

ARTICLE

**Supported Employment
Outcomes for Transition Age
Youth and Young Adults**

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Topic: Supported Employment (SE) can help transition age youth and young adults to obtain employment and develop meaningful careers and financial security. *Purpose:* The purpose of this analysis is to examine the role of SE in achieving employment outcomes for youth (ages 18-24) and young adults (ages 25-30), compared to outcomes for older adults. Given the importance of employment to the quality of life of young people in establishing work histories and starting careers, it is important to have a better understanding of what client and program characteristics result in better employment outcomes. *Sources Used:* Data are from the Employment Intervention Demonstration Program (EIDP), a multisite randomized controlled trial of SE among 1,272 individuals with psychiatric disabilities in 7 states. *Conclusions and Implications for Practice:* Among all study participants, youth and young adults had significantly better outcomes in terms of any employment and competitive employment than older (>30 years) adults. However, in multi-variable models of participants randomly assigned to SE, young adults had significantly better outcomes than youth or older adults. Other significant predictors of employment and competitive employment were future work expectations, not receiving Supplemental Security Income, and receipt of more hours of SE services. Characteristics of youth, young adults and SE programs that enhance employment are discussed in terms of policy and practice.

Keywords: employment, evidence-based practice, young adults, vocational rehabilitation

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Introduction

Over the last few decades, major developments have occurred in evidence-based practice supported employment (SE) services for people living with diagnoses of severe mental illness (Drake & Bond, 2008). However, the differential effectiveness of SE for different age groups of people in recovery is not well-studied. A group with particular need for employment services are

youth ages 18-24 and young adults ages 25-30 living with mental illnesses. Young people face significant life challenges and expectations yet public mental health and other support services generally are inadequate (Davis, 2003; Jonikas, Laris & Cook, 2003). In their review, Davis and Vander Stoep (1997) found very poor outcomes among youth receiving public services,

including the following: less than half completed high school; most lived at poverty level; many lived in institutions; homelessness and arrests were highly prevalent; and they had consistently lower employment rates than their peers.

Although the situation is dire, research also suggests that youth and young adults may benefit greatly from SE. Yelin and Cisternas (1997) analyzed ten years of data from the National Health Interview Survey (1982–1991), an annual survey of the U.S. population living in the community, to investigate labor market participation among people with self-reported mental conditions and those with psychiatric disabilities (as defined by Social Security disability status). Their analyses found that among people with psychiatric disabilities, older age was negatively related to labor force participation. They also report that while age was associated with labor force status in the general population, the presence of mental health disorders intensified these disparities. Thus, while labor participation has been shown to decrease with increased age in the general population, among people with psychiatric disabilities, this phenomenon occurs at an earlier age and to a greater degree.

In addition, much of the literature on the differential effectiveness of employment services among populations of people in recovery has observed that younger age is associated with better employment outcomes (Burke-Miller et al., 2006). For example, Wewiorski and Fabian (2004) examined the association between demographic factors and employment outcomes in a literature review and meta-analysis of research published in the years 1989–2004. In their literature review, they found that younger age was consistently associated with both getting and keeping a job. However, in their meta-

analysis of 5 studies that related age to employment attainment, age was not found to have a significant effect. In a separate meta-analysis of 5 studies that related age to employment retention (3 months post-placement), there was an overall negative relationship between age and job retention; however, 3 of the 5 studies reported no age effect. Thus, while studies have yielded contradictory findings, younger people with psychiatric disabilities may be more likely than their older counterparts to obtain employment but less likely to keep it.

Only limited research has focused on SE for specific age groups. In a study of 41 youth (average age 21 years) with first-episode psychosis who expressed a desire to work, Killackey and colleagues found that the group randomized to SE had better work outcomes after 6 months in terms of any work, hours worked and job tenure (2008). Specifically, 65% of the SE group worked compared with only 10% of the services as usual group ($p < .001$), the SE group worked a mean of 34 hours per week compared to 22 hours per week in the services as usual group ($p < .01$), and the SE group worked an average of 9 weeks compared to an average of 4 weeks in the services as usual group ($p < .05$). Thus, there is evidence for the effectiveness of SE in this age cohort.

