Cognitive Behavior Therapy for Panic Disorder with Agoraphobia in Videoconference: Preliminary Results

STÉPHANE BOUCHARD, Ph.D.,1,2 RICHARD PAYEUR, M.D.,2,3 VICKY RIVARD, M.A.,4 MICHELINE ALLARD,4 BELLE PAQUIN, M.A.,1 PATRICE RENAUD, Ph.D.,1 and LYSANNE GOYER, Ph.D.1

ABSTRACT

Many studies have shown the feasibility of psychiatric consultation in telehealth, and some have addressed the effectiveness of telepsychotherapy. However, outcome studies on telepsychiatry essentially amount to a few case studies, none of which have used an empirically validated psychosocial treatment to treat a specific mental disorder. This article presents the preliminary results of an outcome study on the effectiveness of telepsychotherapy for panic disorder with agoraphobia. Participants received 12 sessions of cognitive-behavior therapy, which is an empirically validated treatment for panic disorder with agoraphobia. The treatment was delivered via videoconference by trained therapists according to a standardized treatment manual. The remote site was located at 130 km north of the local site and both were linked by six ISDN lines. Telepsychotherapy demonstrated statistically and clinically significant improvements on measures of target symptoms (frequency, of panic attacks, panic apprehension, severity of panic disorder, perceived self-efficacy) and measures of global functioning (trait anxiety, general improvement). Of interest was the fact that a very good therapeutic alliance was built after only the first telepsychotherapy session. Factors that may reduce the effectiveness of telepsychotherapy are discussed.

INTRODUCTION

Delivering psychotherapy in videoconference offers the same advantages as other forms of telehealth such as accessibility and potential reduction in costs.1 However, telepsychotherapy poses specific challenges of its own. Compared to other forms of telehealth (e.g., radiography, surgery), consultations, assessment, and treatment in psychotherapy rely more heavily on verbal and nonverbal interactions, observations of the patient’s behavior, and the development of a sound therapeutic relationship.

Many studies have shown the feasibility of telehealth, especially for diagnostic interviews2 and psychiatric consultations.3–8 In all studies on telepsychiatry, researchers report very high satisfaction rate from patients. For example, in the Alberta study,8,9 100% of the patients preferred telepsychiatry rather than having to drive to another city to meet their psychiatrist, 94% would use telepsychiatry again, and 97% would recommend it to a friend. In the pre-

1Université du Québec à Hull, Hull, P.Q., Canada.
2Centre Hospitalier Pierre-Janet, Hull, P.Q., Canada.
3Centre Hospitalier des Forestiers (Maniwaki), P.Q., Canada.
4Ottawa University, Ottawa, Ontario, Canada.
sentation of their own results and those of a re-
view of the literature, Gutske and colleagues reported similar satisfaction rates in a variety of telehealth applications ranging from cardiology to psychiatry.

However, psychiatric consultations are not psychotherapy sessions. In many telepsychiatry studies, the number of consultations per patient is too low to be considered psychotherapy. For example, in the Alberta study, the 190 telepsychiatry sessions were conducted with 90 patients, for an average of two sessions per patient, which is clearly insufficient for psychotherapy. Also, many people are reluctant to receive mental health services through videoconference. For example, in a survey of 200 people from a rural community, Rohland et al. found that a third of the respondents would refuse such services, namely because of the perceived impersonal nature of telehealth, concern towards confidentiality and their lack of information about telehealth. Needless to say, treatment acceptability and credibility are two essential ingredients for effective psychotherapy. It is, therefore, warranted to conduct studies on telepsychotherapy and pay attention to issues such as effectiveness, treatment acceptability, treatment credibility, and warmth.

A few studies on the feasibility and effectiveness of telepsychotherapy have been conducted so far. Every study on the topic is instrumental in demonstrating that telepsychotherapy is feasible. Given current scientific standards in outcome research in psychotherapy, however, it is impossible to conclude that telepsychotherapy is an effective method of treatment until the following methodological issues are addressed: comparing the effectiveness of telepsychotherapy to a valid control condition with a rigorous randomized design, targeting specific disorders and specific symptoms, using large samples in order to have sufficient statistical power and representativity, assessing outcome with valid and reliable instruments, making use of statistical analyses to confirm the presence of statistically significant improvement on specific measures as well as end-state functioning, conducting follow-ups, and testing treatments that have already been empirically validated using standardized treatment manuals.

