

## The Indianapolis Vocational Intervention Program: A cognitive behavioral approach to addressing rehabilitation issues in schizophrenia

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**Abstract**—Despite wishing to return to productive activity, many individuals with schizophrenia enter rehabilitation with severe doubts about their abilities. Negative beliefs in schizophrenia have been linked with poorer employment outcome. Accordingly, in this paper, we describe efforts to synthesize vocational and cognitive behavior therapy interventions into a 6-month manualized program to assist persons with schizophrenia spectrum disorders overcome negative beliefs and meet vocational goals. This program, the Indianapolis Vocational Intervention Program (IVIP), includes weekly group and individual interventions and is intended as an adjunct to work therapy programs. The IVIP was initially developed over a year of working with 20 participants with Structured Clinical Interview for the Diagnostic and Statistical Manual-I (SCID-I) confirmed diagnoses of schizophrenia or schizoaffective disorder who were actively engaged in 20 hours a week of work activity. For this paper, we explain the development of the treatment manual and the group and individual interventions and present case examples that illustrate how persons with severe mental illness might utilize the manualized intervention.

**Key words:** cognitive behavior therapy, dysfunctional beliefs, manualized intervention, schizoaffective disorder, schizophrenia, veterans, vocational rehabilitation.

### INTRODUCTION

Despite the wish to return to productive activity [1] and the clinical benefits associated with productive activity [2],

many individuals with schizophrenia spectrum disorders also simultaneously enter rehabilitation with severe doubts about their own abilities [1,3–4]. Because of factors including stigma [5–6] and the devastating effects of illness, many with schizophrenia view themselves as having little competence, social value, and chance of success at work, even with assistance [7–9]. They may believe they have minimal ability to influence their lives [10–12] and have developed a personal narrative in which failure in social and vocational contexts is expected [13]. They anticipate difficulties at work and see no real gains from persevering

**Abbreviations:** CBT = cognitive behavior therapy, HVLIT = Hopkins Verbal Learning Test, IVIP = Indianapolis Vocational Intervention Program, PANSS = Positive and Negative Syndrome Scale, SCID-I = Structured Clinical Interview for the Diagnostic and Statistical Manual-I, SD = standard deviation, VA = Department of Veterans Affairs, WBI = Work Behavior Inventory, WCST = Wisconsin Card Sorting Test.

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during trying times. Thus, the negative beliefs people with schizophrenia hold regarding their self-efficacy further hinder their rehabilitation and become an independent source of continuing psychosocial decline.

Consistent with this and paralleling studies of persons without severe mental illness [14], negative beliefs about the self in schizophrenia have been found to predict poorer employment outcome [15–16]. One prospective study found that even after controlling for negative symptoms, dysfunctional beliefs about giving up significantly predicted poor rehabilitation outcome [9]. Negative beliefs about the self have also been linked to other behaviors that may compromise vocational function, including more avoidant coping [10,17], poorer participation in treatment [18], and generally poorer social function [8,19].

This literature poses a challenge to service providers and researchers. Given the link between dysfunctional beliefs and vocational outcomes in schizophrenia, can interventions be devised to help persons combat and reverse these beliefs in the context of work? As programs are now being developed to address other barriers to work, including cognitive deficits [20–21] and stigma [22], can programs be developed that apply new or existing technologies as an adjunct to work therapies to help persons with schizophrenia overcome their negative beliefs and meet their vocational goals? In response to this challenge, we have sought to develop a treatment manual by applying and adapting a wide range of existing cognitive behavior therapy (CBT) didactic materials and techniques to target dysfunctional beliefs affecting work function. In designing this intervention, we chose to rely on CBT principles to address dysfunctional beliefs because CBT has helped persons in general alter a wide range of cognitions. More importantly, research has indicated over the last decade that CBT can help people with schizophrenia reduce negative symptoms, as well as increase community tenure [23–27].