Analysis of data from the Employment Intervention Demonstration Program (EIDP), a multi-site study of SE, also identified age as a factor in employment outcomes (Burke-Miller et al., 2006). Using mixed effects logistic regression analysis and controlling for a host of other factors such as gender, race/ethnicity, education, work history, hours of vocational and clinical services received, and study site, each 10 year increase in age was associated with about 15% less likelihood of achieving competitive employment or

working 40 or more hours in a month. However, outcomes for youth and young adults were not examined separately. Since the EIDP is the largest and most comprehensive study of SE in the US to date (Cook et al., 2008) the analysis of outcomes among younger cohorts presents an important opportunity to add to the evidence base in this area.

Methods

Sample and Procedures

The EIDP was a 5-year study of supported employment programs for people with severe mental illnesses, funded by the Center for Mental Health Services, Substance Abuse and Mental Health Services Administration (CMHS/SAMHSA), and has been described in detail elsewhere (Cook, Carey, Razzano, Burke, & Blyler, 2002; Cook et al., 2005). By means of a Cooperative Agreement funding mechanism, researchers, federal personnel, and consumer representatives developed and implemented a Common Protocol (Employment Intervention Demonstration Program: Common Protocol and Documentation, 2001), uniform data collection methods, and a hypothesis-driven analysis plan. This effort was led by a Coordinating Center (CC) based at the University of Illinois at Chicago, Department of Psychiatry, in partnership with the Human Services Research Institute in Cambridge, Massachusetts, and site investigators in Arizona, Connecticut, Maine, Massachusetts, Pennsylvania, South Carolina, and Texas.

EIDP participants were recruited from existing clinical populations via case manager referral, self-referral, word-of-mouth, and at one site, newspaper advertisement. Participants were defined as those meeting the following inclusion criteria: being 18 years or older at the time of study enrollment; being

willing and able to provide informed consent; having an Axis I DSM-IV diagnosis of mental illness; and being unemployed at time of entry into the study. Subjects were recruited between 2/1996 and 5/2000 and all were monetarily compensated, with amounts varying from \$10 to \$20 per interview. All EIDP study sites administered the same semiannual interview assessments measuring demographic characteristics, and reported employment outcome information on a weekly basis. Once enrolled in the study, lack of participation in EIDP services or research interviews were not criteria for exclusion from the study sample, allowing for analysis of an “intent-to-treat” population. Enrolled participants were randomly assigned to SE or comparison conditions at each site. The primary results of the study are described elsewhere (Cook et al., 2008). Evaluation of the equivalence of the two study conditions found no statistically significant differences on participant demographic characteristics, indicating successful randomization. However, there were some significantly different distributions of demographic characteristics among study sites that were controlled for in the models tested. The study presented here uses 24 months of data from 1,272 EIDP participants in seven states (Arizona, Connecticut, Maine, Maryland, Massachusetts, South Carolina and Texas). This excluded data from the remaining EIDP site in Pennsylvania, because it tested an intervention for already-employed participants. As a result, Pennsylvania subjects did not meet the study inclusion criterion of unemployment, and the distribution of their outcome data was inappropriate for pooling with that of the remaining study sites.

Measures

The independent variable of interest in the present analysis was participant age. In particular, the focus was on outcomes of transition age youth (ages 18-24) and young adults (ages 25-30) compared to older participants. In the entire sample, age ranged from a minimum of 18 years to a maximum of 76 years (<1% were over age 65); mean age and standard deviation were 38 and 9 years; and median age was 38 years. About 20% of the sample ($n=249$) met age criteria for youth or young adults, being between 18 and 30 years old. Among these, almost a third ($n=81$) were youth (18-24 years) and the remainder young adults ($n=168$).

Other demographic and clinical characteristics most often associated with differential employment outcomes among people with psychiatric disabilities in the literature also were included in the analysis: prior work history; gender; race/ethnicity; educational status; marital status; Social Security beneficiary status; future work expectations (mostly or strongly see themselves holding a job in a year); psychiatric diagnoses; co-occurring disability status; and vocational and clinical services use (Burke-Miller et al., 2006; Razzano et al., 2005; Cook et al., 2007).

