

MindSpot Clinic: An Accessible, Efficient, and Effective Online Treatment Service for Anxiety and Depression

Nickolai Titov, Ph.D., Blake F. Dear, Ph.D., Lauren G. Staples, Ph.D., James Bennett-Levy, Ph.D., Britt Klein, B.A., D.Psych. (Clinical), Ronald M. Rapee, Ph.D., Clare Shann, David Richards, Ph.D., Gerhard Andersson, Ph.D., Lee Ritterband, Ph.D., Carol Purtell, Greg Bezuidenhout, Luke Johnston, Ph.D., Olav B. Nielsen, M.B.B.S., Ph.D.

Objective: The main objective of this study was to report the feasibility of delivering online cognitive-behavioral therapy (iCBT) treatments for anxiety and depression in a national public mental health service.

Methods: A prospective noncontrolled cohort study was conducted of all patients who began assessment or treatment at the MindSpot Clinic from January through December 2013. Clinic services were used by a representative cross-section of the Australian population. Mean age at assessment was 36.4 ± 13.0 years, and age range was 18–86 years. Patients completed one of four online courses over eight weeks, during which they received weekly support from a therapist via telephone or secure e-mail. Primary outcome measures were the nine-item Patient Health Questionnaire (PHQ-9) and the seven-item Generalized Anxiety Disorder scale (GAD-7) administered at post-treatment and three months posttreatment.

Results: A total of 10,293 adults who self-identified as having problems with anxiety or depression commenced

assessment, and 7,172 completed the assessment and were eligible for analysis. Of these, 2,049 enrolled in a course and 1,471 completed the course, for a course completion rate of 71.8%. Moderate to large noncontrolled effect sizes (Cohen's $d = .67 - 1.66$, 95% confidence interval = $.08 - 2.07$) were found from assessment to three-month follow-up. At posttreatment and follow-up, reliable recovery ranged from 46.7% to 51.1%, and deterioration ranged from 1.9% to 3.8%. Mean total therapist time per patient was 111.8 ± 61.6 minutes.

Conclusions: The MindSpot Clinic produced treatment outcomes that were comparable to results from published clinical trials of iCBT. This model of service delivery represents an innovative method of providing accessible, low-cost, effective, and acceptable mental health services to many people who currently are not receiving care.

Psychiatric Services 2015; 66:1043–1050; doi: 10.1176/appi.ps.201400477

Mood and anxiety disorders affect at least 700 million people each year, which, together with other mental and substance use disorders, account for 7.4% of the world's total burden of disease (1,2). Despite the size of the problem, only a small proportion of those affected seeks or receives evidence-based treatments (3).

Cognitive-behavioral therapy (CBT) is effective at treating depression and anxiety disorders (4–6), but simply increasing the availability of individual face-to-face CBT cannot meet the needs of all people who require treatment (7). Another strategy for improving access to CBT is to provide treatment online. Clinical trials show that therapist-guided Internet-delivered CBT (iCBT) produces clinical outcomes comparable with CBT delivered in face-to-face settings (8–10), and clinics using therapist-guided iCBT as part of routine clinical care report outcomes that match the gains observed in controlled trials (11–15).

As part of the Australian government's e-mental health strategy (16), the MindSpot Clinic was funded to provide online assessment and treatment as a routine clinical service to adult Australians with anxiety and depression. The clinic was designed to provide therapist-guided services to more than 10,000 people per year.

This article presents a prospective cohort study of the outcomes of the clinic in the first calendar year of operation and follows the STROBE ("strengthening the reporting of observational studies in epidemiology") guidelines (17). The clinical efficacy of the iCBT treatments provided by the clinic has been established in five published randomized controlled trials (RCTs) (18–23). The study examined outcomes from the use of those treatments as part of routine clinical care. We expected that the treatment outcomes obtained in the RCTs would be replicated in the clinic.

METHODS

Study Design and Ethical Review

This prospective noncontrolled observational cohort study included all eligible users of the clinic from January 1, 2013, to December 31, 2013. Approval to conduct the study was obtained from the Human Research Ethics Committee at Macquarie University.

Patients

Patients self-referred through the clinic Web site (www.mindspot.org.au), which was promoted via links from health Web sites and paid online advertisements. Clinic services were provided at no cost to patients. Participants in this study were Australian residents who were eligible for publicly funded health services, who were at least 18 years old, who began assessment during 2013, and who agreed to the analysis and reporting of their deidentified data. Patients were required to complete an assessment before beginning treatment and were ineligible for online treatment if they were acutely suicidal, were engaged in regular psychotherapy, or had clinical presentations deemed to require comprehensive face-to-face assessment. People with subclinical symptoms were eligible for treatment at the clinic (24–26), as were those taking psychotropic medication.

Therapists

Therapists (N=20) had previous clinical experience of between one and 15 years. Most (75%, N=15) were nationally registered psychologists with a postgraduate or master's degree in clinical psychology, and the others (25%, N=5) included nationally registered provisional psychologists in training, an indigenous mental health worker, and a counselor. Therapists received five weeks of training in the principles of online psychological assessment and treatment, as well as detailed instruction in the courses. Two part-time psychiatrists were available for consultation, supervision, and training. Therapists received an hour of individual supervision per week based on the clinical case management supervision model (27), as well as group supervision and regular training workshops.

