

Feasibility of Implementing Cognitive Behavioral Therapy for Psychosis on Assertive Community Treatment Teams: A Controlled Pilot Study

Eric Granholm

VA San Diego Healthcare System; University of California, San Diego

Catherine Loh

University of California, San Diego

Peter C. Link

VA San Diego Healthcare System

Dilip Jeste

VA San Diego Healthcare System; University of California, San Diego

Cognitive behavioral therapy for psychosis (CBTp) has been shown to reduce symptoms of schizophrenia, but implementation of CBTp interventions in community settings in the U.S. has not been studied. This study examined whether community case managers can effectively deliver manualized CBTp to clients with psychosis. Community case managers from assertive community treatment teams received a one-day training workshop and bi-weekly group supervision and delivered CBTp to clients with psychotic disorders in their caseload for 12 weeks. On average, only half (6 of 12) the manualized sessions were delivered. Patients who received more sessions learned more skills and had better outcomes, and greater skill learning was correlated with greater improvement in several outcomes. Case managers, on average, delivered CBTp with adequate fidelity. CBTp can be effectively delivered by front-line mental health workers, but implementation barriers hindered delivery of an adequate dosage of therapy.

This research was supported by the UCSD Advanced Center for Interventions and Services Research (ACISR: NIMH P30MH66248).

We would like to thank the clients, therapists and administrators in the San Diego County Mental Health System who participated in this study.

Address correspondence to Eric Granholm, Ph.D., VA San Diego Healthcare System (116B), 3350 La Jolla Village Drive, San Diego, CA 92161. E-mail: egranholm@ucsd.edu.

There is now considerable evidence that cognitive behavioral therapy for psychosis (CBTp) is an effective adjunctive intervention to pharmacologic treatment of schizophrenia. Randomized clinical trials comparing CBTp with standard care and supportive contact have found significantly greater improvements in both positive and negative symptoms, as well as anxiety, depression and functioning in individuals with psychotic disorders in CBTp (Chadwick & Birchwood, 1994; Drury, Birchwood, Cochrane, & Macmillan, 1996; Garety, Kuipers, Fowler, Chamberlain, & Dunn, 1994; Granholm et al., 2005; Gumley et al., 2003; Kuipers et al., 1998; Kuipers et al., 1997; Sensky et al., 2000; Tarrier, Beckett et al., 1993; Tarrier, Sharpe et al., 1993; for a review see Wykes, Steel, Everitt, & Tarrier, 2008). Despite evidence that CBTp is effective in university research clinics, there has been no published research on the effectiveness of CBTp when delivered by community therapists with heterogeneous clients (Wykes et al., 2008). This study is a pilot implementation trial of a CBTp intervention that is an abbreviated version of Cognitive Behavioral Social Skills Training (CBSST; Granholm et al., 2005; McQuaid et al., 2000), which was designed to help people with schizophrenia achieve personalized community functioning goals. CBSST has shown promise as an effective intervention in previous studies conducted at university research clinics with M.A. and Ph.D. level therapists (Granholm et al., 2005). In this study, the abbreviated intervention was delivered in community settings by existing community case managers.

AIMS OF THE STUDY

This pilot study examined whether CBTp can be effectively and competently delivered at community sites by community therapists in the U.S. with low-intensity training and supervision. It was hypothesized that: (1) This intervention would improve skill knowledge, community functioning and symptoms in clients with schizophrenia, when delivered at community settings by community case managers; and (2) Community case managers would deliver the intervention with adequate fidelity after minimal training and supervision. A secondary goal of this study was to identify obstacles to training community-based therapists and disseminating this intervention.

