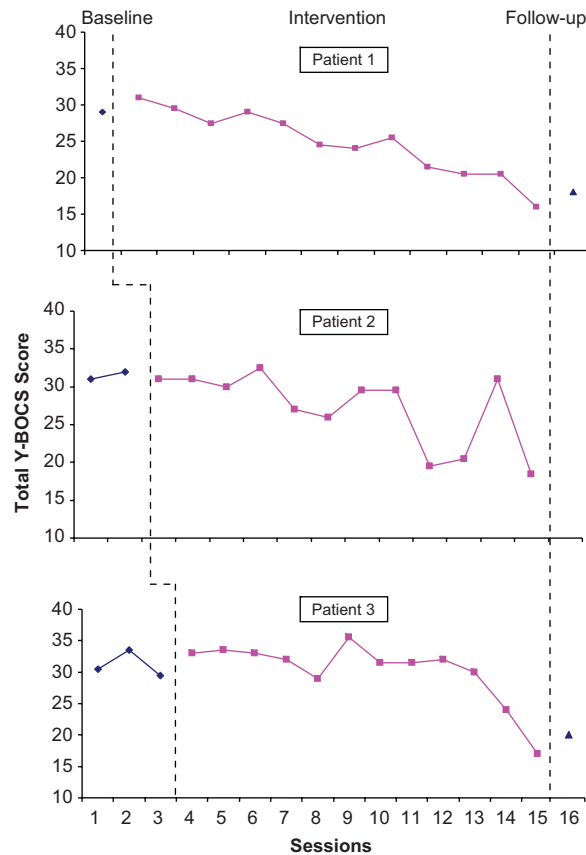


Fig. 1. Yale-Brown total score for three patients.

Table 2
Outcome measures pre-treatment, post-treatment, and follow-up

	Patient 1			Patient 2			Patient 3		
	Pre	Post	Follow-up	Pre	Post	Follow-up	Pre	Post	Follow-up
YBOCS	29	16	18	31	14	—	30.5	17	20
GCI	N/A	1	2	N/A	1	—	N/A	2	2
HAM-D	5	0	11	6	5	—	20	14	8
WSAS	20	16	8	20	11	—	36	35	30
WAI	N/A	237	N/A	N/A	219	N/A	N/A	224	N/A
Telepresence and Videoconferencing Scale	34 ^a	50	N/A	87 ^a	100	N/A	64.2 ^a	86	N/A

^aThe initial Telepresence and Videoconferencing Scale was administered immediately after the first session.

Adjustment scores also improved for two out of the three participants indicating substantial functional improvement. The patient with minimal functional improvement (Patient 3; severe hoarder), continued to experience limited social relationships and remained unemployed throughout the trial.

Another finding in support of the utility of videoconferencing-based CBT was the notable improvement observed across patients with a range of OCD symptoms including hoarding, cleaning/contamination, and checking/repeating rituals. Finally, the high degree of symptom improvement and 100% treatment retention suggests that videoconferencing CBT has utility in the treatment of OCD.

The notable improvements observed for one patient meeting concurrent criteria for major depression and a second in partial remission from recurrent major depression suggests that videoconferencing CBT may be a suitable alternative to telephone-based CBT for OCD which may not be indicated for at least some patients with major depression (Taylor et al., 2003). The videoconferencing interface likely allows clinicians to assess mood states and suicidal ideation/behavior more accurately than would be possible via the telephone. Videoconferencing-based CBT may also be a more desirable alternative to the computerized telephone-based CBT intervention BT-STEPS[®] (Greist et al., 2002). In the most recent and largest trial of BT-STEPS[®] (Greist et al., 2002) participants receiving BT-STEPS[®] improved an average of 23% on the Y-BOCS and approximately 65% who completed the introductory module actually went on to participate in the CBT portion of the program. However, because of the relatively low level of resources required to initiate a course of BT-STEPS[®] treatment, videoconferencing- and telephone-based CBT may have utility as second line treatments for persons in rural settings who do not improve with BT-STEPS[®].

Beyond clinical improvement, the videoconferencing format was also associated with high ratings of treatment satisfaction and therapeutic alliance. The participants quickly accommodated to the videoconferencing environment and uniformly reported high levels of “telepresence” resulting in a feeling that they were “in the room” with the therapist. Exit interviews yielded several positive comments regarding the acceptability of videoconferencing-based CBT including: “I was a little less nervous in the beginning because someone wasn’t directly in the room with me. So it made it easier for me.” “I think the relationship would have been the same if we were in the same room.” “It was just like regular therapy to me. It helped me. I just wouldn’t change anything about it.”