Procedure

Patients first created an online account and then completed an online assessment, providing demographic details and completing standardized self-report symptom questionnaires. In a small proportion (.5%) of cases, the assessment questionnaires were completed by telephone. Patients who completed the online assessment were invited to discuss their results with a therapist by telephone. A telephone-administered structured risk assessment was performed with all patients who reported suicidal intent or plans, and safety plans were developed for all patients to assist them to stay safe in the event their symptoms increased. Patients who identified as acutely suicidal were referred to local mental health

services or emergency services, depending on the perceived urgency of the situation.

A summary of the assessment results, which identified clinically significant symptoms but which did not indicate diagnoses, was sent to the patient and to health professionals nominated by the patient. Patients were either supported to locate and access local mental health services or were invited to participate in a clinic treatment course. All patients were encouraged to visit their general practitioner for a physical review and to discuss the results of their assessment.

Clinic Interventions

Four iCBT treatment courses were offered: the Wellbeing course, designed to treat symptoms of anxiety and depression of adults ages 18–60 years (19,20,28,29); the Wellbeing Plus course, designed to treat symptoms of anxiety and depression of adults age ≥ 60 (22,23); the OCD course, designed to treat symptoms of obsessive-compulsive disorder (21,30), and the PTSD course, designed to treat symptoms of posttraumatic stress disorder (18). The iCBT treatment courses were developed and validated at a research unit, the eCentreClinic (www.ecentreclinic.org).

Course choice was guided by the patient's view of his or her main problem. Enrollment in the OCD and PTSD courses was offered after a telephone contact confirmed the presence of the relevant clinical features. The treatment courses were structured and based on principles of CBT and components of interpersonal therapy. Each course comprised four to six lessons and homework assignments, systematically made available over an eight-week period. Each lesson was presented as a series of slides that included didactic text and case-enhanced learning examples, photos and images that illustrated the principles of CBT, and supplementary material on related topics. Automated analysis of the text found that the content could be understood by most fifth-grade students.

Patients received twice weekly automated e-mails that reinforced progress and prompted practice of therapeutic activities. Each patient worked with the same therapist throughout the course, who provided weekly contact by secure e-mail, by telephone, or both. Each therapist had a caseload of 20–50 patients. Therapists followed manuals that provided scripted messages and key objectives for patient contact for each week of the course. At midtreatment, alternative treatments were discussed with patients who were not making progress.

Outcome Measures

The primary outcome measures were scores on the Patient Health Questionnaire (PHQ-9) (31) and the Generalized Anxiety Disorder Scale (GAD-7) (32). The PHQ-9 comprises nine items measuring symptoms of major depressive disorder on 4-point scales. Possible scores range from 0 to 27, with higher scores indicating increasingly severe symptoms of depression. A score of 10 on the PHQ-9 has been identified as the threshold for identifying *DSM-IV*-congruent

TABLE 1. Demographic characteristics and symptom severity of 8,929 individuals contacting the Internet-based MindSpot Clinic in 2013

Characteristic	Incomplete assessments			Assessment only			Enrolled in treatment			Total		
	Total N	N	%	Total N	N	%	Total N	N	%	Total N	N	%
Female	1,752	1,276	72.8	5,023	3,624	72.1	2,130	1,501	70.5	8,905	6,401	71.9
Age group												
18–34 years	1,757	957	54.5	5,039	2,773	55.0	2,133	857	40.2	8,929	4,587	51.4
35–54 years	1,757	620	35.3	5,039	1,810	35.9	2,133	931	43.6	8,929	3,361	37.6
55–88 years	1,757	180	10.2	5,039	456	9.0	2,133	345	16.2	8,929	981	11.0
Married or de facto marriage	854	334	39.1	4,992	1,973	39.5	2,120	1,048	49.4	7,966	3,355	42.1
Born in Australia ^a	324	252	77.8	1,512	1,107	73.2	483	346	71.6	2,319	1,705	73.5
Lives in major city	860	619	72.0	5,033	1,973	39.2	2,133	1,048	49.1	8,026	3,640	45.4
Postschool qualification ^b	839	640	76.3	4,942	3,729	75.5	2,114	1,755	83.0	7,895	6,124	77.6
Employed full- or part-time	854	446	52.2	4,987	2,726	54.7	2,119	1,242	58.6	7,960	4,414	55.5
Aboriginal or Torres Strait Islander	793	21	2.6	5,019	103	2.1	2,127	32	1.5	7,939	156	2.0
Receiving mental health treatment	870	156	17.9	5,039	908	18.0	2,133	399	18.7	8,042	1,463	18.2
Taking medication for a mental disorder ^c	824	240	29.1	4,835	1,489	30.8	2,044	740	36.2	7,703	2,469	32.1
Assessment score												
PHQ-9 (M±SD) ^d	662	15.8±6.11		4,742	16.0±6.03		1,981	14.5±6.02		7,385	15.6±6.07	
GAD-7 (M±SD) ^e	629	12.7±5.17		4,708	13.1±4.97		1,970	12.7±4.93		7,307	12.9±4.98	
K-10 (M±SD) ^f	805	32.4±7.58		5,035	32.7±7.44		2,129	30.8±7.26		7,969	32.2±7.45	

^a Question added September 22, 2013

^b Apprentice or trade certificate, diploma, or degree

^c Question added December 2, 2013

^d Nine-item Patient Health Questionnaire. Possible scores range from 0 to 27, with higher scores indicating more severe symptoms of depression.

