Improving Employment Outcomes for Persons With Severe Mental Illnesses

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Background: Unemployment remains a major consequence of schizophrenia and other severe mental illnesses. This study assesses the effectiveness of the Individual Placement and Support model of supportive employment relative to usual psychosocial rehabilitation services for improving employment among inner-city patients with these disorders.

Methods: Two hundred nineteen outpatients with severe mental illnesses, 75% with chronic psychoses, from an inner-city catchment area were randomly assigned to either the Individual Placement and Support program or a comparison psychosocial rehabilitation program. Participants completed a battery of assessments at study enrollment and every 6 months for 2 years. Employment data, including details about each job, were collected weekly.

Results: Individual Placement and Support program participants were more likely than the comparison patients to work (42% vs 11%; $P<.001$; odds ratio, 5.58) and to be employed competitively (27% vs 7%; $P<.001$; odds ratio, 5.58). Employment effects were associated with significant differences in cumulative hours worked ($t_{211}=-5.0$, $P=.00000003$) and wages earned ($t=-5.5, P=.00000003$). Among those who achieved employment, however, there were no group differences in time to first job or in number or length of jobs held. Also, both groups experienced difficulties with job retention.

Conclusions: As hypothesized, the Individual Placement and Support program was more effective than the psychosocial rehabilitation program in helping patients achieve employment goals. Achieving job retention remains a challenge with both interventions.

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WORK represents an important goal for many people with severe mental illnesses. Gainful employment addresses practical needs by improving economic independence and therapeutic needs by enhancing self-esteem and overall functioning.[1-4] Several recent forces have again raised employment as an outcome priority. The advent of new pharmacologic agents has raised hopes that overall outcomes may improve and that patients may be better able to take advantage of rehabilitation efforts.[5] Consumer and family advocacy has created an imperative to develop treatments that enhance functional status and quality of life.[6-8] The government has responded with efforts to eliminate disincentives to work among persons with disabilities, such as the Ticket to Work and Work Incentives Improvement Act (1999), enabling disabled individuals to join the workforce without the fear of losing their Medicaid coverage.[9]

Despite these advances, it seems that most persons with severe mental illnesses do not have vocational services included as part of their treatment plans.[10,11] A recent National Alliance for the Mentally Ill report[12] concluded that efforts of the Federal-State Vocational Rehabilitation System to serve this population have been inadequate. However, promising recent randomized controlled trials have reported greatly improved vocational and psychosocial outcomes for supported employment models. These models emphasize a rapid search in competitive jobs and supports from employment specialists within a continuous mental health treatment team.[13-17] The Individual Placement and Support (IPS) model studied herein emphasizes competitive employment in integrated work settings with follow-along support, bypassing the traditional stepwise approaches to vocational rehabilitation.[17,18] Findings from studies[11,13,19-21] of IPS programs are encouraging in showing increased rates of competitive employment.

PARTICIPANTS AND METHODS

PARTICIPANTS

The sample includes patients with severe mental illnesses receiving outpatient psychiatric care from 3 continuous-care teams within a university-run community mental health agency serving inner-city Baltimore, Md. All participants were recruited between March 1, 1996, and April 30, 1998. Standard written informed consent was obtained from participants at baseline and reviewed at each follow-up interview. Participants received $20 for the baseline interviews, $10 for each of the next 2 follow-up interviews, and $15 each for the 18- and final 24-month interviews.

All participants met the criteria for severe mental illness based on diagnosis, duration of illness, and level of disability using the following hierarchical criteria.[22,23] Patients were automatically eligible if they were receiving Supplemental Security Income, Social Security Disability Income, or 100% Veterans Affairs disability benefits because of a mental disorder (other than substance use only) or if they had a diagnosis in the schizophrenia spectrum using *DSM-IV* criteria. Those not meeting this criterion were eligible if they had another Axis I mental disorder (other psychotic, major affective, or anxiety disorder) or an extensive prior hospitalization history (≥ 2 prior psychiatric hospitalizations of >21 days within the prior 3 years, a total of at least 42 days before a current hospitalization; or 90 total days in a psychiatric hospital or nursing home during the past 3 years). Finally, people not meeting either of the first 2 criteria were eligible if they had a history of mental disorder lasting for at least the past year, during which they were unable to spend at least 75% of their time in some gainful activity owing to the mental disorder. Enrollment was restricted to those who were unemployed for at least 3 months before joining the study.

