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Effects of the Indianapolis Vocational Intervention Program (IVIP) on Defeatist Beliefs, Work Motivation, and Work Outcomes in Serious Mental Illness

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Abstract

Defeatist beliefs and amotivation are prominent obstacles in vocational rehabilitation for people with serious mental illnesses (SMI). The CBT-based Indianapolis Vocational Intervention Program (IVIP) was specifically designed to reduce defeatist beliefs related to work functioning. In the current study, we examined the impact of IVIP on defeatist beliefs and motivation for work, hypothesizing that IVIP would be associated with a reduction in defeatist beliefs and greater motivation for work. We also examined the effects of IVIP on these variables as well as work outcomes during a 12-month follow-up. Participants with SMI (n=64) enrolled in a four-month work therapy program were randomized to IVIP or a support therapy group (SG). Assessments

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Conflict of Interest

The authors report no conflicts of interest.

Contributors

JEM conducted literature searches and wrote the first draft of the manuscript in addition to subsequent drafts. JMF conceptualized the study design and co-wrote manuscript drafts. PHL conceptualized the study design and designed the intervention. TMN co-wrote manuscript drafts. LM assisted in conceptualizing study design, manuscript drafts, and developing infrastructure for data collection, while PW contributed to data collection and manuscript preparation. TP helped formulate the design of the study and supervised staff in data collection. WT contributed to data collection and manuscript preparation. JC conceptualized the study design, co-wrote manuscript drafts, and conducted the analyses.

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were conducted at baseline, post-treatment (4 months), and follow-up (1 year). Compared to those in SG condition, individuals randomized to IVIP condition reported greater reductions in defeatist beliefs and greater motivation for work at follow-up, along with greater supported employment retention rates. Specifically treating and targeting negative expectations for work therapy improves outcomes, even once active supports of the IVIP program and work therapy are withdrawn.

Keywords

schizophrenia; motivation; serious mental illness; defeatist beliefs; vocational rehabilitation

1. Introduction

Less than 15% of people with serious mental illnesses are employed, yet as many as 70% want to work (Brantschen et al., 2014; Leff and Warner, 2006; Warner, 2009). There are many barriers to successful vocational rehabilitation in individuals with serious mental illness (SMI), including practical issues such as losing benefits (MacDonald-Wilson et al., 2003) or psychological obstacles such as the lack of motivation and expectations of failure (Bell et al., 2011). Beliefs such as “No matter what, I’ll never be able to do this project, so why even start?” or “Nobody likes me at the office, I’ll never get promoted” reflect expectations of failure termed *defeatist beliefs,* a type of dysfunctional attitude. Defeatist beliefs may be of particular importance to vocational rehabilitation because of their contribution to reductions in motivation for treatment and reductions in multiple domains of community functioning (Campellone et al., 2016; Couture et al., 2011, Davis et al., 2004; Fervaha et al., 2015; Granholm et al., 2014; Grant and Beck, 2009, 2010; Horan et al., 2010; Kiwanuka et al., 2014; Luther et al., 2016; Mervis et al., 2016; Quinlan et al., 2014; Rector, 2004; Ventura et al., 2014). Grant and Beck (2009) note that both stigma and cognitive functioning may contribute to self-defeating attitudes. Defeatist beliefs could also be a downstream effect of internalized stigma (Park et al., 2013), which is associated with poorer treatment engagement (Tsang et al., 2010a). However, Ventura and colleagues (2014) observed defeatist beliefs in first episode psychosis prior to the onset of self-stigmatization, and Luther et al. (2016) found evidence of elevated defeatist beliefs in schizotypy, together suggesting some independence from stigma processes in more advanced, serious mental illness.

