AJRH The Australian Journal of Rural Health

Aust. J. Rural Health (2012) **20**, 88–94

Original Article

Treatment via videoconferencing: A pilot study of delivery by clinical psychology trainees

Debra A. Dunstan, MPsych, PhD and Susan M. Tooth, MPsych

School of Behavioural, Cognitive and Social Sciences, University of New England, Armidale, New South Wales, Australia

Abstract

***Objective*:** *This pilot study explored the outcomes of clinical psychology trainees delivering treatments via videoconferencing.*

***Design*:** *A noncurrent, multiple baseline across subjects and settings.*

***Setting*:** *University outpatient psychology clinic.*

***Participants*:** *Six clients (two men and four women) with an anxiety or depressive disorder were randomly assigned to received six sessions of individual therapy (either via videoconferencing or face to face) from a male or female clinical psychology trainee.*

***Main outcome measures*:** *Participants provided daily ratings (0–10) of subjective distress/well-being via text messaging, and at pre-, post-, and 1 month follow-up of treatment, completed the Depression Anxiety Stress Scales and the Outcome Questionnaire-45. Along with the trainees, participants also provided feedback on the therapy experience.*

***Results*:** *The subjective well-being of all participants improved, and all videoconferencing participants showed a statistically and clinically significant reduction in symptomology and gains in general life functioning. Feedback comments were positive.*

***Conclusions*:** *This study suggests that there is value in clinical psychology trainees gaining experience in the delivery of treatments via videoconferencing. Further study is needed to demonstrate the potential for university clinics to deliver mental health services, via this modality, to rural and remote areas.*

Correspondence: Dr Debra Dunstan, Discipline of Psychology, School of Behavioural, Cognitive and Social Sciences, University of New England, Armidale, New South Wales, 2351, Australia. Email: ddunstan@une.edu.au

Accepted for publication 24 November 2011.

KEY WORDS: *ATAPS*, *clinical psychology trainee*, *rural mental health*, *videoconferencing*.

Introduction

Videoconferencing is a means of simulating face-to-face psychotherapy using a clinician at a site distant from the client. Several studies involving experienced clinicians have demonstrated the equivalence of these therapy modes,[1–4] yet the uptake rate of videoconferencing by Australian psychologists is relatively low.[4,5] Research has identified several reasons for this.

The low use of videoconferencing has been found to be linked to beliefs that therapeutic alliance will be impaired,[4,6] non-verbal messages will be hard to detect[7] and the equipment will be troublesome to operate.[6] However, other studies[2,4] have shown that therapeutic alliance is established equally well in videoconferencing and face-to-face therapy and, with improvements in the technology, distracting features have become less of a problem.[7] In terms of anxiety about technical issues, this has been found to pass, and competency to develop quickly, with training and experience.[6]

Arguably, the ideal time for psychologists to acquire a range of clinical skills and overcome therapy-related beliefs, fears and biases[4,7] is during university-based postgraduate clinical training.[8,9] Therefore, we reasoned that it was beneficial for Masters-level clinical psychology trainees to have experience in delivering therapy, via videoconferencing, during a university clinical placement. We envisaged that competency and efficacy in this area could have important professional and public health implications: specifically, that trainees would acquire enhanced clinical skills and a university clinic could demonstrate the potential for delivering mental health services to distant rural and remote areas.[10] With these benefits in mind, the research question in this

doi: 10.1111/j.1440-1584.2012.01260.x

***What is already known on this subject*:**
- *Clinical psychology trainees provide effective face-to-face treatments.*
- *Treatments delivered via videoconferencing by experienced clinicians show equivalence with face-to-face therapy.*
- *Negative beliefs are a barrier to the use of videoconferencing by Australian psychologists.*

***What this study adds*:**
- *Clinical psychology trainees appear to be able to deliver treatments via videoconferencing with equivalent effectiveness to face-to-face therapy.*
- *Experience with videoconferencing increases confidence and acceptance of its use as a therapy modality.*
- *University clinics, working in partnership with Divisions of General Practice, could potentially increase Access to Allied Psychological Services in rural and remote Australian communities.*

study was simple: Can clinical psychology trainees deliver effective treatments via videoconferencing?

Method

Participants

Eight participants ($n = 8$), two men and six women, met the following inclusion and exclusion criteria: English-speaking; 18 years of age or older; living within the New England Division of General Practice; currently satisfying criteria for a mood or anxiety disorder;[11] referred by their general medical practitioner (GP) for treatment under the Access to Allied Psychological Services (ATAPS) program:[12] willing to use a mobile telephone to send daily ratings of distress via a text message; able to attend treatment during the study period; and, not currently presenting with psychosis, high risk suicidal ideation, drug or alcohol dependence, or a personality disorder. For different reasons, two female participants discontinued therapy early, and the study continued with six participants – two men and four women – who remained for the duration.