^e Seven-item Generalized Anxiety Disorder scale. Possible scores range from 0 to 21, with higher scores indicating greater severity of anxiety symptoms.

^f Kessler Ten-Item Scale. Possible scores range from 10 to 50, with higher scores indicating more severe psychological distress.

depression. The PHQ-9 has good internal consistency (33) and is sensitive to change (34). The GAD-7 measures seven items on 4-point scales. Possible scores range from 0 to 21, with higher scores indicating greater severity of anxiety symptoms (35,36). A score of 8 has been shown to be the optimum sensitive and specific threshold for the presence of an anxiety disorder (37). The GAD-7 is sensitive to *DSM-IV*-congruent generalized anxiety, social phobia, panic disorder, OCD, and PTSD.

Each week, patients completed the GAD-7, PHQ-9, and single-item measures inquiring about personal safety and treatment satisfaction. A larger battery of questionnaires, including a measure of psychological distress (ten-item Kessler Scale; K-10 [38]), was administered at assessment, midtreatment, posttreatment, and three months posttreatment. The K-10 is commonly used in large general population surveys (39); it has excellent internal consistency (38). Scores on the K-10 range from 10, indicating no distress, to 50, indicating severe distress. The primary endpoint for assessing progress was eight weeks after the start of treatment (posttreatment), and the secondary endpoint was three months posttreatment (follow-up).

Data Collection, Management, and Analysis

Patient data were collected in an electronic database. Mixed linear models employing a Toeplitz covariance structure and

maximum likelihood estimation (40) were used to analyze overall changes across symptom measures. Completion of a treatment course was defined as reading the first four lessons of the Wellbeing and Wellbeing Plus courses, the four lessons of the PTSD course, and the first five lessons of the OCD course.

Noncontrolled within-group effect sizes (Cohen's *d*), based on estimated marginal means and 95% confidence intervals, were calculated from assessment to posttreatment and follow-up. Estimates of clinical significance were derived from observed scores at posttreatment and follow-up. When these were not available, the most recently available data were used. Clinical significance was assessed with a modified version of the reliable recovery criteria (41). Reliable recovery was calculated for patients who scored over the clinical cutoffs on the PHQ-9 or GAD-7 at assessment and was defined as the proportion of patients who scored below the cutoff on that measure at posttreatment or follow-up while also showing reliable change. We assessed reliable change by using Jacobson and Truax's reliable change criteria (31), as described by Gyani and colleagues (41). Patients needed to reduce their PHQ-9 score by at least 6 points and their GAD-7 score by at least 4 points for the improvement to be considered reliable. Reliable change was reported to identify patients who showed reliable improvements or deterioration, regardless of whether they

TABLE 2. Analysis of effect of online treatment courses for anxiety and depression among 2,049 patients enrolled in treatment

Measure and course	N	Observed mean ^a						Estimated marginal mean						Effect size ^b			
		Assessment		Posttreatment		3-month follow-up		Assessment		Posttreatment		3-month follow-up		Assessment to posttreatment		Assessment to 3-month follow-up	
		M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	d	95% CI	d	95% CI
PHQ-9^c																	
Wellbeing	1,793	14.16	6.08	8.02	6.20	7.94	6.30	13.92	3.90	6.63***	5.12	6.53***	6.65	1.60	1.53-1.68	1.36	1.28-1.43
Wellbeing Plus	175	13.53	5.93	6.59	5.21	6.61	5.65	13.76	3.90	6.21***	4.54	6.06***	5.41	1.78	1.53-2.03	1.63	1.39-1.87
OCD	24	10.88	6.82	6.50	4.91	6.42	4.97	13.08	3.90	8.68**	4.72	8.35*	9.24	1.02	.40-1.60	.67	.08-1.24
PTSD	57	15.58	6.95	10.11	7.59	9.46	7.20	14.28	3.90	7.58***	4.84	5.92***	5.98	1.52	1.10-1.93	1.66	1.22-2.07
Total	2,049	14.10	6.11	7.94	6.17	7.85	6.27	13.90	3.89	6.65	5.07	6.47	6.52	1.60	1.53-1.67	1.38	1.32-1.45
GAD-7^d																	
Wellbeing	1,793	12.43	5.02	7.21	5.40	7.06	5.53	12.25	3.51	5.89***	4.66	5.45***	6.01	1.54	1.47-1.62	1.38	1.31-1.45
Wellbeing Plus	175	11.03	5.34	5.54	4.49	5.30	4.58	11.86	3.53	5.78***	4.10	5.34***	4.88	1.59	1.35-1.83	1.53	1.29-1.77
OCD	24	12.58	5.10	9.04	6.46	8.75	6.29	12.29	3.53	9.78*	4.26	7.69*	8.31	.64	.05-1.21	.72	.13-1.29
PTSD	57	13.51	5.27	8.40	6.28	8.26	6.40	12.55	3.53	6.49***	4.37	5.63***	5.39	1.53	1.10-1.93	1.52	1.09-1.92
Total	2,049	12.35	5.07	7.12	5.39	6.96	5.52	12.22	3.53	5.95	4.57	5.47	5.88	1.54	1.47-1.60	1.39	1.32-1.46

