Predictors of Acquisition of Competitive Employment for People Enrolled in Supported Employment Programs

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Abstract: This study aims at assessing the relative contribution of employment specialist competencies working in supported employment (SE) programs and client variables in determining the likelihood of obtaining competitive employment. A total of 489 persons with a severe mental illness and 97 employment specialists working in 24 SE programs across three Canadian provinces were included in the study. Overall, 43% of the sample obtained competitive work. Both client variables and employment specialist competencies, while controlling for the quality of SE programs implementation, predicted job acquisition. Multilevel analyses further indicated that younger client age, shorter duration of unemployment, and client use of job search strategies, as well as the working alliance perceived by the employment specialist, were the strongest predictors of competitive employment for people with severe mental illness, with 51% of variance explained. For people with severe mental illness seeking employment, active job search behaviors, relational abilities, and employment specialist competencies are central contributors to acquisition of competitive employment.

Key Words: Supported employment programs, severe mental illness, clients' variables, employment specialist competencies, work outcomes

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Supported employment (SE) programs are evidence-based practices offered in many countries across the globe to help people with severe mental illness obtain competitive employment (Drake and Bond, 2014; Drake et al., 2012). The basic principles underlying the standardized SE model, Individual Placement and Support (IPS) (Drake et al., 2012), are the following: a) eligibility is based on consumer choice (zero exclusion); b) competitive employment is the goal; c) focus on work preferences; d) rapid job search; e) integrate SE and mental health treatment; f) continuous and time-unlimited follow-along supports; g) systematically offer benefits counselling; and h) systematic job development, that is, cultivating a relationship with employers to facilitate work integration.

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A review of 20 randomized controlled trials by Drake and Bond (2014) describes that employment rates in SE programs are higher than in the control conditions but vary from 20% to 80% (median, 60%) according to the site and country. Competitive employment rates have been found to differ within IPS programs (Bond et al., 2012a), in part due to differences in national disability policies (Bond et al., 2012a; Heslin et al., 2011), difficulties in adhering to the implementation quality standard for SE programs (Bond et al., 2011, 2012a; Corbière et al., 2005), and insufficient training or lack of competency for employment specialists (Drake et al., 2006; van Erp et al., 2007).Various studies have also investigated client variables as predictors of employment outcome in SE programs (Bond and Drake, 2008; Campbell et al., 2010; Corbière et al., 2011; Razzano et al., 2005; Tsang et al., 2010; Wewiorski and Fabian, 2004). A better understanding of these competencies and variables could enable SE programs to improve their clients' employment rates.

Loisel et al.'s work disability paradigm (2001) emphasizes the importance of key stakeholders linked to pillars or systems to better understand each one's role in the work participation of people with disability (Loisel and Anema, 2013; Loisel et al., 2001). As such, the dialogue between the employment specialist and the client receiving services, as well as with the other systems involved in the participation at work (*e.g.*, health services, organizations), becomes central in predicting work outcomes.

In this article, we examine competencies of employment specialists and client variables as predictors of competitive employment while controlling for the quality of SE program implementation (Bond and Drake, 2008). Regarding the predictive validity of clients' variables in literature reviews, younger age (Wewiorski and Fabian, 2004), more recent work history, and higher education have been found to be the strongest predictors of employment (Burke-Miller et al., 2006; Marwaha and Johnson, 2004). Clinical symptoms, co-occurring substance abuse (Campbell et al., 2010), low levels of education, older age, being single, long periods of unemployment, poor social functioning, and cognitive deficits have been negatively linked to obtaining a job (Razzano et al., 2005; Tsang et al., 2010). However, for people enrolled in high-fidelity SE programs, previous work history has been reported as the only significant predictor of job acquisition (Campbell et al., 2010). Other variables such as self-esteem, perceived barriers to employment, motivation to find employment, and the use of job search behaviors have also recently been linked to acquisition of competitive employment (Corbière et al., 2011).

The quality of implementation of SE principles varies from one setting to the next (Bond et al., 2001). Bond et al. (2001) recommend that programs ensure fidelity to the SE model and principles by using a fidelity scale (Bond et al., 2012b; Bond et al., 2000), such as the Quality of Supported Employment Implementation Scale (QSEIS) (Bond et al., 2000) or the IPS-fidelity scale (Bond et al., 2012b). Employment specialists vary wildly in their effectiveness in helping clients obtain jobs (Drake et al., 2006), with those using the key SE components and those more competent in developing a working relationship with their clients (Catty et al., 2008; Dreher et al., 2010), potential

employers, and supervisors (Corbière et al., 2014) having more success in the acquisition of competitive work for their clients with severe mental illness.

The main goal of this study was to identify the most salient employment specialist competencies and clients' variables contributing to competitive employment for people enrolled in Canadian SE programs while controlling for the quality of the SE program implementation.

METHODS

Procedure

A pan-Canadian study of SE programs was conducted in the provinces of British Columbia, Ontario, and Quebec from 2006 to 2013. A total of 24 SE programs (British Columbia, 8; Ontario, 7; and Quebec, 9) took part in this study. Programs were selected if they met the general SE program definition, that is (Bond et al., 2001), "Supported Employment programs typically provide individual placements in competitive employment—that is, community jobs paying at least minimum wage that any person can apply for—in accord with client choices and capabilities, without requiring extended prevocational training… They actively facilitate job acquisition, often sending staff to accompany clients on interviews; and they provide ongoing support once the client is employed." A previous quality assessment of these SE programs revealed that, except for two vocational programs (excluded from this study), all conformed to this definition (Corbière et al., 2010). In the current study, the rate of acquisition of competitive jobs varied from 33.3% to 61.1% within the SE programs.

Participants more than 18 years of age, presenting with a mental disorder, who were looking for a job and who were newly enrolled in an SE program were eligible to participate in the study. Participants were recruited through their employment specialist and gave informed consent after receiving a complete description of the study.