Two vocational outcome measures were examined: first, whether individuals were ever employed during the study in any kind of job; and second, whether they were ever employed in a competitive job. Any job encompasses any paid employment whatsoever, and could include transitional or sheltered employment. Competitive employment is a higher standard of job and was defined as work in a job that met the following four criteria: paid minimum wage or higher; was located in a mainstream, integrated setting; was not set-aside for mental health consumers;

and was consumer-owned. The first two criteria match the Department of Labor’s definition of competitive employment, and the second two are consistent with the definition of competitive employment used in labor force research literature.

Follow-up Rates and Attrition

The number of interviews for each participant included in the analysis ranged from 1 to 5 (baseline and 4 follow-up interviews), with a mean of 4.3 ($s.d. = 1.1$) per participant. Of 1,272 participants, 823 (65%) completed 5 interviews, 173 participants (14%) completed 4 interviews, 122 (10%) completed 3, 111 (9%) completed 2, and the remaining 43 (3%) completed 1 interview. The age groups of those completing 5 interviews were compared, in order to ascertain attrition bias. Youth were less likely to complete all interviews (52%) than young adults (64%) or older adults (66%) ($p<.05$). The potential influence of these differences is adjusted for in the multivariable outcome models used in our analysis.

Results

Table 1 shows the distribution of participant characteristics in the study sample at baseline by age group. A significantly ($p<.01$) lower proportion of the youth and young adults were female than older participants (39.5% and 39.9% vs. 48.5%). Regardless of age group, about a third were African American, but a slightly higher proportion of youth were Hispanic (22.5%) than young adults (15.5%) or older adults (13.6%) ($p<.10$). There was a significant difference in the proportion having some college education or greater (18.5% of youth, 24.2% of young adults and 39.0% of older adults). Similarly, there was a linear increase in the proportion of participants who were married or living as married

as age increased (3.7%, 11.3% and 13.0%, $p < .05$), and in the proportion who were Social Security Disability Insurance (SSDI) beneficiaries (20.5%, 29.1%, and 39.2%, $p < .001$). There were no age differences in Supplemental Security Income (SSI) status. There was an inverse relationship between age group and the proportion who had worked at all in the 5 years prior to baseline, with 80.0% of youth, 74.8% of young adults, and 61% of older adults having done so ($p < .001$). Similarly, youth had the highest proportion of respondents with high future

work expectation (81.0%), followed by young adults (77.4%) and older adults (72.6%) ($p < .05$).

In terms of psychiatric diagnosis, almost half of all 3 groups had a schizophrenia spectrum or bipolar disorder diagnosis. There was a significant difference by age group in substance use disorders (22.2% of youth, 33.9% of young adults, and 37.1% of older adults, $p < .05$), and in Axis II personality disorders (27.2% of youth, 28.6% of young adults, and 19.6% of older adults, $p < .01$). Finally, the groups differed in terms of random assignment to

SE rather than the comparison group, with a lower proportion of youth in SE (37.0%) compared to 51.2% of young adults and 52.1% of older adults ($p < .05$).

Correlations among all Table 1 characteristics were examined (not shown). The strongest correlation was between high school and some college education ($r = .51$), so the latter was excluded from the multivariable models. All other correlations were small to moderate ($< .5$), and therefore could be entered into the multivariable models without introducing multicollinearity.

Table 2 shows vocational outcomes by age group for all participants, regardless of study condition. Older adults had lower proportions of any employment or competitive employment during the study than youth or young adults. Specifically, 69.1% of youth and 73.2% of young adults worked at all, compared to 58.3% of older adults ($p < .001$). Similarly, 50.6% of youth and 56.0% of young adults worked in competitive jobs, compared to 42.4% of older adults ($p < .01$). The age groups did not vary in terms of total dollars earned, or amount of vocational or clinical service hours received.

