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Feasibility and Effectiveness of a Psychosis-Specific Intensive Outpatient Program

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Objective: Intensive outpatient programs (IOPs) are rarely designed specifically to treat psychosis. In 2016 UCLA established the Thought Disorders Intensive Outpatient Program (TD IOP), combining a time-limited, group-based intervention called cognitive behavioral social skills training (CBSST) and medication management to treat individuals with psychosis. The purpose of this study is to assess the feasibility of developing an IOP for individuals with psychosis and the effectiveness of the program in improving psychotic symptom severity.

Methods: Adults were referred to the TD IOP from inpatient and outpatient settings. Programming included 3 hours of CBSST and 6 hours of additional groups weekly as well as individual psychiatry and social work services. Primary outcomes were symptom changes as measured at intake and discharge by the Clinician-Rated Dimensions of Psychosis Symptom Severity scale. Program feedback was solicited from a small subset of patients.

Results: Of the 92 enrolled subjects, 71 completed the program (77.2%). Average length of stay was 52 ± 30 days across all enrolled. Participants showed significant ($p < 0.05$) improvement with small-moderate effect sizes across five of eight psychosis symptom domains (hallucinations, delusions, disorganized speech, depression, and mania). Patient-reported program satisfaction was high (86.6 ± 12.7 score, range 0–100).

Conclusions: The current study indicates that targeted treatment for psychosis is successful within an IOP framework, with minimal additional training required for Master's level clinicians. Participants demonstrated significant symptomatic relief from group-based, time-limited treatment. Further work is needed to determine the full range of program benefits on patient well-being and illness morbidity.

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Individuals with psychotic disorders were for many decades not considered appropriate candidates for psychotherapy. The first case reports detailing the use of cognitive behavioral techniques to treat psychosis were published in the 1980s (1), while the first randomized controlled trial (RCT) of cognitive-behavioral therapy for psychosis originated in the United Kingdom in the 1990s (2). Presently, CBT is listed as a preferred treatment for psychosis by the Schizophrenia Patient Outcome Research Team (PORT) in the United States, a set of strictly evidenced-based treatment guidelines (3). A combination of antipsychotics and structured therapy has been shown to improve both positive and negative symptoms and result in global functional improvement (4–6).

The CBT focus on cognitive restructuring, normalizing, behavioral self-monitoring, and activity scheduling promotes social engagement (7). In one community-based study, CBT improved positive symptoms, general mental health problems, and depression, as well as reduced admission rates following treatment (8). The PORT

guidelines also recommend social skills training (SST), which targets social cognitive processes, psycho-education,

HIGHLIGHTS

- The creation of a psychosis-specific intensive outpatient program (IOP) based on a manualized, evidence-based treatment called Cognitive Behavioral Social Skills Training is feasible within an existing IOP framework and requires minimal additional training for Master's level clinicians.
- Over the course of the 6-week treatment program, participants demonstrated significant ($p < 0.05$) improvement in five of eight psychosis symptom domains as measured by the Clinician-Rated Dimensions of Psychosis Symptom Severity scale.
- Most participants (77.2%) completed the program and a subset of participants surveyed indicated high program satisfaction (86.6 score out of 100).

life management skills (e.g., financial awareness, hygiene, and domestic skills), and relapse prevention skills (9–11).

Cognitive Behavioral Social Skills Training (CBSST) combines both social skills training and cognitive-behavioral therapy to improve real-world functioning (12–14). In one RCT, individuals who engaged in CBSST demonstrated better rates of achieving functional milestones as compared to individuals who received goal-focused supportive contact (12). Participants also showed greater improvement in experiential negative symptoms and defeatist performance attitudes. In another RCT of middle-aged and older adults with schizophrenia, individuals who received CBSST demonstrated superior self-reported community living skills and a lower dose of psychotropic medications at 12-month follow-up compared to treatment as usual (13).

Here we present data from a recently developed CBSST-based program for adult patients with primary psychotic disorders—the UCLA Thought Disorders Intensive Outpatient Program (TD IOP). In addition to CBSST, participants received group-modality self-care and life skills training, medication management, case coordination, and brief individual supportive psychotherapy. We aimed to assess the TD IOP's feasibility from a program development perspective as well as to assess the impact of this program on improving participants' psychotic symptoms.