In phase 1, participants answered several questionnaires on entry into the SE program. The questionnaires were selected from the most salient predictors of job acquisition identified in the specialized literature (see Introduction). Phase 2 occurred 6 months later as a telephone interview on the acquisition of a competitive employment (*i.e.*, jobs not reserved for people with a disability that pay at least minimum wage and that are part or full time). The 6-month follow-up was chosen because the time needed for job acquisition in an SE program is usually brief, from 3 to 4 months (Mueser and McGurk, 2014). This study was approved by all the university, health authorities, and hospital ethics boards linked to the participating SE programs. Participants received a small stipend ($40) for their participation.

Participants

Of the participants recruited for phase 1 ($n = 606$), 81% ($n = 489$) agreed to participate in phase 2. No significant differences were found between those who did or did not complete the study, except for residential status (people who lived independently were 1.94 times more likely to participate in phase 2). Of the 489 participants, 241 (49.3%) obtained at least one job during the 6-month follow-up period: 209 (42.7%) obtained competitive employment, and 29 (6%) obtained transitional employment, with missing data for three participants regarding their employment status (0.6%). Those with missing data ($n = 3$) or who obtained transitional employment ($n = 29$) were excluded from the analyses resulting in a final sample size of 457 participants who had either obtained competitive employment ($n = 209$) or had not obtained a job ($n = 248$) at phase 2 (Table 1).

In total, 97 employment specialists from 24 SE programs participated in the study. Their average age was 41 years (SD, 11), 78% ($n = 76$) were women, 83% had a university education, their mean caseload was 32 clients per year (SD, 18), and their average length of employment in the SE program was 5 years (SD, 5.71).

TABLE 1. Participant Characteristics at Baseline and at 6-Month Follow-Up

Characteristics	Baseline ($n = 606$) [SD] (%)	6 Mo Follow-Up ($n = 489$) [SD] (%)
Age	39 [11.09]	40 [11.08]
Sex		
Male	332 (54.8)	262 (53.6)
Female	274 (45.2)	227 (46.4)
Marital status		
Single	399 (65.8)	314 (64.2)
Married/partner	77 (12.7)	67 (13.7)
Separated/divorced	122 (20.1)	100 (20.4)
Residential status		
Independent	438 (72.3)	367 (75.1)
Other[a]	165 (27.3)	120 (24.5)
Education level		
Primary	45 (7.4)	35 (7.2)
Secondary	173 (28.5)	135 (27.6)
College	207 (34.2)	175 (35.8)
University	178 (29.4)	141 (28.8)
Diagnosis		
Schizophrenia spectrum[b]	198 (32.7)	163 (33.3)
Bipolar	136 (22.4)	110 (22.5)
Major depression	246 (40.6)	198 (40.5)
Other	22 (3.6)	14 (2.9)
Duration of unemployment		
Currently employed	56 (9.2)	46 (9.4)
1 yr or less	246 (40.6)	193 (39.5)
1–2 yr	97 (16.0)	81 (16.6)
2–5 yr	94 (15.5)	76 (15.5)
5 yr and more	99 (16.3)	83 (17.0)
Never worked	12 (2.0)	9 (1.8)

[a]People living with some kind of supervision (*e.g.*, supervised facility, supervised nonfacility, treatment institution) or homeless. [b]Includes schizophrenia and schizoaffective disorders.

SD indicates standard deviation.

Measures

Client variables

Demographic data and past work experience. The Canadian Version of the Psychosocial Rehabilitation Toolkit (Arns, 1998) was used to assess the participants' age, sex, marital status, education, and duration of unemployment.

Psychiatric diagnosis. The Structured Clinical Interview for *Diagnostic and Statistical Manual of Mental Disorders, 4th Edition* (*DSM-IV*), Axis-I disorders (SCID) (First et al., 1997) was used to determine the patients' *DSM-IV* diagnoses. Only trained interviewers who met the required standards of interrater reliability assessed the participants using the computer version of the SCID. Our team's clinical psychologist (T. L.) confirmed all psychiatric diagnoses. T. L. reviewed each detailed diagnosis report and corrected mistakes when they appeared. The coordinator who conducted the SCID was then contacted and supervised to avoid such mistakes in the future.

Psychiatric symptoms. The Brief Symptom Inventory (Derogatis and Melisaratos, 1983) is a self-report scale that assesses symptom severity using nine scales (*e.g.*, somatisation, depression, and anxiety).

In addition to the nine symptom dimensions, it provides a Global Severity Index (GSI). The Cronbach's alpha coefficient of the GSI is .97 for this study.

Substance abuse. The Addiction Severity Index (ASI) (McLellan et al., 1980) is a semistructured interview that is widely used to measure substance abuse and associated problems. In this study, the self-report version of the ASI was used. The alcohol and drug composite scores were calculated using information about alcohol and drug use in the 30 days before the interview (using days and amount of money). A total of two scores were created for alcohol and drugs, respectively.

Cognitive measure. The Trail Making Test is a well-established neuropsychological test sensitive to impairments in multiple cognitive domains. This test provides information on visual search, scanning, speed of processing, mental flexibility, and executive functions by connecting numbers and/or letters in alphanumerical order (Tombaugh, 2004). Part A consists of connecting, as fast as possible and in a numerical order, encircled numbers distributed on a sheet of paper. Part B consists of connecting encircled numbers and letters alternatively, in an alphanumerical order (*e.g.*, 1, A, 2, B). The score of each part corresponds to the amount of time required to complete the task (Tombaugh, 2004).

Social functioning. The total score of the 17-item Multnomah Community Ability Scale was used to evaluate the participants' social functioning (Corbière et al., 2002). The 17 items are grouped into four conceptually different categories (*e.g.*, interference with functioning, adjustment to living). Items are scored on a 5-point Likert scale. The global score of the tool was used in this study, and the Cronbach's alpha coefficient was .78.