^a Observed means based on actual scores obtained at that time point. When data were not available, the most recent sessional data were used.
^b Effect sizes (Cohen's d) were calculated with the estimated marginal means.
^c Nine-item Patient Health Questionnaire scores range from 0 to 27, with higher scores indicating increasingly severe symptoms of depression.
^d Seven-item Generalized Anxiety Disorder scale scores range from 0 to 21, with higher scores indicating increasingly severe symptoms of anxiety.
 * p<.05, **p<.01, *** p<.001, compared with assessment.

met clinical cutoffs. All data were analyzed with SPSS, version 21.0.

RESULTS

A total of 10,293 people commenced assessment during 2013. Of these, 1,757 did not complete the assessment and 1,364 did not consent for analysis of their data, were under age 18, or were excluded for other reasons. [A patient flow diagram in the online supplement provides details.] Of the remaining 7,172 patients, approximately 50% reported that they only wanted an assessment or were seeking information about local services, whereas 2,133 enrolled in a clinic treatment course and 2,049 commenced treatment (that is, they completed at least one set of questionnaires during treatment) and were therefore considered eligible for analysis.

Demographic Characteristics

Details of patients who provided consent and who began assessments (N=8,929) are shown in Table 1. Mean age at assessment was 36.4±13.0, and age range was 18–86 years. The proportion of patients living in each state and territory, living outside major cities, and identifying as indigenous Australians (Aboriginal or Torres Strait Islander) closely matched national statistics (42,43).

Symptoms and Treatment History

People presented with moderate levels of depression and anxiety and significant levels of psychological distress (39) (Table 1). At assessment, 2.4% (N=102 of 4,300) of patients answering the question reported suicidal thoughts as well as an intention or plan to self-harm. Approximately one-third (32.4%, N=2,213 of 6,822) of patients reported they had never spoken to a health professional about anxiety or depression.

Treatment Outcomes

A total of 1,271 of 1,793 patients (70.9%) completed the Wellbeing course, 141 of 175 (80.6%) completed the Wellbeing Plus course, 16 of 24 (66.7%) completed the OCD course, and 43 of 57 (75.4%) completed the PTSD course. Completed PHQ-9 and GAD-7 questionnaires were available as weekly data. A total of 1,197 of 2,049 patients (58.4%) completed posttreatment questionnaires, and 761 of 2,049 (37.1%) completed follow-up questionnaires. Table 2 presents means and standard deviations of observed data and estimated marginal means. For the PHQ-9, analyses revealed a significant main effect of time (F=147.72, df=2 and 2,944, p<.001). Paired comparisons revealed significant reductions in PHQ-9 scores from assessment to posttreatment (p<.001 for Wellbeing, Wellbeing Plus, and PTSD courses; p<.01 for the OCD course) and from assessment to three-month follow-up (p<.001 for Wellbeing, Wellbeing Plus, and PTSD courses; p<.05 for the OCD course).

For the GAD-7, there were significant main effects of time (F=127.13, df=2 and 2,946, p<.001). Paired comparisons

revealed significant reductions in GAD-7 scores from assessment to posttreatment ($p < .001$ for Wellbeing, Wellbeing Plus, and PTSD courses; $p < .05$ for the OCD course) and from assessment to three-month follow-up ($p < .001$ for Wellbeing, Wellbeing Plus, and PTSD courses; $p < .05$ for OCD course).

Table 2 also presents noncontrolled within-group effect sizes, based on estimated marginal means. Figure 1 shows the change in the proportion of patients in each category of severity of symptoms on the PHQ-9 and GAD-7 at assessment, posttreatment, and follow-up. Figure 2 indicates that treatment was associated with a greater proportion of patients who moved to and stayed in the lower severity categories after treatment.

Clinical Significance

At assessment, 1,532 of 2,049 (74.8%) patients had PHQ-9 scores above the clinical cutoff (≥ 10), and 1,627 of 2,049 (79.4%) had GAD-7 scores above the clinical cutoff (≥ 8). At posttreatment, 783 of 1,532 (51.1%) showed reliable recovery on the PHQ-9, and 828 of 1,627 (50.9%) showed reliable recovery on the GAD-7. At follow-up, 759 of 1,532 (49.5%) patients and 759 of 1,627 (46.7%) patients met criteria for reliable recovery on the PHQ-9 and GAD-7, respectively.

At posttreatment, 1,066 of 2,049 patients (52.0%) showed reliable improvement on the PHQ-9, whereas 945 of 2,049 (46.1%) showed no reliable change and 38 of 2,049 (1.9%) showed reliable deterioration. On the GAD-7, 1,195 of 2,049 (58.3%) showed reliable improvement, 784 of 2,049 (38.3%) showed no change, and 70 of 2,049 (3.4%) showed reliable deterioration. At follow-up on the PHQ-9, 1,078 of 2,049 (52.6%) showed reliable improvement, 929 of 2,049 (45.3%) showed no reliable change, and 42 of 2,049 (2.0%) showed reliable deterioration. On the GAD-7, 1,221 of 2,049 (59.6%) showed reliable improvement, 750 of 2,049 (36.6%) showed no reliable change, and 78 of 2,049 (3.8%) showed reliable deterioration.