The Indianapolis Vocational Intervention Program (IVIP; Lysaker et al., 2005, 2009) is a CBT-informed intervention program, delivered concurrently with vocational rehabilitation that targets defeatist beliefs that interfere with effective work function. High-quality studies on CBT-influenced targeted interventions with similar rehabilitation goals in this population exist in the literature (Fung et al., 2011; Granholm et al., 2009, 2013, 2014, 2016; Tsang et al., 2010b, 2016). The therapeutic strategies employed in IVIP focus on enhancing metacognition, as well as identifying and restructuring defeatist beliefs about self and work in particular (Lysaker et al., 2007a, 2010, 2012). To date, we are aware of only two randomized controlled trials that have evaluated the efficacy of this specific therapy, IVIP (Lysaker et al., 2005, 2009). Both trials administered IVIP over the course of 6 months of work therapy (repeating the 8-session IVIP group content three times, for a total of 24

sessions), and included a weekly individual session to reinforce lessons learned in IVIP, but there is much precedence in the literature for longer follow-up monitoring.

The control condition consisted of a weekly support group and additional weekly individual support sessions. At the end of the six month intervention, those randomized to IVIP expressed greater satisfaction with their treatment, improvements in coping and understanding one's own mental processes, and greater engagement with their IVIP and vocational rehabilitation treatment. Over the course of the six-month intervention those in the IVIP condition also worked more hours and had better work performance ratings (Davis et al., 2008; Lysaker et al. 2005, 2007a, 2009). There was also indication that adding IVIP to work therapy may serve to maintain hope and self-esteem, which otherwise decrease over the course of work therapy (Lysaker et al., 2005). In our own recent study of IVIP combined with work therapy (Mervis et al., 2016), we found that this combination of treatments led to a reduction in defeatist beliefs about work, and that a reduction in these defeatist beliefs was in turn associated with better social functioning, self-esteem and work behaviors. Although this recent study did not utilize a control group, the present study utilizes a time-matched active control condition.

While the above studies show promise for IVIP's positive effects during a structured work therapy experience, there is no information to date about the potential longer-term effects of IVIP. Once individuals are no longer enrolled in IVIP or work therapy, do improvements in defeatist beliefs and/or work motivation persist? Do individuals who receive IVIP have better work outcomes? Past randomized controlled trials with interventions featuring a prominent CBT component have shown promising effects on reducing self-stigma, which is conceptually related to defeatist beliefs and automatic thoughts, but unfortunately those effects did not show durability at a 6 month follow-up (Fung et al., 2011). In the current randomized controlled trial, we sought to add to the efficacy base of IVIP in particular and examine its impact on defeatist beliefs, motivation for work, and work performance. Importantly, we also evaluated the effects of IVIP 8 months after the end of the active intervention, including its impact on work outcomes. We hypothesized that: 1) compared to a time-matched active control, participation in IVIP would be associated with better work performance, greater reductions in defeatist beliefs and greater motivation for community employment, 2) that these improvements would be sustained at 12-month follow-up, and 3) participation in IVIP would be associated with better critical steps towards functional improvement goals as measured by percentage of those who enrolled in supported employment (SE) by time of follow-up. In a purely exploratory fashion, in the sample as a whole, we also examined the relationship between changes in defeatist beliefs and motivation for work with changes in social functioning, self-esteem, attitude about employment, and work-related behavior.

2. Experimental/Materials and methods

2.1 Participants

Sixty-four participants with schizophrenia-spectrum disorders who were deemed not ready for supported employment by their referring clinician due to their symptoms, poor employment history, and/or cognitive impairments were recruited from community mental

health clinics affiliated with the New York State Psychiatric Institute. More specifically, the vocational counselors at the clinics had informed the referring clinician that the participant was not ready for supported employment due to (a) acute or recurring positive symptoms such as internal preoccupation and/or auditory hallucinations that made interviewing with a potential supervisor difficult, (b) history of no placement or unsuccessful placement in the past 6 months, (c) poor performance in work assessment that was attributed to impaired attention or the inability to focus on simple tasks, and (d) participant reporting he or she did not feel ready to look for work. Referral typically included all of the above, with no placement or no history of success in past 6 months the requisite. That is, all of the referrals to the study met that criterion according to the vocational counselors. As all participants were directly referred from their clinicians because of their satisfaction of enrollment criteria, so no potential participants were turned down for participation.