The study sample ($n = 6$) had a mean age of 34.33 years ($SD = 16.11$, range = 20–63 years). Education levels varied from less than Year 12 ($n = 1$) to completed Year 12 ($n = 1$) and completed tertiary education ($n = 4$). Employment status included: unemployed ($n = 1$), not seeking employment ($n = 3$) and full-time employment ($n = 2$). Half the sample was taking prescribed medication, but in all cases, responses were stable and dosages were not altered during the intervention. At the initial screening session, all six participants recorded scores in the clinical range on the measures of symptom severity and general life functioning. Based on the former measure, two participants presented as having an anxiety disorder and four presented as having a mixed anxiety-depressive disorder.

Materials and measures

Subjective well-being

Subjective Units of Disturbance (SUDS)[13] is a single-item, self-report measure of level of subject distress/well-being over the past 24 hours, rated from 0 (*no emotional distress*) to 10 (*worst emotional distress*).

Symptomology

Depression Anxiety Stress Scales (DASS-42)[14] is a 42-item, self-report measure of the negative emotional states of depression, anxiety and stress, rated on a 4-point Likert scale. Although severity ratings of subscale scores are available in the manual,[14] the scoring criteria used in the current study was based on computations of clinically significant and reliable change[15] as described below.

General life functioning

Outcome Questionnaire-45 (OQ-45)[16] is a 45-item, self-report measure of general life functioning assessed across three subscales. Ratings are made on a 5-point Likert scale: total scores range from 0 to 180 with high scores indicating higher disturbance in life, or lower levels of life functioning. Two additional scoring criteria lead to a Clinically Significant Change Index (CSI) and a Reliable Change Index (RCI), which provide a two-step criterion method for evaluating 'meaningful change'.[15,17] According to this concept, meaningful change occurs when (i) before treatment, a client is in the non-functional or clinical range, and following treatment he or she is in the functional or non-clinical range (Step 1), and (ii) that the change is

statistically reliable (Step 2).[16] The OQ-45 manual provides the CSI and RCI for the total score and each subscale score.

Study experience – feedback comments

After the videoconferencing therapy, participants and trainees were asked to report on their expectations and experience.

Design

A non-current, multiple baseline design across subjects and settings (videoconferencing or face to face) was used. All participants completed daily SUDS and repeated measures (DASS-42 and OQ-45) at pretreatment (the initial screening interview), post-treatment (the final session of treatment) and follow-up (1 month after the final treatment session). Treatment commenced at different time points for each individual in accordance with client and therapist availability.

Procedure

Recruitment

Subsequent to approval from the university Human Research Ethics Committee, 10 eligible clients were invited to participate and were informed that they would receive $10 per visit to cover the cost of the daily text messaging. Two clients declined because of plans to travel out of the area, which left a study sample of $n = 8$.

Treatment

The participants were randomly assigned, from within-gender groups, to the videoconferencing or face-to-face condition, and to either a male or a female trainee. Trainees were provisionally registered clinical psychology students, in the second year of the Master of Psychology (Clinical) Program, undertaking a placement at the university psychology clinic. Each was supervised in accordance with accreditation requirements. The treatments were delivered across a 6- to 8-week period and included those prescribed under the ATAPS program[12] – psychoeducation, cognitive behavioural therapy, motivational interviewing or interpersonal therapy – and were tailored to meet individual participants' needs. For the videoconferencing condition, the participant was alone in a consulting room, seated in front of the video monitor, which was activated by clinic reception staff. The trainee psychologist was located in a nearby building where the second monitor was set-up.

Results

All participants, with the exception of Participant 2, completed six sessions of therapy and the pre-, post- and follow-up measures. Participant 2 completed all measures except the immediate post-treatment measure because of finishing therapy after four sessions rather than six. Table 1 provides a summary of scores on all measures and the significance and classification of change.

Treatment outcome measures

Subjective well-being

The SUDS data were analysed using a customised statistical package involving simulation modelling analysis, available at http://www.clinicalresearcher.org/SMA_windows_8_4_11.zip.[18] The results are summarised in Table 2. Slope analysis indicated that the presenting problem for each participant was stable prior to the commencement of treatment, suggesting that self-monitoring had not produced an improvement in their condition.[19] To determine treatment effect, data points were also analysed for change in severity level across phases. For all participants, the change from baseline to follow-up was significant ($P < 0.05$, one-tailed) indicating that distress levels had decreased/subjective well-being increased over the course of the intervention.