So far, the study that comes the closest to these standards is still in press and was conducted by Schneider. There were 80 patients with heterogeneous disorders randomly assigned to either a waiting list, a face-to-face treatment, a telephone-based treatment and a videoconference-based treatment. Results showed that five treatment sessions lead to statistically significant improvements in all three conditions when compared to the waiting list. There were no significant differences between the three active treatment conditions. All therapy sessions took place in the same building. Although it lacks similarity with actual telehealth services, the absence of a remote site can be considered as a methodological strength because it controls for potential differences between sites.

Although telepsychotherapy may be feasible and effective, many people still raise concerns about its appropriateness and mental health professionals seem reluctant to accept this application of telehealth. An important issue in the debate on telehealth applications of psychotherapy is the choice of the type of therapy. It may be that experiential, insight-oriented or psychodynamic psychotherapy is not appropriate for telehealth. But cognitive-behavior therapy (CBT) may be suitable with a videoconference format for at least two reasons. First, in CBT, the development of a therapeutic alliance is considered as an important issue but not a therapeutic goal. Small limitations in terms of therapeutic alliance may thus be more manageable. Second, most of the therapist’s efforts are directed toward changing beliefs and behavior with strategies that are based on learning principles. There is no reason to think that this could be impossible via videoconference. Moreover, because CBT is an empirically validated treatment for many mental disorders, it seems appropriate to test it in telehealth.

The aim of this article is to report the preliminary results of a controlled outcome study on the effectiveness of telehealth CBT for panic disorder with agoraphobia. In the study that is currently in progress, half of the sample has been recruited in Maniwaki (the remote site), a city of 4,600 people located at 130 km north of Hull (province of Québec) and already served...
by adequate mental health services (a regional hospital, a mental health clinic, local community services, services for natives on a reservation, etc.). The other half of the sample is recruited in Hull (local site), a large urban city adjacent to Ottawa (capital of Canada). In each site, the patients are randomly assigned to either a waiting list or a CBT. In the remote site, the patients are treated using videoconference. In the local site, the treatment is delivered face to face. This article will focus exclusively on the first patients who have completed CBT in videoconference and for which all the data is available.

METHOD

Sample

All participants were referred to mental health professionals working in the mental health clinic in Maniwaki. When the patient seemed interested, they were referred to us by the coordinator of the mental health clinic. Approximately half the referrals have already received treatment for anxiety or other mental disorders, the other half being new patients. Upon referral, each participant received the Structured Clinical Interview for DSM-IV\(^\text{18}\) in order to ascertain reliably the presence of panic disorder with agoraphobia as well as other mental disorders. The defining features of panic disorder with agoraphobia are the presence of recurrent periods of intense fear that are unexpected, persistent apprehension of having another panic attack, and avoidance of places or situations where one might have a panic attack.\(^\text{19}\) Because of agoraphobia, the patients often avoid long distance trips and may even remain housebound. It is one of the most prevalent and costly mental disorders, and it often remains undiagnosed or treated with ineffective methods.\(^\text{20–22}\)

The following exclusion criteria were used during the selection: (a) principal diagnosis other than panic disorder with agoraphobia; (b) self-report of less than four panic attacks in the month preceding the SCID; (c) duration of illness of less than 6 months; (d) diagnosis of bipolar disorder, schizophrenia, or psychotic disorder, mental organic disorder, intellectual deficiencies, or severe personality disorders; (e) aged below 18 or above 65; (f) currently receiving other psychological treatment; (g) presence of a medical condition precluding participation in the treatment for methodological of clinical reasons (e.g., hypoglycaemia, cardiovascular disease, Meniere syndrome, asthma, history of seizures, pheochromocytome, hyper- or hypo-thyroid disorders, brain and lung tumours); (h) if taking antidepressants, MAOIs, or SSRIs, using the drug for less than 6 months or, if taking benzodiazepines, using it for less than 3 months. Subjects on medication who corresponded to the selection criteria were included only if they agreed not to change their medication or to increase its dosage during the study.

This article reports on the first eight adults to complete the treatment, three men and five women. Non-parametric analyses are used given the small sample size. The median age of the participants is 30 (between 23 and 63), the median number of years in school is 12 (from 9 to 15), they have been suffering from panic disorder with agoraphobia for approximately 2.5 years (from 1 to 12) and all have between one and four comorbid disorders in addition to panic and agoraphobia (mostly generalized anxiety disorder, social phobia, major depression, and alcohol abuse).

Instruments

The following variables were assessed before and after treatment: panic attacks and panic apprehension, global assessment of the severity of panic disorder with agoraphobia, self-efficacy to control panic attacks, trait anxiety, and global functioning. The therapeutic alliance and a questionnaire about the videoconference experience were also measured after the first therapy session.