These positive results notwithstanding, videoconferencing-based therapy does present several potential challenges. One important issue relates to expressed emotion during therapy sessions. There was initial concern that the videoconferencing format may dampen therapist empathic responses. Additionally, we anticipated that some patients may feel self-conscious about expressing emotion (e.g. crying) when isolated in a videoconferencing suite (Mitchell, Myers, Swan-Kremeier, & Wonderlich, 2003). Our experience in this clinical trial suggested that patients displayed a full range of affect during the videoconferencing sessions. High Working Alliance Inventory total scores, coupled with strong ratings on items specific to therapist empathy, revealed that videoconferencing yielded robust, empathetic, therapeutic relationships.

Drafting of CBT homework exercise worksheets and concept diagramming can also be challenging with videoconferencing CBT. Homework assignment sheets can be held up to the camera and/or faxed during the session but these solutions are less than ideal. With respect to diagramming CBT concepts related to OCD, our therapist manual and client workbook contained several conceptual drawings in order to reduce the need to draft them during the session. However, it is not possible to anticipate all CBT diagramming needs within a patient workbook. In future studies of videoconferencing CBT, homework and CBT concept illustrations may be facilitated via the use of currently available computer technology that allows for real-time computer graphics to appear on the videoconferencing screen.

We anticipated several potential OCD-specific challenges associated with the videoconferencing method of CBT delivery. One OCD-specific challenge related to therapist modeling of potential exposure exercises to be assigned as homework. Some extra preparation was needed in order to have the required stimuli for modeling of exposures in both the therapist’s and the patient’s videoconferencing suite. For example, contamination stimuli such as chemicals, dirt, bodily substances, etc. needed to be present in equal strength in both the therapist and patient sites in order to allow the therapist to model exposure exercises. A second OCD-specific challenge related to the effectiveness of therapist modeling of in-session exposure exercises. It was anticipated that therapist modeling would be less powerful over the video interface. Our clinical experience with these cases suggests that therapist modeling retains much of its value over the videoconferencing screen. There was also some initial concern that the videoconferencing format may make it difficult for the therapist to judge the level of patient anxiety associated with a potential in-session/homework exposure exercise. Although this was not a large challenge, therapists did rely more on verbal reports of anxiety levels since non-verbal communications were somewhat attenuated over the video interface.

Therapist reinforcement is an integral part of CBT for OCD. Therapists often provide verbal and non-verbal reinforcements as patients confront challenging OCD stimuli. There was some initial concern that the video interface may dampen the power of therapist reinforcements aimed at increasing ERP compliance.

Therapists did rely more on verbal rather than non-verbal (e.g. nodding, touching) forms of social reinforcement but high ratings of telepresence and therapeutic alliance suggest that the videoconferencing format did not significantly interfere with therapist reinforcement.

Our initial clinical experience with videoconferencing-based exposure exercises also revealed some benefits associated with the video interface. Patients often appeared to be less self-conscious when performing exposure via videoconferencing as compared to face-to-face treatment. Clinical impressions suggested that the videoconferencing technology reduced concern about showing distress to the therapist. Finally, patients appeared to feel more confident about their ability to complete exposure exercises outside of the session given that their in-session exposure was performed at a distance from the therapist.

In addition to the clinical challenges described above, videoconferencing CBT faces two practical challenges associated with its widespread dissemination. Although many rural healthcare sites in the United States have videoconferencing facilities (USDHHS, 2001), access to secure videoconferencing units is still somewhat limited and the equipment remains costly. However, new affordable personal computer-based videoconferencing systems and recent price reductions in self-contained equipment suggests that the financial barriers may be easing.

The second challenge related to the dissemination of videoconferencing-based CBT concerns inadequate insurance reimbursement for these services. Although some insurance companies provide reimbursement for videoconferencing-based psychiatric services, most do not (USDHHS, 2001). Compelling arguments have asserted that these and other telemedicine services should be covered (Williams, Reemes, & Thompson, 1996) and some progress has been made in addressing this problem (USDHHS, 2001). One important strategy to improve reimbursement for videoconferencing-based psychiatric services is to build additional empirical support for the effectiveness of videoconferencing-based approaches.

Although the results of this multiple baseline study suggest that videoconferencing-based CBT can be effectively delivered to persons with OCD, the results of the present study must be viewed with some caution. Although the multiple baseline design supports the internal validity of the observed improvements, a larger sample size and a randomized control group design would provide a more rigorous test of the videoconferencing method. The logical next step in building scientific support for videoconferencing based CBT for OCD is to complete a larger open trial. If this trial yields promising results, randomized comparison to standard face-to-face CBT could follow. It is also intriguing to consider the relative effectiveness and acceptability of videoconferencing-based CBT to BT-STEPS[®] and telephone-delivered CBT for OCD. Finally, beyond treatment for OCD, videoconferencing-based CBT holds promise as a method for delivering evidence-based psychosocial treatment at a distance for persons with other psychiatric disorders.

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