Self-esteem. The self-esteem as a worker scale is a short self-administered questionnaire consisting of 10 items designed to assess the way people feel about themselves as workers (Corbière et al., 2009). An exploratory factor analysis revealed two subscales: individual self-esteem as a worker (seven items) and social self-esteem as a worker (three items) (Corbière et al., 2009). For this study, the Cronbach's alpha coefficients for the individual and social subscales were, respectively, .86 and .77.

Barriers to employment. The Barriers to Employment and Coping Efficacy Scale consists of 60 items representing potential barriers to work integration and self-efficacy to overcome them (Corbière et al., 2004). In this study, only the global score "perceived obstacles" was retained and its Cronbach's alpha coefficient was .95. More precisely, for each barrier, participants were asked to what extent "in their current situation, could this item represent a barrier to employment?" They answered on a Likert scale (1 = not likely at all to 7 = completely likely), with a global score that can vary from 60 to 420.

Motivation to find a job. The Motivation to Find a Job questionnaire (Villotti et al., 2015) consists of a single conceptual dimension and seven items relating to the participants' motivation to find a job, which are measured on a 7-point Likert scale from 1 (completely disagree) to 7 (completely agree). The Cronbach's alpha for this study was .87.

Working Alliance. The Working Alliance Inventory (Horvath and Greenberg, 1989) is a self-administered questionnaire reflecting the quality of the client-clinician therapeutic relationship. The short-form questionnaire (global score) contains 12 items and was administered to both the clients and their employment specialist, and Cronbach's alphas were both .92.

Job Search Strategies. Fourteen job search behaviors were assessed using a dichotomous scale (yes or no) at the 6-month telephone interview. They were split into two categories: a) preparatory job search behaviors (seven items; *e.g.*, to prepare your resume) and b) active job search behaviors (seven items; *e.g.*, to telephone an employer and introduce yourself) (Corbière et al., 2011).

Employment specialist competencies

Employment specialist competencies. The Behaviours, Attitudes and Knowledge of Employment Specialists Scale (BAKES) (Corbière et al., 2014) consists of 90 items describing the behaviors, attitudes, and knowledge utilized by employment specialists in SE programs for assisting people with mental health problems obtain and maintain employment. Exploratory factor analyses showed 90 items spread over 12 subscales: a) outreach and work accommodations (13 items), b) relationships with employers and supervisors (10 items), c) relationships with mental health professionals (10 items), d) job search strategies (6 items), e) support in identifying work interests and labor market (6 items), f) social behaviors and healthy style (6 items), g) adaptation to and dealing with the workplace culture (6 items), h) dealing with stigma and self-stigma (7 items), i) support and client-centered approach (8 items), j) knowledge of clinical symptoms and health/vocational services (11 items), k) knowledge of the workplace (5 items), and l) knowledge of the laws and policies related to disability (3 items). This questionnaire was administered to each employment specialist once. Cronbach's alphas of each subscale for this study varied from .73 to .94. Finally, the BAKES has demonstrated discriminant validity because IPS programs (compared with other models of SE programs) located in Canada and the Netherlands have a higher score on the first three subscales, based on IPS principles mentioned above (Corbière et al., 2014).

Working Alliance Inventory. The Working Alliance Inventory (Horvath and Greenberg, 1989) was administered to clients and their employment specialists (see above for a description). Only the total score was used.

Quality of SE program implementation

The QSEIS (Bond et al., 2000) was used to determine SE program fidelity and consists of a semistructured interview of 33 items, each rated on a 5-point behavioral response scale. A score of 5 indicates full implementation; 3 to 4, moderate fidelity; 2, a large departure from SE standards; and 1, the absence of the principle. The global score is used in our analyses (Corbière et al., 2005, 2010).

Data Analysis

Generalized estimating equation (GEE) models accounting for the correlation among participants (level 1), nested within an employment specialist (level 2), were used to analyze binary data. We used SAS 9.2 software to perform the analyses. Crude and adjusted odds ratios (ORs) for the three GEE models are presented in Table 2. Crude ORs were calculated for each level. Variables with a p value less than 0.10 (to include a maximum number of variables) were entered in the GEE model, resulting in adjusted ORs. The GEE model included the participant and employment specialist levels while controlling for the quality of SE program implementation (QSEIS total score). The significance was set at $p < 0.05$. To achieve an adequate GEE sample size, we needed to have 474 clients with 80% power to detect an OR of 2.5 (Tan et al., 2009). When conducting multilevel modeling analyses, a small sample size at level 2 (*i.e.*, a sample of 50 or less) can lead to biased estimates of the second-level standard errors. In our study, we had 97 employment specialists for the second level and thus meeting the required sample size (Maas and Hox, 2005; Tan et al., 2009). For all significant predictor variables from each level of analysis, means and standard deviations (or frequencies and percentages) are presented (Table 3).

RESULTS

Regarding client variables, age, cognitive deficit, duration of unemployment, motivation to find a job, perceived barriers to employment, self-esteem as a worker, working alliance (client's perspective), and job

TABLE 2. Crude and Adjusted ORs of Predictive Variables for Obtaining a Job for People With a Severe Mental Illness Participating in an SE Program