For this paper, we describe our efforts to synthesize vocational and CBT interventions into a 6-month manualized program for persons with schizophrenia spectrum disorders that we call the Indianapolis Vocational Intervention Program (IVIP). The IVIP offers weekly group and individual CBT sessions targeted at dysfunctional beliefs about self (e.g., “I cannot succeed”) and work experiences (e.g., “Since my supervisors criticized my work, they must not like me”). The group therapy intervention includes didactic content and skills training and is complemented by the individual therapy intervention

that involves active and personalized application of group material to beliefs participants hold about themselves and their work experiences. The IVIP is intended as an adjunct to work therapy programs, including those that provide paid work placements to participants. These programs include Incentive Therapy, Veterans Industries, and Compensated Work Therapy and are available at more than 101 Department of Veterans Affairs (VA) sites across the country [28]. This type of setting provides a unique laboratory to study work performance in more depth than is possible in competitive work settings where multiple barriers to detailed observation and supervisor interviews are present.

In what follows, we first describe methods for creating the treatment manual and then provide an overview of both the group and individual interventions. Next, two case vignettes illustrate how we employed this manualized intervention. Both cases were chosen because of a history of long-term poor vocational function and because they represent potentially “difficult cases,” each suffering from a pattern of deficits commonly seen in rehabilitation settings that are linked by the literature to poor vocational function. Finally, we summarize the program and explore directions for future research.

### **Development of IVIP Treatment Manual**

The IVIP was developed while working with 20 participants with Structured Clinical Interview for the Diagnostic and Statistical Manual-I (SCID-I) confirmed diagnoses of schizophrenia or schizoaffective disorder. Participants were recruited from outpatient clinics at a VA medical center and were in a postacute or stable phase of their illness, defined as having had no changes in psychiatric medication or housing in the previous month. On average, they were 46 years old (standard deviation (SD) = 8.1) with histories of 12 psychiatric hospitalizations (SD = 15.4), the first occurring at an average age of 23 (SD = 10.8). Fourteen participants were Caucasian and six were African American. All but one was male. The modal participant had not been employed for 5 years and on average participants had 12.85 years of education (SD = 1.309). As an indication of the level of cognitive impairment, participants’ average number of categories correct was 3.30 (range 0–6, SD = 2.473) for the Wisconsin Card Sorting Test (WCST) [29]. Of the 20 participants, one withdrew before receiving a work placement or any other services and another withdrew during the first week because of a medical emergency. Therefore, their participation data was not considered.

After obtaining written informed consent, participants were provided with a work program that was modeled after the VA's Incentive Therapy programs [28]. This included a 26-week job placement in entry-level medical center positions with supervision by the regular job site supervisors and payment of \$3.50 per hour for up to 20 hours a week of work activity. Participants were also assigned to attend weekly CBT group and individual therapy sessions that were video- or audiotaped with the aim of identifying successful and unsuccessful attempts at implementing aspects of the developing manual.

Prior to beginning the manual, we defined key treatment parameters, such as format, frequency, and duration, with consideration given to participants' levels of cognitive impairment and varying symptom presentations. For example, the program consists of both group and individual components to facilitate tailoring instruction and application of concepts to individual preferences in learning style, as well as differences in cognitive ability and problems related to work. The duration of the weekly group and individual sessions are a maximum of 1 hour to optimize participants' attentiveness and performance required by the cognitive demands of CBT. Participants contract with their individual therapists regarding the length of individual sessions that range from 30 to 60 minutes. A group leader and cotherapist facilitate groups limited to 4 to 6 participants to ensure all members can fully participate. The group curriculum is presented at least three times during the 6-month program. In addition to the advantage of providing more impaired participants with multiple exposures to the didactic material, the repetitions accommodate participants who want to enter the program immediately and enable those who miss work to make up the material later when the session is repeated.

Following the model that manualized treatments best arise from incremental modifications to existing methods [30], we identified two criteria derived from the treatment rationale previously described to guide our adaptation of existing CBT manualized interventions:

1. The intervention directly or indirectly must advance the work of modifying dysfunctional cognitions that interfere with work.
2. The intervention must be accessible to participants of varying educational backgrounds and levels of cognitive impairment.

To this end, group interventions were developed around the CBT model (the feedback loop of thoughts affecting feelings which, in turn, affect behaviors). The particular

model we chose to help participants conceptualize the process of intervening with dysfunctional cognitions was what is referred to as the 4 A's:

1. Be *aware* of dysfunctional cognitions.
2. *Answer* dysfunctional cognitions by constructing and bringing to mind more accurate and/or helpful thoughts.
3. *Act* on the more accurate and/or helpful thoughts.
4. *Accept* imperfection [31].