METHODS

Participants

The study protocol was approved by the UCLA Institutional Review Board (IRB#19-001962). Individuals who are accepted into the UCLA Thought Disorders Intensive Outpatient Program (TD IOP) are adults ages 18+ who have been diagnosed with a primary psychotic disorder (generally schizophrenia or schizoaffective disorder, brief psychotic disorder, or a delusional disorder). They are referred to the TD IOP from UCLA inpatient wards and outpatient clinics or from community providers. Participants must be stably housed and motivated for treatment. Individuals actively engaged in substance use that would interfere with their treatment are excluded. Participants enrolled between May 1, 2018 and June 30, 2020 were included in the current study. A total of 92 participants were enrolled. Participant program feedback data were available from a prior survey study of participants discharged September 1, 2017–August 30, 2018 ($N = 28$).

Staff Training

All clinical staff (psychiatrists and licensed clinical social workers) have prior training in cognitive-behavioral therapy. Prior to the start of the program in 2016, clinical staff participated in an 8-h CBSST training workshop that included a discussion of the theoretical and research basis for the treatment, an extensive review of the CBSST manual, in-training role plays, and practice. Several days

before the program started, all clinical staff participated in a three-hour CBSST refresher training lead by A.B., the clinical director of the program. The program has time allotted for weekly treatment planning and supervision with A.B.

Intervention

CBSST is delivered in three modules, each lasting 2 weeks. The group is limited to 10 participants. The program is expected to last at least 6 weeks, longer if more treatment is clinically indicated. The program is held 3 days weekly from 1 p.m. through 4 p.m. Each day consists of 1 hour of CBSST as well as 2 hours of additional group therapy. Group-modality treatment focuses on sleep hygiene, self-esteem building, time management, medication side-effect management, diet, and mindfulness, among others. Social workers meet with participants at least weekly to address participant concerns and provide brief individual supportive psychotherapy as well as any case management needs. Participants also meet regularly with their psychiatrist for medication management. Nurses are available for consultation regarding diet and nutrition; they also regularly measure vital signs, including weight. Family meetings are held as indicated with the participant and his or her social worker and psychiatrist.

Measures

The primary measurement tool used to assess the effectiveness of the program was the Clinician-Rated Dimensions of Psychosis Symptom Severity (CRDPSS) scale. The CRDPSS scale was developed by the American Psychiatric Association as a patient assessment tool to assist with evaluating severity of mental health symptoms important across psychotic disorders and monitoring treatment progress (15). Symptoms are categorized into eight domains (DI–DVIII), as follows: DI, hallucinations; DII, delusions; DIII, disorganized speech; DIV, abnormal psychomotor behavior; DV, negative symptoms; DVI, impaired cognition; DVII, depression; and DVIII, mania. Each domain is scored by the clinician on a scale of 0 (not present) through 4 (present and severe). Detailed descriptors are included that correspond to each value on the scale. The scale was administered by licensed clinical social workers each week from intake through discharge. Demographics and clinical characteristics were obtained by chart review for each participant.

Statistics

Sociodemographic and psychiatric characteristics of all enrolled participants were analyzed using descriptive statistics. Participants without post-intervention scores ($N = 6$) were removed from the pre-post treatment analysis. The primary outcome measured was changes in CRDPSS DI–DVIII scores. Baseline and post-treatment scores were assessed for significance by Wilcoxon paired signed-rank test as not normally distributed. Wilcoxon

effect sizes (r) were calculated by dividing the absolute (positive) standardized test statistic z from the rank test by the square root of the number of pairs. Values of r vary from 0 to 1. The commonly accepted interpretation values are: 0.1–0.3 (small), 0.3–0.5 (moderate) and ≥ 0.5 (large). The secondary outcome measured was change in antipsychotic dose (in olanzapine equivalents) between admission and discharge. Differences in baseline and post-treatment antipsychotic dose were assessed for significance by paired t -test and a Cohen's d effect size was calculated. All analyses were performed using R (version 4.2.0). Results were considered statistically significant if $p < 0.05$.