MATERIALS AND METHODS

Participants

This study was approved by the Institutional Review Board for the University of California, San Diego. Twenty-three community case managers (20 from a single site in the San Diego County Mental Health System and three from the San Diego VA Hospital) were recruited as therapist research participants. All therapist participants were asked to identify and enrolled at least one client from their caseload with persisting, active psychotic symptoms causing distress or disability during the past month, but seven therapists did not identify clients or deliver the intervention, resulting in a final therapist sample of 16. Case managers had bachelor's (most commonly) or master's degrees and 3-5 years experience working as mental healthcare providers. Exclusion criteria for client participants were limited to severe dementia or physical illness

that would prevent participation in treatment or assessments. Twenty-four clients with a chart diagnosis of schizophrenia or schizoaffective disorder were enrolled, but 16 participants, who were assessed on the outcome measures on at least two occasions, were included in data analyses. These 16 participants had a mean age of 44.3 years ($SD = 8.3$), 81% were male, and 69% Caucasian. The sample experienced moderate symptom severity [Positive and Negative Syndrome Scale (Kay, Fiszbein, & Opler, 1987) Total $M = 63.5$, $SD = 17.9$] and all 16 participants resided in assisted living facilities.

Procedures

Therapists and clients in their caseload were followed longitudinally for 24 weeks (12 weeks of therapy plus 12 weeks follow-up). Case managers were asked to provide 12 manualized 30-minute sessions of CBTp to each client, and then to continue to provide standard ACT services (treatment as usual) during a 12-week follow-up phase. Case managers were not instructed to avoid using CBTp interventions during the follow-up phase. CBTp was provided at sites that were convenient to the clients and case managers, including board-and-care facilities, residential treatment, county mental health clinics, and other community settings (e.g., coffee shops). Clients continued to receive ACT services throughout therapy and follow-up. The ACT model is a team treatment model, so clients typically had different therapists deliver different sessions, depending on which case manager visited the client that week. Continuity of treatment (e.g., sharing information between therapists about homework assignments) was managed in the standard ACT morning meetings. The therapist participants attended an 8-hour training workshop in the principles of CBTp, and then received bi-weekly group face-to-face supervision with a psychologist (E.G.) experienced with the intervention. Face-to-face supervision was conducted during the teams' standard ACT morning meeting. Session audiotapes and fidelity ratings were not used in supervision, as many case manager participants perceived these aspects of research to be intrusive and inconsistent with their client-centered approach. The content of supervision focused on review of one or two of the manualized sessions in the context specific therapist narrative reports about conducting these sessions, as well as other individual issues brought up about clients by therapists. An experienced CBTp therapist was also available for on-call supervision during the course of the study, but the on-call supervision was never used by therapists.

A battery of clinical instruments was administered to client participants, including measures of community functioning (Independent Living Skills Survey-ILSS; Wallace, Liberman, Tauber, & Wallace, 2000; Life Satisfaction Index-LSI; Wallace & Wheeler, 2002), psychopathology (Positive and Negative Syndrome Scale-PANSS; Kay et al., 1987; Beck Depression Inventory-BDI; Beck, Steer, & Brown, 1996), and cognitive insight (Beck Cognitive Insight Scale-BCIS; Beck, Baruch, Balter, Steer, & Warman, 2004). An interview-based questionnaire about knowledge of skills trained in the intervention, (modified Comprehensive Module Test [CMT]; Liberman, 1991) was also administered. Therapists also rated level of client participation on a 5-point likert scale and rated homework completion.

Fidelity was assessed using the Cognitive Therapy Rating Scale for Psychosis (CTS-Psy; Haddock et al., 2001). Fidelity raters had over five years of experience in conducting CBT interventions, including CBTp, and were therapists in another larger

clinical trial of CBTp (Granhholm et al., 2005). Training on the fidelity scale was conducted in group supervision meetings for this larger trial, where videotapes of sessions were collectively rated by all therapists using the CTS-Psy. Interrater reliability was not computed for this small pilot sample, but was .85 for our larger trial (Granhholm et al., 2005). At least one tape from each therapist's available CBTp session tapes was randomly selected for fidelity rating. One therapist had no CBTp session tapes available to rate, because the therapist did not record any CBTp sessions. In order to reduce potential rater bias that could be associated with rating only CBTp sessions, tapes of "treatment as usual" sessions (standard ACT case management visits) delivered by the therapist prior to CBTp training were collected and rated along with the CBTp sessions. Raters were told that some tapes were from CBTp sessions and some were from treatment as usual sessions, and raters were blind to session type. The ten CTS-Psy domain scores were summed and adequate competency was defined as a CTS-Psy score of 30 or greater (Turkington, Kingdon, & Turner, 2002).