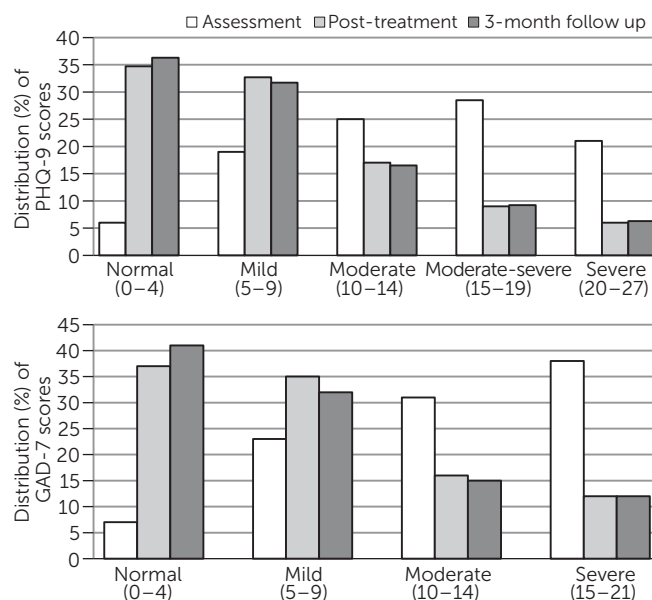
Therapist Time and Treatment Satisfaction

Therapists spent a mean \pm SD of 111.8 \pm 61.6 minutes (range=40–412; median=93.5) per patient during treatment. An additional 60 minutes of therapist time was required on average for the assessment, administration, and follow-up. Patient satisfaction with treatment was measured weekly and was high. Of the patients who completed the post-treatment questionnaires, 1,146 of 1,197 (95.7%) reported that the course was worth doing, and 1,154 of 1,197 (96.4%) reported that they would recommend the course. Anonymous staff surveys have also shown a high level of therapist satisfaction.

DISCUSSION

This article reports the results of iCBT treatments provided as routine clinical care in an innovative and high-volume online national service. The results replicated results

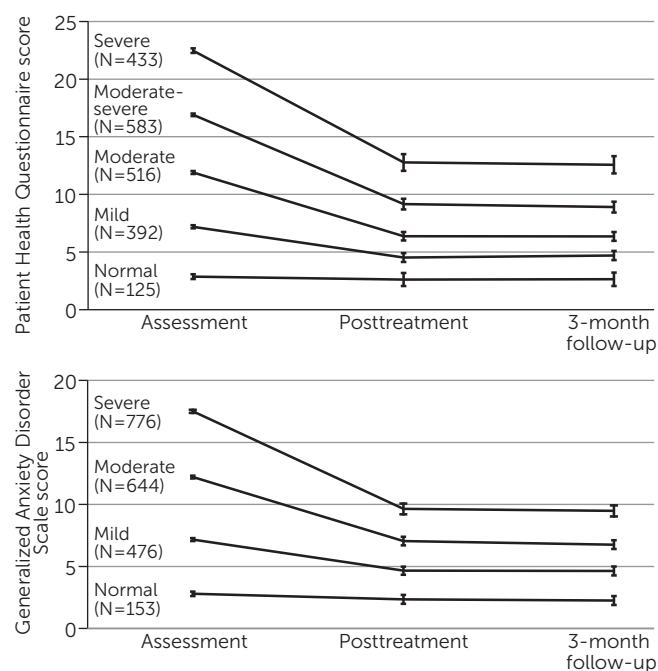
FIGURE 1. Change in PHQ-9 and GAD-7 scores, by severity category, among patients enrolled in online courses for anxiety and depression^a



^a Includes patients from all treatment courses (N=2,049). PHQ-9, nine-item Patient Health Questionnaire; GAD-7, seven-item Generalized Anxiety Disorder scale

obtained in the controlled trials. With the exception of the OCD course, the treatment courses achieved effect sizes >1.3 on measures of anxiety and depression and reliable

FIGURE 2. PHQ-9 scores and GAD-7 scores, by symptom severity at assessment, posttreatment, and 3-month follow-up^a



^a Data shown as means with 95% confidence intervals. PHQ-9, nine-item Patient Health Questionnaire; GAD-7, seven-item Generalized Anxiety Disorder scale

recovery in 46.7%–49.5% of cases. The moderate effect sizes for the relatively small number of patients in the OCD course were similar to those observed in the controlled trials. These findings add to evidence indicating that iCBT treatments can be successfully provided as routine clinical care with efficacy equivalent to what was achieved in clinical trials (11–15).

In addition to replicating the results of the clinical trials, the improvements, as measured by effect size, recovery rates, and reliable clinical change, are comparable to benchmarks of outcomes from face-to-face CBT treatments (4,5,44,45). The results also compare well with other initiatives that involve the large-scale implementation of psychological treatments (41,46), and the high level of patient satisfaction indicates the acceptability of online treatment. The amount of therapist time spent during treatment indicates that the service is likely to be cost-effective in comparison with traditional services (25) and thus is currently the subject of a health economics evaluation.

