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Predictors of employment in schizophrenia: The importance of intrinsic and extrinsic motivation

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ABSTRACT

Unemployment is a primary functional deficit for the majority of adults with schizophrenia. Research indicates that over two-thirds of adults living in the community with schizophrenia are unemployed. Despite effective programs to assist with job identification and placement, the ability to attain and maintain employment remains a pressing concern. A contributing factor that may be relevant but has received little attention in the work rehabilitation literature is motivation. People with schizophrenia show marked deficits in both intrinsic and extrinsic motivation but these deficits have not been directly examined in relation to work outcomes. The present study sought to examine the relationship between intrinsic and extrinsic motivation and work outcome among a sample of 65 adults with schizophrenia enrolled in a supported employment program. One-third of the participants in the study obtained work. Intrinsic motivation related to valuing and feeling useful in a work role significantly predicted who would obtain employment. Extrinsic motivation related to gaining rewards and avoiding obstacles showed a non-significant trend-level relationship such that workers had higher extrinsic motivation than non-workers. These findings highlight the importance of considering both intrinsic and extrinsic motivation in work-related interventions and supported employment for individuals with schizophrenia. The results are discussed in terms of clinical implications for improving rehabilitation and occupational outcomes in schizophrenia.

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Rates of unemployment are very high among individuals with schizophrenia. Reports of joblessness prevalence indicate that 75%–90% of adults with schizophrenia are unemployed (Haslett et al., 2014; Rosenheck et al., 2006). Past studies and meta-analyses examining predictors of work outcome have largely focused on neurocognition and symptoms with effect sizes generally in the small to medium range (McGurk et al., 2003; McGurk and Mueser, 2006; Nuechterlein et al., 2011; Tsang et al., 2010). A factor that may be relevant and help further explain the heterogeneity in work outcomes but has received little attention in the work rehabilitation literature is motivation. People with schizophrenia show marked deficits in motivation which interfere with treatment gains and are related to poor community functioning (Ho et al., 1998; Blanchard et al., 1998; Medalia and Brekke, 2010; Choi and Medalia, 2010; Gard et al., 2007; Nakagami et al., 2008). Despite a general awareness of the importance of motivation, very little is known about the ways in which motivation may contribute to poor work outcomes among individuals with schizophrenia.

Motivation is generally parsed into two types: intrinsic and extrinsic. Intrinsic motivation is the desire or drive to do something because it is inherently rewarding (e.g., esteem, pleasure). Individuals with schizophrenia, compared to healthy controls, have lower levels of intrinsically motivated behavior and are less likely to set goals related to autonomy and competence (Choi et al., 2010; Medalia and Brekke, 2010; Gard et al., 2014). In schizophrenia, intrinsic motivation is linked to performance on tests of neurocognitive ability, community functioning, and rehabilitation outcomes (Cooper et al., 2015; Fervaha et al., 2014; Gard et al., 2009; Nakagami et al., 2008; Saperstein et al., 2011; Medalia and Brekke, 2010; Nakagami et al., 2008). Two studies have directly examined intrinsic motivation in relation to work outcomes in one large sample: Greater baseline intrinsic motivation was associated with better work functioning among 145 individuals with schizophrenia and schizoaffective disorder participating in a 6-month work rehabilitation trial (Saperstein et al., 2011), and changes in motivation were significantly linked to work outcomes over time (Choi et al., 2013).

Extrinsic motivation, on the other hand, is the drive to perform a behavior or complete a task to obtain a tangible reward or avoid an aversive stimulus. Research on extrinsic motivation in schizophrenia is limited (Silverstein, 2010), and the evidence is mixed as to whether there is impairment. In laboratory settings, patients are responsive to

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monetary rewards (e.g., Reddy et al., 2015) and demonstrate avoidance of punishments and losses (Gard et al., 2014; Waltz et al., 2013). However, in non-laboratory settings, people with schizophrenia tend to show deficits in goal-directed behaviors in the context of anticipated (but not immediately available) rewards (Kring and Barch, 2014).

Although the rates of employment are low among people with schizophrenia, interventions for job placement and support are beneficial, as reflected by modest gains in the number of people not only getting jobs but also maintaining employment. One such work rehabilitation program is known as supported employment. The most widely used model of supported employment, Individual Placement and Support (IPS; Becker and Drake, 2003) is based on the following principles: a) eligibility based on client choice (i.e. zero exclusion criteria), b) including work rehabilitation as an integral component of mental health treatment, c) competitive employment as the primary goal, d) rapid job search, e) attention to consumer preferences, f) systematic job development, and g) continuous individualized follow-along support (Bond et al., 2012).