Other qualifying criteria were: diagnosis of schizophrenia or schizoaffective disorder, aged 18–65, outpatient status, no evidence of developmental delay disorders, no evidence of traumatic brain injury or other neurological disorder, no evidence of substance abuse in past 30 days, and clinical stability as evidenced by no hospitalizations, no changes in psychotropic medications, and no changes in housing in the past 30 days. The New York State Psychiatric Institute Institutional Review Board approved the study.

2.2 Procedures

After providing written informed consent, all participants completed baseline assessments, as detailed in the Instruments section. DSM-IV diagnoses were based on Structured Clinical Interview for DSM-IV (SCID; First et al., 1997), administered by graduate-level staff (master's-level). Trained raters (inter-rater reliability of 0.78) performed all symptom interviews and were blind to study hypotheses.

All participants were enrolled in a four-month work therapy program (Bell et al., 1993) and randomized to concurrently participate in IVIP or a support group (SG). Each participant was enrolled in a work placement for up to 10 hours a week (depending on specific placement), while attending either once weekly IVIP or SG sessions. While the work placement was not in conventionally competitive employment, participants did have an immediate work supervisor who agreed to supervise the participants at his or her work site. Participants were paid $10 per hour worked. Assessments were conducted at baseline, 4 months (post-treatment) and 12 months from baseline by master's level research staff. Fidelity of treatment was maintained through weekly supervision meetings with a doctoral-level clinician on the research staff.

2.3 The Indianapolis Vocational Intervention Program

IVIP (Lysaker et al., 2005, 2009) is a manualized treatment that draws from elements of cognitive behavioral therapeutic models. The primary goal of the therapy is to assist individuals suffering from serious mental illness so that they might return to work. The therapy targets defeatist beliefs that are maladaptive and automatic through cognitive techniques, psychoeducation, handouts, and semi-scripted role-playing. Within the cognitive behavioral framework, such thoughts are viewed as "thinking errors" and may produce a

subsequent expectation of failure. The program proceeds through four modules, each of which contains two sessions, and covers issues relevant to work environments. The four therapeutic modules are: 1) identifying and changing thoughts about work; 2) identifying problems and generating strategies for prevention and solutions; 3) understanding and interacting with others in the workplace; and 4) identifying, understanding, and optimizing personal strengths and weaknesses in the context of work.

Graduate level therapists (one master's level and one post-baccalaureate) were trained on IVIP by author P.E.L. and all therapists had weekly supervision with study PI, J.C. IVIP was offered in small groups with 2 to 3 participants and a group leader and co-therapist. The clinician-facilitated weekly 45-minute sessions provided an opportunity for work feedback and a chance to practice and further develop work-related abilities.

2.4 Supportive Therapy Group

Supportive therapy occurred in a weekly 45-minute group format, with participant-led support and discussion about work-related issues and concerns. Sessions had neither specified curriculum nor personalized work feedback. Importantly, the therapist (master's level) involved in supportive therapy was different than the one who led IVIP groups. Therapists were blind to study hypotheses.

2.5 Instruments

2.5.1 Primary outcome measures

2.5.1.1 Defeatist beliefs: Defeatist beliefs were assessed with the self-report Dysfunctional Attitude Scale (DAS; Grant and Beck, 2009; Weissman and Beck, 1978) which produces a total score covering cognitive distortions in 7 value systems: approval, love, achievement, perfectionism, entitlement, omnipotence, and autonomy.

2.5.1.2 Motivation: The Treatment Self-Regulation Questionnaire-Autonomous motivation subscale (TSRQ; Williams, et al., 2006) was used as a self-report measure of motivation for work therapy. The TSRQ is based on Self-Determination Theory (SDT; Deci and Ryan, 1985), which posits that motivation for a challenging goal must be autonomous (self-driven) if the patient is to sustain his or her involvement over a substantial period of time. The scale allows the items to be tailored to the goal. In this case, participants rated items on a 7-point Likert type scale from not at all (0) to very (7) with reference to how they felt about working in the community. Someone looking for employment because of an interest in improving self-worth is an example of high autonomous motivation (an example from the scale is "I personally feel that working is one of the best things for me"), whereas someone doing the same due to pressure from doctors is an example of low autonomous motivation (i.e. "I would feel guilty if I didn't do what my doctor said").