Cognitive Behavioral Therapy—"Healthy Thinking"

A treatment manual/client workbook with 12 weekly 30-minute individual psychotherapy sessions was provided to community case managers and their clients. Our CBSST (McQuaid et al., 2000; Granhholm et al., 2005) intervention was abbreviated from two-hour sessions to 30-minute sessions to accommodate the duration of typical case management visits and was shortened from 24 to 12 sessions by eliminating the role play communication skills components. Cognitive interventions primarily addressed dysfunctional performance beliefs and self-efficacy beliefs that interfered with community functioning behaviors, but could be used to target psychotic symptoms that interfered with client goals. A typical 5-step problem-solving intervention was also included. Aids to compensate for cognitive impairment common in schizophrenia were also added, including pocket-sized skills reminder cards. Community functioning was the primary treatment target.

Overview of Analyses

To test efficacy, end of treatment, and 12-week follow-up assessments were compared with baseline, using paired samples *t*-tests on all outcome measures, and effect sizes (Cohen's *d*) were computed at each assessment relative to baseline. To examine whether increase in CBTp skill knowledge was associated with outcomes, correlations were computed between percent change in CMT and percent change in outcomes at end of treatment.

RESULTS

Client Outcomes

Table 1 shows descriptive statistics for all outcome measures at each time point. No significant differences were found on any of the outcome measures between baseline

TABLE 1. Within-group comparisons (t-tests and Cohen's d) for each outcome measure at end of treatment (EOT) and 3-month follow-up (FU) relative to baseline (BL) for all clients and a subgroup of clients who received at least half (>6 sessions) of the CBTp intervention

		<i>N</i>	<i>M (SD)</i>	<i>t</i>	<i>d</i>
All Clients					
ILSS	BL	16	0.617 (0.124)		
	EOT	16	0.650 (0.158)	1.36	0.23
	FU	13	0.623 (0.152)	1.14	0.04
CMT	BL	16	12.19 (5.21)		
	EOT	16	13.38 (4.76)	1.19	0.24
	FU	13	11.38 (4.75)	0.27	-0.16
PANSS	BL	16	63.50 (17.89)		
	EOT	16	68.50 (18.66)	1.41	0.27
	FU	13	73.69 (19.23)	1.97	0.55
BCIS	BL	16	5.94 (5.12)		
	EOT	16	6.19 (5.54)	0.18	0.05
	FU	13	5.15 (5.48)	0.75	-0.15
BDI	BL	16	20.06 (12.92)		
	EOT	16	22.06 (14.84)	1.19	0.14
	FU	13	22.85 (17.13)	0.72	0.19
LSI	BL	16	8.44 (4.00)		
	EOT	16	8.56 (4.27)	0.14	0.03
	FU	13	8.77 (4.49)	0.35	0.08
Clients with > 6 Sessions					
ILSS	BL	7	0.602 (0.126)		
	EOT	7	0.596 (0.202)	0.12	-0.04
	FU	7	0.657 (0.153)	1.29	0.39
CMT	BL	7	10.14 (3.24)		
	EOT	7	13.00 (3.83)	1.94	0.81
	FU	7	10.29 (3.59)	0.07	0.04
PANSS	BL	7	68.29 (19.81)		
	EOT	7	67.71 (15.26)	0.23	-0.03
	FU	7	73.57 (19.65)	0.91	0.27
BCIS	BL	7	4.29 (3.64)		
	EOT	7	5.71 (3.55)	1.18	0.39
	FU	7	5.57 (5.65)	0.73	0.27
BDI	BL	7	25.00 (12.88)		
	EOT	7	24.29 (15.29)	0.24	-0.05
	FU	7	25.86 (17.58)	0.28	0.06
LSI	BL	7	6.71 (1.98)		
	EOT	7	8.14 (2.91)	1.02	0.57
	FU	7	7.43 (4.28)	0.50	0.22

Note. ILSS = Independent Living Skills Survey; CMT = Comprehensive Modules Test; PANSS = Positive and Negative Syndrome Scale; BCIS = Beck Cognitive Insight Scale; BDI = Beck Depression Inventory; LSI = Life Satisfaction Index; $p > .05$ for all t-tests.