The current study examined whether self-reported intrinsic and extrinsic motivation were related to work outcomes in individuals with schizophrenia enrolled in an IPS supported employment program. There were two primary aims. First, we examined whether levels of intrinsic and extrinsic motivation differed between those who did and did not obtain work. Second, for those who got jobs, we examined whether intrinsic and extrinsic motivation were related to work outcome (i.e., wages earned and hours/weeks worked).

1. Methods

1.1. Participants

The sample included 65 participants who met SCID-based DSM-IV criteria for schizophrenia or schizoaffective disorder, and were enrolled in supported employment programs at the VA Greater Los Angeles Healthcare System or the San Fernando Mental Health Center. The participants were clinically stable outpatients (i.e., no psychiatric hospitalizations in the past three months and no medication changes in the past two months). All participants were a minimum of 21 years of age and expressed an interest in working. Exclusion criteria included evidence of current or past neurological disorder (e.g., epilepsy), history of head trauma with loss of consciousness exceeding 1 h, and alcohol or substance dependence within the past three months.

Following enrollment into the supported employment program and then signing informed consent for participation in the study, participants completed a comprehensive assessment battery that included measures of motivation, clinical symptoms, and neurocognition. Participants then worked with their respective employment specialist with the aim of attaining a community-based job. Work outcomes (i.e., wages earned, hours worked, and weeks worked) were gathered for 12 months following job obtainment. A subset of participants who obtained work were randomly assigned to a cognitive remediation training program, in addition to the supported employment program, as part of a larger study. Participants assigned to the cognitive remediation were not included in analyses examining work outcomes (hours, weeks, wages) in the current study.

1.2. Measures

1.2.1. Motivation

The Motivators and Barriers to Employment Questionnaire (MBEQ; Niv et al., n.d.) measures positive (rewards) and negative (barriers) extrinsic motivation to work. There are 36 items rated on a 1–5 Likert scale; two subscales (i.e. Extrinsic Positive Motivators and Extrinsic Negative Motivators) and a Total score serve as the primary dependent variables. The Extrinsic Positive Motivators subscale assesses incentives to work and includes items such as, "People will respect me for working," "Working will make me feel better about myself," and "Working will give me the money to do some of the things I want to do." The Extrinsic Negative Motivators subscale assesses obstacles to work and includes items such as, "I believe stress from a prior job made me relapse," "I'll have less time to spend with my friends if I work," and "I am afraid I will lose my benefits if I work." The Total score was computed as the average of the two subscales, after the Negative Motivators scale was reversed. The MBEQ was evaluated for internal consistency (Cronbach's α) in a sample of 149 participants. Cronbach's alpha showed good internal consistency for the MBEQ Total score ($\alpha = 0.91$) and the Extrinsic Positive Motivators ($\alpha = 0.92$) and Extrinsic Negative Motivators ($\alpha = 0.90$) subscales.

The Intrinsic Motivation Inventory (IMI; Plant and Ryan, 1985) includes 17 items rated on a 1–7 Likert scale and yields five dependent variables: four subscales and a Total score. The IMI used in this study is an adapted version of the standard 22-item scale. The items on the scale in this adapted version were phrased with specific reference to work (as opposed to general motivation). The four subscales are Interest/Enjoyment (e.g., "Working is fun to do"); Perceived Competence (e.g., "I am pretty skilled at working"); Value/Usefulness (e.g., "I believe working can be of some value to me"); Pressure/Tension (e.g., "I am anxious while working"); and a Total score that was the average of the four subscales. The internal consistency reliability, derived from the current sample, was in the good to excellent range for Interest/Enjoyment (Cronbach's $\alpha = 0.87$), Perceived Competence (Cronbach's $\alpha = 0.91$), Value/Usefulness (Cronbach's $\alpha = 0.90$), and the total scale (Cronbach's $\alpha = 0.90$). The Pressure/Tension subscale had lower internal consistency (Cronbach's $\alpha = 0.61$), likely due to the fact that only 3 items comprise this subscale.