Figure 1 shows the average proportion of each age group that worked at all during the study, separated by study condition. The two bars on the left show that a higher proportion of youth study participants in the control condition worked at all than those receiving experimental condition SE. The middle two bars show that a higher proportion of young adults in the experimental SE condition worked in any job than those in the control condition. The two bars on the right indicate that, among older adults, a higher proportion of experimental participants worked at all than control participants. The figure also shows that a higher proportion of the young adults group in the experimental

TABLE 1—PARTICIPANT CHARACTERISTICS BY AGE: TRANSITION AGE YOUTH, YOUNG ADULTS AND OLDER ADULTS.

Characteristic, %	Youth 18-24 years old (n=81)	Young adults 25-30 years old (n=168)	Older Adult 31+ years old (n=1,023)	Chi-square p-value
Demographics				
Female	39.5%	39.9	48.5	<.01
African American	34.6	29.2	29.6	>.10
Hispanic/Latino	22.5	15.5	13.6	<.10
High School graduate/GED	63.0	62.4	69.5	>.10
Some college or more	18.5	24.2	39.0	<.001
Married/living as married	3.7	11.3	13.0	<.05
Any co-occurring disability	39.5	42.9	39.6	>.10
Any prior work past 5 years	80.0	74.8	61.0	<.001
Mostly/strongly sees self holding job in a year	81.0	77.4	72.6	<.05
SSI Beneficiary	47.4	50.0	46.6	>.10
SSDI Beneficiary	20.5	29.1	39.2	<.001
Clinical				
Schizophrenia Spectrum Disorder	48.1	46.4	51.9	>.10
Bipolar disorder	17.3	13.7	17.1	>.10
Depression	28.4	33.9	25.1	<.10
Substance Use Disorder	22.2	33.9	37.1	<.05
Personality Disorder (Axis II)	27.2	28.6	19.6	<.01
Study condition				
Supported Employment	37.0	51.2	52.1	<.05

TABLE 2—PARTICIPANT OUTCOMES BY AGE: TRANSITION AGE YOUTH AND OLDER ADULTS.

Vocational Outcome over study period, %	Youth 18-24 years old (n=81)	Young adults 25-30 years old (n=168)	Older Adult 31+ years old (n=1,023)	Chi-square p-value
Any work	69.1%	73.2	58.3	<.001
Competitive Employment	50.6	56.0	42.4	<.01
				ANOVA p-value
Total wages earned	\$3,025	\$3,158	\$2,481	>.10
Total vocational service hours received	53	56	60	>.10
Total clinical service hours received	97	138	124	>.10

condition worked at all than either of the other two experimental condition age groups. However, in a two-way analysis of variance, this interaction of age group and study condition was not statistically significant. Figure 2 shows similar patterns for competitive employment, except with lower overall

outcomes and a more pronounced interaction of age group and study condition ($p < .05$). Separate analysis within age group showed that study condition was not significantly related to competitive employment among youth, but the difference was statistically significant among young adults ($p < .05$).

Table 3 shows results of two separate multivariable logistic regression analyses in which the dependent variables were worked at all and competitive employment, with the sample limited to participants in the experimental condition only. Logistic regression is a form of generalized linear model used for fitting dichotomous or categorical outcome data. This analysis allows us to adjust for a number of factors that might be associated with both age categories and work outcomes, such as education level and prior work experience, giving us a better understanding of how age category is related to vocational success. Controlling for a number of factors, youth were no different from older adults in likelihood of achieving employment or competitive employment. However, young adults were about 3 times more likely than older adults to achieve both outcomes (worked at all odds ratio = 3.13 and competitive employment odds ratio = 2.94, both $p < .01$). Both models fit the vocational outcome data adequately, but not excellently, with overall classifications of between 66% and 71%. Both models show satisfactory goodness of fit as measured by Hosmer and Lemeshow Tests and moderate usefulness in predicting outcomes as assessed by Nagelkerke’s pseudo R-square.