	Model 1[a] Crude OR (95% CI)	*p*	Model 2[b] Adjusted OR (95% CI)	*p*
Participants				
Sex (ref: male)	1.18 (0.81–1.70)	0.39	1.48 (0.85–2.58)	0.17
			1.67 (0.99–2.82)	*0.06*
Age	0.97 (0.95–0.99)	0.00	0.96 (0.94–0.99)	0.01
			0.96 (0.94–0.99)	*0.00*
High level of education	0.85 (0.69–1.04)	0.12	0.81 (0.59–1.10)	0.18
			0.83 (0.62–1.11)	0.20
Psychiatric diagnosis—major depression (ref: schizophrenia)	0.79 (0.51–1.22)	0.29	0.42 (0.10–1.71)	0.23
			0.30 (0.07–1.41)	*0.13*
Psychiatric diagnosis—bipolar disorders (ref: schizophrenia)	0.99 (0.60–1.63)	0.96	1.33 (0.69–2.58)	0.40
			1.31 (0.71–2.40)	*0.39*
Psychiatric symptoms	0.99 (0.99–1.00)	0.14		
Cognitive deficit (trail A—duration of response)	0.98 (0.97–0.99)	0.02	0.99 (0.97–1.01)	0.15
			0.99 (0.97–1.01)	*0.16*
Cognitive deficit (trail B—duration of response)	0.99 (0.99–1.00)	0.48		
Substance abuse (alcohol)	0.99 (0.99–1.00)	0.44		
Substance abuse (drugs)	1.00 (0.99–1.01	0.32		
Duration of unemployment	0.87 (0.81–0.94)	0.00	0.88 (0.78–0.99)	0.03
			0.87 (0.78–0.97)	*0.01*
Social functioning (global score)	1.02 (0.99–1.04)	0.13		
Self-esteem as a worker (individual subscale)	1.03 (0.99–1.08)	0.09	1.02 (0.94–1.11)	0.68
			1.01 (0.94–1.09)	*0.79*
Self-esteem as a worker (social subscale)	1.09 (0.98–1.22)	0.10	1.05 (0.82–1.36)	0.69
			1.04 (0.83–1.31)	*0.73*
Perceived barriers to employment	0.99 (0.99–0.99)	0.02	1.00 (0.99–1.00)	0.63
			1.00 (0.99–1.00)	*0.25*
Motivation to find a job	1.03 (1.00–1.07)	0.03	1.00 (0.98–1.02)	0.99
			1.01 (0.98–1.03)	*0.60*
Active job search strategies	8.08 (3.92–16.66)	0.00	8.65 (2.66–28.10)	**0.00**
Preparatory job search strategies	2.41 (1.05–5.54)	0.04	0.42 (0.10–1.67)	0.22
Working alliance—perspective of client	1.02 (1.00–1.03)	0.01	1.02 (0.99–1.05)	0.16
			1.01 (0.99–1.04)	*0.38*
Employment specialists				
Outreach and work accommodations (BAKES)	1.26 (0.99–1.61)	0.06	1.07 (0.62–1.83)	0.82
			1.09 (0.66–1.79)	*0.74*
Relationships with mental health professionals (BAKES)	1.08 (0.88–1.31)	0.47		
Relationship with employers, supervisors (BAKES)	1.19 (1.00–1.41)	0.04	1.15 (0.80–1.65)	0.44
			1.14 (0.82–1.60)	*0.43*
Job search strategies (BAKES)	0.86 (0.60–1.23)	0.41		
Support in identifying work interests and labor market (BAKES)	0.96 (0.69–1.32)	0.80		
Social behaviors and healthy style (BAKES)	0.84 (0.67–1.04)	0.12		
Adaptation to and dealing with the workplace culture (BAKES)	1.16 (0.85–1.59)	0.35		
Dealing with stigma and self-stigma (BAKES)	0.94 (0.72–1.23)	0.66		
Support and client-centered approach (BAKES)	1.00 (0.57–1.75)	0.99		
Knowledge of clinical symptoms and health/vocational services (BAKES)	1.20 (0.83–1.75)	0.33		
Knowledge of the workplace (BAKES)	1.06 (0.80–1.40)	0.68		
Knowledge of the laws and policies related to disability (BAKES)	1.01 (0.84–1.22)	0.88		
Working alliance (employment specialist perspective)	1.04 (1.02–1.06)	0.00	1.03 (1.01–1.06)	0.03
			1.04 (1.01–1.07)	*0.01*

Values in italic are results from the multilevel analyses excluding job search strategies.

[a]Model 1 included levels 1 (participants) and 2 (employment specialists) separately. [b]Model 2 included all variables at $p < 0.10$ from the model 1 and client variables (*i.e.*, sex, education, diagnosis), and QSEIS (global score) was also considered in multilevel analyses. In italic, results from the multilevel analyses excluding job search strategies.

TABLE 3. Significant Variables to Predict Acquisition of Competitive Employment at 6 Months Follow-Up, Considering the Work Status

	6 Mo Follow-Up	
	Worked	**Did Not Work**
	(n = 209)[a]	**(n = 248)**
Significant Predictors of Acquisition of Competitive Employment	**[SD] (%)**	**[SD] (%)**
Client variables		
Age	37 [10.67]	41 [10.81]
Duration of unemployment		
Currently employed	26 (12.4)	17 (6.9)
1 yr or less	96 (45.9)	88 (35.6)
1–2 yr	34 (16.3)	42 (16.9)
2–5 yr	23 (11.0)	48 (19.4)
5 yr and more	27 (12.9)	47 (19.0)
Never worked	3 (1.4)	5 (2.0)
Cognitive tests		
Trail A (sec)	35 [17.71]	41 [22.24]
Trail B (sec)	92 [63.15]	97 [47.83]
Motivation to find a job	41.61 [7.14]	39.93 [7.33]
Barriers to employment	153.94 [64.59]	167.75 [63.53]
Job search strategies—preparatory	4.14 [1.56]	3.81 [1.69]
Job search strategies—active	4.16 [1.78]	3.00 [2.09]
Working alliance—client	70.21 [11.71]	67.29 [13.29]
Employment specialist variables		
Working alliance—employment specialist	70.16 [11.71]	66.79 [9.48]
BAKES—relations with employers and supervisors	4.79 [1.25]	4.51 [1.31]

[a]A total of 32 participants were excluded (241 − 209 = 32) because they obtained transitional employment and not competitive employment or were missing data regarding their employment status.

