

ARTICLE

**An Update on
Randomized Controlled Trials
of Evidence-Based
Supported Employment**



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Background: *The Individual Placement and Support (IPS) model of supported employment for clients with severe mental illness has been described as a standardization of evidence-based supported employment. Although several reviews on the literature on its effectiveness have been conducted, the completion of several new studies suggests an updated review is warranted.*

Methods: *We conducted a comprehensive literature search for randomized controlled trials of IPS, limiting our review to programs with high-fidelity IPS programs, locating 11 studies. We examined the following competitive employment outcomes: employment rates, days to first job, annualized weeks worked, and job tenure in longest job held during the follow-up period.*

Findings: *Across the 11 studies, the competitive employment rate was 61% for IPS compared to 23% for controls. About two-thirds of those who obtained competitive employment worked 20 hours or more per week. Among those who obtained a competitive job, IPS participants obtained their first job nearly 10 weeks earlier than did controls. Among IPS participants who obtained competitive work, duration of employment after the start of the first job averaged 24.2 weeks per year, or 47% of the 52-week year.*

Conclusions: *The current review is consistent with earlier reviews, although the evidence for high-fidelity IPS appears to be somewhat stronger here than in reviews evaluating studies with more heterogeneity in the supported employment models examined. The number, consistency, and effect sizes of studies of evidence-based supported employment establish it as one of the most robust interventions available for persons with severe mental illness.*

Keywords: *supported employment, employment, evidence-based practices, randomized controlled trials*

Introduction

The Individual Placement and Support (IPS) model of supported employment for clients with severe mental illness has been described as a standardization of evidence-based supported employment (Bond et al., 2001). It has been so identified because it is the best-described (Becker & Drake, 2003) and most extensively researched model of supported employment for this population. The core principles of this model are (1) a focus on competitive employment, (2) eligibility based on consumer choice, (3) rapid job search, (4) integration of mental health and employment services, (5) attention to consumer preference in the job search, (6) individualized job supports and (7) personalized benefits counseling (Bond, 2004).

Starting in the late 1990s, the literature on supported employment for individuals with severe mental illness has been reviewed on numerous occasions (Bond, 2004; Bond et al., 2001; Bond, Drake, Mueser, & Becker, 1997; Burns et al., 2007; Crowther, Marshall, Bond, & Huxley, 2001; Twamley, Jeste, & Lehman, 2003). The evidence from randomized controlled trials (RCTs) continues to accumulate quickly, and reviews from only a couple years ago are already obsolete. The purpose of the current review is to provide a comprehensive summary of competitive employment outcomes for RCTs evaluating evidence-based supported employment for this population. A second difference from earlier reviews is that we restricted our review to evaluations of programs with documented adherence to the aforementioned IPS principles. Our rationale was based on the literature suggesting that fidelity to IPS is associated with better competitive employment outcomes (Becker, Smith, Tanzman, Drake, & Tremblay, 2001; Becker, Xie, McHugo, Halliday, & Martinez, 2006; Gowdy, Carlson, &

Rapp, 2003; McGrew & Griss, 2005; McGrew, 2007).

Methods

Study Inclusion Criteria

To be included in this review, a study was required to be a randomized controlled trial design examining longitudinal competitive employment outcomes for individuals with severe mental illness in which participants were randomly assigned to two or more conditions, one of which used a high-fidelity IPS supported employment model. IPS has been well described in the literature (Becker & Drake, 2003), and a psychometrically validated fidelity scale has been developed to determine which programs achieve high fidelity (Bond, Becker, Drake, & Vogler, 1997). A further requirement for inclusion in the review was that the control group or groups must have received either services as usual or some other form of vocational rehabilitation besides IPS.

Literature Search Strategies

Three main sources were used to identify studies. The first was to draw on published literature reviews (Bond, 2004; Bond et al., 2001; Crowther et al., 2001; Twamley et al., 2003). The second was to examine each of the studies in the Employment Intervention Demonstration Project (EIDP) (Cook et al., 2005). The third was through contacting principal investigators and continuous review of the published literature.

Sample

The 11 studies included in the current review are shown in Table 1, sequenced according to date of publication. Ten studies have been published in peer-reviewed journals, one is in press (Killackey, Jackson, & McGorry, in press). One study aimed at young adults with schizophrenia comparing

IPS to services as usual was not included because the results have not yet been reported (Nuechterlein et al., 2005; Nuechterlein, Subotnik, Turner, Ventura, Becker, & Drake, this issue).