RESULTS

Table 1 summarizes the demographic, psychiatric, and recruitment characteristics of the participants. Among the 92 enrolled participants, average age was 30.5 ± 10.7 years; 65.2% identified as male, 32.6% as female, and 2.2% as non-binary. Most (59.8%) of the participants were referred to the program from an inpatient psychiatric hospital, while 33.7% were referred from an outpatient practice. Diagnostically, 41.3% of participants were diagnosed with schizophrenia, 29.3% of with unspecified psychotic disorder, and 19.6% with schizoaffective disorder. The majority of those with unspecified psychotic disorder at the time of their participation in the program displayed features consistent with likely schizophrenia or schizoaffective disorder but due to length of symptoms and/or confounding presence of substance abuse, a precise diagnostic determination could not be made. Only 4.3% of participants had never been psychiatrically hospitalized; 64.1% reported two or more hospitalizations. A history of daily cannabis use was indicated by 41.3% of participants.

Of the 92 participants enrolled, 71 completed the full program (77.2%). Reasons for early termination included COVID-19 ($N = 3$), transfer to residential program due to worsening suicidal ideation ($N = 2$), transfer to inpatient hospital due to acute decompensation ($N = 2$), transfer to general intensive outpatient program ($N = 3$), transportation issues ($N = 1$), starting new employment ($N = 2$), suicide ($N = 1$), and patient preference or other reason ($N = 7$). The average length-of-stay for all enrolled patients was 52 ± 30 days (range 6–160 days), or approximately 8 weeks. No sociodemographic factors or baseline clinical factors predicted early termination as assessed by univariate logistic regression analysis (data not shown).

Given even early terminators completed an average of 3 weeks of the program, all participants with complete pre- and post-treatment CRDPSS data were included for outcome analysis ($N = 86$). As shown in Table 2, participants showed statistically significant improvement across five of eight psychosis symptom domains as measured by the CRDPSS scale, with mean scores on discharge improving over mean scores on admission for domains I

TABLE 1. Sociodemographic and clinical characteristics of enrolled participants

Characteristic	$N = 92^a$
Age	30.5 (10.7)
Gender	
Male	60/92 (65.2%)
Female	30/92 (32.6%)
Non-binary	2/92 (2.2%)
Diagnosis	
Schizophrenia	38/92 (41.3%)
Unspecified psychosis	27/92 (29.3%)
Schizoaffective bipolar	18/92 (19.6%)
Schizoaffective depressive	7/92 (7.6%)
Attention deficit hyperactivity disorder	1/92 (1.1%)
Substance-induced psychosis	1/92 (1.1%)
Referral source	
Inpatient	55/92 (59.8%)
Outpatient	31/92 (33.7%)
Residential	6/92 (6.5%)
College graduate	36/90 (40%)
Residence	
Family	69/92 (75%)
Alone	11/92 (12%)
Residential facility	6/92 (6.5%)
Roommates	6/92 (6.5%)
Married	12/92 (13%)
Employment status	
Unemployed	47/91 (51.6%)
Never employed	25/91 (27.5%)
Currently employed	18/91 (19.8%)
Retired	1/91 (1.1%)
Inpatient hospitalizations	
Multiple	59/92 (64.1%)
One	29/92 (31.5%)
None	4/92 (4.3%)
Prior suicide attempt	23/92 (25%)
Daily cannabis use	38/92 (41.3%)
Cannabis use, last month	16/92 (17.4%)
Opiate use, last month	0/92 (0%)
Methamphetamine use, last month	0/92 (0%)
Cocaine use, last month	1/92 (1.1%)
MDMA use, last month	1/92 (1.1%)
Family history of psychosis	25/88 (28.4%)

^a Mean (SD); n/N (%).

(hallucinations), II (delusions), III (disorganized speech), VII (depression), and VIII (mania). Effect sizes for DI, DII, and DVII ranged from ~ 0.4 to 0.6, indicating moderate-large effects. For DIII (disorganized speech) and DVIII (mania), effects sizes were ~ 0.3 , indicating small effect size. No significant changes were found for DIV (abnormal psychomotor behavior), DV (negative symptoms), and DVI (cognition). Mean antipsychotic dose (in olanzapine equivalents) did not differ significantly between admission and discharge for all included participants (Table 2). Antipsychotic dose remained the same (52.3%) or was reduced (20.9%) for most of the program participants over the course of the program. Restricting the analysis to patients that completed the program did not alter the results (data not shown).