SD indicates standard deviation.

search strategies (active and preparatory) were all significantly associated with job acquisition (Table 2). The utilization of job search strategies (preparatory and active) contributed the most to competitive job acquisition with ORs, respectively, of 2.41 (for preparatory) and 8.08 (for active). We found that the job acquisition OR for each additional active job search strategies was 8.08 (95% confidence interval [CI], 3.92–16.66), indicating the highest odds among the client variables of getting competitive employment. Clinical variables, namely, diagnosis and severity of symptoms, and substance misuse did not predict competitive job acquisition.

Significant employment specialist competencies were developing a working alliance (employment specialist perspective) and relationships with employers and supervisors (Table 2). The relationship OR was 1.19 (95% CI, 1.00–1.41) per increase of 1 (on a Likert scale of 7 points). Significant predictors are presented in Table 3 along with the means and standard deviation for both groups, that is, people who obtained competitive jobs and those who did not. Finally, because the overall score of quality of SE program implementation (QSEIS score) was used for multilevel analyses as a control variable, it was also tested separately with results indicating no significant prediction of job acquisition (0.89; 95% CI, 0.31–2.57; $p = 0.83$).

When we consider the employment specialist competencies and the client variables together (*i.e.*, all variables with $p < 0.10$ from the separated levels analyses) while controlling for the quality of the SE program implementation and client variables, that is, sex, education, and diagnosis, only the working alliance, part of the employment specialist competencies, remains significant (1.03; 95% CI, 1.01–1.06). Significant client variables were age (0.96; 95% CI, 0.94–0.99), active job search strategies (8.51; 95% CI, 2.64–27.39), and duration of unemployment (0.89; 95% CI, 0.79–0.99)—younger people who used active search strategies and who had been unemployed for a short period were more likely to obtain a competitive job. Given the high OR of active job search strategies and given that they are more proximal to job acquisition compared with other client characteristics, post hoc analyses were conducted. As Mueser et al. (2001) showed, there is abundant evidence that job search behavior is strongly related to subsequent employment, and inclusion of this variable could obscure the potential contribution of other variables (*e.g.*, client characteristics) when predicting job acquisition. Therefore, Pearson's correlations were calculated with the other individual predictors, and multilevel analyses were calculated again, this time without job search behaviors (preparatory and active). Using active job search strategies showed a modest negative correlation with duration of unemployment ($r = -0.19$, $p < 0.001$) and a positive one with level of motivation to find employment ($r = 0.19$, $p < 0.001$). In addition, for the multilevel model presented in Table 2, the same variables (without any new ones) remained significant in predicting job acquisition, regardless of the presence or absence of job search behaviors. However, the variance explained with job search behaviors (preparatory and active) was $R^2 = 0.51$, and without them was slightly lower ($R^2 = 0.43$).

DISCUSSION

Similar to the Netherland, Japanese, and Canadian studies on SE programs, we found that 42.7% of study participants obtained competitive employment over the course of 6 months. Such rates have been found in

other studies with a 6-month follow-up (Oshima et al., 2014), as well as 12-month (Latimer et al., 2006) or 30-month follow-up (Michon et al., 2014; Oshima et al., 2014), suggesting a certain stability in this rate overtime. The observed rate of job acquisition in this study is almost identical to the one found in a previous Canadian study on IPS, conducted a decade earlier (Latimer et al., 2006). Overall, results of this study showed that employment specialist competencies and client's active job search behaviors are the most significant variables to predict job acquisition, emphasizing the importance for developing relational skills in employment specialists, particularly by establishing a solid working alliance with their clients and collaborations with other stakeholders.

Analysis of employment specialist competencies showed that the relationship with employers and workplace supervisors predicted job acquisition for people with severe mental illness. Recent studies reflect the growing interest in vocational success as it relates to relationships with stakeholders from the workplace (Corbière and Lanctôt, 2011; Drake et al., 2012). Different authors have emphasized the importance of cultivating a relationship with employers to develop long-term relationships with organizations, build an employment network, and help foster follow-along supports of service users by employment specialists within their workplace (Drake et al., 2012; Leff et al., 2005). Another predictor of job acquisition related to employment specialists was the working alliance, which includes the agreement between the vocational specialist and the client about goals, the tasks required to reach the goals, and the bond developed between both parties (Horvath and Greenberg, 1989). Our results align with those of Catty et al. (2008), where the working alliance assessed by either the client or the employment specialist predicted working (in this case, for at least 1 day).

Several client variables predicted job acquisition: younger age, shorter duration of unemployment, self-esteem as a worker, better cognitive skills, higher level of motivation to find a job, fewer perceived barriers to employment, use of active job search strategies, and stronger working alliance with the employment specialist. The variables age and duration of unemployment, as well as job search strategies and working alliance, were the strongest client predictors of obtaining competitive employment and are supported by results from other studies (Bond and Drake, 2008; Burke-Miller et al., 2012; Catty et al., 2008; Corbière et al., 2011; Wewiorski and Fabian, 2004). Age is typically found as a predictor of employment in most studies not only related to the work integration of people with severe mental illness (Wewiorski and Fabian, 2004) but also for workers returning to work after a sick leave due to common mental illness (Corbière et al., 2013) and can be considered a barrier that is not modifiable. As a result, younger people are likely viewed as more desirable employees than older people absent from the labor market for many years (Burke-Miller et al., 2006). With respect to unemployment, work history has been reported as the most significant predictor of job acquisition (Campbell et al., 2010), and SE programs could help avoid interruptions in work (Rinaldi et al., 2010). The use of active job search strategies, such as sending a resume to employers, contacting potential employers, and/or providing employer references, increased the likelihood of obtaining a job eightfold. Active seekers who look for a job themselves, seek help from their employment specialists, express a desire to work, and use more job search strategies, are typically more successful compared with passive seekers (Alverson et al., 2006; Corbière et al., 2011). Furthermore, correlations reflected that these active behaviors were modestly linked to shorter unemployment and higher work motivation, suggesting that clients who actively use job search strategies are not necessarily highly motivated to find a job but are actively performing behaviors that will lead them to obtain work. Interestingly, when job search behaviors are excluded from the multilevel model, the explained variance remains important, suggesting that active behaviors are necessary to job acquisition but not sufficient. Although some clients can get work on their own, many will need support from employment specialists. In fact, a collaborative approach whereby the client and employment specialist work together will likely be more successful in facilitating job acquisition than any solo endeavor.