Ten of the 11 studies used a 2-group design (IPS versus control); the Connecticut study compared IPS to 2 control groups (Mueser et al., 2004). The number of IPS sites ranged from one in 8 studies, two in 2 studies (Bond et al., 2007; Drake, McHugo, Becker, Anthony, & Clark, 1996), and six in 1 study (Burns et al., 2007). In terms of control groups, two studies used nonintegrated supported employment control groups (Drake et al., 1996; Mueser et al., 2004). Otherwise, all of the control groups consisted of either treatment as usual (typically referral to the state vocational system or equivalent) or alternative vocational models. In every study, high fidelity to IPS was ensured through systematic monitoring using the IPS Fidelity Scale (Bond, Becker et al., 1997). Many other details of the study protocols, including sample inclusion criteria and measurement batteries, were the same or similar across studies. In all the studies, participants were adults who met each state's or province's criteria for severe mental illness, typically a *Diagnostic and Statistical Manual of Mental Disorders—4th Edition* (American Psychiatric Association, 1994) Axis I or II diagnosis plus severe and persistent impairment in psychosocial functioning. In most studies, participants were recruited from mental health centers. In all the studies, participants were unemployed at the time of study admission. In all but one study, the study inclusion criteria included an expressed desire to work; the single exception was the Maryland study (Lehman et al., 2002). Another eligibility criterion common across most studies was the absence of significant medical conditions that would

TABLE 1—RANDOMIZED CONTROLLED TRIALS OF INDIVIDUAL PLACEMENT AND SUPPORT FOR INDIVIDUALS WITH SEVERE MENTAL ILLNESS

| Study | Control Condition | Study Population & Salient Eligibility Criteria | Study Site Location | Months of Follow-up | Label |
|-----------------------------|---|--|----------------------|---------------------|---------|
| Drake et al. (1996) | Skills training, nonintegrated | CMHC clients | NH | 18 | 96 NH |
| Drake et al. (1999) | Sheltered workshop | Case management program clients | DC | 18 | 99 DC |
| Lehman et al. (2002) | PSR | CMHC clients, including those without voc goals | MD | 24 | 02 MD |
| Mueser et al. (2004) | (1) Brokered SE; (2) PSR | CMHC clients | CT | 24 | 04 CT |
| Gold et al. (2006) | Sheltered workshop | CMHC clients | SC | 24 | 06 SC |
| Latimer et al. (2006) | Traditional vocational services | Clients receiving mental health services | Québec, Canada | 12 | 06 QUE |
| Burns et al. (2007) | Traditional vocational services | Clients receiving mental health services | 6 European cities | 18 | 07 EUR |
| Bond et al. (2007) | Diversified placement approach | New admissions to PSR agency | IL | 24 | 07 IL |
| Wong et al. (2008) | Stepwise conventional vocational services | Outpatients at hospital occupational therapy program | HK | 18 | 08 HK |
| Twamley et al. (2008) | VR referral | Middle aged and older adult | CA | 12 | 08 CA |
| Killackey et al. (in press) | Traditional vocational services | Early psychosis program | Melbourne, Australia | 6 | 08 AUST |

Acronyms: SE = supported employment; IPS = Individual Placement and Support; ACT = assertive community treatment; PSR = psychosocial rehabilitation; VR = State-federal vocational rehabilitation system; CMHC = community mental health center; ICCD = International Center for Clubhouse Development

Note: Two control groups in the Mueser et al. (2004) study combined into a single control group in the tables and figure to follow.

preclude working or participating in assessment interviews. In many of the IPS studies, participants were required to attend multiple research information meetings in which the project was explained before giving consent to participate in the study.

Excluded Randomized Controlled Trials

Excluded RCTs fall into 3 categories: RCTs evaluating supported employment prior to the development of the IPS model; recent supported employment RCTs evaluating a different model

than IPS or a program for which fidelity of IPS is uncertain; and RCTs comparing an enhanced form of IPS with IPS without an enhancement.

Five “pre-IPS” RCTs were found. In every case they evaluated a supported employment model falling short on one or several IPS criteria. Four of these (Bond, Dietzen, McGrew, & Miller, 1995; Chandler, Meisel, Hu, McGowen, & Madison, 1997; Gervy & Bedell, 1994; McFarlane et al., 2000) were examined in earlier reviews (Bond, 2004; Bond et

al., 2001). One comparing the Program of Assertive Community Treatment (PACT) to usual services has never been published (Test, 1992; Test, Allness, & Knoedler, 1995).