The experience of launching the clinic has advanced our understanding of the role of online mental health services. We had anticipated a high conversion rate from assessment to the treatment courses. Instead, the participation rate among clients who completed an assessment was about 30%, mainly because many of those completing assessments indicated that they wanted only an assessment or information about local mental health services, not online treatment. It emerged that the clinic provided several important services in addition to treatment, including a convenient way of screening symptoms, arranging for people in crisis to receive urgently needed help, and a way of informing people—many of whom had no previous experience of mental health care—about the availability of local services.

Limitations of this study included the absence of a control group, which would have informed rates of natural remission, although the results were similar to those of the treatment group in controlled trials. Another limitation was missing data, in that 8% of patients declined permission to analyze their data, and approximately 20% did not complete assessment. The rates of assessment completion were consistent with reports from another online clinic (15), and our experience was consistent with that clinic's observation that a considerable proportion of noncompleters did not wish to reveal personal information. We also observed lower rates of questionnaire completion at posttreatment and follow-up, compared with the original clinical trials, although the weekly data collected during the course were similar for the patients who did not complete follow-up questionnaires, suggesting similar outcome. A further limitation was the use of the PHQ-9 and GAD-7 to measure change in the small number of people enrolled in the OCD and PTSD courses. Detailed description of the symptom measures specific to OCD and PTSD is the subject of a forthcoming paper.

Strengths of the study included the large sample collected over an entire calendar year as part of routine clinical care and the regular measurement of symptoms, allowing

consistent measurement of treatment effects. Services were provided by mental health professionals with no prior experience in online treatment, and the trajectory of effect sizes for the treatment groups during the first year of operation suggests that outcomes are likely to improve as the clinic matures.

CONCLUSIONS

This study showed that effective treatment for anxiety and depression can be delivered online to large numbers of patients, with outcomes comparable with the results of controlled clinical trials of iCBT and with benchmarks of face-to-face CBT treatments. This service model required relatively little therapist time and provided services to a large proportion of people who had either never sought treatment or were not currently in contact with any form of mental health service.

The results suggest that the clinic could be expanded to provide services to larger numbers of people and adapted to provide treatments for other disorders and conditions with a behavioral or psychological component. Our view is that online services are an important complement to traditional services and represent a scalable method for improving access to effective treatment for common and often disabling mental disorders.

AUTHOR AND ARTICLE INFORMATION

Dr. Titov, Dr. Dear, Dr. Staples, Dr. Rapee, and Dr. Johnston are with the Department of Psychology, Macquarie University, Sydney, Australia (e-mail: nick.titov@mq.edu.au). They are also with the MindSpot Clinic, Sydney, where Ms. Purtell, Mr. Bezuidenhout, and Dr. Nielszen are affiliated. Dr. Bennett-Levy is with the School of Public Health, University of Sydney, Sydney, Australia. Dr. Klein is with the Faculty of Health, Federation University, Victoria, Australia. Ms. Shann is with the Movember Foundation, Melbourne, Australia. Dr. Richards is with the Department of Psychology, University of Exeter, Exeter, United Kingdom. Dr. Andersson is with the Department of Behavioral Sciences and Learning, Linköping University, Linköping, Sweden. Dr. Ritterband is with the Department of Psychiatry and Neurobehavioral Sciences, University of Virginia, Charlottesville.

The MindSpot Clinic is funded by the Australian Government Department of Health. Dr. Dear is supported by a National Health and Medical Research Council (NHMRC) Australian Public Health Fellowship. The authors gratefully acknowledge the patients for allowing the use of their data as well as the efforts of the MindSpot Clinic and eCentreClinic staff, past and present, in launching and creating the service. This study was investigator initiated. It was funded by departmental funds from the Faculty of Human Sciences, Macquarie University.

Dr. Titov and Dr. Dear are authors and developers of the treatment courses used at the MindSpot Clinic but derive no personal or financial benefit from them. Dr. Titov, Dr. Dear, Dr. Bennett-Levy, Dr. Rapee, and Dr. Klein are funded by the Australian Government to develop and provide a free national online and telephone-delivered treatment service. Dr. Ritterband has equity ownership in a company developing and making available e-health-related products (BeHealth Solutions, LLC). The terms of these arrangements have been reviewed and approved by the relevant universities in accordance with their conflict-of-interest policies. Dr. Nielszen is a member of a Lundbeck advisory board for an antipsychotic medication. The other authors report no financial relationships with commercial interests.

Received October 15, 2014; revision received December 26, 2014; accepted February 13, 2015; published online July 1, 2015.