Individual therapy sessions conducted during the manual development phase were offered between group sessions and modeled on CBT interventions described by Beck, Rush, Shaw, and Emery [32]; Beck [33]; and Miller and Rollnick [34].

### The IVIP Group Intervention

As detailed in **Table 1**, the format of the 1-hour group therapy sessions follows a standard agenda composed of three sections: check-in, intervention, and wrap-up. The primary objectives of the 10- to 15-minute check-in are:

1. To assist participants to identify potential problems at work.
2. To give participants positive social reinforcement for accomplishments.
3. To provide a bridge from the last session.
4. To assess how well participants understand the didactic material while reinforcing major concepts.

A seven-item "Weekly Self-Appraisal Form" assists participants in this process by asking them to rate the quality of their work, emotional responses to work, and relationships with coworkers and supervisors using a 5-point Likert scale. Although the IVIP employs standard agenda items typical of CBT, the group leader collaborates with participants to finalize the session agenda.

The next section of each group session—the intervention—comprises the bulk of the session, generally 30 to 40 minutes, and involves three activities:

1. Teaching the week's didactic material.
2. Assisting participants to put the didactic material into practice with some type of application exercise.
3. Giving work feedback to participants.

As adapted from other sources [31,35–40], the IVIP didactic curriculum is organized into four 2-week modules (total of eight sessions). These are presented in order and repeated at least three times during the participants' 6-month program. The content of each of these modules is summarized in **Table 2**.

**Table 1.**

Group session format in IVIP.

Phase	Time (min)	Tasks
Check-In	10–15	Participants complete “Weekly Self-Appraisal Form.” Participants describe work experiences that week. Successes and problems are noted. Agenda is set collaboratively, incorporating relevant issues. Participants offer recollections, questions, and comments about previous didactic material.
Intervention	30–40	Presentation of didactic material. Assessment of participant learning. Application of didactic material to work-related situations. Exercises, if applicable (e.g., relaxation, videotaped role-play). Presentation of work performance feedback.
Wrap-Up	10–15	Participant summary of group session. Distribution and explanation of practice (homework) assignments. Participants complete group session evaluation. Participants complete posttest.

IVIP = Indianapolis Vocational Intervention Program

**Table 2.**

Description of IVIP group didactic modules.

Module Title	Session Number and Title	Session Objectives (Examples of Concepts and Skills to be Addressed)
Thinking and Work	1. Thinking errors and work	Recognize impact of negative thinking. Identify automatic thoughts that impact work.
	2. Modifying self-defeating thinking	Modify dysfunctional cognitions using 4-A model.* Apply 4-A model to participants’ work experiences.
Barriers to Work	3. Problem-solving barriers to work	Identify existing or potential barriers to work. Employ problem-solving steps to work barriers.
	4. Coping with emotions	Define emotional states that threaten work. Learn CBT skills to manage difficult emotions.
Workplace Relationships	5. Accepting and learning from feedback	Differentiate constructive and destructive criticism. Apply steps for responding to feedback at work.
	6. Effective self-expression	Learn assertive communication principles. Practice giving effective feedback in work settings.
Realistic Self-Appraisal	7. Thinking about capabilities and limitations	Identify thinking errors compromising self-appraisal. Identify strengths, limitations, and necessary accommodations.
	8. Managing success	Define failure and success via the cognitive model. Modify dysfunctional cognitions regarding work failures.

\*The 4-A model emphasizes connections between being “aware,” “answering,” “acting,” and “accepting.”

IVIP = Indianapolis Vocational Intervention Program

CBT = cognitive behavior therapy

During the didactic presentation, the scheduled material is presented both abstractly and applied to participant’s actual work experiences. For example, if the weekly topic is “coping with anger,” anger is defined in

terms of the CBT model and participants are taught how to become more aware of angry thoughts, how to answer angry thoughts with more helpful thoughts, and how to act based on those more accurate, adaptive thoughts in a

work context. Following the didactic presentation, cotherapists engage participants in an application exercise about experiences they have had recently at work related to anger. The manual allows for a wide variety of application exercises, including using scripted, videotaped, and spontaneous role-play, practicing progressive muscle relaxation, and generating in-session thought records.