The second category consists of 4 recent RCTs that either have evaluated a different model of supported employment (Macias et al., 2006; Rogers, Anthony, Lyass, & Penk, 2006) or an approach in which the fidelity to the IPS model was unknown or uncertain (Shafer, 2005; Tsang, 2006). The specifics of these 4 studies are as follows:

The Massachusetts EIDP study findings are reported in two papers (Macias et al., 2006; Schonebaum, Boyd, & Dudek, 2006). The former paper uses the standardized definition of competitive employment and limits the analysis to participants enrolling in the study with an avowed interest in working. The latter paper uses the full randomized sample with an expanded definition of competitive employment. The reported experimental differences given in two papers are fairly similar. This study evaluated a newly established PACT team in which a supported employment position was created. Although in many respects adhering to IPS principles, the role description for the supported employment position followed the PACT model in which the employment specialist has significant clinical duties, which compromises model effectiveness.

Although the “choose-get-keep” model developed by Anthony and his colleagues (Danley & Anthony, 1987) was originally viewed as a kind of supported employment model, in a recently reported randomized controlled trial of this model (Rogers et al., 2006), the authors label their approach “psychiatric vocational rehabilitation.” The choose-get-keep model differs in important respects from the IPS model, centering on its emphasis on prevocational career planning.

The Shafer EIDP study, which has not been published, compared a supported employment approach to services as usual (Shafer, 2005). The investigators did not specifically monitor their services to achieve high fidelity to IPS. We have been unable to obtain a final report of the study.

The study conducted by Tsang et al. (2006) had two experimental conditions: one was IPS only and the second was IPS plus skills training. These two experimental conditions were compared to a treatment-as-usual control group.

Although the authors state that they implemented IPS with high fidelity, the critical ingredients of the model were not followed. In addition, the findings from this study are not usable in the current review, because their employment outcome measures combined competitive employment and what the report labels “partially competitive employment.”

The third category of excluded studies consists of RCTs comparing IPS to an enhancement of IPS. Two studies from the EIDP (Maine and Texas studies) compared supported employment to an enhanced form of supported employment and would be excluded for this reason (although in neither study did the investigators closely adhere to the IPS model, so they would be excluded for that reason as well). Since the completion of the EIDP, there have been a growing number of studies comparing supported employment to supported employment plus an enhancement. Enhancements have included both skills training (Mueser et al., 2005; Wallace & Tauber, 2004) and cognitive training strategies (Bell, Greig, Zito, & Wexler, 2007; McGurk, Mueser, & Pascaris, 2005). While these studies are answering important questions about supported employment, they lie outside the scope of the current review, which compares supported employment to other vocational approaches.

Outcome Measures

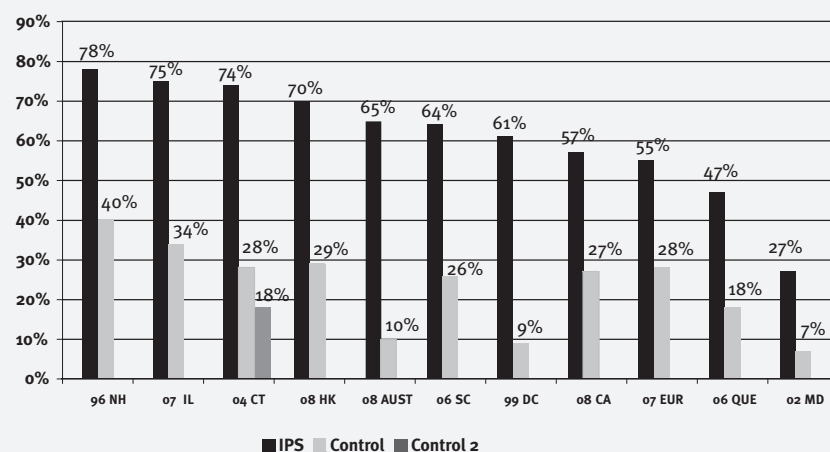
This review focuses exclusively on competitive employment outcomes, defined as jobs paying at least minimum wage in integrated community settings (i.e., employing nondisabled workers) and are jobs that anyone could hold, not just individuals with disabilities. By this definition, protected jobs, such as transitional employment (Propst, 1992), sheltered employment, and other set-aside jobs (Black, 1988) were excluded.