Developing a good alliance with the employment specialist is also central, with clinical studies suggesting positive outcomes in treatment are associated with a good alliance for people with severe mental illness (Goldsmith et al., 2015). Allowing clients to choose their employment specialist, or at least to have the option to change employment specialist if the relationship is problematic, can facilitate the development of a strong alliance. Clinical variables (psychiatric diagnosis, substance misuse, and severity of symptoms) were not significant predictors of job acquisition, but cognitive skills (in this case speed of processing) were, as found in other studies (Campbell et al., 2011; Midin et al., 2011). The discrepancy of our results with those of other studies regarding substance misuse as a predictor might be explained by the fact that substance misuse is mostly a predictor of poor job tenure rather than job acquisition (McGurk et al., 2009). Similarly, executive functions are typically related to work outcomes of job performance and tenure (McGurk et al., 2003), whereas we found that speed of processing (*i.e.*, trail A) was related to getting competitive employment. We can speculate that contrary to executive functions that are more complex cognitive abilities for accomplishing tasks at work, speed of processing is related to automatic processes that could be useful during a job interview for instance. Furthermore, in McGurk et al.'s (2003) study, processing speed predicted the amount of employment contacts/supports, but in the present study, such supports did not fully compensate for slower speed in the job attainment phase.

Finally, the quality of SE programs was not significant in predicting job acquisition (univariate or multivariate analyses). It may be hypothesized that the overall QSEIS score is not sensitive enough to distinguish SE programs that perform better than others regarding work outcomes.

In summary, client and relational variables—between client and employment specialist or between employment specialist and employers/supervisors or other stakeholders (*e.g.*, mental health professionals supported by the quality of SE programs)—are among the most important predictors of job acquisition, considering clinical variables and the quality of SE programs. This reflects the pivotal role of the employment specialist, as highlighted in other studies (Corbière et al., 2014; Drake et al., 2012), as well as in Loisel et al.'s work disability paradigm (Loisel and Anema, 2013; Loisel et al., 2001). As such, the relationship and the consultation between the employment specialist and the person receiving services as well as with the other systems involved in the participation at work (*i.e.*, organizations) are central in predicting work outcomes.

When employment specialist and client variables were analyzed together, younger age, shorter duration of unemployment, use of active job search strategies, and working alliance (as perceived by the employment specialist) were the strongest predictors. Job search behaviors were the most important individual predictor (adding 8% of variance explained, from 43% to 51%), most likely due to the fact that this variable is proximal to job acquisition. Employment specialists reinforcing a working alliance and teaching multiple job search strategies to clients soon after their enrolment in the SE program can greatly increase their clients' chances of obtaining a competitive job quickly.

Finally, the results of this study highlight the importance of stakeholder interactions. Indeed, job acquisition is facilitated by interactions between the client and the employment specialist (*i.e.*, working alliance), and potential employers (*i.e.*, active job search behaviors), as well as between employment specialists and workplace stakeholders (relationships with employers and supervisors), and their clients (*i.e.*, working alliance). These competencies can be illustrated by the following items stemming from the Working Alliance Inventory and the BAKES tools: The employment specialist and the client are working toward mutually agreed upon goals, and the employment specialist works in collaboration with employers to modify job tasks when clients encounter difficulties.

The IPS principles are related to these factors—focus on work preferences and systematic job development more particularly—and SE programs that integrate these principles tend to foster these employment specialist competencies (Drake et al., 2012). On the one hand, employment specialists could improve their interaction skills by sharing decision-making behaviors and goals with their clients, thus increasing their clients' chances at getting a job. On the other hand, employment specialists need to become experts in systematic job development (a IPS competency) by working closely with workplace stakeholders to create jobs or to negotiate feasible work accommodations (Drake et al., 2012; Rinaldi and Perkins, 2007; Rinaldi et al., 2008). All together, these results suggest that more attention on the future training of employment specialists is warranted, particularly regarding how to build a strong working alliance with clients and to develop constructive collaborations with different stakeholders.

This study has limitations and strengths. First, we used only a single work outcome indicator: competitive job acquisition, whereas other indicators might also be relevant (*e.g.*, number of hours/days worked per week). A crude measure of competitive job acquisition was used in this study and was not verified by independent reviewers, although self-reports of current employment status for this population have been found to be reliable (Mueser et al., 2001). Only a brief measure of cognitive skills was used—different or more measures might have given different results. Finally, we did not assess employment specialists' competencies in helping clients with cognitive deficits, by either compensating for or using strategies for their cognitive impairments, as suggested by McGurk and Mueser (2006). The implications of these findings may be the need for greater awareness of employment specialists of the potential benefits for cognitive remediation for this cognitive impairment in job attainment. This study is unique in taking into consideration both employment specialist competencies and client variables, while considering the quality of the SE programs' implementation. It offers a comprehensive and systematic analysis of the most salient competencies, characteristics, and skills needed to optimise job acquisition for people with severe mental illness registered in SE programs.

CONCLUSIONS

In sum, our results clearly demonstrate that relational competencies and skills are central to competitive job acquisition, reflected in both the employment specialist's ability to develop strong relationships with multiple stakeholders (*e.g.*, employers and supervisors), and the client's relationship with the employment specialist. Active job search strategies used by the client, and likely taught by employment specialists, also emerged as strong predictors of job acquisition for people in SE programs. Overall, these results confirm the central role of the employment specialist, not only in teaching job search strategies but also in developing relationships with different stakeholders to facilitate work integration for people with severe mental illness in SE programs.

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DISCLOSURE

The authors declare no conflict of interest.