Regardless of age group, there were other significant findings in both models, including high future work expectation which was associated with at least twice the likelihood of any work ($OR = 2.48, p < .001$) and competitive employment ($OR = 2.11, p < .01$). Another significant predictor of employment outcomes was receiving greater than median hours of SE services (worked at all $OR = 10.61$ and competitive employment $OR = 9.70$, both $p < .001$). Finally, participants who received SSI were about half as likely as others to achieve employment outcomes (worked at all

FIGURE 1—PROPORTION OF EACH AGE GROUP THAT WORKED IN ANY JOB BY STUDY CONDITION.

Main effect of age group significant ($p < .001$) by analysis of variance.

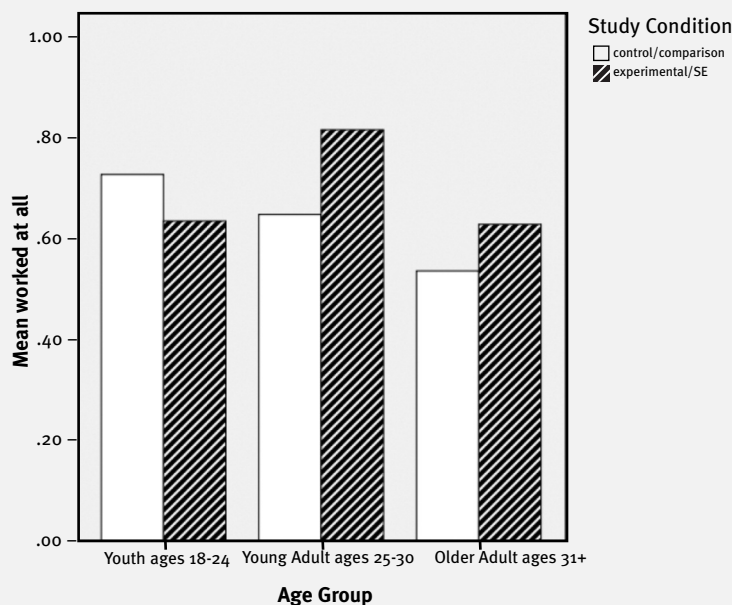
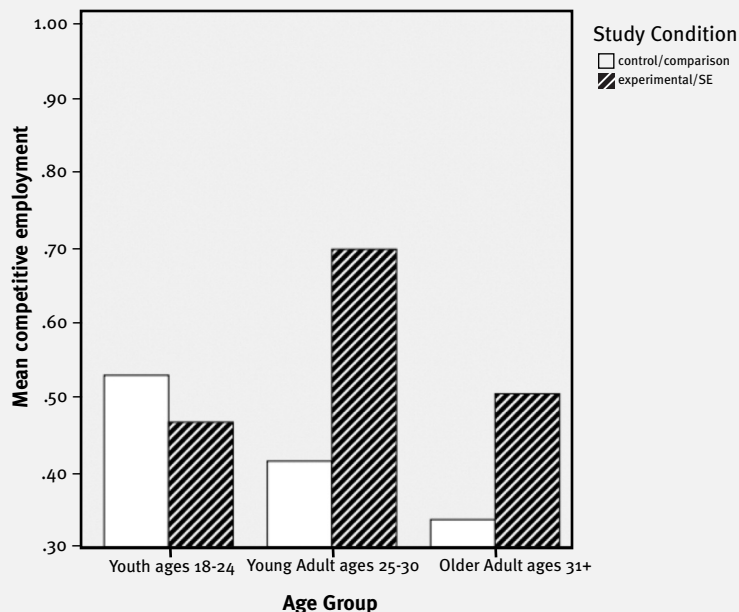


FIGURE 2—PROPORTION OF EACH AGE GROUP THAT WORKED IN COMPETITIVE EMPLOYMENT BY STUDY CONDITION.

Main effects of study condition and age group, and their interaction significant ($p < .05$) by analysis of variance.



OR = 0.57) ($p < .05$) and competitive employment OR = 0.52 ($p < .01$).

Results for the competitive employment outcome revealed two additional factors. Participants who identified as Hispanic/Latino were about half as likely as others to achieve competitive jobs during the study (OR = 0.47, $p < .05$). In addition, participants who had work experience in the 5 years prior to baseline tended to be more likely to achieve competitive employment, although this did not reach statistical significance at the .05 level (OR=1.55, $p < .10$).