All studies reported competitive employment rates, defined as working a competitive job at any time during follow-up. Several other competitive employment outcome measures were also examined. When reported, we compiled the following outcomes: days to first job (i.e., time from study entry to first job start), annualized weeks worked (that is, number of weeks worked per year; dividing total weeks worked by 1.5 for studies with 18-month follow-up and dividing total weeks work by 2.0 for studies with 2-year follow-up), and job tenure (i.e., weeks worked) in longest job held during the follow-up period. (Job tenure is measured from job start date. The end date is determined from either job ending date or end of follow-up, whichever comes first.) As seen below, information was not available on these variables for all 11 IPS studies.

For the first measure of duration of employment—weeks worked per year—we calculated the findings for both the full intent-to-treat sample (everyone enrolled in the study) and the worker sample only (those who obtained at least one competitive job during follow-up). We calculated weeks worked in a third way as well: weeks worked after obtaining first competitive job. Each of these methods for estimating duration of employment assesses it in a different way.

Data Analyses

Data were either recorded directly from published reports or hand calculated from information presented in these reports. As noted above, the Connecticut study was the only study included with two control groups (Mueser et al., 2004). Campbell (2007) examined effect sizes for the differences on 3 competitive employment outcomes between the two control groups in this study and found the effect sizes for the differences to be small. Based on these

FIGURE 1—COMPETITIVE EMPLOYMENT RATES IN 11 RANDOMIZED CONTROLLED TRIALS OF INDIVIDUAL PLACEMENT AND SUPPORT

findings, we collapsed the outcomes for the two Connecticut control groups into a single control group for all employment outcomes.

Effect size for each study for the difference in employment rate between supported employment and controls was calculated using the arc sine approximation (Lipsey, 1990). An unweighted overall effect size was calculated as the simple mean of the individual effect sizes. For all other outcome measures, means are reported without standard deviations, which are not available from the published studies. Overall means were calculated weighting individual means by sample sizes.

Effect sizes were also estimated for published review articles using the arc sine method on overall percentage working. It should be noted that this method of estimation gives slightly different estimates than the unweighted overall effect size method described above.

Results

Competitive employment rates. In all 11 studies, the competitive employment rate was significantly higher for the IPS condition than for controls, as shown in Figure 1. Averaging the rates across studies, the competitive employment rate was 61% (Median = 64%) for IPS compared to 23% (Median = 27%) for controls. The average difference in percentage employed between supported employment and controls was 38%, ranging from 20% to 55%. The individual study effect sizes ranged from .56 to 1.23. The overall unweighted effect size was .83.

Using a stem-and-leaf diagram (Tukey, 1977), the Maryland IPS sample (Lehman et al., 2002) was a statistical outlier, falling more than the interquartile range (19%) below the lower quartile (55%) in the distribution of competitive employment rates. With this outlier removed, the mean competitive employment rate for IPS was 65%. The next two lowest employment rates were for two non-U.S. studies in Canada (Latimer et al., 2006) and Europe (Burns et al., 2007). However, two other non-U.S. studies were above the median (Killackey et al., in press; Wong, Chiu, Tang, Mak, Liu, & Chiu, 2008).

Other competitive employment outcomes. Four IPS studies reported the frequencies of participants who worked 20 hours or more per week, as shown in Table 2. Aggregating across these studies, 134 (43.6%) of 307 IPS participants and 53 (14.2%) of 374 controls held such jobs, yielding an effect size of .67.

Days to first competitive job was reported in 7 IPS studies, as shown in Table 3. Overall, the average time was 50% faster in first competitive job for IPS compared to controls (138 days versus 206 days). Excluding the extreme values (less than 3 months in the Québec (Latimer et al., 2006) and Hong Kong studies (Wong et al., 2008) and over 6 months in the Hartford study (Mueser et al., 2005), the range was

TABLE 2—PERCENTAGE OF PARTICIPANTS EMPLOYED IN A COMPETITIVE JOB 20 HOURS OR MORE A WEEK IN 4 IPS STUDIES (BASED ON TOTAL SAMPLES)

| Study | IPS | Controls |
|--------------|--------------------|-------------------|
| 96 NH | 34 (46.6%) | 15 (22.4%) |
| 99 DC | 34 (45.9%) | 4 (5.3%) |
| 07 IL | 43 (46.7%) | 22 (23.1%) |
| 04 CT | 23 (33.8%) | 12 (8.8%) |
| Total | 134 (43.6%) | 53 (14.2%) |

between 4 months and a little over 5 months as the average length of time to first job for IPS participants.