The target sample based on power analysis was 220 patients, taking into account anticipated follow-up attrition. To avoid selection bias in approaching patients, the patient rosters of the treatment teams were placed in randomized order, with screening for recruitment beginning at the top of the random-order list. The medical records of 540 patients served by these teams were screened. Of these patients, 103 were subsequently determined to be ineligible. An additional 68 patients were excluded because they were too disabled to provide informed consent or to participate safely in the study. Another 55 eligible patients could not be located during the recruitment period. Hence, a total of 314 of those screened from the random-order list represented the final eligible pool approached for participation. Of these 314 patients, 219 (70%) enrolled and 95 (30%) refused to enroll. While there were no sex or diagnostic differences between those who enrolled and those who refused to enroll, white patients were more likely than African American patients and other minorities to refuse (36% vs 25%; $\chi^2_1 = 4.07$; $P = .04$). χ^2 And *t* test analyses indicated no significant differences in the samples assigned to the 2 conditions.

INTERVENTIONS

Using pre-prepared sealed envelopes, participants were randomly assigned to either (1) the IPS program or (2) the comparison psychosocial rehabilitation program. Regardless of condition assignment, all participants received their psychiatric clinical services within a single treatment system, thus allowing for assessment of the 2 interventions under comparable clinical treatment conditions. Most participants were part of a continuous treatment team that provided mobile, multidisciplinary, comprehensive, 24-hour continuous (inpatient/outpatient) care with a 1-stop approach to service delivery. Remaining participants were recruited from the general outpatient clinic serving the same catchment area.

Experimental Condition

The IPS model involves integrating an employment specialist into the clinical treatment team. This model focuses on a rapid job search with continued follow-along support. The IPS program seeks employment opportunities that are consistent with participants' preferences, skills, and abilities. Ongoing supervision and consultation were

This study evaluates the IPS model among a population of high-risk inner-city patients with severe mental illnesses, extending previously published work by Drake and colleagues,[13] who compared the IPS model with an enhanced vocational rehabilitation program among a similar population. In our study, men and women with severe mental illnesses were randomly assigned to either an IPS program or a comparison psychosocial rehabilitation program, the predominant mode of rehabilitation services offered in Maryland and many other states. This comparison program includes, but does not emphasize, enhanced vocational services. The study tests the hypothesis that patients assigned to the IPS program will be more likely to work, to be competitively employed, and to accumulate more hours worked and more wages earned than the comparison patients.

RESULTS

INTERVENTION IMPLEMENTATION

The patterns of vocational and clinical services for the 2 intervention groups were determined as a manipulation check of program fidelity. In this effectiveness trial, patients were offered, but not required to accept, services. While 93% of the IPS program group received vocational services (including vocational assessments, job development assistance, vocational skills training, and vocational counseling/support), only 33% of those enrolled in the comparison program received such services. Clinical services, on the other hand, were received in equal (and high) numbers across the 2 groups (**Table 1**).

provided by the developers of the IPS program[17] and by local experts in the use of supported employment models. Fidelity ratings, completed by the IPS program developer who served as a consultant to our project, were made twice yearly using the IPS Fidelity Scale.[24] The program received high ratings of implementation fidelity across all review periods (69-71 of a possible 75 points).

Comparison Condition

The comparison psychosocial rehabilitation program provided an array of services, including evaluation and skills training, socialization, access to entitlements, transportation, housing supports, counseling, and education. Vocational services included in-house evaluation and training for individuals who staff believed were not yet fully prepared for competitive employment. Training focused on improving specific work readiness skills, such as work endurance, appropriate social interaction in the workplace, and acceptance of supervision. In-house sheltered work and factory enclave projects were also available. For those ready for competitive employment, the psychosocial program either provided in-house assistance in securing employment or referred participants to city-based rehabilitation or vocational service programs.

MEASURES

Assessments completed at study enrollment included the Structured Clinical Interview for *DSM-IV*[25] and a structured interview assessing quality of life, self-esteem, work motivation, medication attitudes, general health, and social network. All instruments except the Structured Clinical Interview for *DSM-IV* were readministered at 6-, 12-, 18-, and 24-month follow-up points. Logs of all vocational and nonvocational services were also summarized for all participants.