Daily diaries. Panic attacks and panic apprehension were recorded on diaries completed during a 4-week pre-treatment, self-monitoring period and a 4-week post-treatment, self-monitoring period. Before beginning self-monitoring, subjects received detailed information about the importance of the diaries and how to
complete them adequately. Subjects were instructed to carry the panic diary with them at all times and complete it as soon as possible after a panic attack. Participants were instructed on how to identify and monitor a panic attack and how to differentiate it from generalized anxiety and episodes of stress. A written description and a graphic representation of a panic attack were also provided. The panic diary provided information about: (a) the date and time of onset; (b) the duration of the panic (from the onset of the symptoms to the beginning of their reduction); (c) whether the panic was cued or uncued (with description of the cues); (d) the maximum severity using an anchored scale from “0” to “10”; and (e) the list of each of the 13 DSM-IV’s symptoms. Only panic attacks with more than four symptoms were counted and averaged over the 4 weeks to provide a mean number of panic per week. Panic apprehension was recorded daily on a separate form using category partitioning with the following anchored points: “none,” 0; “minimal,” 1–20; “some,” 21–40; “average,” 41–60; “a lot,” 61–80; “extreme,” 81–100.

Self-report assessing target symptoms. The degree of severity of panic disorder and agoraphobia was assessed by the participant with the Panic and Agoraphobia Scale (P&A). The P&A contains 13 items with 0–4-point scales grouped in five subscales: panic attacks (frequency, severity, and duration), avoidance, anticipatory anxiety, disability (family, social, employment), and worries about health. The total score is obtained by summing the item scores. The Self-Efficacy to Control a Panic Attack Questionnaire (SE-CPAQ) was used to assess perceived self-efficacy. The 25 items measure the degree of perceived self-efficacy to control a panic attack in the presence of panic symptoms, of panic cognitions and of agoraphobic places. For each item, a 0–100 scale is used to rate the degree of confidence to control a panic attack. All items are averaged to provide a global score.

Self-report assessing generalizability. Trait anxiety was assessed with Spielberger’s the State-Trait Anxiety Inventory. The 20 items are rated on a 1–4 Likert-type scale, providing a total score that varies between 20 and 80. The Sheehan Disability Scale (DISS) provides a global score that assessed, on a “0–10” scale, the degree of impairment of the participant in three areas: (a) work, (b) social life and leisure activities, and (c) family life and house responsibilities.

Self-report assessing clinically relevant aspects of videoconference. The therapeutic alliance between the participant and the therapist was assessed with the Working Alliance Inventory (WAI), an instrument developed to be applied to any psychotherapeutic orientation. It yields a total score based on the sum of the 35 items, as well as three subscores: agreement on in-sessions tasks, agreement on treatment goals, and the development of a mutual bond (therapeutic relationship). High scores represent a stronger alliance. Only the client’s perception of the alliance was measured. The perception toward telepsychotherapy was assessed by seven items rated on a 0 (Disagree) to 5 (Entirely agree): feeling better after the session, feeling worse after the session, being bothered by the videoconference, need to talk face to face, the videoconference system helped to express more easily, willingness to use videoconference again, and liking to use electronic gadgets.

Procedures

Patients were SCID-diagnosed in a face-to-face interview by one of the therapist participating in the study, but not necessarily the one that would be assigned to them for treatment. Assignment was based solely on schedule compatibility. All other contact between patients and therapists were through videoconference or fax (for exchanges about the weekly homework).

CBT was delivered once a week for 12 consecutive weeks by trained therapists: one Ph.D. level psychologist (S.B.), one master level psychoeducator (B.P.), and one Ph.D. level student (M.A.). The treatment was delivered according to a standardized treatment protocol following these steps: case conceptualization, presentation of Clark’s cognitive model of panic, application of cognitive-restructuring techniques to the interpretation of body sensations, interoceptive exposure (voluntary hyperventilation, aerobic exercises, spinning, breath hold-
measures, despite the small sample size. In order to give a more clinical feeling to the data, it is interesting to note that all participants had panic attacks prior to the treatment and that five out of eight patients were panic-free after treatment. Another patient had only one attack in the post-treatment, self-monitoring period, which was considered by him as a great improvement. The remaining two participants had a few panic attacks but were highly improved on other measures as well. One severe agoraphobic that could not drive more than 50 km away from Maniwaki before treatment was able to visit our clinic in Hull without feeling any anxiety after treatment. Another severe agoraphobic drove to Montréal (a 3-hour drive to a city of more than 2 million people).