Proportion of time in competitive employment, as measured by annualized weeks worked, is reported for the same 7 IPS studies, as shown in Table 4. The results are reported for both all study participants, including those who never worked, and for the worker sample. The Maryland study (Lehman et al., 2002) reported substantially lower rates of weeks work in the full sample. Excluding the Maryland study, annualized average weeks worked for IPS ranged from 10.0 weeks for the South Carolina study (Gold et al., 2006) to 17.0 weeks for the Québec study (Latimer et al., 2006). Overall, the average weeks worked for IPS was over twice that for controls. When the samples are limited to participants who obtained competitive employment during follow-up, the weeks worked are virtually the same for IPS and controls.

Duration in longest held competitive job for those who worked at least one such job, is shown in Table 5. The average job tenure for IPS participants in these studies ranged from 37 weeks for the Illinois study (Bond et al., 2007) to 10 weeks in

TABLE 3—MEAN DAYS TO FIRST COMPETITIVE JOB IN 7 IPS STUDIES

| Study | IPS | Control |
|--------------|-------------------------------|-------------------------------|
| 08 HK | 72 (<i>N</i> = 32) | 118 (<i>N</i> = 13) |
| 06 Qué | 84 (<i>N</i> = 51) | 89 (<i>N</i> = 39) |
| 99 DC | 126 (<i>N</i> = 45) | 293 (<i>N</i> = 7) |
| 06 SC | 133 (<i>N</i> = 42) | 322 (<i>N</i> = 20) |
| 07 IL | 156 (<i>N</i> = 69) | 193 (<i>N</i> = 32) |
| 02 MD | 164 (<i>N</i> = 47) | 287 (<i>N</i> = 12) |
| 04 CT | 197 (<i>N</i> = 51) | 277 (<i>N</i> = 31) |
| Total | 137.6 (<i>N</i> = 337) | 205.9 (<i>N</i> = 154) |

the New Hampshire study (Drake et al., 1996). It should be noted that this measure was influenced by length of follow-up. Except for the Connecticut study (Mueser et al., 2004), which found far greater job tenure for IPS participants, IPS and control samples looked fairly similar on this measure.

Excluded Studies

Although not a focus of the current review, some comments on the excluded studies are warranted. Nine studies were located comparing a non-IPS supported employment program to some

other vocational model. Four had significant findings suggesting superior competitive employment findings for supported employment (Bond et al., 1995; Gerverey & Bedell, 1994; McFarlane et al., 2000; Test et al., 1995), while two reported significantly better employment outcomes for their supported employment intervention but did not clearly differentiate between competitive employment and set-aside jobs, so that the interpretation of their results is clouded (Chandler et al., 1997; Tsang, 2006). Two studies found no differences in employment outcomes for supported