Employment data, including details about each job (start date, end data, salary, hours worked, benefits, and level of mainstream integration), were collected weekly using a standardized employment report form completed by case managers or vocational specialists. These data were used to define the vocational outcomes for this study, including percentage of participants working at all, percentage working in competitive jobs, hours worked, and wages earned. Competitive employment was defined as a job in which (*a*) the worker earned at least minimum wage, (*b*) the worker had no contact with disabled workers and at least some contact with nondisabled workers (alternatively, no contact with any other employees, ie, works alone), and (*c*) the job had not been set aside for a disabled person.[26] Vocational outcomes were further conceptualized in 2 ways. Dichotomous indicators of whether a participant worked (or worked competitively) at any time during the study were used as cumulative measures of job starts. Longitudinal measures were created to monitor change over time, specifically, whether a participant was working each month of participation and the average number of hours worked and the wages earned.

DATA ANALYSES

The cumulative measures of employment, total hours worked, and wages earned during the study period were analyzed with fixed-effect procedures. Logistic regression was used to test whether the participant worked during the study, and an analysis of variance was used to test log hours worked and log wages earned. The probability of working over time by treatment group was analyzed as a repeated binary measure using generalized estimating equations[27] to adjust SEs. This secured an estimate of the "population-averaged" effect[28] of working over time for the 2 treatment groups. Hours worked and wages earned were log transformed to improve the fit of the models to the data and were analyzed with fixed-effect analyses of variance with correlated errors (SAS PROC MIXED; SAS Institute Inc, Cary, NC). For binary and continuous repeated measures, correlated errors were modeled with a 1-lag autoregressive correlation structure (ar[1]). A Bonferroni correction was applied to control the type I error rate among the treatment contrasts in cumulative and longitudinal models. The α value was set at .05/8 = .006 for the 8 treatment group contrasts (2 groups × 4 employment outcomes). Job characteristics were analyzed using 2-sample nonparametric tests.

FOLLOW-UP RATES AND ATTRITION

The completion rates for assessments across the 2-year period for the 2 treatment conditions were similar: 6 months, IPS program vs comparison program, 92% vs 89%; 12 months, IPS program vs comparison program, 87% vs 84%; 18 months, IPS program vs comparison program, 81% vs 75%; and 24 months, IPS program vs comparison program, 74% vs 60%. There were no statistically significant differences in demographics (sex: $\chi^2 = 1.76$, $P = .19$; race: $\chi^2 = .07$, $P = .79$; education: $\chi^2 = .05$, $P = .82$; age: $t = 1.24$, $P = .22$), diagnosis ($\chi^2 = 3.18$, $P = .07$), current substance abuse status ($\chi^2 = 1.42$, $P = .23$), or treatment condition ($\chi^2 = 2.49$, $P = .11$) between those who did (n = 151) and those who did not (n = 68) complete the 24-month assessments.

OVERALL EMPLOYMENT OUTCOMES

The proportion of patients who worked at all during any given month, the proportion who worked competitively, the average hours worked per month, and the average wages earned per month were all greater for the patients in the IPS program than for those in the comparison program during the entire intervention period (**Figures 1**, **2**, **3**, and **4**, respectively). Participants in the IPS program (47 [42%] of 113) were more likely than participants in the comparison program (12 [11%] of 106) to work at all during the study ($\chi^2_1 = 25.5$; $P < .001$; odds ratio, 5.58; 95% confidence interval, 2.75-11.3). Patients in the IPS program (31 [27%] of 113) were also more likely than the comparison patients (7 [7%] of 106) to be competitively employed ($\chi^2_1 = 15.1$; $P < .001$). In multivariate analyses, the odds

Table 1. Receipt of Vocational and Clinical Services: Differences in the Proportion of Each Treatment Group Receiving a Service*

Service Type	IPS Program Group (n = 113)	Comparison Program Group (n = 106)	χ^2_1 Value	*P* Value
Vocational services				
Vocational assessment	68 (60)	6 (6)	72.66	<.001
Job development or finding	94 (83)	4 (4)	139.51	<.001
Collaboration with employers	36 (32)	2 (2)	34.26	<.001
Vocational support groups	11 (10)	14 (13)	0.65	.42
Collaboration with family/friends	20 (18)	1 (1)	17.71	<.001
Vocational treatment plan	72 (64)	1 (1)	96.98	<.001
Skills training	53 (47)	27 (25)	10.83	.001
Vocational counseling	102 (90)	6 (6)	156.63	<.001
Job support	29 (26)	1 (1)	28.27	<.001
Participants receiving at least 1 vocational service	105 (93)	35 (33)	85.10	<.001
Clinical (nonvocational) services				
Case management	104 (92)	97 (92)	0.02	.89
Family or couples counseling	23 (20)	24 (23)	0.17	.68
Emergency individual support	52 (46)	44 (42)	0.45	.50
Examination or diagnosis	89 (79)	82 (77)	0.06	.80
Individual counseling	98 (87)	96 (91)	0.80	.37
Group counseling	81 (72)	82 (77)	0.93	.34
Medical examination or maintenance therapy	98 (87)	93 (88)	0.05	.82
Other	70 (62)	69 (65)	0.23	.63
Participants receiving at least 1 nonvocational (clinical) service	106 (94)	99 (93)	0.01	.90
Participants receiving any service	108 (96)	99 (93)	0.50	.48

