

Evaluation of a Statewide Implementation of Supported Employment in Massachusetts

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Objective: Randomized controlled trials (RCT) have shown supported employment (SE) to be an evidence-based practice (EBP) for people with psychiatric disabilities. Whether SE implemented under “real-world” conditions achieves outcomes comparable to RCTs is an important question for the psychiatric rehabilitation field. We examined employment outcomes achieved by SE programs in Massachusetts, and in particular examined whether fidelity to EBP standards was associated with outcomes. **Method:** We examined outcomes for 3,474 clients served by 21 programs between 1997 and 2006, using multiple sources of data, including a client tracking database maintained by the SE programs as well as program site visits to assess fidelity to EBP standards. Using Generalized Estimating Equations, we modeled associations of client factors (demographics, diagnosis), program fidelity and other program factors to: (a) obtaining a job within 1 year of program enrollment; and among those obtaining jobs, (b) working 20 hours/week or more; and (c) earning \$9/hr or more. **Results:** There were 51% of clients who obtained a job within 1 year of enrollment. Clients served by high fidelity programs were more likely to obtain jobs (OR = 1.45) and to work 20 hr/week or more (OR = 1.52); fidelity was unrelated to wages. **Conclusions and Implications for Practice:** This study contributes to the evidence that real-world programs can implement SE with fidelity and achieve outcomes on par with those found in RCTs, and that fidelity makes a difference in the outcomes programs achieve. High fidelity programs may be most effective in helping clients acquire jobs and maximize the hours they work.

Keywords: supported employment, Individual Placement and Support, fidelity, psychiatric disability

Demonstrated efficacy in randomized controlled trials represents the standard that mental health services, including psychiatric rehabilitation services, must meet to be deemed “evidence-based.” What remains at issue, however, is the extent to which services are provided in a manner consistent with the evidence-based standards and achieve comparable outcomes once they are implemented in the field under less tightly controlled real-world conditions (Bond

et al., 2001). The answer to this question has important implications for the broad adoption of evidence-based psychiatric rehabilitation practices.

Supported employment is an evidence-based practice for people with serious mental illness, and the Individual Placement and Support model (IPS) is recognized as the gold standard of evidence-based supported employment (Bond, Drake, & Becker, 2008). The IPS model emphasizes rapid job search and placement into competitive jobs consistent with clients’ goals and preferences, and has effectively shifted the prevailing paradigm for employment services for people with mental illness from a “train-place” to a “place-train” approach (Drake, Becker, et al., 1999). IPS employment specialists provide individualized assessment and planning, personalized benefits counseling and time-unlimited follow-along supports to assist clients to acquire and maintain employment, and employment services are integrated with other mental health services (Becker & Drake, 2003; Drake, Bond, & Becker, 2012; Swanson, Becker, Drake, & Merrens, 2008). Across multiple randomized trials conducted over the past two decades in both the United States and other countries, IPS programs have demonstrated superior outcomes, including job acquisitions, hours worked per week, job duration and total earnings in comparison to a variety of alternatives, including traditional vocational rehabilitation, sheltered workshop, skills training, and other psychiatric rehabilitation services (Bond, Drake, & Becker, 2008).

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In this retrospective evaluation, we examined the implementation of supported employment in 21 programs across Massachusetts between 1997 and 2006, asking: (a) what employment outcomes were achieved by program clients; (b) did the programs implement employment services with fidelity to evidence-based standards; (c) were client characteristics associated with more positive employment outcomes; and (d) controlling for client characteristics, was program fidelity associated with employment outcomes?

Method

Programs

Beginning in July 1997, the Massachusetts Department of Mental Health (DMH) implemented a new service called Services for Education and Employment (SEE). SEE programs offered both supported employment and supported education services to DMH clients. Through contracts with community-based provider organizations, DMH funded 21 SEE programs across the state. In planning these new services, DMH staff sought consultation from the IPS model developers at the Dartmouth Psychiatric Research Center (Massachusetts Department of Mental Health, 2002), and intentionally designed the standards for SEE employment services to be consistent with the then emerging principles of the IPS model (Becker & Drake, 1993; Drake & Becker, 1996). Over an 8 year period from July 1, 1997 to June 30, 2005, there were 5,113 DMH clients enrolled in SEE programs. Clients could choose to receive supported employment, supported education, or both services. During this period, 3,474 clients (68% of clients) received supported employment services. These individuals were included as study participants.