Symptomology

The clinical significance and reliable change in each participant's DASS-42 scale scores are shown in Table 1. To minimise confusion, results are reported only for the scale representing the participant's most severe area of symptomology (i.e. depression, anxiety or stress). Overall, the results indicate that four of the six participants (P1, P2, P5 and P6) demonstrated clinically significant and statistically reliable change (pretreatment to follow-up), thereby meeting the criteria for the classification of 'Recovered'.

General life functioning

The clinical significance and reliable change results for each participant's OQ-45 total scores are displayed in Table 1. Results show that overall two of the three-videoconferencing participants (P2 and P3) and one face-to-face participant (P6) met the CSI and RCI criteria (pretreatment to follow-up) for the classification of 'Recovered'.

Feedback comments

Participants

At the follow-up interview, participants in the videoconferencing condition described the best and worst parts of their experience as follows:

TABLE 1: *Mean weekly SUDS scores and pre-, post- and follow-up (f/up) treatment total and change scores for the DASS-42 and OQ-45* (n = 6)

	Participant (P1)			Participant (P2)			Participant (P3)			Participant (P4)			Participant (P5)			Participant (P6)		
Mode of treatment	Videoconferencing									Face to face								
SUDS (mean scores)	Pre	Post	F/up	Pre	Post	F/up	Pre	Post	F/up	Pre	Post	F/up	Pre	Post	F/up	Pre	Post	F/up
	8	8	7	7	4	3	7	7	7	9	8	8	8	7	7	8	7	5
DASS-42 (scale total scores)	Pre	Post	F/up	Pre	Post	F/up	Pre	Post	F/up	Pre	Post	F/up	Pre	Post	F/up	Pre	Post	F/up
D	18	16	9	3	n/a	0	6	7	2	35	31	32	36	30	22	16	2	1
A	13	11	5	5	n/a	0	8	16	7	22	22	29	25	17	8	25	1	1
S	22	22	15	29	n/a	0	20	13	17	29	34	35	30	25	19	10	7	4
Change in scores	Pre-post	Post-F/up		Pre-post	Post-F/up		Pre-post	Post-F/up		Pre-post	Post-F/up		Pre-post	Post-F/up		Pre-post	Post-F/up	
Significance:	–	+		n/a	n/a		+*	+		–	(*)		*	*		+*	+	
Classification: (pre to f/up)	Recovered			Recovered			Unchanged			Deteriorated			Recovered			Recovered		
OQ-45 (total score)	Pre	Post	F/up	Pre	Post	F/up	Pre	Post	F/up	Pre	Post	F/up	Pre	Post	F/up	Pre	Post	F/up
	92	78	65	65	n/a	41	67	47	44	87	102	104	99	100	94	67	25	12
Change in scores	Pre-post	Post-F/up		Pre-post	Post-F/up		Pre-post	Post-F/up		Pre-post	Post-F/up		Pre-post	Post-F/up		Pre-post	Post-F/up	
Significance:	+	–		n/a	n/a		+*	+		(*)	–		–	–		+*	+	
Classification: (pre to f/up)	Improved			Recovered			Recovered			Deteriorated			Unchanged			Recovered		

Note. DASS-42 results are based on CSI cut-off subscale scores of 14 for depression, 9 for anxiety and 16 for stress. RCI subscales scores are 5 for depression, 7 for anxiety and 7 for stress. Results are reported for the most severe problem area only (depression, anxiety or stress). OQ-45 results are based on total scores where CSI = 63 and RCI = 14. Significance: – = not clinically significant, not statistically reliable; + = clinically significant; * = statistically reliable ($P < 0.05$); (*) = statistically reliable but in a worsening direction; +* = clinically significant and statistically reliable ($P < 0.05$); n/a = not available. Using the Jacobson–Truax classification: recovered = clinically significant and statistically reliable ($P < 0.05$); improved = not clinically significant but statistically reliable; unchanged = passed neither criteria; deteriorated = clinically significant or statistically reliable but towards a worsening condition. SUDS, Subjective Units of Disturbance; DASS-42, Depression Anxiety Stress Scales; OQ-45, Outcome Questionnaire-45; CSI, Clinically Significant Change Index; RCI, Reliable Change Index.