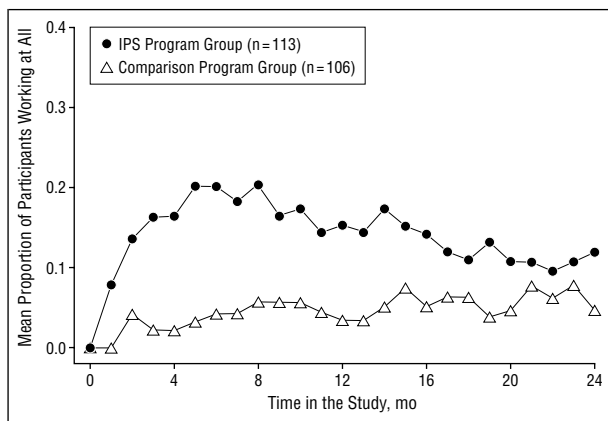*Data are given as number (percentage) of participants. IPS indicates Individual Placement and Support.

Figure 1. Mean proportion of participants working at all over time by treatment group. IPS indicates Individual Placement and Support.
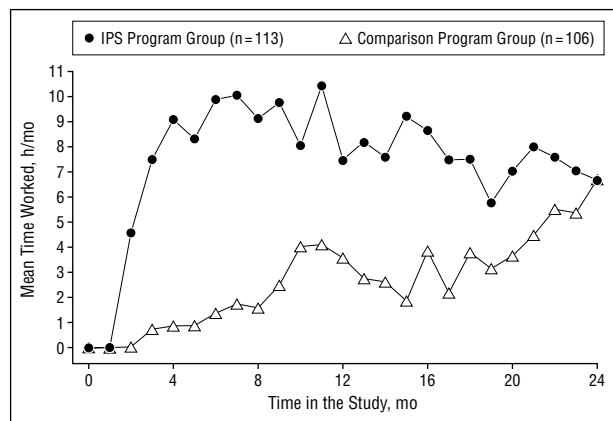

Figure 3. Mean time worked per month over time by treatment group. IPS indicates Individual Placement and Support.
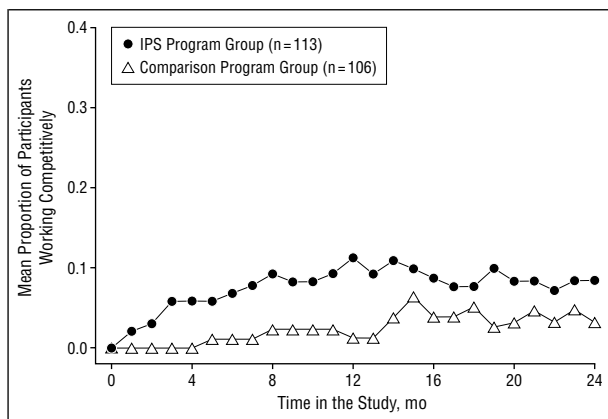

Figure 2. Mean proportion of participants working competitively over time by treatment group. IPS indicates Individual Placement and Support.
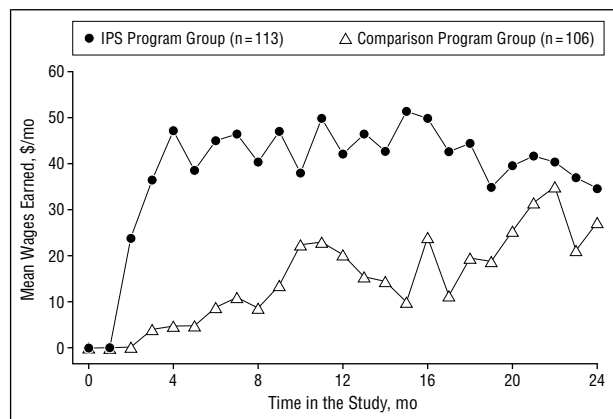

Figure 4. Mean wages earned per month over time by treatment group. IPS indicates Individual Placement and Support.