Data Sources and Data Collection

Before data collection, approval for this study was obtained from the Institutional Review Boards of the University of Massachusetts Medical School and the Massachusetts Department of Mental Health. We utilized four data sources for this study: (a) the SEE Information System; (b) ratings of SEE program fidelity to evidence-based supported employment principles; (c) a survey of SEE program directors; and (d) data on Massachusetts local unemployment rates. The SEE Information System was a client tracking system, developed by DMH, into which SEE programs were required to report client-level enrollment, demographic, diagnostic, and outcome data. SEE Information System data were maintained on-site at each program and provided biannually to DMH. The SEE Information System provided data on clients' age, gender, race, level of education, receipt of disability benefits, psychiatric diagnosis, and clients' enrollment in supported employment and supported education service tracks. The SEE Information System also tracked client job placements, as well as hours worked per week and hourly wage for those obtaining jobs. To observe employment outcomes achieved by clients within 1 year after their enrollment in SEE, we examined outcomes achieved between July 1, 1997 and June 30, 2006 for the 3,474 clients receiving supported employment services.

To assess fidelity to evidence-based supported employment principles, we conducted site visits to all programs between Oc-

tober 2006 and June 2007. IPS experts from the Dartmouth Psychiatric Research Center trained site visit team members to conduct fidelity assessments and to rate the 15-item IPS Fidelity Scale (Bond, Becker, Drake, & Vogler, 1997), which has been shown to predict outcomes in programs implementing supported employment (Bond, Becker, & Drake, 2011). Two or three team members conducted each full-day site visit, collecting data via: (a) interviews with SEE program directors, employment specialists, clinicians, and clients; (b) observations of SEE staff-client interactions, job development efforts, employment staff meetings, and multidisciplinary team meetings; and (c) reviews of SEE client records. Written informed consent for interviews, observations, and record reviews was obtained from all participating staff and clients.

Each member of the site visit team independently rated the program on the fidelity scale. Within 2 days after visits, team members met to review all site visit notes and to compare ratings. Dartmouth experts provided consultation at all meetings via conference call, and differences in ratings were discussed to reach agreement on the final ratings. Items are rated from 1 to 5 with a higher score indicating better adherence to supported employment principles. Total possible scores ranged from 15 to 75 (66–75 = good, 56–65 = fair, and 55 or below = poor implementation of supported employment). In addition to site visits, program directors completed a survey gathering additional program information, including budget, staff characteristics (level of education, years of experience providing employment services), and other service characteristics (availability of benefits counseling, having a separate job developer, and average number of hours of service provided to clients weekly).

Each SEE program was located within a specific DMH service area and only served clients living within that area. To control for effects of local unemployment rates, we obtained monthly unemployment rates for the years from 1997 to 2005 for every city and town in Massachusetts, and then calculated an average annual unemployment rate for each service area, using the unemployment rates for the cities and towns located within the area. We adjusted the annual unemployment rates for each service area by standardizing against the overall unemployment rate for the state for that year, and then assigned a "local unemployment rate" to each client corresponding to the year the client enrolled in SEE.

Statistical Analysis

We used Generalized Estimating Equations (GEE), with clients nested within programs, to model associations of client factors and program fidelity to three employment outcomes: (a) obtaining at least one job within 1 year of program enrollment; and among those obtaining jobs, (b) hours worked per week (more or less than 20 hr per week); and (c) hourly wage (more or less than \$9 per hour). Each model also controlled for other program factors (i.e., budget, staff characteristics, and other service characteristics) as well as local unemployment rate, program service area, and clients' year of enrollment into SEE.

Results

Study participants ranged in age from 16 to 69, with a mean age of 37 years; 60% were male and 74% were White. At the time of SEE enrollment, 18% had less than a high school diploma, 53%

had a high school diploma or had successfully passed a General Educational Development (GED) test, and 29% had at least some postsecondary education (or more). Sixty-eight percent of participants were receiving public disability cash benefits, with 24% receiving Social Security Disability Insurance (SSDI) only, 33% receiving Supplemental Security Income (SSI) only, and 11% receiving both SSDI and SSI. Thirty-two percent received no cash benefits. More than half (55%) of participants were diagnosed with a psychotic disorder, including schizophrenia, schizoaffective disorder, or other psychotic disorder; 20% had a diagnosis of bipolar disorder; 18% had a diagnosis of major depression; and 7% had a variety of other diagnoses.