Work feedback, the last aspect of the intervention section, is derived from the Work Behavior Inventory (WBI) [41], an instrument completed by a trained rater who has observed participants at work and interviewed their supervisor. The five WBI scores of sociability, cooperativeness, work habits, work quality, and personal presentation are shared with the participant and group in the form of a line graph along a continuum ranging from “poor” to “excellent.” In presenting work feedback, the leader begins with the participants’ strengths leading to areas needing improvement. The cotherapist observes clients’ responses and helps them to verbalize their reactions. The group leader then directs any issues that are raised back to the group, who in turn provide support, reinforce success, or assist with problem-solving. WBI feedback is given to participants every other week for the first 8 weeks and then monthly.

The final section of the group session is the 10- to 15-minute wrap-up, during which the group leader asks participants to summarize what they have learned and/or to identify what made the most impact on them. The group leader may also provide feedback to group members about their participation, in addition to bridging to the didactic topic for the next week. Weekly written practice assignments are distributed and briefly explained. Practice assignments are one-page written exercises that participants complete in an average of 15 minutes and are targeted for completion by the next individual session. Practice assignments provide an opportunity for participants to apply group material to their individual situation and make up any missed group sessions while giving group and individual therapists a measure of how well participants are grasping the material.

The manual allows for increased complexity during the second and third exposure to the didactic material through more challenging application exercises and practice assignments. During their final exposure to the modules, participants are also assisted by their individual therapists to prepare two brief presentations. The first pre-

sentation involves explaining how they applied the CBT model to dysfunctional thoughts about work, and the second, how they applied any of the module content to their work experience. At the completion of the program, a “graduation” takes place, at which participants share their gains from the program and dreams for the future.

During manual development, 61 percent of the participants attended more than 50 percent of group sessions, while 39 percent joined in two to six sessions. Results of participant evaluations of the group session and the work experience were generally positive. Using a 5-point Likert scale ranging from 1, “not at all,” to 5, “very much,” participants indicated that group sessions helped identify problems at work and find ways to solve them ( $\bar{\chi} = 3.66$ ,  $SD = 0.34$ ) and offered  $\bar{\chi}$  support in working ( $\bar{\chi} = 3.82$ ,  $SD = 0.34$ ). Participants also reported that working contributed to feeling good about themselves ( $\bar{\chi} = 4.07$ ,  $SD = 0.32$ ), in spite of not always feeling comfortable ( $\bar{\chi} = 2.33$ ,  $SD = 0.25$ ). Cotherapists completed a group record form weekly to monitor aspects of participation by group members on an anchored 5-point Likert scale. Results confirmed that group members were positively engaged in the group process: attentiveness  $\bar{\chi} = 4.00$ ,  $SD = 0.40$ ; willingness to participate  $\bar{\chi} = 3.83$ ,  $SD = 0.31$ ; level of self-disclosure  $\bar{\chi} = 3.8$ ,  $SD = 0.36$ ; on-topic participation  $\bar{\chi} = 4.17$ ,  $SD = 0.36$ ; and supportive to other group members  $\bar{\chi} = 3.48$ ,  $SD = 0.36$ .

### The IVIP Individual Intervention

The individual counseling component of the IVIP is designed to be an opportunity for participants to review and apply didactic materials from groups and to learn to identify and conceptualize concerns using the cognitive behavioral model. Sessions generally begin the week before work, with the first two sessions conceived as introductory sessions.

These introductory sessions have at least four objectives:

1. Begin to establish a therapeutic alliance.
2. Orient participants to program routines and schedules.
3. Assess participants’ current expectations of work.
4. Address immediate and/or potential barriers to success at work.

During this phase, therapists employ primarily behavioral techniques to help participants identify and overcome any initial barriers to working. Throughout the next few sessions, therapists and participants collaboratively formulate goals for therapy. Examples of early goals include confronting the expectation of not being able to complete

the program or testing ways to respond to the expectation that one will be humiliated at work. Therapists also help participants develop an initial list of beliefs about themselves and others that may affect work function.

