



Contents lists available at ScienceDirect

Schizophrenia Research

journal homepage: [www.elsevier.com/locate/schres](http://www.elsevier.com/locate/schres)

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

L. Felice Reddy <sup>\*</sup>, Katiah Llerena, Robert S. Kern

Department of Veterans Affairs VISN 22 Mental Illness Research, Education, and Clinical Center, Los Angeles, CA, United States  
UCLA Semel Institute for Neuroscience & Human Behavior, David Geffen School of Medicine, United States

### ARTICLE INFO

#### Article history:

Received 22 June 2016

Received in revised form 4 August 2016

Accepted 8 August 2016

Available online xxxx

#### Keywords:

Schizophrenia

Motivation

Intrinsic

Extrinsic

Rehabilitation

Employment

### 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.

Published by Elsevier B.V.

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

<sup>\*</sup> Corresponding author at: Department of Veterans Affairs VISN 22 Mental Illness Research, Education, and Clinical Center, Los Angeles, CA, United States.  
E-mail address: [lenafelice@ucla.edu](mailto:lenafelice@ucla.edu) (L.F. Reddy).

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  $\alpha$ ) 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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