Table 2. Cumulative and Longitudinal Work Outcomes by Treatment Group*

| | Log Odds Worked | | | | | | Log Hours Worked | | | Log Wages Earned | | |
| | At All | | | Competitively | | | | | | | | |
Variable	β (SE)	Statistic	P Value	β (SE)	Statistic	P Value	β (SE)	Statistic	P Value	β (SE)	Statistic	P Value
				Cumulative Work Outcomes								
Intercept	−.14 (.30)	$\chi^2_1 = 0.22$	.64	.64 (.41)	$\chi^2_1 = 2.45$	.12	−.82 (.89)	$t_{211} = -0.92$	.36	−.23 (1.03)	$t_{211} = -0.22$	.83
Age, y	−.04 (.01)	$\chi^2_1 = 48.86$	<.001	−.09 (.01)	$\chi^2_1 = 77.75$	<.001	−.06 (.03)	$t_{211} = -1.66$	.10	−.06 (.04)	$t_{211} = -1.62$	.11
Male sex	.22 (.11)	$\chi^2_1 = 3.83$	.05	.10 (.15)	$\chi^2_1 = 0.42$	.52	.51 (.59)	$t_{211} = 0.87$	.39	.63 (.68)	$t_{211} = 0.92$	.36
Ethnicity (minority)	.43 (.12)	$\chi^2_1 = 12.11$	<.001	.23 (.17)	$\chi^2_1 = 1.91$	.17	−.25 (.67)	$t_{211} = -0.37$	.71	−.28 (.78)	$t_{211} = -0.36$	.72
Education (did not complete high school)	.10 (.11)	$\chi^2_1 = 0.86$	.35	.31 (.15)	$\chi^2_1 = 4.47$	.03	−.20 (.56)	$t_{211} = -0.35$	.73	−.20 (.65)	$t_{211} = -0.30$	.76
Axis I psychotic diagnosis	−.92 (.12)	$\chi^2_1 = 59.69$	<.001	−.54 (.17)	$\chi^2_1 = 10.31$	.001	−.65 (.66)	$t_{211} = -0.98$	.33	−.77 (.76)	$t_{211} = -1.01$	.31
No substance abuse in the past year	.44 (.11)	$\chi^2_1 = 16.10$	<.001	.28 (.15)	$\chi^2_1 = 3.41$	.06	1.24 (.57)	$t_{211} = 2.18$	.03	1.48 (.66)	$t_{211} = 2.25$	.03
Treatment (comparison)†	−1.38 (.13)	$\chi^2_1 = 116.46$	<.001	−1.42 (.18)	$\chi^2_1 = 64.97$	<.001	−2.80 (.56)	$t_{211} = -5.00$	<.001	−3.30 (.65)	$t_{211} = -5.07$	<.001
				Longitudinal Work Outcomes								
Intercept	−.01 (.84)	$z = -0.01$	.99	.71 (1.03)	$z = 0.68$	.49	−3.24 (.28)	$t_{211} = -11.52$	<.001	−3.00 (.33)	$t_{211} = -8.97$	<.001
Age, y	−.05 (.02)	$z = -2.86$	.004	−.09 (.02)	$z = -4.18$	<.001	−.03 (.01)	$t_{211} = -3.37$	<.001	−.04 (.01)	$t_{211} = -3.41$	<.001
Male sex	.21 (.34)	$z = 0.63$	.53	.09 (.38)	$z = 0.23$	.82	.12 (.17)	$t_{211} = 0.67$	.50	.15 (.21)	$t_{211} = 0.75$	.45
Ethnicity (minority)	.35 (.44)	$z = 0.78$	.43	.15 (.47)	$z = 0.32$	.75	−.09 (.20)	$t_{211} = -0.46$	.65	−.10 (.23)	$t_{211} = -0.43$	.67
Education (did not complete high school)	.05 (.36)	$z = 0.14$	.88	.24 (.42)	$z = 0.56$	.57	−.02 (.17)	$t_{211} = -0.09$	.93	−.01 (.20)	$t_{211} = -0.04$	.97
Axis I psychotic diagnosis	−.88 (.40)	$z = -2.23$	.03	−.54 (.49)	$z = -1.10$	.27	−.53 (.20)	$t_{211} = -2.69$	.008	−.65 (.23)	$t_{211} = -2.75$	.006
No substance abuse in the past year	.45 (.33)	$z = 1.38$	.17	.21 (.41)	$z = 0.50$	.61	.32 (.17)	$t_{211} = 1.91$	.06	.39 (.20)	$t_{211} = 1.95$	.05
Treatment (comparison)†	−1.76 (.48)	$z = -3.64$	<.001	−2.19 (.67)	$z = -3.28$	.001	−.91 (.21)	$t_{211} = -4.31$	<.001	−1.10 (.25)	$t_{211} = -4.35$	<.001
Time (month)	.12 (.02)	$z = 5.54$	<.001	.16 (.03)	$z = 5.03$	<.001	.11 (.02)	$t_{4274} = 5.24$	<.001	.14 (.03)	$t_{4274} = 5.28$	<.001
Treatment × time	.04 (.04)	$z = 0.89$	.37	.11 (.09)	$z = 1.25$	.21	−.08 (.03)	$t_{4274} = -2.63$	.008	−.10 (.04)	$t_{4274} = -2.65$	.008
(Time)^2	−.01 (.00)	$z = -4.08$	<.001	−.01 (.003)	$z = -2.81$	.005	−.01 (.002)	$t_{4274} = -4.80$	<.001	−.01 (.002)	$t_{4274} = -4.85$	<.001
Treatment × (time)^2	.002 (.003)	$z = 0.53$	.60	−.002 (.01)	$z = -0.30$	.76	.01 (.002)	$t_{4274} = 3.12$	.002	.01 (.003)	$t_{4274} = 3.11$	.002