Individual sessions comprise the same three sections as the group session: check-in, intervention, and wrap-up. Before the therapy session begins, participants rate the strength of their conviction and extent of impact for up to four beliefs that participants and therapists have collaboratively identified. Next, during the "check-in" section, participants report to what extent they worked on and accomplished a mutually agreed-upon between-session assignment and give a brief update of the past work week including any mental health concerns. The therapist also reviews the written practice assignment from the last group session. Generally, 15 minutes is needed to complete written practice assignments, with more cognitively impaired participants needing more time. As an incentive for each completed written practice assignment, participants are given credit for an hour of paid time they can use to offset future time off from work. During manual development, a bimodal distribution of successful assignment completion was calculated. More than half of the participants completed the vast majority of assignments ( $\bar{X} = 18.0$ ), while the others completed relatively few ( $\bar{X} = 3.0$ ). Strategies consistent with CBT addressed the lack of assignment completion, such as challenging dysfunctional thinking about assignments and problem-solving. Check-in culminates with a collaboratively constructed and prioritized agenda that usually includes work on previously identified cognitions.

During the intervention section of individual sessions, the focus may be old or new material related to an event or issue. At some time during the intervention section, dysfunctional cognitions about work or that ultimately impact work are addressed, and the participant is contracted to apply over the next week at least one specific skill taught in group. To track the success of interventions, participants rate by session's end the accuracy of the dysfunctional and alternative cognition. Finally, during the wrap-up section, the therapist and participant reflect on the session. This may involve a summary provided by the therapist and/or the participant sharing observations and level of satisfaction with progress. During manual development, 61 percent ( $n = 11$ ) attended 12 to 24 individual sessions, while the remaining 39 percent ( $n = 7$ ) attended 3 to 9 individual sessions and were considered dropouts. Reasons for dropping out included marital discord, finding other productive activity, and substance abuse relapse. Of

the seven dropouts, six left the program in its early stages while the manual was still being developed.

As examples of how different persons responded to the IVIP, we present two case vignettes. These cases are intended to illustrate how these procedures "came to life" and were chosen on the basis of their representation of the significant levels of impairments present in the participants who helped us to develop this program.

#### *Case Vignette No. 1*

Bill (all subject names used in the manuscript are fictitious) is a 43-year-old Caucasian male with schizoaffective disorder and a long history of substance abuse. When he entered the program, he had not worked in the previous 10 years and had instead wandered aimlessly from city to city, often homeless and isolated from others. At baseline he had significant deficits commonly found in rehabilitation settings that have been linked to poorer work function. These included high levels of negative symptoms on the Positive and Negative Syndrome Scale (PANSS) [42], as well as impairments on the WCST [29], a measure of executive function, and on the Hopkins Verbal Learning Test (HVLN) [43], a test of verbal memory.

When he entered the program, he requested a job that required little physical exertion and he was offered a placement in a clerical office where he prepared and sorted a variety of documents. Bill's two initial goals in individual therapy were to "not drop out" of the program and to become more able to think about himself in "flexible and positive" ways.

As Bill participated in treatment, these goals were specified to include challenging "paranoid thoughts," episodic desires to quit his job, perceptions that others were "getting in my way," and fears of being "overwhelmed" as he took on more responsibilities.

During group therapy sessions, Bill received and accepted feedback from his peers regarding his distrust of others and his overreactions to constructive feedback. He attributed his struggle to grasp the didactic content to limitations in his memory and processing of verbal information, and consequently had difficulty independently completing written homework assignments. However, as this material and its rationale was reviewed in individual therapy, he came to understand his proneness to a variety of cognitive distortions, including "either/or" thinking, personalizing, and jumping to conclusions. He practiced testing the accuracy of these distortions and became increasingly willing to see how he misinterpreted others' motives and ignored evidence of his capabilities and limitations. He

came to conceptualize his habitual withdrawal and hostility as behavior whereby he set himself up to fail while at the same time blaming others. He was able to see issues related to his poor hygiene, alcohol use, and spotty medication adherence as further ways in which he “hurt” his own cause. Bill was assisted in individual therapy to identify specific dysfunctional cognitions and find ways to respond to them. For example, he learned to answer thoughts such as “Everything I do turns to s\*\*\*” with “Things are currently going pretty well for me,” and “It isn’t me to be successful” with “Maybe I’m not as much of a screw-up as I thought I was.” Interestingly, we observed that here and in other cases, individual therapy did not silence negative thinking, but stimulated and enriched internal arguments and discussions by adding other points of view. Thus, enhanced meta-cognition occurred, or thinking about thinking, adding to a richer array of individual thoughts as Bill considered how to respond to issues at work.