REFERENCES

Alverson H, Carpenter E, Drake RE (2006) An ethnographic study of job seeking among people with severe mental illness. *Psychiatr Rehabil J.* 30:15–22.

Arns P (1998) *Canadian version of the PSR toolkit*. Ontario, Canada: Ontario Federation of Community Mental Health and Addiction Programs.

Bond GR, Becker DR, Drake RE (2011) Measurement of fidelity of implementation of evidence-based practices: Case example of the IPS fidelity scale. *Clin Psychol Sci Pract.* 18:126–141.

Bond GR, Becker DR, Drake RE, Rapp CA, Meisler N, Lehman AF, Bell MD, Blyler CR (2001) Implementing supported employment as an evidence-based practice. *Psychiatr Serv.* 52:313–322.

Bond GR, Drake RE (2008) Predictors of competitive employment among patients with schizophrenia. *Curr Opin Psychiatry.* 21:362–369.

Bond GR, Drake RE, Becker DR (2012a) Generalizability of the Individual Placement and Support (IPS) model of supported employment outside the US. *World Psychiatry.* 11:32–39.

Bond GR, Peterson AE, Becker DR, Drake RE (2012b) Validation of the revised individual placement and support fidelity scale (IPS-25). *Psychiatr Serv.* 63:758–763.

Bond GR, Picone J, Mauer B, Fishbein S, Stout R (2000) The Quality of Supported Employment Implementation Scale. *J Vocat Rehabil*. 14:201–212.

Burke-Miller J, Razzano LA, Grey DD, Blyler CR, Cook JA (2012) Supported employment outcomes for transition age youth and young adults. *Psychiatr Rehabil J.* 35:171–179.

Burke-Miller JK, Cook JA, Grey DD, Razzano LA, Blyler CR, Leff HS, Gold PB, Goldberg RW, Mueser KT, Cook WL, Hoppe SK, Stewart M, Blankertz L, Dudek K, Taylor AL, Carey MA (2006) Demographic characteristics and employment among people with severe mental illness in a multisite study. *Community Ment Health J.* 42:143–159.

Campbell K, Bond GR, Drake RE (2011) Who benefits from supported employment: A meta-analytic study. *Schizophr Bull*. 37:370–380.

Campbell K, Bond GR, Drake RE, McHugo GJ, Xie H (2010) Client predictors of employment outcomes in high-fidelity supported employment: A regression analysis. *J Nerv Ment Dis*. 198:556–563.

Catty J, Lissouba P, White S, Becker T, Drake RE, Fioritti A, Knapp M, Lauber C, Rössler W, Tomov T, van Busschbach J, Wiersma D, Burns T, EQOLISE Group (2008) Predictors of employment for people with severe mental illness: Results of an international six-centre randomised controlled trial. *Br J Psychiatry.* 192: 224–231.

Corbière M, Bond GR, Goldner EM, Ptasinski T (2005) Brief reports: The fidelity of supported employment implementation in Canada and the United States. *Psychiatr Serv.* 56:1444–1447.

Corbière M, Brouwers E, Lanctôt N, van Weeghel J (2014) Employment specialist competencies for supported employment programs. *J Occup Rehabil*. 24:484–497.

Corbière M, Crocker AG, Lesage AD, Latimer E, Ricard N, Mercier C (2002) Factor structure of the Multnomah Community Ability Scale. *J Nerv Ment Dis*. 190: 399–406.

Corbière M, Lanctôt N (2011) Salient components in supported employment programs: Perspectives from employment specialists and clients. *Work*. 39:427–439.

Corbière M, Lanctôt N, Lecomte T, Latimer E, Goering P, Kirsh B, Goldner EM, Reinharz D, Menear M, Mizevich J, Kamagiannis T (2010) A pan-Canadian evaluation of supported employment programs dedicated to people with severe mental disorders. *Community Ment Health J.* 46:44–55.

Corbière M, Lanctôt N, Sanquirgo N, Lecomte T (2009) Evaluation of self-esteem as a worker for people with severe mental disorders. *J Vocat Rehabil*. 30:87–98.

Corbière M, Mercier C, Lesage A (2004) Perceptions of barriers to employment, coping efficacy, and career search efficacy in people with mental illness. *J Career Assessment.* 12:460–478.

Corbière M, Negrini A, Dewa C (2013) Mental health problems and mental disorders: Linked determinants to work participation and work functioning. In Loisel P, Anema JR (Eds), *Handbook of work disability* (pp 267–288). New York: Springer.

Corbière M, Zaniboni S, Lecomte T, Bond G, Gilles PY, Lesage A, Goldner E (2011) Job acquisition for people with severe mental illness enrolled in supported employment programs: A theoretically grounded empirical study. *J Occup Rehabil*. 21:342–354.

Derogatis LR, Melisaratos N (1983) The brief symptom inventory: An introductory report. *Psychol Med*. 13:595–605.

Drake R, Bond G, Becker D (2012) *Individual placement and support: An evidence-based approach to supported employment*. New York: Oxford University Press.

Drake RE, Bond GR (2014) Introduction to the special issue on individual placement and support. *Psychiatr Rehabil J*. 37:76–78.

Drake RE, Bond GR, Rapp C (2006) Explaining the variance within supported employment programs: Comment on "What predicts supported employment outcomes?" *Community Ment Health J*. 42:315–318.

Dreher KC, Bond GR, Becker DR (2010) Creation of a measure to assess knowledge of the individual placement and support model. *Psychiatr Rehabil J*. 33:181.

First MB, Spitzer RL, Gibbon M, Williams JB (1997) *User's guide for the Structured clinical interview for DSM-IV Axis I disorders–Clinician Version (SCID-CV)*. Washington, DC: American Psychiatric Press.

Goldsmith L, Lewis SW, Dunn G, Bentall RP (2015) Psychological treatments for early psychosis can be beneficial or harmful, depending on the therapeutic alliance: An instrumental variable analysis. *Psychol Med*. 45:2365–2373.