and end of treatment or 12-week follow-up. Despite failing to reach statistical significance in this small pilot sample, small improvement was found for the total sample mean level of community functioning on the ILSS (primary outcome) at end of treatment relative to baseline ($d = 0.23$), but this was not maintained at 12-week follow-up ($d = 0.04$). Small improvement in skill knowledge (CMT) was also found at the end

TABLE 2. Number of Sessions and Therapists Per Client and Therapist Fidelity Ratings (CTS-Psy)

Client Number	Number of Sessions	Therapist Number	CTS-Psy Total
10	1	13	33
14	1	15	24
2	3	5	26
9	4	8	41
		9	23
3	5	3	30
		5	26
		6	30
11	5	4	26
		10	26
		12	33
		13	33
8	6	9	23
12	6	3	30
		12	33
		13	33
16	6	14	44
		15	24
		16	19
1	7	1	38
		2	57
4	8	3	30
		4	26
		5	26
		6	30
5	8	3	30
		4	26
		5	26
		6	30
15	8	14	44
		15	24
13	10	11	N/A
		14	44
		15	24
7	10	3	30
		8	41
6	12	7	31
<i>M</i>	6.3	—	32
<i>SD</i>	3.1	—	9.7

Note. CTS-Psy= Cognitive Therapy Rating Scale for Psychosis; N/A = This therapist did not record any sessions.

of treatment ($d = 0.24$) relative to baseline, but this improvement was not maintained at 12-week follow-up ($d = -0.16$). Little change was found for life satisfaction ($d = 0.03$) or cognitive insight ($d = 0.05$), and psychopathology actually increased on average during the intervention and follow-up (d 's range from 0.14 to 0.55). Importantly, the intervention did not increase suicidal ideation. Only 6 of the 16 clients (37.5%) reported any suicidal ideation (BDI Item 9 > 0) at any time point, and 2 (12.5%),

showed increases, 4 showed decreases (25.0%) and 10 (62.5%) showed no change in suicidal ideation from baseline to end of treatment.

Given that on average only half of the intervention [$M = 6.3$ ($SD = 3.1$) of the 12 sessions] was delivered, the mixed results found for outcomes at the group level might have been due to inadequate dose of therapy for most clients. Consistent with this, effect sizes were generally larger for most outcomes in a subgroup of participants who received at least half the intervention (Table 1). In addition, the correlation between number of sessions delivered and skill knowledge at the end of treatment (% change in CMT relative to baseline) was significant ($r = .59$, $p = .015$, $n = 16$). Greater increase in skill knowledge was also strongly and significantly correlated with greater increase (% change) in life satisfaction (LSI; $r = .88$, $p < .001$), and the correlations between increased skill knowledge and percent change in PANSS Total ($r = -.30$, $p = .253$), BCIS ($r = .42$, $p = .136$), and BDI Total ($r = -.39$, $p = .139$) were all of medium size, although not significant in this small sample.

Homework adherence was poor, with 40% of assignments attempted, on average, and an average quality rating of 1 (1 = attempted, but shows lack of clear understanding). The most common reason reported for not attempting homework was that the participant did not like the assignment or forgot to complete it. Client participation in therapy sessions was relatively high with a mean rating of 4.2 (4 = frequent: 10-15 minutes; 5 = a lot: >15 minutes).

Fidelity

Therapist fidelity ratings (CTS-Psy) are provided in Table 2. The mean overall therapist CTS-Psy score was 32.0 ($SD = 9.7$). The highest rated domains were Interpersonal Effectiveness ($M = 5.3$, $SD = 0.9$) and Understanding ($M = 5.0$, $SD = 1.4$). The lowest rated domains were Agenda Setting ($M = 1.0$, $SD = 1.5$) and Homework ($M = 2.4$, $SD = 1.5$). Nine of 15 (60%) therapists achieved adequate fidelity ratings (≥ 30 on CTS-Psy) in at least one rated session.