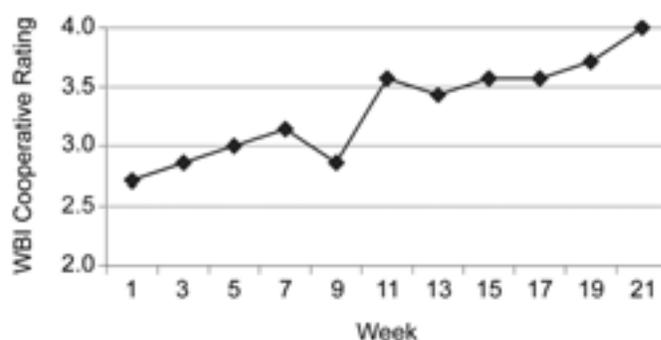
In the last month of the IVIP, Bill identified the following gains:

1. Improved relationship with his supervisor.
2. More consistent work performance and attendance.
3. Increased self-confidence.

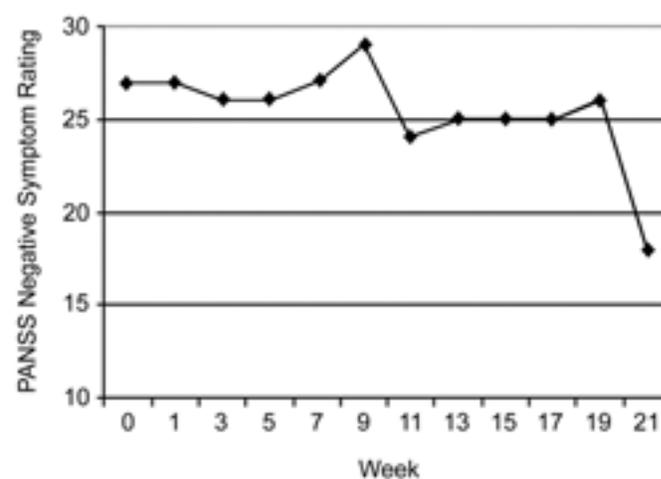
Twice during the program, he took extended leaves and missed several weeks. However, on both occasions he returned to work and again began examining his thoughts and behaviors. During the 20 weeks Bill worked, he averaged 17 hours a week and evaluations of his work performance with the WBI revealed significant improvements. For instance, as displayed in **Figure 1**, in biweekly ratings of Cooperativeness, the work domain that was perhaps the greatest focus in his therapy, a significant linear trend was observed ( $r = 0.94, p < 0.0001$ ) with performance increasing over time. Other evidence of improvement depicted in **Figure 2** includes concurrent decreases on the PANSS Negative Symptom component ( $r = -0.62, p < 0.05$ ). Of note, a research assistant blind to his goals in therapy rated the WBI or PANSS.

### Case Vignette No. 2

Dan is a 51 year-old Caucasian male with schizoaffective disorder and a history of homelessness, social alienation, and limited response to antipsychotic medication. When he entered the program, Dan had not worked for 18 years. At baseline Dan, like Bill, also had multiple deficits commonly associated with impairments in function, including high levels of cognitive symptoms



**Figure 1.** Biweekly ratings on WBI (Work Behavior Inventory) category of Cooperativeness for Case No. 1 (Bill).



**Figure 2.** Concurrent decreases on PANSS (Positive and Negative Syndrome Scale) Negative Symptom component for Case No. 1 (Bill).

and impairments in executive function on the WCST and poor verbal memory on the HVLIT.