TABLE 2. Pre- and-post treatment Clinician-Rated Dimensions of Psychosis Symptom Severity scores (CRDPSS)

Measure ^a	Pre mean	Post mean	Diff. (SE)	<i>p</i> ^b	Effect size ^b	Improved (%)
CRDPSS scores						
I. Hallucinations	1.45	0.97	−0.49 (0.12)	0.02	0.41	38.4
II. Delusions	2.00	1.35	−0.65 (0.12)	<0.01	0.56	48.8
III. Disorganized speech	0.76	0.52	−0.23 (0.08)	0.048	0.32	31.4
IV. Abnormal psychomotor	0.44	0.35	−0.09 (0.07)	0.39	0.20	15.1
V. Negative symptoms	1.59	1.41	−0.19 (0.10)	0.26	0.24	30.2
VI. Impaired cognition	1.10	0.93	−0.17 (0.09)	0.18	0.27	29.1
VII. Depression	1.48	0.85	−0.63 (0.11)	<0.01	0.60	51.2
VIII. Mania	0.19	0.03	−0.15 (0.07)	<0.01	0.27	12.8
Antipsychotic dose (olz. eq.)	7.97	7.65	−0.33 (0.32)	0.31	0.11	20.9

^a Limited to *N* = 86 participants with pre- and post-treatment data.

^b For CRDPSS scores, significance was determined by Wilcoxon two-sample paired signed-rank test and Wilcoxon effect sizes were calculated. For antipsychotic dose, significance was determined by paired *t*-test and Cohen's *d* effect size was calculated.

Participants improved an average of 2.6 (1.7) domains and 80/86 (93%) experienced improvement in at least one domain. Domains II (delusions) and VII (depression) were improved in approximately half of the participants (Table 2). Univariate logistic regression analysis was performed to determine if age, gender, or education associated with improvement in each domain. Male gender associated with reduced odds of any domain I (hallucinations) improvement (OR 0.35, 95% CI 0.14–0.89, *p* = 0.03) and college education associated with increased odds of any domain II (delusions) improvement (OR 3.3, 95% CI 1.33–8.18, *p* = 0.01) and domain VIII (mania) improvement (OR 4.54, 95% CI 1.11–18.6, *p* = 0.04).

Participant program feedback is summarized in Table 3 (*N* = 28). Overall program satisfaction was high (score 86.6 ± 12.7, range 0–100). Program strengths were noted to be socialization/support (38.5%), therapy/skill building (19.2%), and provider access (19.2%). Suggested improvements included increasing group discussion and improving the educational materials. Most (61.5%) participants cited no barriers to attendance with 23.1% and 7.7% reporting driving and parking as barriers, respectively.

DISCUSSION

The present study evaluated the impact of an intensive outpatient program designed specifically to treat individuals with thought disorders. Our study showed that participants demonstrated statistically significant improvement in five out of eight psychosis symptom domains, as measured by a clinician-rated scale. Additionally, most participants (73.2%) completed the program either with a reduction or no change in antipsychotic dose, indicating improvements cannot be attributed to medication alone. In addition, the program was simple in design, feasible to incorporate under the umbrella of an existing general intensive outpatient program, required minimal resources for training and planning, and was effectively implemented by Master's-level clinicians.

Although cognitive therapy has been frequently included in recent years as a standard recommended

TABLE 3. Patient feedback regarding program at discharge

Feedback	<i>N</i> = 28 ^a
Program satisfaction (0–100 score)	86.6 (12.7)
Program strengths	
Socialization/support	10/26 (38.5%)
Therapy/skill building	5/26 (19.2%)
Provider access	5/26 (19.2%)
Psychoeducation	4/26 (15.4%)
Self-confidence	2/26 (7.7%)
Barriers to program attendance	
None	16/26 (61.5%)
Driving	6/26 (23.1%)
Parking	2/26 (7.7%)
Schedule	1/26 (3.9%)
Fatigue	1/26 (3.9%)

^a Mean (SD); *n*/*N* (%).

treatment for psychosis (16, 17), few studies have evaluated the effectiveness of cognitive therapy for psychotic patients in non-research-based community mental health settings. An effectiveness study from Australia did not find significant improvement in symptoms in those receiving CBT for psychosis compared with controls; this was thought to be due to several factors, including the high quality of mental health services received by controls (18). Other studies have shown more positive results. One study showed that individual cognitive therapy provided to adults with psychotic disorders by clinical psychologists or nurse therapists in a community setting was associated with statistically significant improvements in positive symptoms, general mental health problems, and depression (8). In another small study in a community setting, one-third of patients receiving up to 13 cognitive therapy sessions reported reduction in delusional conviction (19). One UK-based study showed that delivery of six CBT sessions to a community sample of schizophrenia patients by mental health nurses, who were trained in CBT over just a 10-day period, resulted in statistically significant improvements in negative symptoms and insight at 1-year follow-up (6).