Discussion

The results of this analysis support previous findings regarding the advantage of younger age for people in mental health recovery seeking employment (Burke-Miller et al., 2006; Wewiorski & Fabian, 2004; Yelin & Cisneras, 1997). However, for those engaged in

SE, this advantage appears to be primarily among young adults rather than youth.

Incomplete or inadequate primary and secondary education is common among youth (Davis, 2003), so one explanation for their poor work outcomes in this study is that SE programs steer youth toward education rather than employment. Another explanation for our findings about youth is that the heavy emphasis in SE on job retention in the SE model runs counter to the normal labor force participation patterns of this age group. For example, search theory in labor force participation research posits that frequent job changes and job testing is necessary for young workers to optimize the match between their skills and available employment opportunities (Devine & Kiefer, 1993; Topel & Ward, 1992). Thus, youth may perform more poorly in a model of services focused on staying at jobs when they prefer to

change jobs as a means of career exploration and identity development.

It is notable that both youth and young adults had more recent work histories than older adults at baseline, and may be a consequence of youth “job testing” as described above. Work history is one of the most reliable predictors of employment among people with severe mental illness (Burke-Miller et al., 2006) and among youth with disabilities (Fabian, 2007). In our multivariable analyses, work history was only marginally associated with greater likelihood of competitive employment. Nonetheless, the relatively high rate of recent employment among youth and young adults is a characteristic that may indirectly enhance SE outcomes. It has been suggested that people with more positive work histories are better able to account for their experience and provide employer references, and therefore are viewed as more desirable employees than people who have been out of the labor force for many years (Burke-Miller et al., 2006). It also may be that having had positive employment experiences in the past improves individuals’ vocational efficiency and outcome expectancies, leading to greater likelihood of re-employment (Wewiorski & Fabian, 2004).

The importance of outcome expectancies is supported in our analyses by the strong relationship between high future work expectation and attaining work and competitive jobs. Such optimistic expectations also are in keeping with principles of mental health recovery including hope and empowerment (SAMHSA, 2004). High future work expectations can positively influence recovery directly by enhancing feelings of hopefulness (Warner, 2009) and indirectly by enhancing employment outcomes. SE programs for youth and young adults therefore should emphasize a recovery focus, as well as evi-

TABLE 3—MULTIVARIABLE LOGISTIC REGRESSION ANALYSIS OF EMPLOYMENT OUTCOMES AMONG SUPPORTED EMPLOYMENT PARTICIPANTS (N=649): TRANSITION AGE YOUTH AND YOUNG ADULTS COMPARED TO OLDER ADULTS.

	Work in Any Job Odds Ratio [95% Confidence Interval]	Work in Competitive Employment Odds Ratio [95% Confidence Interval]
Youth 18-24 (compared to older adults)	1.21 [0.42-3.48]	0.92 [0.33-2.56]
Young adults 25-30 (compared to older adults)	3.13** [1.52-6.43]	2.94** [1.55-5.49]
Female	0.66+ [.42-1.05]	0.94 [0.61-1.46]
African American	1.08 [0.57-2.06]	0.90 [0.48-1.69]
Hispanic/Latino	0.76 [0.37-1.56]	0.47* [0.24-0.93]
High School graduate/GED	0.99 [0.62-1.59]	0.75 [0.48-1.18]
Married/living as married	1.15 [0.63-2.10]	0.98 [0.54-1.76]
Any co-occurring disability	0.70 [0.44-1.12]	0.75 [0.48-1.18]
Any prior work past 5 years	1.42 [0.91-2.23]	1.55+ [1.00-2.40]
Mostly/strongly sees self holding job in a year	2.48*** [1.50-4.10]	2.11** [1.29-3.45]
SSI Beneficiary	0.57* [0.35-0.93]	0.52** [0.32-0.82]
SSDI Beneficiary	0.99 [0.62-1.59]	0.72 [0.46-1.14]
Schizophrenia Spectrum Disorder	0.84 [0.49-1.44]	0.80 [0.48-1.33]
Bipolar Disorder	0.96 [0.51-1.81]	1.12 [0.60-2.09]
Substance Use Disorder	1.30 [0.78-2.16]	1.30 [0.80-2.09]
Personality Disorder (Axis II)	1.01 [0.58-1.76]	0.90 [0.53-1.54]
Greater than median SE hours	10.61*** [6.31-17.84]	9.70*** [5.95-15.81]
Greater than median clinical hours	0.73 [0.46-1.17]	0.68 [0.44-1.06]
Hosmer and Lemeshow Test Chi-square	8.55 ($p=.381$)	7.95 ($p=.439$)
Nagelkerke R square	.398	.393
Model classification table overall percentage	70.5	66.0