2.5.1.3 Supported Employment: At follow-up, the number of participants in supported employment was tallied as an external validator of IVIP's effects on real-world outcomes.

2.5.2 Secondary outcome measures—The Positive and Negative Syndrome Scale (PANSS; Kay et al., 1987) captured positive, negative and generalized symptoms of

schizophrenia. The interviewer-rated Social and Occupational Functioning Assessment Scale (Goldman et al., 1992; Morosini et al., 2000) was used to measure the quality of social and occupational function (scored from 0–100 as a continuous variable). The Employment Attitude Survey (EAS; Priebe et al., 1998) is a self report measure where participants rate how much they value work and productivity. The Work Behavior Inventory (WBI; Bryson et al., 2002) was used to assess work-related behavior, and includes five scales: cooperativeness, work habits, work quality, social skills and personal presentation. Research staff made ratings based on observation of participants at their work therapy sites and feedback from work supervisors. This feedback from work supervisors was the only interaction in regard to patients between supervisors and research staff. Baseline WBI was administered after the first week of work therapy in order to obtain sufficient observations of work-related skills. Post-intervention WBI scores reflect end of treatment work behaviors. Twelve month follow-up WBI ratings were not obtained since participants were no longer at their work therapy placements. The self-report Rosenberg Self-esteem Scale (RSES; Rosenberg, 1965) was used to assess global self-esteem, self-acceptance and self-worth.

2.6. Statistical analyses

First, we confirmed that the distribution of all dependent measures conformed to assumptions underlying the use of parametric statistical procedures. To ensure that the two groups were similar on baseline clinical characteristics, we computed independent samples t-tests for continuous variables and chi-square analyses for categorical variables.

For hypothesis 1, to assess the direct impact of the interventions on primary outcome measures of defeatist beliefs (DAS) and motivation for work (TSRQ), we performed a repeated measures multivariate analysis of variance (RM-MANOVA). The RM-MANOVA tested for differences between conditions (IVIP vs. support group) and across time (baseline, post, and one-year follow-up), with raw total scores on the DAS, TSRQ Autonomous motivation subscale, and WBI as the dependent variables. To assess hypothesis 2 about treatment durability, we address and compared the two groups at post and follow-up by performing an analysis of covariance (ANCOVA) using baseline scores as covariates. Cohen’s effect-sizes were computed for between-group effects for each of the key outcome measures that significantly differed between the groups at each time point. For hypothesis 3, group differences in percentage of individuals enrolled in supported employment at follow-up were compared using chi-square. To confirm that this was significant across time as well as a McNemar’s chi-square test with continuity correction was performed within each group.

To further examine the impact of improvement in dysfunctional beliefs (DAS) and work motivation on relevant secondary outcome measures, we computed residualized change scores (for both baseline to post as well as baseline to follow-up) and separately correlated changes in DAS and motivation for work therapy (TSRQ) with changes in social functioning (SOFAS), self-esteem (RSES), work behavior (WBI) and employment attitude (EAS). Residualized change scores are based on the standardized residuals from linear regressions of follow-up scores on baseline measures, which provides a change score that statistically controls for level of baseline score in computing change (Tucker et al., 1966).

All statistical tests were two-tailed. Alpha for the initial analyses comparing change in DAS and TSRQ between the IVIP and SG conditions was set at .05 while subsequent correlations and chi-square calculations were set at a more conservative .01 to minimize Type I error.