Dan expressed interest in working around people and was offered a placement as a receptionist in a clinical setting. Dan’s initial two goals were to increase his social connections and improve his coping with anxiety and depression. As therapy progressed, these goals were further refined in terms of specific work behaviors, including staying attentive, carrying out job responsibilities effectively, initiating appropriate communication, and consistently passing on phone messages.

Dan was an active participant during group sessions, frequently making supportive comments to other group members. Although at times he struggled to make sense of the didactic material, he asked questions, took notes

that he referred to later, and worked diligently on the written practice assignments. Once he grasped the material, however, the anxiety and depression aroused by discussing his problems often interfered with his applying the material, even with assistance from his individual therapist. Eventually, Dan came to recognize and confront negative cognitions that were at the root of his fears. He realized that he was intensely afraid of making a mistake and displeasing others. He also concluded that his tendency to magnify his problems and predict the worst possible outcome made it more likely that he would fail to implement problem-solving plans developed during individual therapy. At one point during the program, Dan's struggle with suicidal ideation related to his sense of hopelessness and expectations of disaster threatened his ability to continue working. Weekly therapy sessions focused on helping Dan address dysfunctional thinking that interfered with his applying problem-solving skills learned during group sessions. For instance, he learned to answer the anxiety-provoking thought: "If I don't plan for everything, I'll make a mistake and be homeless" with "I've done the best I can" and "Right now, gains are greater than losses." Dan also found it helpful to practice reminding himself that "Work is important to me because it helps me to maintain my emotional stability" rather than focusing on other's impressions of him at work. When thoughts linked with avoidant behavior such as "People won't accept me because I have a mental illness" became too strong, he learned to intervene further by telling himself "Whether or not people accept me is ultimately not my responsibility."

In the last month of the IVIP program, Dan identified the following gains:

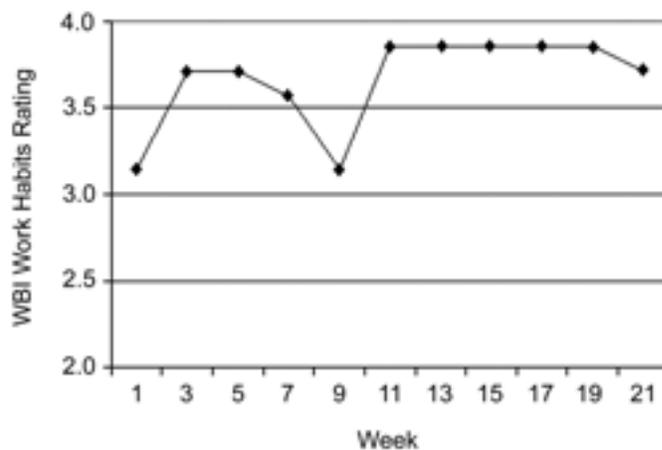
1. Learning to evaluate his thoughts and increase his focus on more rational and positive thoughts when beset with fears of catastrophe.
2. Learning to engage in pleasant activities to positively impact his thoughts and feelings.
3. Monitoring how "jumbled" his thinking was and learning to take a break to halt the stress cycle.

He was also able to apply problem-solving skills to move to a new residence that was less demanding and less socially isolating. At work, Dan averaged 19.5 hours per week and did not miss a day. As revealed in **Figure 3**, results of his WBI evaluations further validated improvement in his biweekly ratings of Work Habits ( $r = 0.57$ ;  $p < 0.05$ ), the domain of greatest focus in his therapy. As in the case of Bill from week 1 to week 20, a pattern of

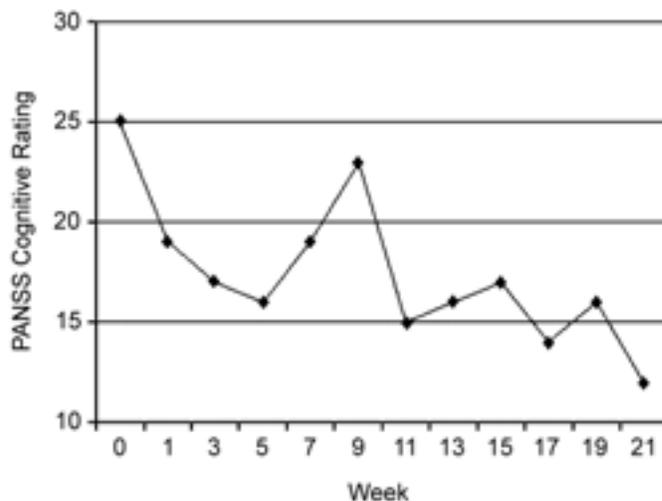
linear decrease in symptoms as rated biweekly was detected, this time on the PANSS Cognitive Symptom component ( $r = -0.69$ ;  $p < 0.05$ , **Figure 4**). As in the previous case vignette, a research assistant blind to his goals in therapy rated the WBI or PANSS.