1.2.2. Neurocognition

The MATRICS Consensus Cognitive Battery (MCCB; Nuechterlein and Green, 2006) was used to assess cognition. The MCCB has gone through extensive review and a detailed selection process and provides normed scores (Kern et al., 2008; Nuechterlein et al., 2008). It includes tests that assess seven domains of neurocognition including speed of processing, attention/vigilance, working memory, verbal learning, visual learning, reasoning and problem solving, and social cognition. The age- and gender-corrected overall composite T-score served as the index of cognitive function.

1.2.3. Clinical symptoms

Psychiatric symptoms were assessed using the expanded 24-item version of the Brief Psychiatric Rating Scale (BPRS; Ventura et al., 1993). All interviewers were trained to a minimum intra-class correlation coefficient of 0.80 by the Treatment Unit of the Veterans Integrated Service Network 22, MIRECC. Positive and negative symptom scores served as indicators of clinical symptom severity.

1.2.4. Employment status and work outcome

Employment status was measured as a dichotomous variable defined as attaining competitive employment and maintaining it for at least one week during the course of their participation in the study. Hours worked, weeks worked, and dollars earned in the one-year following job attainment served as continuous dependent variables.

1.3. Statistical analyses

Distributions and skewness analyses of the primary variables indicated that the continuous work outcomes variables (i.e. hours, weeks, wages) were non-normally distributed and nonparametric statistics were used for analyses with these variables. We examined intrinsic and extrinsic motivation differences between workers and non-workers using two-tailed t-tests and logistic regression. To examine the predictors of work maintenance, Spearman's correlations were used to examine whether baseline intrinsic and extrinsic motivation, symptoms, or

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cognition were related to the following work outcome variables: total number of hours worked, weeks worked, and wages earned.

2. Results

2.1. Descriptive data

We examined the clinical and demographic characteristics of the sample for the participants who got a job and participants who did not get a job during the study (Table 1). Workers were significantly younger than nonworkers so age was included as a covariate in subsequent analyses. The groups were comparable in sex, race, education, and parental education. Our overall sample was predominantly male, around 45 years of age with 13 years of education, approximately half were Latino/Hispanic and one-third were African-American. Because the MBEQ is a relatively new measure, we have listed highly endorsed items and associated means in Table 2.

2.2. Work outcomes

We used two-tailed t-tests to compare group means among those who did and did not obtain employment during the course of the study (i.e. workers and nonworkers) for the intrinsic and extrinsic motivation subscales and total scores (Table 1). Twenty-three participants (35%) obtained competitive employment during the course of the study. There was a significant group difference in the IMI-Value/Usefulness subscale ($t = -2.5$, $p = 0.01$) and IMI Total score ($t = -2.1$, $p = 0.03$) such that workers had higher levels of self-reported intrinsic motivation than nonworkers. Examination of group differences on the MBEQ Total score fell at a non-significant trend ($t = -1.8$, $p = 0.07$) such that workers had higher levels of self-reported extrinsic motivation than nonworkers. To control for age, logistic regression analyses were conducted with age entered in the first step and each of the motivation variables that was at or approaching significance (i.e. IMI-Value/Usefulness; IMI Total; and MBEQ Total) entered in the second step with work attainment as a dichotomous dependent variable. The three models were significant with IMI-Value/Usefulness ($b = 1.19$, $p = 0.04$), IMI-Total ($b = 0.25$, $p = 0.05$), and MBEQ Total ($b = 1.11$, $p = 0.04$) each predicting job attainment, after controlling for age.

Next, we examined the relationships between work outcomes (i.e., hours, weeks, and wages), motivation, symptoms, and cognition among participants who obtained employment. Of the 23 participants that obtained employment, 13 were included in analyses after excluding participants randomly assigned to cognitive remediation. Hours worked ranged from 8 to 2080 (mean = 598, SD = 707), wages earned ranged from $100 to $18,320 (mean = $6027, SD = $6890), and weeks worked ranged from 1 to 52 (mean = 27, SD = 20). There were no significant correlations between hours worked, weeks worked, or wages earned and intrinsic or extrinsic motivation, cognition, or symptoms.

Table 2
Highly endorsed items from the Motivators and Barriers to Employment Questionnaire.

Item	Mean (1–5); SD
Working will help me buy some of the things I want	4.5; 0.7
Working will make me feel better about myself	4.3; 0.7
Working will give me money to do some of the things I want	4.3; 0.9
I believe I'm contributing to society if I work	4.3; 0.9
Having a regular schedule is good for me	4.3; 0.9
Losing my benefits would really bother me	4.2; 1.3

Note: 1 = Not at all true of me; 5 = Extremely true of me; SD, standard deviation.