3. Results

Participant characteristics for the two groups are presented in Table 1. While there were no differences between groups at baseline, education level in both groups was somewhat higher than typically reported for SMI samples. Sensitivity analysis, a form of power analysis, was conducted in G*Power Version 3.1 to address achieved power based on data from 64 participants at three time points, divided into two groups. Usual and customary conventions for the field were used for alpha (.05) and beta (.80) in the calculation. Analysis revealed achieved power to detect a large effect size (.40 or greater), which are important to the current study because the hypotheses refer to incremental benefit of IVIP above and beyond SG.

RM-MANOVA indicated a significant time by condition interaction for the DAS ($F(7, 47) = 6.24$, $p = .024$) and TSRQ ($F(7, 47) = 5.80$, $p = .018$). There was also a significant multivariate time by condition interaction ($F(7, 47) = 5.18$, $p = .033$). There was a significant effect of time for both the DAS, ($F(7, 47) = 5.62$, $p = .021$), and TSRQ ($F(7, 47) = 5.55$, $p = .031$), with scores improving over time.

ANCOVAs comparing the two groups at post and 12-month follow-up (with baseline as the covariate), indicated that there were no significant group differences at the end of the treatment period on the DAS or TSRQ ($p = .221–.107$). However, significant differences emerged at follow up for both the DAS ($F(1,84) = 3.51$, $p = .027$) and the TSRQ ($F(1,84) = 2.87$, $p = .032$), with those randomized to IVIP condition reporting less defeatist beliefs and greater motivation to participate in community work than those in SG. IVIP group had better WBI than SG at post ($F(1,84) = 4.07$, $p = .011$).

Effect size calculations further underscore the differences between groups, with medium between-group effect sizes at follow-up on the DAS ($d = .65$) and TSRQ ($d = .52$), and large effect sizes at post-treatment on the WBI ($d = 1.49$; Table 2). In terms of hypothesis 3, nearly half of the IVIP group went on to secure supported employment by follow-up (14 out of 29; 48%), compared to 17% of those in the SG condition (6 out of 35) (Chi-square = 7.15, $p = 0.007$). There was no significant attrition in the IVIP group's supported employment enrollment status (McNemar's Chi-square = .03, $p = .845$), but there was a significant drop in the SG group's enrollment status (McNemar's Chi-square = 6.5, $p = .011$).

When examining residualized change scores from baseline to post in the entire sample, a reduction in defeatist beliefs was significantly correlated with improvement in social functioning ($r = −0.27$, $p = .009$) (Table 3). After correcting for multiple comparisons, neither improvement in defeatist beliefs nor in motivation for work significantly correlated with changes in any of the other variables, at either baseline to post or baseline to follow-up ($p's > .03$).

4. Discussion

The primary goal of this study was to examine the efficacy of IVIP and its' impact on ameliorating potential barriers to successful work outcomes in people with SMI enrolled in a work therapy program. This was also the first study to investigate the impact of IVIP after the end of the intervention. We found that IVIP was more efficacious than SG in improving work performance during the 4-month work therapy placements, and that it was associated with higher rates of participation in supported employment at time of follow-up. IVIP was also associated with a reduction in defeatist beliefs and improvement in motivation for community employment, though these effects only reached significance 8 months after treatment had ended. In the sample as a whole, pre-post treatment changes in defeatist beliefs correlated with pre-post changes in social and occupational functioning.

Our findings of the benefits of IVIP during the course of structured work therapy are largely in line with previous research (Lysaker et al., 2005, 2009; Mervis et al., 2016). While the favorable impact of IVIP on defeatist beliefs and work motivation did not reach statistical significance until the follow-up period, this may at least in part have been due to the briefer nature of our intervention (4 months of work therapy and 16 sessions of IVIP in our protocol vs. 6 months of work therapy and 24 sessions of IVIP in the original IVIP trials). Close examination of the data suggests that with work motivation, both conditions experienced improvements during the active phase of treatment, though only the IVIP condition maintained these improvements at follow-up, once the active supports of the IVIP program and the structured work therapy were withdrawn. For defeatist beliefs, on the other hand, it appears that while there was some improvement post-intervention for the IVIP group, this improvement continued to build over the follow-up period, only reaching significance at that point. This suggests that while IVIP has an immediate but potentially small impact on defeatist beliefs, perhaps through its known metacognitive mechanisms reported in prior work (Lysaker et al., 2005, 2009). This impact continues to build even after IVIP and work therapy ends, as the individual has more time to apply and consolidate lessons learned during the intervention. Such metacognitive mechanisms are likely related to motivational improvements as well, with individuals who are better able to think about a situation from multiple perspectives may be better equipped to reframe their reasoning for working.