TABLE 2: *Comparisons of statistical significance (*P*-values) of SUDS ratings for stability in slope during baseline and change in level across phases*

	Stability in slope	Change in level across phases		
Participant	Baseline	Baseline to treatment	Treatment to F/up	Baseline to F/up
Videoconferencing				
P1	<0.001*	0.1522	0.9258	0.0282*
P2	<0.001*	0.3210	0.4656	0.0294*
P3	<0.001*	0.1952	<0.001*	0.0058*
Face to face				
P4	<0.001*	1.1008	0.7452	0.0084*
P5	<0.001*	<0.001*	0.1912	<0.0001*
P6	<0.001*	<0.001*	0.7342	0.0154*

Note: $*P < 0.05$ (significance levels are for one-tailed tests). SUDS, Subjective Units of Disturbance; F/up, follow-up. P, participant.

Best part:

> Looking at a screen and talking to people is like videogames, it's not a problem. (P1)
> There's no lack of connection with the therapist, it's exactly the same. (P2)
> There's more space in the conversation to think about how to respond to the therapists' questions, it's a less intense environment. (P3)

Worst part:

> The two to three second delay did not stop the communication but it was annoying. (P1)
> Sometimes the lighting was distorted. (P2)
> Talking to a TV and having it talk back to you took a bit of getting used to. By the third session you're used to it. (P3)

Therapists

After the videoconferencing experience, the therapists also described the best and worst parts of their experience:

Best part:

> It was easy, easier than I expected. I feel comfortable [with the equipment] now. (T1)
> It's better with some clients, especially younger ones who are used to computer games, they prefer it to face-to-face. (T2)

Worst part:

> I didn't like not being able to see people's feet – to see if they were [sic] anxious. (T1)
> I was worried that it would feel impersonal. (T2).

Discussion

This study found that all participants receiving treatment, via videoconferencing, from a trainee clinical psychologist, achieved a significant improvement in subjective well-being from baseline to follow-up. In addition, two of these participants showed a clinically significant and reliable reduction in symptoms of depression or anxiety and disturbance of general life functioning. These results were equivalent to or better than the face-to-face outcomes. All of the face-to-face participants showed significant improvements in well-being, two showed a reduction in symptomology and one showed a reduction in disturbance of life functioning. Thus, the results from this study are consistent with previous research showing the effectiveness of treatments delivered by clinical psychology trainees and the equivalence of videoconferencing with face-to-face therapy.[1,3,20,21] Additionally, comments provided in feedback sessions suggest that reservations or negative bias towards videoconferencing treatments (held by either therapists or clients) can be overcome with the benefit of experience and that younger clients might prefer this medium of therapy.[22]

While these findings are promising, this study's limitations – particularly in relation to the design and sample size – need to be acknowledged. First, although each participant's continuous baseline data serves as individual 'control' data in a single case design,[23] the inability to commence all SUDS ratings at the same time, followed by the temporal sequencing of the start of treatment, means it is not possible to rule out the effects of history, maturation or other extraneous factors as sources of behaviour change. That said, this limitation applied to both modes of therapy where the outcomes

were comparable. Second, while single-case designs provide valid data from small samples, the equivocal outcomes for some participants restrict conclusions about treatment efficacy. Given the important public health implications of psychological treatments being delivered via videoconferencing by trainee clinicians, it must be recognised that this study represents pilot work only and that a larger confirmatory study is required.

These limitations aside, the implications remain: by giving clinical psychology trainees experience in delivering treatments via videoconferencing, it appears possible to build confidence in the use of this modality. Furthermore, when this training takes place at a university clinic working in partnership with a Division of General Practice, the potential to provide low cost services to rural and remote communities is created: perhaps with remote hardware being provided via a telehealth endpoint or a computer, with Skype connection, in the GP's rooms. In the light of the Australian Government's recent announcement of the expansion of ATAPS – $205.9 million over the next 5 years to service 'hard to reach populations', plus the budgeting of $14.4 million in this same period for a mental health online portal[24] – development of this arrangement appears to be an option worth pursuing.

Acknowledgements

This research was funded by an Education and Research Grant from the NSW Psychologists Registration Board. The authors would like to thank the New England Division of General Practice for their support and assistance with the recruitment of participants and our colleagues, Matthew Brand and Sarah Schuter, for their courage and enthusiasm to learn the practice of delivering psychological treatment via videoconferencing.

Author contributions

Contribution to paper: DD = 50%, ST = 50%.