TABLE 4—ANNUALIZED WEEKS WORKED IN COMPETITIVE JOBS IN 7 IPS STUDIES

| | All Study Participants | | Participants Working a Competitive Job | | | |
|--------------|------------------------------|-----------------------------|--|------------------------------|--------------------------------|------------------------------|
| | IPS | Control | Total Follow-up Period | | Time Period from 1st Job Start | |
| | IPS | Control | IPS | Control | IPS | Control |
| 06 Qué | 17.0 (<i>N</i> = 75) | 14.1 (<i>N</i> = 74) | 25.0 (<i>N</i> = 51) | 26.8 (<i>N</i> = 39) | 32.5 (<i>N</i> = 51) | 35.4 (<i>N</i> = 39) |
| 07 IL | 16.2 (<i>N</i> = 92) | 8.2 (<i>N</i> = 95) | 21.6 (<i>N</i> = 69) | 24.3 (<i>N</i> = 32) | 25.6 (<i>N</i> = 69) | 26.1 (<i>N</i> = 32) |
| 04 CT | 14.9 (<i>N</i> = 68) | 2.3 (<i>N</i> = 136) | 19.8 (<i>N</i> = 51) | 9.8 (<i>N</i> = 31) | 27.1 (<i>N</i> = 51) | 15.8 (<i>N</i> = 31) |
| 08 HK | 13.0 (<i>N</i> = 46) | 7.0 (<i>N</i> = 46) | 18.6 (<i>N</i> = 32) | 24.9 (<i>N</i> = 13) | 21.4 (<i>N</i> = 32) | 31.7 (<i>N</i> = 13) |
| 99 DC | 10.1 (<i>N</i> = 74) | 0.8 (<i>N</i> = 76) | 16.6 (<i>N</i> = 45) | 8.7 (<i>N</i> = 7) | 21.6 (<i>N</i> = 45) | 18.7 (<i>N</i> = 7) |
| 06 SC | 10.0 (<i>N</i> = 66) | 2.9 (<i>N</i> = 77) | 15.8 (<i>N</i> = 42) | 11.3 (<i>N</i> = 20) | 19.3 (<i>N</i> = 42) | 20.2 (<i>N</i> = 20) |
| 02 MD | 6.0 (<i>N</i> = 113) | 1.6 (<i>N</i> = 106) | 14.4 (<i>N</i> = 47) | 14.1 (<i>N</i> = 12) | 18.6 (<i>N</i> = 47) | 23.2 (<i>N</i> = 12) |
| Total | 12.1 (<i>N</i> = 534) | 4.8 (<i>N</i> = 610) | 19.2 (<i>N</i> = 337) | 18.9 (<i>N</i> = 154) | 24.2 (<i>N</i> = 337) | 25.5 (<i>N</i> = 154) |

employment and the comparison group (Rogers et al., 2006; Shafer, 2005). Finally, one study had mixed results, on balance favoring the comparison group over supported employment (Macias et al., 2006). Combining the employment rates for 4 early studies (Bond et al., 1995; Chandler et al., 1997; Gerverey & Bedell, 1994; McFarlane et al., 2000), we found that the combined employment rate was 53% for supported employment and 16% for controls, for an effect size of .82.

Comparison with Other Reviews

We compared our competitive employment rates with 5 earlier reviews, as shown in Table 6. The aggregated competitive employment rate for supported employment was highest in the current review, while, with the exception of the Cook (2005) review, the mean competitive employment rate for controls was also higher than the other 4 reviews. All five reviews concluded that the competitive employment rate for supported employment is at least twice that for clients receiving some other form of vocational assistance. Using the arc sine method, the effect sizes for the overall IPS/control difference ranged from .43 to .79 in previous re-

| Study | IPS | Control |
|--------|----------------|----------------|
| 07 IL | 36.8 (N = 69) | 32.7 (N = 32) |
| 04 CT | 25.5 (N = 51) | 4.4 (N = 31) |
| 02 MD | 21.6 (N = 47) | 23.1 (N = 12) |
| 06 SC | 19.0 (N = 42) | 20.0 (N = 20) |
| 06 Qué | 14.6 (N = 51) | 12.7 (N = 39) |
| 96 NH | 10.0 (N = 57) | 10.0 (N = 27) |
| Total | 22.0 (N = 317) | 16.3 (N = 161) |

views, compared to .79 in the current review.

Discussion

This review examined evidence-based supported employment in order to estimate expected outcomes. We conclude that the majority of IPS participants obtain competitive employment, at a far higher rate than clients enrolled in other vocational services. Most IPS clients work part time; about two-thirds of those who obtain competitive em-

ployment work 20 hours or more per week. This could be due to preferences, limited stamina, or fear of losing health insurance. Undoubtedly the number of hours worked per week is influenced by the rules governing receipt of disability payments and Medicaid eligibility. Less than 1% of IPS participants left disability rolls during the follow-up period. Consistent with the principle of rapid job search, the time to first competitive job for IPS participants is nearly 10 weeks less than for controls, although the average for IPS of 20 weeks to first