3. Discussion

This study examined the role of intrinsic and extrinsic motivation on work outcomes among adults with schizophrenia enrolled in supported employment. The primary finding was that, among a large sample of adults who voluntarily participated in a program to seek employment, baseline levels of intrinsic and extrinsic motivation were somewhat related to work outcomes in a two-year follow-up period. Previous research has primarily focused on cognition and psychiatric symptoms, but the current findings may help explain some of the variance in work outcomes unaccounted for by cognition and symptoms.

This is the first study to empirically evaluate, within one sample, both intrinsic and extrinsic motivation in relation to work outcome. Two recent studies have examined motivation in relation to functioning (Choi and Medalia, 2010; Gard et al., 2014). In the study by Choi and Medalia, systematic enhancement of intrinsic motivation for cognitive interventions yielded more improvements in performance compared to a control condition. The authors posited that extrinsic rewards may not yield the same benefit but they did not directly assess extrinsic motivation. The study by Gard and colleagues assessed relatedness of goals set by individuals with schizophrenia to various dimensions of intrinsic

Table 1
Clinical and demographic characteristics of the sample.

	Whole sample (N = 65)	Workers (N = 23)	Nonworkers (N = 42)	Group comparisons
Sex (% Male)	82%	87%	79%	$X^2 = 0.7$, $p = 0.41$
Race/Ethnicity (%)				$X^2 = 4.6$, $p = 0.21$
Hispanic/Latino	42%	57%	33%	
Black/African American	31%	17%	38%	
White	8%	4%	10%	
Other/More than one race	20%	22%	19%	
Age	44.4 (11.9)	39.5 (11.7)	47.1 (11.2)	$T = 2.6$, $p = 0.01$
Education	12.7 (1.7)	12.9 (2.0)	12.5 (1.6)	$T = -0.7$, $p = 0.47$
Parental education	10.8 (3.6)	10.1 (4.5)	11.2 (3.1)	$T = 0.9$, $p = 0.38$
Neurocognition (MCCB)				
Overall composite	28.8 (12.9)	31.7 (11.8)	27.2 (13.3)	$T = -1.4$, $p = 0.18$
MBEQ (1–5)				
Positive motivators	3.9 (0.8)	4.1 (0.7)	3.8 (0.8)	$T = -1.5$, $p = 0.15$
Negative motivators	3.5 (0.7)	3.4 (0.7)	3.7 (0.7)	$T = 1.6$, $p = 0.12$
Total	3.7 (0.6)	3.9 (0.6)	3.6 (0.6)	$T = -1.8$, $p = 0.07$
IMI (1–7)				
Interest/Enjoyment	3.8 (0.9)	4.0 (0.9)	3.6 (1.0)	$T = -1.4$, $p = 0.15$
Perceived Competence	3.6 (1.0)	3.9 (0.8)	3.5 (1.1)	$T = -1.4$, $p = 0.17$
Pressure/Tension	1.5 (0.6)	1.4 (0.6)	1.6 (0.6)	$T = 1.4$, $p = 0.17$
Value/Usefulness	3.4 (0.6)	3.7 (0.5)	3.3 (0.7)	$T = -2.5$, $p = 0.01$
Total	9.3 (2.4)	10.1 (2.0)	8.8 (2.5)	$T = -2.1$, $p = 0.03$
Symptoms (1–7)				
BPRS positive	2.3 (1.4)	2.0 (1.2)	2.4 (1.5)	$T = 1.1$, $p = 0.29$
BPRS negative	2.0 (0.9)	2.0 (1.0)	1.9 (0.9)	$T = -0.1$, $p = 0.89$

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and extrinsic motivation. Rather than using structured assessments, goals were conceptualized as daily activities, and motivation indices were coded by raters using Ecological Momentary Assessment phone call interactions with participants. The results indicated that intrinsically, relatedness to others was motivating for patients, and extrinsically, avoidance of punishments/losses was motivating. The methods in that study are quite different from the present study but it does provide a novel investigation of the multifaceted nature of motivation and the variety of dimensions that may impact adults with schizophrenia, in domains outside of work.