The scores on the WAI were very high. The total score was 241 (on a scale with a maximum of 252 and a minimum of 36), the task score was 27 (on a scale with a maximum of 28 and a minimum of 4), and the scores for the goals and bond were at the maximum possible for those subscales (i.e., 28).

Despite the small sample size, it is clear that a comfortable working alliance is possible in videoconference. When asked about their impression of the videoconference experience, participants seemed fairly at ease with telepsychotherapy (Table 2).

DISCUSSION

This study is the first to report on the effectiveness of a standardized and empirically validated treatment for a specific mental disorder. The preliminary results are very encouraging. They show that CBT can be delivered through videoconference systems for patients suffering from panic disorder with agoraphobia. The re-

![FIG. 1. Videoconference apparatus at the remote site.](image)

RESULTS

Results presented in Table 1 show a statistically significant improvement on all outcome measures, despite the small sample size. In order to give a more clinical feeling to the data, it is interesting to note that all participants had panic attacks prior to the treatment and that five out of eight patients were panic-free after treatment. Another patient had only one attack in the post-treatment, self-monitoring period, which was considered by him as a great improvement. The remaining two participants had a few panic attacks but were highly improved on other measures as well. One severe agoraphobic that could not drive more than 50 km away from Maniwaki before treatment was able to visit our clinic in Hull without feeling any anxiety after treatment. Another severe agoraphobic drove to Montréal (a 3-hour drive to a city of more than 2 million people).

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<table>
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<tr>
<th>Table 1. Results of the First Eight Panic Disorder With Agoraphobia Patients Treated with CBT in Videoconference</th>
</tr>
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<tbody>
<tr>
<td>Pre-treatment mean and standard deviation</td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td>Panic frequency</td>
</tr>
<tr>
<td>Panic apprehension</td>
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<tr>
<td>P &amp; A global score</td>
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<tr>
<td>Self-efficacy score</td>
</tr>
<tr>
<td>Trait anxiety</td>
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<tr>
<td>DISS</td>
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*a*Probability lower than .05 for Wilcoxon’s signed ranks non-parametric test.
results are both statistically and clinically significant and were obtained in a setting that replicates normal clinical practice—severely disabled patients with comorbid disorders. The current sample is obviously too small and the design too weak to draw any firm conclusion, although we expect to submit our results with 40 patients and a control conditions in the year 2001.

Despite these methodological limitations, these results are significant given the current state of knowledge in the field. They provide a few hints on the feasibility of outcome studies meeting the current standards of controlled experimental manipulation, reliable assessment, and specific clinical populations. They also add support to the literature that demonstrated that a therapeutic relationship can be built in videoconference. Another benefit of the study is for patients with panic disorder with agoraphobia. Many of them don’t have access to adequate treatment because of their agoraphobic avoidance or the unavailability of empirically validated treatment in their area. In the near future, these people could have access to a wider diversity of mental health services through telehealth. The impact of this technology on the availability and distribution of mental health services will become more apparent when high-quality telehealth services will be available at home, in an estimated 10 years in Canada.

Our study was not conducted in a naturalistic telehealth setting where the service is already available to the population and included in the delivery plan of health care services. The videoconference service was created specifically for the purpose of the study and will stop once the experimentation is over. Since this project is not part of the services offered to the population, the key contribution and involvement of the staff at the Maniwaki mental health clinic was especially important. It allowed us to feel the extent to which telepsychotherapy should be conducted in close collaboration with local staff, both for logistical purposes and for the patients. This observation may be important for psychologists and other psychotherapists who consider opening virtual clinics where patients from anywhere in the world could attend psychotherapy sessions in videoconference.

Apart from legal issues, such as licensing and practice standards that vary from country to country and state to state, clinical issues must also be considered. The support of local mental health professionals is important in many ways: to manage emergency and crisis situations, to give credibility and confidence in the treatment, to make sure that the therapy is conducted in a safe environment and to support patients when technical problems arise.

Because CBT may be effective for other disorders, two important questions should now be on the research agenda: (a) For what kind of person is telepsychotherapy appropriate or not? and (b) What are the variables that may reduce its effectiveness? Some might have argued that anxious or psychotic patients are not suitable for telepsychotherapy. Our results and those by Zarate et al. or Ball et al. for patients with schizophrenia suggest otherwise. More studies that target specific disorders are thus warranted.