TABLE 6—AGGREGATED COMPETITIVE EMPLOYMENT RATES IN 6 REVIEWS OF SUPPORTED EMPLOYMENT

| Study | Supported Employment | Control | Effect Size Reported by Authors | Effect Size Using Arc Sine | Number of Studies | Number of Studies of High Fidelity IPS |
|----------------------------------|----------------------|---------|---------------------------------|----------------------------|-------------------|--|
| Bond (2004) | 56% | 19% | 0.85 | 0.79 | 9 | 5 (56%) |
| Burns et al. (2007) ^a | 58% | 21% | | 0.78 | 6 | 6 (100%) |
| Cook et al. (2005) | 55% | 34% | | 0.43 | 7 | 3 (43%) |
| Crowther et al. (2001) | 34% | 12% | | 0.54 | 5 | 2 (40%) |
| Twamley et al. (2003) | 51% | 18% | 0.79 | 0.72 | 5 ^b | 3 (60%) |
| Current Review | 61% | 23% | 0.83 | 0.79 | 11 | 11 |

^a Findings aggregated by the current authors for this table

^b Twamley review included 11 RCTs of vocational programs, 5 of which were supported employment studies used in this table.

job is somewhat of a surprise. Time to first job strongly affects longitudinal competitive employment outcomes; in most studies, the large majority who work at all do so in the first six months. Thus, this might be an area for model improvement, which we speculate might require better job development strategies (Carlson & Rapp, 2007). In addition, the use of the vocational profile to help identify job types and work settings that match the individual's preferences, skills, and experiences is another area that may help improve and speed up the job seeking process and increase job tenure as well (Becker, Drake, Farabaugh, & Bond, 1996).

This review represents an advance over earlier reviews in several respects. First, it has the largest and (for the moment) the most up-to-date collection of pertinent randomized controlled trials. Second, it is one of only two reviews limited to rigorous evaluations of IPS programs. Thus, our review is based on a homogeneous set of studies, giving the clearest picture of the potential for evidence-based supported employment. None of the previous reviews included more than 6 high-fidelity IPS studies. Notably, the Cook et al. (2005) analysis included two studies comparing enhanced supported employment to supported employment only, which confounds the impact of supported employment. We also note that the current is a substantial update of the Cochrane review on vocational rehabilitation (Crowther, Marshall, Bond, & Huxley, 2000; Crowther et al., 2001). We attribute our somewhat stronger results to growing maturation of the field with both higher fidelity supported employment programs and stronger control groups. The differential advantage for evidence-based supported employment remains about the same, but our conclusions are stronger because the comparisons appear to be more rigorous.

Could the current review be subject to the "file drawer" problem – failing to include studies that have not been published (Rosenthal, 1984)? We can give a partial answer to this question: Of four unpublished studies, three are known to have strongly positive results (Nuechterlein et al., 2005; Test et al., 1995; Tsang, 2006), while a fourth study, the Arizona study from the EIDP, had null results (Shafer, 2005). Moreover, of these unpublished studies, only the Nuechterlein et al. study (2005) conforms to the sampling criterion of high-fidelity IPS. We deem it implausible that any unpublished studies could tip the balance of evidence present here.

Some comment is warranted about the inclusion of Maryland study (Lehman et al., 2002) as one of the 11 IPS high-fidelity studies. This study was a statistical outlier. In terms of sample inclusion criteria, it clearly deviated from the other IPS studies in that it was the only study among those reviewed that did not require participants to have a goal of competitive employment. The poorer competitive employment outcomes are consistent with this difference in sample inclusion criteria.

Three widely repeated criticisms of supported employment concern *exclusion of clients who do not have vocational goals, high dropout rates* (i.e., the contention that supported employment has a high attrition rate) and *brief job tenure* (supported employment helps clients get jobs but not to keep them, i.e., most supported employment jobs are short term). The current collection of studies sheds light on these three issues.

Exclusion of individuals who do not have competitive employment goals. Some observers have criticized evidence-based supported employment for its lack of outreach to individuals who do not have competitive employment goals (Macias, DeCarlo, Wang,

Frey, & Barreira, 2001; Roberts & Pratt, 2007). This criticism violates the ethical principle of informed choice. Of course we agree that all consumers with severe mental illness should be encouraged to pursue work, and case managers and others within the mental health center should create a culture in which work is valued (Gowdy, Carlson, & Rapp, 2004). At the same time, from the shared decision-making perspective (O'Connor et al., 2007), the decision to pursue work should be an active choice based on a clear understanding of what the decision means.