Several randomized controlled trials have evaluated the role of CBSST in the treatment of adults with psychotic

disorders. One study showed that middle-aged and older patients with schizophrenia performed activities related to social functioning significantly more frequently than those who received treatment as usual, with improved self-reported functioning at 12-month follow-up (20). In a study of non-geriatric adults with schizophrenia or schizoaffective disorder, those randomly assigned to receive CBSST experienced significantly greater functional improvement as well as greater engagement in educational activities when compared with those receiving goal-focused supportive contact only (12). CBSST has also been shown to benefit a first-episode population, with significant functional gains observed among young patients with schizophrenia who had received less than 6 months of treatment (21). To our knowledge, ours is the first study to evaluate the delivery of CBSST in a community setting. In addition, our study adds to the evidence base showing the effectiveness of CBSST in treating adult, non-geriatric patients in various stages of illness.

Of particular interest from a cost reduction perspective is the potential decrease in healthcare costs associated with CBSST. Previous studies examining the cost-effectiveness of individual CBT for psychosis have shown mixed results, with one showing increased initial healthcare costs though savings over time due to decreased service utilization (22), two showing neither cost benefit nor deficit (23, 24), and one showing higher cost though better outcome in the CBT group (25). As a group-based modality, CBSST requires far fewer therapist hours in comparison with the equivalent delivery of individual therapy. Prior studies have shown that the “dose” of CBSST sessions required to provide results was fewer than anticipated. For example, in one study, number of CBSST sessions attended was not significantly associated with outcome, with participants receiving an average of only 12 out of 36 offered sessions (20); in another, there was no significant benefit from repeating CBSST modules a second time (12). Our study showed that significant gains were achieved even without program completion, suggesting again that patients can benefit from even brief engagement in CBSST.

Our study population was clinically acute, as 60% of participants were referred directly from an inpatient hospital and almost all had a history of at least one psychiatric hospitalization, with 64% having a history of two or more prior hospitalizations. Despite the acuity of our study population, most participants completed the program. Our population appears like that described in the study by Farhall et al., in which patients randomized to receive CBT for psychosis had a median of 25 inpatient days and an average of 2.2 inpatient admissions prior to baseline assessment. In that study, the acuity of the population was thought to contribute to no significant symptom change between the control and treatment as usual groups (18). In contrast, our study suggests that even very ill patients with psychotic disorders can benefit from intensive outpatient

treatment built on talk-based therapy. Furthermore, these patients endorsed high subjective satisfaction with the program.

A major strength of our study is its naturalistic design. The TD IOP program at UCLA was conceived as an inclusive treatment option for adults of all ages and in all stages of a psychotic illness. Non-naturalistic studies for talk therapy in psychosis tend to focus on specific populations, such as geriatric or non-geriatric adults, or adults who are experiencing their first episode of psychosis. In addition, our CBSST providers were non-doctoral level therapists, most of whom had no significant prior experience working with psychotic disorders, though they did have extensive knowledge of delivery of CBT. They were able to effectively work with the study population after only 11 h of training in CBSST. Given the primary barrier to program attendance related to transport, community implementation of CBSST programs would confer significant value.

Our study had several limitations. (1) The sample size was limited to a single treatment arm. As unblinded, there is the potential for rater bias towards positive study results. (2) New as of DSM-5, the inter-rater reliability (IRR) and convergent validity of the CRDPSS remains underexplored. One study found low inter-rater reliability scores except for the delusions domain. Positive associations, however, were found between CRDPSS and Positive and Negative Syndrome Scale (PANSS), indicating convergent validity (26). (3) A self-reported measure of psychosis is not included. (4) We did not follow-up individually with patients outside of chart review; as such, no conclusion may be drawn if gains achieved in the program persisted or if treatment resulted in reduced number of future inpatient admissions.

Treatments that improve the quality of life of individuals with psychosis is a matter of great significance to public health. Our data indicate that improved socialization and functioning are concerns shared by affected individuals and clinicians alike. CBSST appears to be an effective intervention to address these concerns that requires minimal resources and a relatively brief treatment interval, making it ideally suited to adaptation to a variety of clinical settings. Future studies will compare CBSST to standard outpatient care with a focus on additional outcomes, including quality of life and healthcare utilization.

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