*The test statistic varies because of differences in analytic procedures. Parameter estimates from whether worked during the study are from logistic regression analysis (SAS PROC LOGISTIC; SAS Institute Inc, Cary, NC). Longitudinal analyses for whether worked during a month were conducted with generalized estimating equation adjustments for repeated binary measures (SAS PROC GENMOD; SAS Institute Inc). Cumulative log hours and log wages parameter estimates are from analyses of covariance. Longitudinal analyses for wages and hours were conducted using analysis of covariance while modeling an autocorrelated error structure (SAS PROC MIXED; SAS Institute Inc). Time was centered at 6 months for longitudinal analyses. The overall sample size is 219 (113 in the Individual Placement and Support [IPS] program group and 106 in the comparison program group). Competitive employment is defined in the "Measures" subsection of the "Participants and Methods" section.

†The variable is treatment group, ie, the IPS model vs comparison. The comparison group is the reference group, ie, 1 indicates comparison and 0, IPS. Hence, a negative coefficient indicates an advantage of the IPS program.

of working at all and working competitively, and the average hours worked and wages earned, were greater for the patients in the IPS program (**Table 2**). Employment outcomes were worse among patients with psychotic diagnoses and those with active substance use disorders (Table 2).

Analyses of the longitudinal patterns of employment outcomes (Table 2) clarify how this treatment effect operated. In all 4 work outcomes, the longitudinal models showed significant main effects for treatment group during the entire study, favoring the IPS program. Time effects were similar for both groups across all 4 outcomes; a rapid increase in job starts (significant linear effect) was followed by a leveling-off period in the last 12 months of a participant's study membership. This latter effect is indicated by the significant (time)^2 quadratic effect.

JOB CHARACTERISTICS

The 47 IPS program patients who achieved employment held 94 jobs during the 2-year follow-up period, including 50 competitive jobs. In contrast, the 12 comparison group patients who achieved employment held 22 jobs during the same period, including 12 that were competitive. For those patients who obtained at least some employment during the intervention period, there were no treatment group differences in the number of jobs per person, the length of time jobs were held, hourly wages earned, hours worked, the length of time participants held those jobs, or time to first job (**Table 3**).

COMMENT

As hypothesized, the patients in the IPS program were more likely than the comparison patients to achieve em-

Table 3. Job Characteristics by Treatment Condition*

Characteristic	IPS Program Group (n = 113)	Comparison Program Group (n = 106)	Total Group (N = 219)	IPS Program Group vs Comparison Program Group	P Value
No. of jobs	94	22	116	. . .	. . .
Jobs/workers (ratio)†	94/47 (2.00)	22/12 (1.83)	116/59 (1.97)	. . .	. . .
Competitive jobs‡	50/94 (53)	12/22 (55)	62/117 (53)	$\chi^2_1 = 0.01$	.91
Job length, wk	14.38 (1.87)	15.54 (3.27)	14.60 (1.64)	$z = 0.87$	.38
Wage, $/h	5.07 (0.10)	5.31 (0.36)	5.12 (0.10)	$z = 1.83$	.07
Time worked, h/mo	15.15 (1.04)	18.64 (2.23)	15.81 (0.95)	$z = 1.44$	.15
Longest job, wk§	21.62 (3.31) [n = 47]	23.08 (4.91) [n = 12]	21.91 (2.80) [n = 59]	$z = 0.65$	.51
Longest job among multiple job holders, wk§	24.48 (3.78) [n = 23]	25.14 (5.53) [n = 7]	24.63 (3.13) [n = 30]	$z = 0.15$	.88
Time to first job, d§	164.36 (22.83) [n = 47]	287.00 (67.91) [n = 12]	189.30 (23.43) [n = 59]	$z = 1.68$	.09