REFERENCES

- Kessler RC, Aguilar-Gaxiola S, Alonso J, et al: The global burden of mental disorders: an update from the WHO World Mental Health (WMH) surveys. *Epidemiologia e Psichiatria Sociale* 18:23–33, 2009
- Whiteford HA, Degenhardt L, Rehm J, et al: Global burden of disease attributable to mental and substance use disorders: findings from the Global Burden of Disease Study 2010. *Lancet* 382: 1575–1586, 2013
- Wang PS, Aguilar-Gaxiola S, Alonso J, et al: Use of mental health services for anxiety, mood, and substance disorders in 17 countries in the WHO World Mental Health surveys. *Lancet* 370:841–850, 2007
- Stewart RE, Chambless DL: Cognitive-behavioral therapy for adult anxiety disorders in clinical practice: a meta-analysis of effectiveness studies. *Journal of Consulting and Clinical Psychology* 77: 595–606, 2009
- Butler AC, Chapman JE, Forman EM, et al: The empirical status of cognitive-behavioral therapy: a review of meta-analyses. *Clinical Psychology Review* 26:17–31, 2006
- Cuijpers P, van Straten A, Andersson G, et al: Psychotherapy for depression in adults: a meta-analysis of comparative outcome studies. *Journal of Consulting and Clinical Psychology* 76:909–922, 2008
- Kazdin AE, Blase SL: Rebooting psychotherapy research and practice to reduce the burden of mental illness. *Perspectives on Psychological Science* 6:21–37, 2011
- Andersson G, Hedman E: Effectiveness of guided Internet-based cognitive behavior therapy in regular clinical settings. *Verhaltenstherapie* 23:140–148, 2013
- Andrews G, Cuijpers P, Craske MG, et al: Computer therapy for the anxiety and depressive disorders is effective, acceptable and practical health care: a meta-analysis. *PLoS ONE* 5:e13196, 2010
- Andersson G, Cuijpers P, Carlbring P, et al: Guided Internet-based vs face-to-face cognitive behavior therapy for psychiatric and somatic disorders: a systematic review and meta-analysis. *World Psychiatry* 13:288–295, 2014
- Hedman E, Ljótsson B, Kaldö V, et al: Effectiveness of Internet-based cognitive behaviour therapy for depression in routine psychiatric care. *Journal of Affective Disorders* 155:49–58, 2014
- Hedman E, Ljótsson B, Rück C, et al: Effectiveness of internet-based cognitive behaviour therapy for panic disorder in routine psychiatric care. *Acta Psychiatrica Scandinavica* 128:457–467, 2013
- Mewton L, Wong N, Andrews G: The effectiveness of internet cognitive behavioural therapy for generalized anxiety disorder in clinical practice. *Depression and Anxiety* 29:843–849, 2012
- Newby JM, Mackenzie A, Williams AD, et al: Internet cognitive behavioural therapy for mixed anxiety and depression: a randomized controlled trial and evidence of effectiveness in primary care. *Psychological Medicine* 43:2635–2648, 2013
- Ruwaard J, Lange A, Schrieken B, et al: The effectiveness of online cognitive behavioral treatment in routine clinical practice. *PLoS ONE* 7:e40089, 2012
- E-Mental Health Strategy for Australia. Canberra, Australian Government, 2012 Available at [www.health.gov.au/internet/main/publishing.nsf/Content/D67E137E77F0CE90CA257A2F0007736A/\\$File/emstrat.pdf](http://www.health.gov.au/internet/main/publishing.nsf/Content/D67E137E77F0CE90CA257A2F0007736A/$File/emstrat.pdf)
- von Elm E, Altman DG, Egger M, et al: The Strengthening of Reporting of Observational Studies in Epidemiology (STROBE) statement: guidelines for reporting observational studies. *Preventive Medicine* 45:247–251, 2007
- Spence J, Titov N, Johnston L, et al: Internet-based trauma-focused cognitive behavioural therapy for PTSD with and without exposure components: a randomised controlled trial. *Journal of Affective Disorders* 162:73–80, 2014
- Titov N, Dear BF, Johnston L, et al: Improving adherence and clinical outcomes in self-guided internet treatment for anxiety and depression: randomised controlled trial. *PLoS ONE* 8: e62873, 2013
- Titov N, Dear BF, Johnston L, et al: Improving adherence and clinical outcomes in self-guided internet treatment for anxiety and depression: a 12-month follow-up of a randomised controlled trial. *PLoS ONE* 9:e89591, 2014
- Wootton BM, Dear BF, Johnston L, et al: Remote treatment of obsessive-compulsive disorder: a randomized controlled trial. *Journal of Obsessive-Compulsive and Related Disorders* 2: 375–384, 2013
- Dear BF, Zou JB, Shehzad A, et al: Clinical and cost-effectiveness of clinician-guided internet-delivered cognitive behaviour therapy program for older adults with anxiety: a randomised controlled trial. *Behavior Therapy* 46:206–217, 2015
- Titov N, Dear BF, Shehzad A, et al: Clinical and cost-effectiveness of clinician-guided internet-delivered cognitive behaviour therapy program for older adults with depression: a randomised controlled trial. *Behavior Therapy* 46:193–205, 2015
- Cuijpers P, Smit F, Oostenbrink J, et al: Economic costs of minor depression: a population-based study. *Acta Psychiatrica Scandinavica* 115:229–236, 2007
- Harris MG, Diminic S, Burgess PM, et al: Understanding service demand for mental health among Australians aged 16 to 64 years according to their possible need for treatment. *Australian and New Zealand Journal of Psychiatry* 48:838–851, 2014
- Preisig M, Merikangas KR, Angst J: Clinical significance and comorbidity of subthreshold depression and anxiety in the community. *Acta Psychiatrica Scandinavica* 104:96–103, 2001
- Richards DA: Clinical case management supervision; in *Wiley International Handbook of Clinical Supervision*. Edited by Watkins CE, Milne DL. Oxford, United Kingdom, Wiley, 2014
- Titov N, Dear B, Johnston L, et al: Transdiagnostic internet treatment for anxiety and depression. *Revista de Psicopatología y Psicología Clínica* 17:237–260, 2012
- Kirkpatrick T, Manoukian L, Dear BF, et al: A feasibility open trial of internet-delivered cognitive-behavioural therapy (iCBT) among consumers of a non-governmental mental health organisation with anxiety. *PeerJ* 1:e210, 2013
- Wootton BM, Dear BF, Johnston L, et al: Self-guided internet administered treatment for obsessive-compulsive disorder: results from two open trials. *Journal of Obsessive-Compulsive and Related Disorders* 3:102–108, 2014
- Kroenke K, Spitzer RL, Williams JB: The PHQ-9: validity of a brief depression severity measure. *Journal of General Internal Medicine* 16:606–613, 2001
- Spitzer RL, Kroenke K, Williams JB, et al: A brief measure for assessing generalized anxiety disorder: the GAD-7. *Archives of Internal Medicine* 166:1092–1097, 2006
- Kroenke K, Spitzer RL, Williams JB, et al: The Patient Health Questionnaire somatic, anxiety, and depressive symptom scales: a systematic review. *General Hospital Psychiatry* 32:345–359, 2010
- Titov N, Dear BF, McMillan D, et al: Psychometric comparison of the PHQ-9 and BDI-II for measuring response during treatment of depression. *Cognitive Behaviour Therapy* 40:126–136, 2011
- Dear BF, Titov N, Sunderland M, et al: Psychometric comparison of the Generalized Anxiety Disorder Scale-7 and the Penn State Worry Questionnaire for measuring response during treatment of generalised anxiety disorder. *Cognitive Behaviour Therapy* 40: 216–227, 2011
- Löwe B, Spitzer RL, Williams JB, et al: Depression, anxiety and somatization in primary care: syndrome overlap and functional impairment. *General Hospital Psychiatry* 30:191–199, 2008