## DISCUSSION

Given the links between dysfunctional cognitions and work outcome in schizophrenia, we have developed a



**Figure 3.** Results of WBI (Work Behavior Inventory) Work Habits evaluation for Case No. 2 (Dan).



**Figure 4.** Results of PANSS (Positive and Negative Syndrome Scale) Cognitive Symptom component for Case No. 2 (Dan).

manualized CBT program called the Indianapolis Vocational Intervention Program. This program specifically assists persons with schizophrenia to think more adaptively about themselves and work and differs from other cognitive behavior therapy programs in that it endeavors primarily to enhance function.

As Rounsaville et al. has noted [30], the evaluation of new and developing treatments should include patient acceptance of the new treatment, the ability of researchers to recruit sufficient numbers from the target population, and feasibility of treatment delivery. Evidence that the IVIP meets the first criterion can be found in the positive responses to concurrent group evaluation questionnaires that indicated participants found the sessions helpful and supportive. In addition, group therapist evaluations indicated that group participants overall were focused, engaged, and involved. As for the second and third criteria, we were easily able to quickly recruit the 20 participants needed for manual development, with full support from the medical center, participants, and front-line clinicians.

Although we have been able to implement the IVIP within our setting with patients accepting of and willing to participate in the program and, as illustrated by the case vignettes, persons with significant impairments who have experienced some gains, the effectiveness of the IVIP remains to be tested in a randomized controlled study. We are currently in the final phases of completing a randomized study with 50 participants and hope soon to publish our findings on the effects of the IVIP versus standard support services for persons with schizophrenia, with outcomes including work performance, cognitions about helplessness and hopelessness, and other symptoms. As previously noted, seven failed to participate in a sufficient number of IVIP sessions and were considered dropouts. We are also carefully studying dropout rate, as well as any additional interventions that could be included within our framework for promoting retention.

Methodological limitations exist in this paper. First, the IVIP was developed with primarily male participants in their 40s. In future studies of the program, adaptations may need to be made for female participants or those in other age groups. Rolling admissions offer flexibility, but at the same time pose challenges to group cohesiveness. The intervention was only for 6 months, irrespective of need. Based on individual differences, however, some may benefit from more exposure or receive the maximum

benefit earlier. As we continue to improve the IVIP, we anticipate addressing how to tailor the treatment according to various characteristics of participants, such as level of cognitive impairment, insight into illness, comorbid conditions, and varying mood states.

Participants in this paper were placed in temporary entry-level jobs in a VA medical center and, in keeping with supported employment principles, were placed immediately with consideration given to participants' interests. As numerous programs throughout the VA system provide identical services to those we have employed, our program is potentially directly exportable to them. These placements seem a valid object of study given that they do represent actual work experiences that can be a part of vocational hopes and dreams, even though the participant does not become an employee of the hospital. Unknown are what modifications are necessary for application in other vocational settings, including those that use a supported employment model.

## CONCLUSION

Employing CBT as a treatment strategy for persons with schizophrenia is a relatively new and innovative endeavor, particularly to enhance vocational function. In fact, this is the first attempt of which we know to apply CBT specifically to work. This endeavor can be particularly challenging. It has its moments of both success and setback and may require careful and patient navigation in the face of traditionally daunting barriers, such as negative symptoms and cognitive impairment. Implementing these procedures requires agencies to provide vocational rehabilitation services along with resources for individual and group therapy and therapist supervision. Yet, with further research guiding treatment development, programs such as the IVIP may be able to help those with the least successful outcomes.

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