*Data are given as mean (SE) unless otherwise indicated. Unless otherwise indicated, the denominator for all columns is number of jobs. IPS indicates Individual Placement and Support; ellipses, data not applicable.
†The ratio is the average number of jobs per worker.
‡Data are given as competitive jobs/total jobs (percentage). Competitive employment is defined in the "Measures" subsection of the "Participants and Methods" section.
§Indicates the participant as the unit of analysis. Mean comparisons are made with Wilcoxon 2-sample tests.

ployment and to work competitively during the intervention period. As a result, in aggregate, the patients in the IPS program worked more hours and earned more wages (Figures 1-4 and Table 2). Subjects in the IPS program moved more quickly into employment (Figures 1 and 2), consistent with the philosophy of the IPS program's place-and-train approach.

Nearly half (42%) of the patients in the IPS program achieved employment, compared with only 11% of the comparison patients. This rate of employment among the patients in the IPS program approaches that reported by Drake and colleagues[13] (61%) in their study of the IPS program in inner-city Washington, DC. The rates of employment among these 2 inner-city IPS program samples are substantially lower than that reported by Drake and colleagues[19,20] in their New Hampshire studies (78%). An important variation between this study and the studies by Drake et al is the method for screening and enrolling patients. Drake et al used an "induction group" before consent, requiring that prospective patients attend 1 or 2 orientation sessions before consent to demonstrate their motivation to participate. We did not use an induction group to be as inclusive as possible. Hence, it is likely that our study enrolled some poorly motivated patients who would have been excluded from the studies by Drake et al, and this may have contributed to the lower overall employment rates in our sample.

Most striking, however, is the low rate of employment among our comparison patients. The employment rate for the comparison patients in the Washington study by Drake et al[13] was 46%. The low rate of employment among our comparison group relative to the study by Drake et al likely reflects 2 influences, the severe levels of disability and disadvantage among the sample in this project and differences in the comparison conditions. Although our sample is similar in many ways to the inner-city sample (**Table 4**) studied by Drake et al, the rate of current substance abuse among our sample was considerably higher (40% vs 24%). Multivariate analyses (Table 2) revealed that substance abuse was a negative predictor of employment outcomes. Furthermore, our sample

had high levels of prior hospitalizations, averaging more than 11 in their lifetimes (Table 4).

Another factor possibly accounting for the low rate of employment in our comparison group is the nature of the comparison condition. Our comparison patients were offered a comprehensive psychosocial rehabilitation program, only a component of which was a vocational service. The comparison patients often opted not to use these services (Table 1), and that program did not reach out assertively to engage patients. In contrast, the comparison group in the Washington study by Drake et al[13] was provided traditional vocational rehabilitation services coordinated by an on-site vocational coordinator, who also provided outreach. We hypothesize that the low rate of employment in our comparison group is attributable to the high level of disability of the sample and to their failure to access vocational services. Regardless of the reasons, this low employment rate among the comparison patients underscores the effectiveness of the IPS program in helping such disabled and disadvantaged patients in this experiment.

Consistent with other studies[8,11] of supportive employment, the types of jobs obtained by our patients in the IPS program were short-term, entry-level, part-time jobs (Table 3). More sobering is the finding that job retention for the patients in the IPS program was problematic. After initial success in obtaining work, the monthly employment rate for the patients in the IPS program leveled off in the range of 15% to 20% (Figure 1), despite the ongoing job supports. For those patients who achieved employment, there were no between-group differences in the length of employment, hourly wages, or hours worked (Table 3). Clearly, a better understanding of how to enhance job retention is needed. Job retention is a more challenging outcome than job initiation. We hypothesize that underlying illness processes, especially neurocognitive impairment and impaired interpersonal skills, may play a major role in job retention.[9] We plan to test this hypothesis with further analysis of our results. If such factors play significant roles in job retention, then cognitive rehabilitation, social skills training, better phar-