37. Kroenke K, Spitzer RL, Williams JB, et al: Anxiety disorders in primary care: prevalence, impairment, comorbidity, and detection. *Annals of Internal Medicine* 146:317–325, 2007
38. Kessler RC, Andrews G, Colpe LJ, et al: Short screening scales to monitor population prevalences and trends in non-specific psychological distress. *Psychological Medicine* 32:959–976, 2002
39. Slade T, Grove R, Burgess P: Kessler Psychological Distress Scale: normative data from the 2007 Australian National Survey of Mental Health and Wellbeing. *Australian and New Zealand Journal of Psychiatry* 45:308–316, 2011
40. Littell RC, Pendergast J, Natarajan R: Tutorial in biostatistics: modelling covariance structure in the analysis of repeated measures data. *Statistics in Medicine* 19:1819, 2000
41. Gyani A, Shafran R, Layard R, et al: Enhancing recovery rates: lessons from year one of IAPT. *Behaviour Research and Therapy* 51:597–606, 2013
42. Estimates of Aboriginal and Torres Strait Islander Australians, June 2011. Canberra, Australian Bureau of Statistics, 2011. Available at www.abs.gov.au/ausstats/abs@.nsf/mf/3238.0.55.001
43. Australian Demographic Statistics, March 2014. Canberra, Australian Bureau of Statistics, 2014. Available at www.abs.gov.au/AUSSTATS/abs@.nsf/allprimarymainfeatures/11CC03AA4200498ACA257DB100161FBI?opendocument
44. Cahill J, Barkham M, Stiles WB: Systematic review of practice-based research on psychological therapies in routine clinic settings. *British Journal of Clinical Psychology* 49:421–453, 2010
45. Minami T, Wampold BE, Serlin RC, et al: Benchmarks for psychotherapy efficacy in adult major depression. *Journal of Consulting and Clinical Psychology* 75:232–243, 2007
46. Richards DA, Borglin G: Implementation of psychological therapies for anxiety and depression in routine practice: two year prospective cohort study. *Journal of Affective Disorders* 133:51–60, 2011

Submissions Invited for Column on Integrated Care

The integration of primary care and behavioral health care is a growing research and policy focus. Many people with mental and substance use disorders die decades earlier than other Americans, mostly from preventable chronic medical illnesses. In addition, primary care settings are now the gateway to treatment for behavioral disorders, and primary care providers need to provide screening, treatment, and referral for patients with general medical and behavioral health needs.

To stimulate research and discussion in this critical area, *Psychiatric Services* has launched a column on integrated care. The column focuses on services delivery and policy issues encountered on the general medical–psychiatric interface. Submissions are welcomed on topics related to the identification and treatment of (a) common mental disorders in primary care settings in the public and private sectors and (b) general medical problems in public mental health settings. Reviews of policy issues related to the care of comorbid general medical and psychiatric conditions are also welcomed, as are descriptions of current integration efforts at the local, state, or federal level. Submissions that address care integration in settings outside the United States are also encouraged.

Benjamin G. Druss, M.D., M.P.H., is the editor of the Integrated Care column. Prospective authors should contact Dr. Druss to discuss possible submissions (bdruss@emory.edu). Column submissions, including a 100-word abstract and references, should be no more than 2,400 words.