Perhaps the most important finding of the current trial was the differential rates of participation in supported employment by time of follow-up. This suggests that IVIP has effects during the treatment phase, but critically that these effects also generalize to important work-related domains even after the intervention ends. Specifically, IVIP may increase the likelihood that individuals stay in supported employment, with the hope that this will in turn lead to productive and satisfying community work as evidenced by significantly lower supported employment attrition in the supported employment group. While replication is important, this finding suggests that IVIP facilitates functional gains for individuals with schizophrenia.

We conducted exploratory whole sample analyses of the relationship between changes in dysfunctional beliefs and work motivation and corresponding changes in relevant outcomes such as social functioning, self-esteem, attitudes about employment, and work-related

behaviors. This analysis found that a pre-post treatment reduction in defeatist beliefs accompanied pre-post improvements in social and occupational functioning. This suggests that IVIP's focus on targeting defeatist beliefs is sound, as doing so is likely to lead to improvements in social and occupational functioning beyond that of just work experience. However, we did not find a significant relationship between baseline and follow-up changes in defeatist beliefs and social and occupational functioning, or any of the variables examined. This also suggests that once the active supports of work therapy are withdrawn, multiple non-specific factors may play a large role in influencing functional and other outcomes.

The current study has a number of limitations, including a potentially unrepresentative sample with high premorbid education levels (though no specified level is required for treatment), a specific focus on IVIP in the context of a structured work therapy program, a relatively small sample size, and a reliance on many self-report measures. Nevertheless, we are excited to see the effects of IVIP continue or increase during the follow-up. In particular, differential rates of subsequent participation in supported employment programs suggest IVIP may have changed people's outlooks (e.g. defeatist beliefs) and provided the support and skill-building opportunities that helped them be more open to supported employment. Moreover, as our IVIP and work therapy intervention was somewhat shorter and less intense than original studies of this intervention (4 vs. 6 months, 16 vs. 24 IVIP sessions, different administration of sessions and no additional individual sessions), we are excited to see that it was not only statistically significant, but also had a clinically meaningful impact in work outcomes as shown through the number of patients in supported employment.

Future studies are needed to examine the efficacy of IVIP in more heterogeneous populations, and in the context of varied vocational rehabilitation programs. The impact of IVIP on functional outcomes is key, including not only vocational but also community and interpersonal function. Moreover, much remains to be learned about both the specific long-term effects of IVIP, as well as the treatment-specific mechanisms underlying these effects. In our own work, we are currently investigating how IVIP can be incorporated into an intensive outpatient service with a work program focusing on improving social interactions with supervisors and co-workers and inherent motivation for self-improvement while on the job sites. We hope to further tease out the mechanisms of improvement resulting from IVIP, as well as consider the potential cost-effectiveness of specifically targeting defeatist beliefs for community employment outcome.

One conceptual limitation that is an important source of future work is that no direct measures of stigma were included in this study, which is a possible mechanism for defeatist belief risk (Grant and Beck, 2009). Accordingly, it is important to understand any potential relationship between defeatist beliefs and stigma more specifically. For example, stigma itself (e.g., Fung et al., 2011; Lysaker et al., 2007b; Tsang et al., 2010a) or stigma-sensitivity (Firmin et al. 2016) might serve as a risk model for vulnerability to developing defeatist beliefs and could be examined across the schizophrenia spectrum including first-episode and schizotypy.