Early termination rates in IPS studies. Although only a handful of studies report the findings regarding program retention, the studies that do show a strong advantage for supported employment. Five IPS studies compared rates for dropping out of vocational services. Although the criterion for early termination differed across studies, all 5 studies found substantially greater program retention for IPS. In the NH study, early attrition (dropping out of services within first two months) was higher in the control condition (38%) than in IPS (0%) (Drake et al., 1996). In the DC study, despite the addition of an extra staff person to help link clients with providers in the comparison condition, early attrition (dropping out of services within first two months) was greater in the control condition (16%) than in IPS (5%) (Drake et al., 1999). In the Hartford study, approximately 50% of the participants assigned to both control conditions dropped out within a few weeks, whereas less than 10% of IPS participants dropped out during this early period (Mueser et al., 2004). In the Québec study, 9% of IPS participants failed to receive at least one service contact during each of the first and second 3-month periods in the study, compared to 70% of those in usual services (Latimer et al., 2006). In the Illinois study, 18% of IPS participants dropped out within 6 months,

compared to 35% of controls (Bond et al., 2007).

Thus it is time to suspend the concern that supported employment programs have high dropout rates. This conclusion was warranted in 1997 based on the available data at that time (Bond, Drake et al., 1997), but the research now shows that high-fidelity supported employment programs have minimal attrition.

Job tenure. Another widely repeated criticism of supported employment is that it helps people get jobs, but not retain them (Mueser et al., 2005). The current review suggests that the average longest-held job among IPS participants who obtain work is 22 weeks. Two factors affect the interpretation of this finding. First, there is wide variation across studies. Second, the longest-held job is a biased statistic in a short-term study, because it gives no credit for jobs held past the follow-up. Annualized weeks of work is probably a better statistic; on average, IPS participants who obtain at least one competitive job work 19 weeks out of 52, or about 36% of the available time. Moreover, this figure is not adjusted for the initial period of unemployment looking for a job, which averaged 21 weeks for the first job. If we remove the initial job search period and calculate the duration of employment over the period of time after the start of the first job, IPS participants average 24.2 weeks per year, or 47% of the 52-week year.

We found that among those who obtained at least one competitive job, IPS and control participants did not differ in job tenure and other employment outcomes. This finding sometimes has been misinterpreted to suggest that although IPS helps individuals get a first job sooner, it provides no advantage over usual services in helping them keep the job. However, these subgroups are no longer equivalent (e.g., the IPS subgroup of those with a job includes more than twice the proportion

of the enrolled sample as the comparison group). The resulting sampling bias undoubtedly favors the non-IPS comparison program because IPS helps a wider range of participants obtain employment.

To study duration of employment properly, longer-term studies are needed. Two such studies present a clearer picture of the stability of long-term employment than do the studies in the current review. Salyers and colleagues (2004) conducted follow-up interviews 10 years after clients had enrolled in an IPS program, finding that 47% were currently working and 33% had worked at least 5 years during this period. Even more impressive results were obtained by Becker and colleagues (2007) who interviewed clients 8 to 12 years after enrollment in IPS, finding that 71% were currently working and the identical percentage had worked for more than half of the follow-up period.

One contribution of this review is to highlight common outcome measures that every supported employment study should measure and report. Although the field is making good progress in converging on standardized measures, the inability to include all studies in all comparisons is a limitation of this review.

Study Limitations

One confound in our comparative analysis is the lack of standardization of follow-up period. Follow-up was 6 months in one study, 1 year in 2 studies, 18 months in 4 studies, and 2 years in 4 studies. For the competitive employment rate variable, participants in studies with longer follow-up have more opportunity to obtain work. However, the reality is that the probability of obtaining a first job diminishes over time. As already noted, a second limitation of this set of studies is their relatively short follow-up period, espe-

cially for measuring job tenure, as measured by time on longest job held. This is an inadequate indicator of employment outcome in short-term follow-up studies, because the measure does not capture the successful job tenure for a participant who is employed at the end of the follow-up period and continues to work for years thereafter.

Future Directions

The number, consistency, and effect sizes of studies of evidence-based supported employment establish that it is one of the most robust interventions available for persons with severe mental illness. Recognizing this, researchers have moved ahead to examine a variety of enhancements to amplify outcomes through early interventions, motivational interventions, cognitive interventions, alteration of benefits, and other approaches. We review these efforts at the end of this special section (Drake & Bond, this issue).

In the meantime, research should also address the myriad issues related to dissemination of evidence-based practices (Drake & Skinner, in press). The Scylla and Charybdis of U.S. mental health services continue to be the failure to provide access to evidence-based health care and excessive spending on ineffective health care (Wang, Demler, & Kessler, 2002).

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