Among the 3,474 clients receiving supported employment services, 1,776 (51%) obtained at least one competitive job, paying minimum wage or higher, within 1 year of program enrollment. Among clients obtaining jobs, 50% worked 20 hr per week or more and 35% earned at least \$9 per hour (inflation adjusted to October 2006 dollars). Across the 21 programs, total fidelity scores ranged from 47 to 71 ($M = 63.4$). Seven programs (33%) obtained scores of 66 or above, 13 programs (62%) obtained scores between 56 and 65, and one program (5%) scored below 55. Table 1 shows the results of the Generalized Estimating Equations models examining the three employment outcomes.

Obtaining a Job Within 1 Year of Program Enrollment

As shown in Table 1, clients who were younger, male, and not receiving disability benefits (SSDI and/or SSI) were more likely to acquire a job within 1 year of enrolling in SEE compared with those who were older, female and receiving disability benefits. Race, level of education, and diagnosis were unrelated to job acquisition. Additionally, clients served by programs showing high fidelity (i.e., score ≥ 65) were significantly more likely to obtain a job ($OR = 1.45$) than those served by low fidelity programs.

Working 20 hr Per Week or More

Among clients obtaining jobs, those who were younger, male, not receiving disability benefits and without a diagnosis of a psychotic disorder were more likely to work 20 hr per week or more than those who were older, female, receiving disability benefits, and with a diagnosis of a psychotic disorder. Race and level of education were not significantly related to working more hours. Clients served by high fidelity programs were significantly more likely to work 20 hr per week or more ($OR = 1.52$) than those served by low fidelity programs.

Earning \$9 Per Hour or More

Again, among clients obtaining jobs, those who were younger, non-White, had more education (i.e., some college or more), and without a diagnosis of a psychotic disorder were more likely to earn \$9 per hour or more than those who were older, White, with a high school education or less, and with a diagnosis of a psychotic disorder. Gender and receipt of disability benefits were not significantly related to hourly wage. In addition, we found no association between program fidelity and hourly wage earned by clients.

Discussion

This retrospective study of a statewide, multiyear implementation of supported employment adds to the evidence that real-world programs can implement supported employment with fidelity to evidence-based practice standards and achieve outcomes on par with those found in randomized trials, and that fidelity makes a difference in the outcomes programs achieve (Becker, Drake, & Bond, 2011; Becker, Xie, McHugo, Halliday, & Martinez, 2006). Controlling for certain client and program factors, we found that clients served by programs with higher fidelity were 45% more likely to obtain jobs, and when working, were 52% more likely to

Table 1

Results of GEE Analyses Predicting Three Employment Outcomes From SEE Client Characteristics and Program Fidelity

Client characteristics	Model 1: Obtained job within 1 year ($n = 3,474$)			Model 2: Worked 20 hr/week or more ($n = 1,776$)			Model 3: Earned \$9/per hour or more ($n = 1,776$)		
	OR	95% CI	<i>p</i>	OR	95% CI	<i>p</i>	OR	95% CI	<i>p</i>
Demographics									
Age (<37 years)	1.32	1.14–1.53	.001	1.60	1.31–1.90	<.001	1.24	1.02–1.51	.029
Gender (male)	1.22	1.05–1.42	.009	1.38	1.14–1.68	.001	1.12	0.92–1.37	.261
Race (White)	0.99	0.83–1.19	.935	0.81	0.64–1.01	.067	0.78	0.61–0.99	.043
Education completed									
Less than high school	1.01	0.81–1.26	.923	0.76	0.65–1.00	.052	0.36	0.26–0.49	<.001
High school or GED	0.90	0.76–1.07	.221	0.86	0.70–1.07	.185	0.57	0.46–0.71	<.001
Some college or more ^a	1.00			1.00			1.00		
Receipt of disability benefits									
SSDI only or SSDI/SSI	0.80	0.66–0.95	.011	0.62	0.49–0.78	<.001	0.88	0.70–1.11	.296
SSI only	0.62	0.51–0.72	<.001	0.63	0.49–0.79	<.001	0.80	0.63–1.03	.082
Neither SSDI nor SSI ^a	1.00			1.00			1.00		
Diagnosis									
Psychotic disorder	0.98	0.84–1.14	.747	0.62	0.51–0.75	<.001	0.57	0.50–0.70	<.001
Fidelity score > 65	1.45	1.19–1.77	.001	1.52	1.10–2.11	.012	0.98	0.75–1.28	.869