Models also adjust for study site and study attrition (number of biannual interviews completed).

* $p<.05$, ** $p<.01$, *** $p<.001$

dence-based principles of best practices in vocational rehabilitation.

In our analyses, more hours of SE was strongly related to positive work outcomes. However, our analysis did not differentiate pre-placement from post-placement service hours. Given the focus in SE on rapid job placement, it may be that this link between greater number of service hours and vocational success reflects receipt of more post-placement supports. This finding is in keeping with the SE principle of the im-

portance of post-placement ongoing services (Drake & Bond, 2008). Across both study conditions, youth and young adults were more likely to work and have competitive jobs than older adults, suggesting that SE programs serving young people need to focus more on follow-along job supports than initial job placements.

Other significant findings also are in keeping with the SE literature. Receipt of Supplemental Security Income (SSI) may act as a barrier to employment for youth and young adults if they con-

strain their labor force participation in order to maintain cash income and eligibility for health coverage under Medicaid (Wittenberg & Loprest, 2004). Some authors (Wittenberg, Golden & Fishman, 2002) have argued that youth receiving both SE and SSI may perceive “conflicting messages” about their ability to transition into adult roles involving establishment of careers. This is compounded by the fact that youth employment may negatively impact their families’ access to SSI cash benefits, which may lead par-

ents to offer lukewarm support for youth's initial and ongoing work attempts.

The finding that Hispanic/Latino SE participants were only half as likely as others to have competitive jobs is in keeping with prior research which has found race/ethnic disparities in employment outcomes among people with severe mental illness and also among all youth with disabilities (Burke-Miller et al., 2006; Fabian, 2007).

There are limitations to the generalizability of these study results, given that the EIDP participants were not sampled to be representative of all youth and young adults with severe mental illness. In addition, this study is one part of a larger demonstration program of supported employment interventions and their comparisons; although study condition and study site were controlled for in the multivariate models, there may still have been unmeasured differences in these programs or sites related to participant demographics. The adequate but not excellent fit of the multivariable models suggest that some variance in outcomes is not explained by the predictive models. Specifically, the benefits of a hypothesis-driven and parsimonious use of covariates in these analyses in terms of understanding of overall effects of age groups may be offset by limitations in describing more complex intersections of demographic characteristics. Finally, the relative small sample size of youth may have masked potential differences that were not statistically significant. These caveats require that caution should be taken in interpreting and applying the results presented here. However, to date, this is the largest multisite sample of people with severe mental illness in a randomized controlled trial of SE to be studied over 24 months using a comprehensive and rigorously moni-

tored data collection protocol including employment outcomes.

The finding that younger people had better employment outcomes in SE relative to older people provides empirical support for policies that encourage the provision of SE services to youth and young adults. However, it does not obscure the fact that work and return to work are ongoing challenges in the lives of people in recovery. Policies and practices that can enhance the effectiveness of SE for youth and young adults are similar to those described by Loveland and colleagues in their SE literature review (2007). These include: greater dissemination and implementation of SE; augmenting SE with supported education; increasing access to benefits counseling; and improving SE program fidelity to evidence-based principles. The great benefit of work to self-esteem, social integration, and financial security is well-established (Cook et al., 2008; Killackey, 2009), as is the need for employment supports for youth and young adults in mental health recovery (Davis, 2003; Jonikas et al., 2003).

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The Essential Guide to Psychiatric Rehabilitation Practice

William A. Anthony and Marianne D. Farkas

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