DISCUSSION

This study is an important beginning step toward delivering CBTp interventions to a broader range of clients with psychotic disorders, in a broader range of community treatment settings in the U.S. Key improvement in the target outcome (functioning) was found, but the effect size ($d = 0.23$) for this outcome was one third that found in our research clinic trial (Granholm et al., 2005). Other outcomes changed little or even worsened on average, due to large symptom exacerbations in two clients. In addition to differences in clinic settings, the intervention in this study was also less than half the dosage of the CBSST intervention used in prior research and excluded social skills training components. Of note, therapists in this study only delivered about 50% of this already abbreviated intervention on average and the number of sessions delivered was associated with the amount of skill knowledge learned, which was correlated with improvements on most outcomes. This suggests that effect sizes were reduced by clients who did not receive an adequate dose of therapy to learn the CBTp skills. The

extent to which client and/or therapist variables contributed to the low number of sessions delivered is unclear, but it is possible that the intervention would have produced larger effect sizes on broader outcomes if a greater dose of therapy was delivered.

With only minimal training (an 8-hour workshop) and low-intensity bi-weekly group supervision for 12 weeks, therapists with typically less than post-graduate education achieved adequate fidelity ratings, however key cognitive therapy skill ratings (i.e., agenda setting, homework, feedback) were low. Additional training in these components and more intensive (i.e., individual) supervision may be required to achieve greater skill level and efficacy. The average fidelity rating ($M = 32$, $SD = 9.7$) was comparable to acceptable standards (Haddock et al., 2001), and 60% of the therapists achieved adequate fidelity (≥ 30 CTS-Psy total), so a large amount of additional training may not be required. It is also possible that all therapists were not motivated to deliver the intervention with high fidelity according to the treatment manual. Therapists noted that the supervision component contributed to their CBTp knowledge and skill level to a much greater extent than the didactic workshop.

Limitations of the current study included a small sample size, the use of chart diagnoses (as opposed to structured clinical interview assessment), and reliance on correlational analyses to establish the relationship between skills training and outcomes. This was not a large-scale efficacy trial but a preliminary study designed to test the feasibility of implementing an original CBTp intervention that may facilitate delivery of CBTp to Americans with psychotic disorders through real-world ACT teams using non-doctoral providers. We believe the study's weaknesses are offset by the important lessons and insights gained with respect to implementation barriers in such community settings in the U.S. For example, there was some resistance to the use of manuals, due to inexperience with manualized therapies, including perceptions of the manual as inflexible, unhelpful, and inconsistent with a client-centered, personalized psychiatric rehabilitation approach. Therapist buy-in was facilitated by the credibility of supervisor as a clinician who sees real patients, as severely ill as those in case manager caseloads, rather than an ivory tower researcher. Interventions in the community also require investment by both leadership and front-line case managers. Leadership support was crucial in this study to free up time and encourage participation in training workshops and supervision, as well as provide infrastructure and support (e.g., staff time, resources). Front-line mental health workers, who are often the first to present treatment options to community clients, must instill hope and promote client interest in new treatment possibilities.

The successful implementation of evidence-based practices for severe mental illness requires that future studies refine training techniques, tailor interventions to the structure of community service delivery systems, and improve acceptability of the intervention to both clients and therapists in different treatment venues. Larger clinical trials are necessary to replicate findings from this study, as well as more clearly elucidate the training and treatment elements necessary for successful implementation of CBTp in community settings with front-line mental health workers.