Note. GEE = Generalized Estimating Equations; OR = odds ratio; CI = confidence interval; SSDI = Social Security Disability Insurance; SSI = Supplemental Security Income; GED = General Educational Development. All models controlled for program characteristics (budget, staff characteristics, and service characteristics); local unemployment rate; and clients' year of enrollment in SEE. Significant ORs are bolded.

^a Reference group.

work 20 hr per week or more, than clients served by low fidelity programs. We did not find an association between program fidelity and the hourly wages earned by clients.

Consistent with other studies (e.g., Burke-Miller et al., 2006; Catty et al., 2008; Razzano et al., 2005; Rosenheck et al., 2006; Salkever et al., 2007), we found certain client demographic and clinical characteristics (i.e., diagnosis) to be associated with the three employment outcomes we examined. Younger clients were more likely to acquire jobs, and when working, to work more hours and to have higher wages. Males were more likely to acquire jobs and work more hours per week. Although clients with psychotic disorders were no less likely to acquire jobs than those without psychotic disorders, these clients were less likely than those without psychotic disorders to work more hours weekly and to earn higher hourly wages. Notably, in comparison to those not receiving disability benefits, clients receiving SSDI and/or SSI were less likely to obtain jobs and work more hours, highlighting the well-documented limiting effect that receipt of disability benefits can have on work participation (Drake, Skinner, Bond, & Goldman, 2009). Receipt of SSDI/SSI was unrelated to hourly wages.

Not surprisingly, the client factor most strongly associated with higher wages was education. Clients with a high school education or less were only about one-half to one-third as likely to earn over \$9 per hour as those with some college education or more. The association between education and earnings is strong in the general population (http://www.bls.gov/emp/ep_chart_001.htm), and studies have observed this same association among people with psychiatric disabilities (e.g., Burke-Miller et al., 2006; Rosenheck et al., 2006; Salkever et al., 2007). Authors have suggested that further development of supported education and other career development approaches are needed to enhance the earning capacity of people with psychiatric disabilities (e.g., Hutchinson, Anthony, Massaro, & Rogers, 2007; Rudnick, Gover, & Pearson, 2009). However, to date, there is little evidence showing a positive effect of supported education on employment outcomes (Rogers, Kash-MacDonald, Bruker, & Maru, 2010).

A limitation of this retrospective study is that we were only able to assess fidelity at a single point in time at the end of the observation period; thus, we do not know how programs were performing before the fidelity assessment. However, from the beginning, the DMH standards for SEE programs strongly aligned with IPS principles, and there were mechanisms in place that reinforced these principles, including periodic reviews of program performance by DMH staff and the formation of the SEE Coalition, an association of SEE provider staff that met monthly to discuss best practices in employment services. SEE program directors and staff were also fairly stable over the 10 years between 1997 and 2007, with SEE programs averaging 2.1 program directors and 2.14 staff per position over this period.

Because of missing SEE Information System data, particularly the end dates of jobs, we were unable to examine other important outcomes, such as job tenure, and this is also a limitation of the study. The study's strengths include the large number of participants and programs, and our efforts to control extraneous variable including program factors and local economic conditions over the course of multiple years.

Conclusion

Overall, these findings suggest that high fidelity supported employment programs may be most successful in helping clients to acquire jobs and to maximize the number of hours they work. However, as with the general population, the hourly wage an individual can command in the competitive marketplace is primarily dependent on what that individual brings to the job in terms of capacities, education, and prior experience. The ability of evidence-based supported employment programs to have a strong effect on the wages clients can command may be limited without specific efforts directed at enhancing education and training among service participants.

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