References

1 Day S, Schneider P. Psychotherapy using distance technology: a comparison of face-to-face, video, and audio treatment. *Journal of Counseling Psychology* 2002; **49**: 499–503.
2 Schopp L, Johnstone B, Merrell D. Telehealth and neuropsychological assessment: new opportunities for psychologists. *Professional Psychology, Research and Practice* 2000; **31**: 179–183.
3 Alessi N. Telepsychiatric care for a depressed adolescent. *Journal of the American Academy of Child and Adolescent Psychiatry* 2002; **41**: 894–895.
4 Rees CS, Stone S. Therapeutic alliance in face-to -face versus videoconferenced psychotherapy. *Professional Psychology, Research and Practice* 2005; **36**: 649–653.
5 Nickelson D. Telehealth and the evolving health care system: strategic opportunities for professional psychology. *Professional Psychology, Research and Practice* 1998; **29**: 527–535.
6 Rees CS, Haythornthwaite S. Telepsychology and videoconferencing: issues, opportunities and guidelines for psychologists. *Australian Psychologist* 2004; **39**: 212–219.
7 Jerome LW, Zaylor C. Cyberspace: creating a therapeutic environment for telehealth applications. *Professional Psychology, Research and Practic* 2000; **31**: 478–483.
8 Murrell E, Steel Z, Gaston J, Proudfoot H. Training the clinical psychologist: profile of a university-based clinic. *Australian Psychologist* 2002; **37**: 123–128.
9 O'Donovan A, Bain J, Dyck M. Does clinical psychology education enhance the clinical competence of practitioners? *Professional Psychology, Research and Practice* 2005; **36**: 104–111.
10 Council of Australian Government. *National Action Plan on Mental Health*. 2006. [Cited 20 Jul 2009]. Available from URL: http://www.coag.gov.au/coag_meeting_outcomes/2006-07-14/docs/nap_mental_health.pdf
11 American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders IV-TR*, 4th edn. Washington, DC: Author, 2000.
12 Department of Health and Ageing. *Access to Allied Psychological Services (ATAPS)*. 2009. [Cited 17 Jul 2009]. Available from URL: http://www.health.gov.au/internet/main/publishing.nsf/Content/mental-boimhc-ataps
13 Wolpe J, Lazarus AA. *Behavior Therapy Techniques*. New York: Pergamon Press, 1966.
14 Lovibond SH, Lovibond PF. *Manual for the Depression Anxiety Stress Scales*, 2nd edn. Sydney: The Psychology Foundation of Australia, 1995.
15 Jacobson NS, Truax P. Clinical significance: a statistical approach to defining meaningful change in psychotherapy research. *Journal of Consulting and Clinical Psychology* 1991; **59**: 12–19.
16 Lambert MJ, Morton JJ, Hatfield D *et al*. *Administration and Scoring Manual for the OQ-45.2 Outcome Questionnaire*. Salt Lake City, UT: OQ Measures LLC, 2004.
17 Jacobson NS, Follette WC, Revenstorf D. Psychotherapy outcome research: methods for reporting variability and evaluating clinical significance. *Behavior Therapy* 1984; **15**: 336–352.
18 Borckardt JJ. *Simulation Modeling Analysis User's Guide Version 8.3.3*. 2006. [Cited 10 Feb 2009]. Available from URL: http://www.clinicalresearcher.org/SMA_Windows_8_4_11.zip
19 Kafner F. Self-monitoring: methodological limitations and clinical applications. *Journal of Consulting and Clinical Psychology* 1970; **35**: 148–152.
20 Glueckauf R, Fritz S, Ecklund-Johnson E, Liss H, Dages P, Carney P. Videoconferencing-based family counseling for rural teenagers with epilepsy: phase 1 findings. *Rehabilitation Psychology* 2002; **47**: 49–72.

21 Cowain T. Cognitive-behavioural therapy via videoconferencing to a rural area. *The Australian and New Zealand Journal of Psychiatry* 2001; **35**: 62–64.
22 Boyd C, Francis K, Aisbett D *et al*. Australian rural adolescents' experiences of accessing psychological help for a mental health problem. *The Australian Journal of Rural Health* 2007; **15**: 196–200.
23 Kazdin A. *Research Design in Clinical Psychology*, 4th edn. Boston, MA: Allyn & Bacon, 2003; 304.
24 Department of Health and Aging. *National Mental Health Reform 2011–12*. 2011 [Cited 18 Aug 2011]. Available from URL: http://www.health.gov.au/internet/budget/publishing.nsf/Content/849AC423397634B7CA25789C001FE0AA/$File/DHA%20Ministerial.PDF