REFERENCES

- ▶ Beck, A. T., Baruch, E., Balter, J., Steer, R., & Warman, D. (2004). A new instrument for measuring insight: The Beck cognitive insight scale. *Schizophrenia Research*, *68*, 319-329.
- Beck, A. T., Steer, R., & Brown, G. (1996). *Beck depression inventory* (2nd Ed.) San Antonio: The Psychological Corporation.
- ▶ Chadwick, P., & Birchwood, M. (1994). The omnipotence of voices: A cognitive approach to auditory hallucinations. *British Journal of Psychiatry*, *164*, 190-201.
- ▶ Drury, V., Birchwood, M., Cochrane, R., & Macmillan, F. (1996). Cognitive therapy and recovery from acute psychosis: a controlled trial. I. Impact on psychotic symptoms. *British Journal of Psychiatry*, *169*, 593-601.
- Garety, P. A., Kuipers, L., Fowler, D., Chamberlain, E., & Dunn, G. (1994). Cognitive behavioural therapy for drug-resistant psychosis. *British Journal of Medical Psychology*, *67*, 259-271.
- ▶ Granholm, E., McQuaid, J. R., McClure, F. S., Auslander, L., Perivoliotis, D., Pedrelli, P. et al. (2005). A randomized controlled trial of cognitive behavioral social skills training for middle-aged and older outpatients with chronic schizophrenia. *American Journal of Psychiatry*, *162*, 520-529.
- ▶ Gumley, A., O'Grady, M., McNay, L., Reilly, J., Power, K., & Norrie, J. (2003). Early intervention for relapse in schizophrenia: Results of a 12-month randomized controlled trial of cognitive behavioural therapy. *Psychological Medicine*, *33*, 419-431.
- ▶ Haddock, G., Devane, S., Bradshaw, T., McGovern, J., Tarrrier, N., Kinderman, P. et al. (2001). An investigation into the psychometric properties of the Cognitive therapy scale for psychosis (CTS-Psy). *Behavioural & Cognitive Psychotherapy*, *29*, 221-233.
- Kay, S. R., Fiszbein, A., & Opler, L. A. (1987). The positive and negative syndrome scale (PANSS) for schizophrenia. *Schizophrenia Bulletin*, *13*, 261-276.
- ▶ Kuipers, E., Fowler, D., Garety, P., Chisholm, D., Freeman, D., Dunn, G. et al. (1998). London-East Anglia randomised controlled trial of cognitive-behavioural therapy for psychosis. III: Follow-up and economic evaluation at 18 months. *British Journal of Psychiatry*, *173*, 61-68.
- ▶ Kuipers, E., Garety, P., Fowler, D., Dunn, G., Bebbington, P., Freeman, D. et al. (1997). London-East Anglia randomised controlled trial of cognitive-behavioural therapy for psychosis. I: Effects of the treatment phase. *British Journal of Psychiatry*, *171*, 319-327.
- Liberman, R. P. (1991). *Psychiatric rehabilitation consultants: Modules in the UCLA social and independent living skill series*. Camarillo: Psychiatric Rehabilitation Consultants.
- McQuaid, J. R., Granholm, E., McClure, F. S., Roepke, S., Pedrelli, P., Patterson, T. L. et al. (2000). Development of an integrated cognitive-behavioral and social skills training intervention for older patients with schizophrenia. *Journal of Psychotherapy Practice and Research*, *9*, 149-156.
- ▶ Sensky, T., Turkington, D., Kingdon, D., Scott, J. L., Scott, J., Siddle, R. et al. (2000). A randomized controlled trial of cognitive-behavioral therapy for persistent symptoms in schizophrenia resistant to medication. *Archives of General Psychiatry*, *57*, 165-172.
- ▶ Tarrrier, N., Beckett, R., Harwood, S., Baker, A., Yusopoff, L., & Ugarteburu, I. (1993). A trial of two cognitive-behavioural methods of treating drug-resistant residual psychotic symptoms in schizophrenic patients: I. Outcome. *British Journal of Psychiatry*, *162*, 524-532.
- ▶ Tarrrier, N., Sharpe, L., Beckett, R., Harwood, S., Baker, A., & Yusopoff, L. (1993). A trial of two cognitive behavioural methods of treating drug-resistant residual psychotic symptoms in schizophrenic patients. II. Treatment-specific changes in coping and problem-solving skills. *Social Psychiatry and Psychiatric Epidemiology*, *28*, 5-10.
- ▶ Turkington, D., Kingdon, D., & Turner, T. (2002). Effectiveness of a brief cognitive-behavioural therapy intervention in the treatment of schizophrenia. *British Journal of Psychiatry*, *180*, 523-527.
- Wallace, C. J., Liberman, R. P., Tauber, R., & Wallace, J. (2000). The independent living skills survey: A comprehensive measure of the community functioning of severely and persistently mentally ill individuals. *Schizophrenia Bulletin*, *26*, 631-658.
- ▶ Wallace, K. A., & Wheeler, A. J. (2002). Reliability generalization of the life satisfaction index. *Educational and Psychological Measurement*, *62*, 674-684.
- ▶ Wykes, T., Steel, C., Everitt, B., & Tarrrier, N. (2008). Cognitive behavior therapy for schizophrenia: Effect sizes, clinical models, and methodological rigor. *Schizophrenia Bulletin*, *34*, 523-537.