Heslin M, Howard L, Leese M, McCrone P, Rice C, Jarrett M, Spokes T, Huxley P, Thornicroft G (2011) Randomized controlled trial of supported employment in England: 2 year follow-up of the Supported Work and Needs (SWAN) study. *World Psychiatry*. 10:132–137.

Horvath AO, Greenberg LS (1989) Development and validation of the Working Alliance Inventory. *J Couns Psychol*. 36:223.

Latimer EA, Lecomte T, Becker DR, Drake RE, Duclos I, Piat M, Lahaie N, St-Pierre MS, Therrien C, Xie H (2006) Generalisability of the individual placement and support model of supported employment: Results of a Canadian randomised controlled trial. *Br J Psychiatry*. 189:65–73.

Leff HS, Cook JA, Gold PB, Toprac M, Blyler C, Goldberg RW, McFarlane W, Shafer M, Allen IE, Camacho-Gonsalves T, Raab B (2005) Effects of job development and job support on competitive employment of persons with severe mental illness. *Psychiatr Serv*. 56:1237–1244.

Loisel P, Anema JR (2013) *Handbook of work disability. Prevention and management*. New York: Springer.

Loisel P, Durand M-J, Berthelette D, Vezina N, Baril R, Gagnon D, Lariviere C, Tremblay C (2001) Disability prevention: New paradigm for the management of occupational back pain. *Dis Manag Health Out*. 9:351–360.

Maas C, Hox J (2005) Sufficient sample sizes for multilevel modeling. *Methodology*. 1:86–92.

Marwaha S, Johnson S (2004) Schizophrenia and employment—A review. *Soc Psychiatry Psychiatr Epidemiol*. 39:337–349.

McGurk SR, Mueser KT (2006) Strategies for coping with cognitive impairments of clients in supported employment. *Psychiatr Serv*. 57:1421–1429.

McGurk SR, Mueser KT, DeRosa TJ, Wolfe R (2009) Work, recovery, and comorbidity in schizophrenia: A randomized controlled trial of cognitive remediation. *Schizophr Bull*. 35:319–335.

McGurk SR, Mueser KT, Harvey PD, LaPuglia R, Marder J (2003) Cognitive and symptom predictors of work outcomes for clients with schizophrenia in supported employment. *Psychiatr Serv*. 54:1129–1135.

McLellan AT, Luborsky L, Woody GE, O'Brien CP (1980) An improved diagnostic evaluation instrument for substance abuse patients. The Addiction Severity Index. *J Nerv Ment Dis*. 168:26–33.

Michon H, van Busschbach JT, Stant DA, van Vugt MD, van Weeghel J, Kroon H (2014) Effectiveness of individual placement and support for people with severe mental illness in the Netherlands: A 30-month randomized controlled trial. *Psychiatr Rehabil J*. 37:129–136.

Midin M, Razali R, ZamZam R, Fernandez A, Hum LC, Shah SA, Radzi RS, Zakaria H, Sinniah A (2011) Clinical and cognitive correlates of employment among patients with schizophrenia: A cross-sectional study in Malaysia. *Int J Ment Health Syst*. 5:14.

Mueser K, McGurk SR (2014) Supported employment for persons with serious mental illness: Current status and future directions. *Encéphale*. 40:S45–S56.

Mueser KT, Salyers MP, Mueser PR (2001) A prospective analysis of work in schizophrenia. *Schizophr Bull*. 27:281–296.

Oshima I, Sono T, Bond GR, Nishio M, Ito J (2014) A randomized controlled trial of individual placement and support in Japan. *Psychiatr Rehabil J*. 37:137–143.

Razzano LA, Cook JA, Burke-Miller JK, Mueser KT, Pickett-Schenk SA, Grey DD, Goldberg RW, Blyler CR, Gold PB, Leff HS, Lehman AF, Shafer MS, Blankertz LE, McFarlane WR, Toprac MG, Ann Carey M (2005) Clinical factors associated with employment among people with severe mental illness: Findings from the employment intervention demonstration program. *J Nerv Ment Dis*. 193:705–713.

Rinaldi M, Killackey E, Smith J, Shepherd G, Singh SP, Craig T (2010) First episode psychosis and employment: A review. *Int Rev Psychiatry*. 22:148–162.

Rinaldi M, Perkins R (2007) Implementing evidence-based supported employment. *Psychiatr Bull*. 31:44–49.

Rinaldi M, Perkins R, Glynn E, Montibeller T, Clenaghan M, Rutherford J (2008) Individual placement and support: From research to practice. *Adv Psychiatr Treat*. 14:50–60.

Tan TK, Kang T, Hogan D (2009) Using GEE to model student's satisfaction: A SAS macro approach. *SAS Global Forum 2009* (pp 1–12). Singapore: Nanyang Technological University.

Tombaugh TN (2004) Trail making test A and B: Normative data stratified by age and education. *Arch Clin Neuropsychol*. 19:203–214.

Tsang HW, Leung AY, Chung RC, Bell M, Cheung WM (2010) Review on vocational predictors: A systematic review of predictors of vocational outcomes among individuals with schizophrenia: An update since 1998. *Aust N Z J Psychiatry*. 44:495–504.

van Erp NH, Giesen FB, van Weeghel J, Kroon H, Michon HW, Becker D, McHugo GJ, Drake RE (2007) A multisite study of implementing supported employment in the Netherlands. *Psychiatr Serv*. 58:1421–1426.

Villotti P, Corbière M, Zaniboni S, Lecomte T, Fraccaroli F (2015) Evaluating the motivation to obtain and sustain employment in people with psychiatric disabilities. *Psicol Soc*. 10:57–70.

Wewiorski NJ, Fabian ES (2004) Association between demographic and diagnostic factors and employment outcomes for people with psychiatric disabilities: A synthesis of recent research. *Ment Health Serv Res*. 6:9–21.