Table 4. Sample Characteristics*

Characteristic	Full Sample (N = 219)	IPS Program Group (n = 113)	Comparison Program Group (n = 106)	Statistics	P Value
Mean (SD) hospitalizations					
Age at first admission, y	22.8 (8.8)	23.1 (8.9)	22.5 (8.7)	$t_{213} = -0.49$†	.62
Total No. of admissions	11.4 (10.1)	11.2 (10.2)	11.5 (9.9)	$t_{211} = 2.16$†	.83
Mean (SD) age, y	41.5 (8.5)	41.2 (8.6)	41.2 (8.5)	$t_{217} = 0.01$†	>.99
Sex					
Male	124 (57)	68 (60)	56 (53)	$\chi^2_1 = 1.20$	.27
Female	95 (43)	45 (40)	50 (47)		
Race					
African American or other minority	165 (75)‡	88 (78)	77 (73)	$\chi^2_1 = 0.81$	.37
White	54 (25)	25 (22)	29 (27)		
Education					
Did not complete high school	107 (49)	52 (46)	55 (52)	$\chi^2_1 = 0.76$	.38
High school graduate or obtained a GED	112 (51)	61 (54)	51 (48)		
Marital status					
Never married	136 (62)	72 (64)	64 (61)	$\chi^2_2 = 4.08$	.13
Currently married or partnered	7 (3)	6 (5)	1 (1)		
Divorced, separated, or widowed	75 (34)	35 (31)	40 (38)		
Current residence					
Independent	114 (52)	55 (49)	59 (56)	$\chi^2_3 = 1.38$	.71
With family	39 (18)	21 (19)	18 (17)		
Supported or assisted situation	52 (24)	30 (27)	22 (21)		
Homeless	14 (6)	7 (6)	7 (7)		
Work history in the past 5 y					
No work	109 (51)	54 (50)	55 (52)	$\chi^2_1 = 0.17$	.68
At least 1 job	105 (49)	55 (50)	50 (48)		
Entitlements					
SSI only	125 (57)	65 (58)	60 (57)	$\chi^2_3 = 5.99$	.11
SSI and SSDI	24 (11)	7 (6)	16 (15)		
SSDI only	46 (21)	27 (24)	19 (18)		
Neither SSI nor SSDI	23 (11)	13 (12)	10 (10)		
Primary *DSM-IV* Axis I diagnosis					
Psychotic disorders§	162 (75)	86 (76)	76 (74)	$\chi^2_1 = 0.16$	.69
Mood disorders	54 (25)	27 (24)	27 (26)		
Substance use diagnoses‖					
With current use	87 (40)	42 (37)	45 (42)	$\chi^2_1 = 0.64$	.42
With use in the past year	110 (50)	57 (50)	53 (50)	$\chi^2_1 = 0.01$	.95
With lifetime use	165 (75)	87 (77)	78 (74)	$\chi^2_1 = 0.34$	.56

*Data are given as number (percentage) of participants. Total numbers of participants vary because of missing data. Percentages are based on the totals within each category and may not total 100 because of rounding. IPS indicates Individual Placement and Support; GED, general equivalency diploma; SSI, Supplemental Security Income; and SSDI, Social Security Disability Income.

†Degrees of freedom values vary because of missing data.

‡African American, 85%.

§*DSM-IV* code 295.xx (schizophrenia spectrum disorders), 88%.

‖Three separate (not mutually exclusive) categories; χ^2 tests compare proportions across each row.

macotherapies, and additional environmental supports may all be needed to enhance vocational outcomes.

There are important limitations to this study. The generalizability of the results, particularly the rates of employment, is limited to similar highly disabled inner-city populations who face multiple disadvantages and limited local job markets. As with many research demonstration projects, the intervention period included the initial start-up of the IPS program and, hence, the results reflect the combined effects of an initial start-up period and a more mature program phase. Such start-up periods are characterized by initial staff turnover and efforts to achieve program fidelity, which affect program effectiveness. This may explain in part why some patients in the IPS program entered noncompetitive jobs, a finding contrary to the intent of the IPS program. In this effectiveness trial, many comparison patients opted out of the comparison intervention. While this is a real effect, it limits generalizing to other psychosocial rehabilitation programs that are more effective at engaging patients in services.

Nevertheless, this study adds to the growing literature on the effectiveness of the IPS program and related supported employment programs in promoting employment among persons with severe mental illnesses. It also highlights the challenges that remain in helping most patients achieve sustained employment even with assertive efforts to help them achieve work.

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