Additionally, the present study did not follow participants to an additional time point to collect data on potential competitive employment outcomes for participants. Future work might employ a more extended longitudinal design with1.5 and 2-year time point follow-ups for such markers of more advanced vocational recovery. Fidelity was maintained with doctoral supervision of therapists, though another limitation is that no formal assessment of fidelity occurred. Future work might incorporate such assessments to better understand how fidelity to IVIP's structure might relate to its observed benefits by assessing practitioner competence and confidence in treatment administration. Another area of potential inquiry is how employment history might impact outcomes, perhaps in terms of number of years prior work experience.

In sum, IVIP offers much promise in that it not only improves current function, but also has a favorable impact on important vocational outcome measures. While more work remains, IVIP may represent an important behavioral treatment to address current job function, but also importantly to improve attitudes and beliefs about future competitive employment, and engagement in services in support of such pursuits.

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Table 1

Baseline characteristics for the IVIP and Support Group conditions

	IVIP Mean (SD) n=29	Support Group Mean (SD) n=35
Age	36.91 (6.31)	35.28 (5.87)
Education (years)	15.14 (3.78)	14.86 (2.71)
Gender, female	41%	38%
On atypicals	92%	94%
On anticholinergics	19%	21%
Diagnosed with schizoaffective d/o	44%	48%
Premorbid IQ Estimate		
WRAT3 Reading (standard score)[a]	110.21 (9.21)	109.42 (7.56)
WAIS-R Vocabulary (scaled score)[b]	9.98 (1.79)	10.29 (2.32)
PANSS Total[c]	59.46 (13.22)	56.86 (14.58)

[a]Wide Range Achievement Test,

[b]Wechsler Adult Intelligence Scale-Revised,

[c]Positive and Negative Syndrome Scale

Table 2

Baseline, post, and follow-up scores for measures of defeatist beliefs, motivation for work therapy, and work behavior.

Measures	IVIP (n=29)	Support Group (n=35)	ANCOVA (p-value; rounded)	Effect Size (Cohen's D)
Defeatist Beliefs				
Dysfunctional Attitude Scale (DAS)				
Baseline	86.92 (14.28)	84.30 (11.02)	.29	-
Post (4 mo)	78.36 (11.53)	79.93 (10.31)	.26	--
Follow-up (12 mo)	73.57 (8.17)[a]	80.47 (12.38)	.03	.65
Motivation to Participate in Work Therapy				
Treatment Self-Regulation Questionnaire (TSRQ)				
Autonomous motivation subscale				
Baseline	3.23 (1.04)	3.76 (1.73)	.31	--
Post (4 mo)	4.15 (0.93)	4.02 (1.15)	.22	--
Follow-up (12 mo)	4.01 (0.88)[a]	3.38 (1.47)	.03	.52
Work performance				
Work Behavior Inventory (WBI)				
Baseline	110.43 (13.11)	107.47 (9.42)	.27	--
Post (4 mo)	127.42 (6.94)[a]	113.16 (11.54)	.01	1.49
Follow-up (12 mo)	--	--	--	--

[a]ANCOVA significant at $p < .01$. F-statistics and P-values for the RM-MANOVA and ANCOVA are reported in the results section.

Table 3

Pearson correlations between residualized change scores from baseline to both post and follow-up (F/U) on measures of defeatist beliefs, motivation for work therapy, social functioning, self-esteem, work behavior, and employment attitude in the entire sample (N=64).

Change Scores (Baseline to Post and Baseline to Follow-up)	Social functioning (SOFA)		Self-esteem (Rosenberg)		Work behavior (WBI)		Employment attitude (EAS)	
	Post	F/U	Post	F/U	Post	F/U	Post	F/U
Dysfunctional Attitude Scale (DAS)	−0.27 [a]	0.09	−0.04	−0.24	−0.06	−−	−0.02	−0.25
Treatment Self-Regulation Questionnaire (TSRQ)								
Autonomous motivation subscale	0.03	0.02	0.23	0.03	0.19	--	0.11	−0.03

[a] $p < 0.01$