As for the potential mediators, we have schematized a few of them (Fig. 2) based on our

### Table 2. Responses of Patients to Seven Items Completed After the First Telepsychotherapy Session

<table>
<thead>
<tr>
<th>Item</th>
<th>Min</th>
<th>Max</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>I felt better after talking to my therapist (0–5).</td>
<td>2</td>
<td>5</td>
<td>3.8</td>
<td>1.2</td>
</tr>
<tr>
<td>I felt worse after talking to my therapist (0–5).</td>
<td>0</td>
<td>3</td>
<td>.33</td>
<td>1</td>
</tr>
<tr>
<td>The videoconference system bothered me (0–5).</td>
<td>0</td>
<td>2</td>
<td>.5</td>
<td>.9</td>
</tr>
<tr>
<td>I would like to talk to my therapist face to face (0–5).</td>
<td>0</td>
<td>5</td>
<td>1.5</td>
<td>1.6</td>
</tr>
<tr>
<td>The videoconference system helped me to express myself more easily (0–5).</td>
<td>0</td>
<td>5</td>
<td>3</td>
<td>2.3</td>
</tr>
<tr>
<td>I am willing to use the videoconference system again (0–5).</td>
<td>4</td>
<td>5</td>
<td>5</td>
<td>.5</td>
</tr>
<tr>
<td>I am the kind of person who likes to use electronic gadgets (0–5).</td>
<td>3</td>
<td>5</td>
<td>4.12</td>
<td>1.4</td>
</tr>
</tbody>
</table>
experience conducting CBT sessions in telehealth and from a model developed by Tickle-Degnen and Rosenthal\textsuperscript{32} for nonverbal communications in psychotherapy. Factors that could affect the therapeutic process in telepsychotherapy can be organized around the dynamic interactions between the patient and the therapist. These interactions are based on their own beliefs and feelings, as well as the way they perceive and express the information.

The information is relayed via a camera and a television, a codec (coder/decoder) and links between the two sites. Therefore, any technical problem in one of these elements may disrupt the therapy. Moreover, the codec and the links between the two sites induce some delays. Manning, Goetz, and Street\textsuperscript{33} examined the quality of the rapport between patient and therapists, as perceived by the patient, and found no significant difference for delays of 300 ms or less. Because our system can keep the delays below 200 ms under normal circumstances (at 384 kb/s), that may not present a problem with current technology. Nevertheless, some limits remained imposed by the use of videoconference, such as the inability to shake hands, to bend over to offer tissues to a crying patient or to look at each other directly in the eyes. There is also the fact that movements must be kept within the field of view of the camera if they are to be seen (e.g., hand movements, leaning towards the patient, standing up). These topics have been addressed in the literature on telehealth and telepsychiatry\textsuperscript{9,10,34} but never correlated with treatment success.

Other mediating factors must also be addressed, especially the ability of the patient and the therapist to develop a therapeutic alliance, the beliefs of patients and therapists toward telepsychotherapy and the impression of presence. The therapeutic alliance has already received some attention by researchers. For example, Machanda and McLaren\textsuperscript{35} offered telepsychotherapy to one patient suffering from mild anxious-depressive symptoms and reported clinically significant benefits from therapy and the development of a good therapeutic alliance. Hufford, Glueckauf, and Webb\textsuperscript{36} compared videoconference, telephone, and face-to-face counselling sessions with three adolescents with epilepsy and their families and also report a good alliance. More studies should examine the role of the alliance, its relation to outcome and especially the variables that facilitate its development in telehealth.

Some attention has been paid to the the ther-
apists’ beliefs and attitudes toward telepsychotherapy. Most of the work in this area focused on treatment’s acceptability or satisfaction. Researchers should also pay attention to moderating factors such as motivation to receive telepsychotherapy, attitude toward technology and telehealth, perceived warmth, immersive tendencies, distractibility, resistance to talk to a camera, change in communication patterns, outcome expectations and treatment credibility. Finally, telepresence, or the impression of being “in” psychotherapy, should also be considered. For instance, each therapist in our study reported that they forgot they were talking through a camera to somebody kilometers away. They felt completely involved in therapy, as if it was happening face to face. Another example was provided by a patient who said to the therapist “I’m glad you’re here, it helps me a lot.” This capacity to forget the communication medium and become involved in therapy may also be an interesting predictor of treatment acceptability and success.

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Therapy for Panic Disorder with Agoraphobia


Address reprint requests to:

Stéphane Bouchard

Département de Psychoéducation et de Psychologie

Université du Québec à Hull

CP 1250, Succ B

Hull J8X 3X7

E-mail: stephane_bouchard@uqah.uquebec.ca