The results of the current study suggest that in adults with schizophrenia there is a complex relationship between 1) expressing an interest in working, 2) scores on motivation measures, and 3) work outcomes. In this study, among a large sample of individuals who expressed an interest in working and participated in a supported employment program, there was significant variability in both intrinsic and extrinsic motivation to work. It is noteworthy, however, that research suggests that even participants that do not express an interest in working have comparable work outcomes to those who do express a desire to work (Biegel et al., 2010). The majority of schizophrenia studies on work and vocational rehabilitation tend to only include participants that express an interest in working but motivation is likely a fluid construct that may change over the course of looking for work, or contemplating the pros and cons of work. Thus, including several measures to capture the various dimensions of motivation is necessary to adequately measure intrinsic and extrinsic motivation to work. Use of empirical measures such as the IMI and MBEQ may help to predict who is appropriate for work interventions, and who could benefit from structured motivational enhancement interventions. Our results suggest that the intrinsic and extrinsic measures were more useful in predicting job obtainment than job maintenance. However, it may be that the small sample size of workers prevented the latter from reaching significance. It is reasonable to conjecture that while both types of motivation are relevant for predicting who will seek out and successfully get a job, extrinsic factors (e.g., earning money) may be more closely related to maintenance of a job over time. This needs to be examined longitudinally as there is currently no literature to suggest which type of motivation is more important for getting vs. keeping a job. Of note, the IMI subscale that was related to work outcome in this study was Value/Usefulness; however, work done by the authors of the IMI indicates that the Interest/Enjoyment subscale is a true measure of intrinsic motivation, and the other subscales may be closely related constructs (Deci et al., 1994). The Value/Usefulness subscale is thought to indicate the degree to which people internalize the value and begin to self-regulate (rather than engage in activities because of external demands) activities they experience as useful or valuable for themselves.

The primary limitation in this study is the sample size. Although the initial sample was substantial, a significant portion of participants did not obtain employment. The correlation analyses were likely hampered by this limitation and future studies with more participants who obtain employment should closely examine the relationship between both intrinsic and extrinsic motivation and longitudinal outcome variables that indicate job tenure and job success. Another potential limitation is the timing of the assessments – data was collected when participants enrolled in the program and the study, but in many cases this occurred several months before they obtained employment. Thus, findings might be different with repeated assessments closer in proximity to the point of actual job start dates. Additionally, supported employment program fidelity is an important predictor of work outcomes at the national level – across sites with varying fidelity, higher rated programs tend to have better outcomes (Becker et al., 2006). The sites in this study had fidelity assessed as Fair and Good over the course of the study and we cannot assess the role fidelity played without comparison sites of varying ratings but it should be included in program design and evaluation; program variables may be as important in predicting work outcome as individual motivation levels.

This study highlights areas for future research and also suggests some important avenues for meaningful clinical interventions. The difference between trait and state motivation is potentially relevant in efforts to more fully understand the role of motivation in work outcome. Importantly, trait approach (but not avoidance) motivation is related to state intrinsic motivation, and the relationship between the two may be partially mediated by perceived competence (Choi et al., 2012). This is an important avenue for future clarification – how do state and trait motivation interact with regard to motivation for work among individuals with schizophrenia, and can trait motivation predict fluctuations in state motivation over the course of looking for, obtaining, and maintaining employment? Longitudinal work-outcome research is much needed in both vocational rehabilitation programs and treatment-as-usual settings, and should administer assessments immediately preceding start of work, and on an ongoing basis. Longitudinal studies can assess the different types of motivation proximal to changes in work status to capture the dynamic nature of motivational processes. In the only previous longitudinal study that conducted repeated assessments of motivation and work outcomes, motivation was shown to increase among workers over time (Choi et al., 2013) – this finding has significant clinical implications and is worth replicating. Careful assessment of intrinsic and extrinsic motivation may offer useful information to help promote and maintain employment in adults with schizophrenia. Interventions designed to increase intrinsic motivation, and reduce perceived and actual barriers (i.e. losing disability income, experiencing stress-induced symptoms, or lack of anticipatory pleasure associated with potential monetary gains) should be employed in rehabilitation programs.

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Contributors

RKS initiated and designed the study. LFR, KL, and RKS analyzed the data. LFR wrote the first draft of the manuscript. LFR, KL, and RKS proof-read the manuscript and contributed to the discussion of the manuscript. LFR wrote the final draft of the manuscript and submitted it with the approval of all co-authors.

Conflict of interest

Dr. Kern is an officer for MATRICS Assessment, Inc. and receives financial compensation for his role in that nonprofit organization. Dr. Reddy and Dr. Llerena have no financial interests or potential conflicts of interest.

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