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The Effects of Supported Employment in Latino Consumers With Severe Mental Illness

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Objective: Despite the large number of Latinos living in the United States, little research has evaluated the effectiveness of different vocational rehabilitation programs for individuals with severe mental illness in this rapidly growing minority population. This article presents a secondary analysis of a randomized, controlled trial comparing supported employment with 2 other vocational rehabilitation programs in 3 ethnic/racial groups of participants with severe mental illness: Latinos, non-Latino African Americans, and non-Latino Whites. ***Method:*** The data were drawn from a previously published randomized, controlled trial comparing supported employment with standard vocational rehabilitation services and a psychosocial clubhouse program in persons with severe mental illness (Mueser et al., 2004), including 64 Latinos, 91 non-Latino African Americans, and 43 non-Latino Whites. Comparisons were made between the 3 groups at baseline on demographic characteristics, clinical and psychosocial functioning, and quality of life. Within each ethnic/racial group, competitive employment and all paid employment outcomes were compared between the 3 vocational rehabilitation programs over the 2-year study period. ***Results:*** At baseline, the Latino participants had lower levels of education and disability income, were less likely to have worked competitively over the previous 5 years, had more severe symptoms, and worse psychosocial functioning than the non-Latino African American or non-Latino White participants. Latinos randomized to supported employment had better competitive and all-paid work outcomes than those assigned to either standard services or the psychosocial clubhouse program, similar to the non-Latino consumers. Rates of competitive work for consumers in supported employment were comparable across all 3 racial/ethnic groups. ***Discussion***: Supported employment is effective at improving competitive work in Latinos with severe mental illness. Efforts should be made to increase access to supported employment in the growing population of Latinos with severe mental illness.

Keywords: vocational rehabilitation, individual placement and support, psychosocial clubhouse, schizophrenia, serious mental illness

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Latinos are the fastest growing minority population in the United States (Therrien & Ramirez, 2000). Historically, Latinos and other ethnic minorities with psychiatric disorders have tended to be less likely to receive mental health treatment than non-Latino White individuals (Alegría et al., 2008; Hough et al., 1987; Padgett, Patrick, Burns, & Schlesinger, 1994; Wells, Klap, Koike, & Sherbourne, 2001), leading to more severe symptoms and psychosocial impairment (Breslau, Kendler, Su, Gaxiola-Aguilar, & Kessler, 2005; Williams et al., 2007). The lower levels of mental health-care utilization of racial and ethnic minorities, as well as lower retention in services (Dworkin & Adams, 1987), have led to calls for research on disparities in access to psychiatric services (Lê Cook, McGuire, Lock, & Zaslavsky, 2010; Vega et al., 2007).

An additional challenge to serving Latinos with severe mental illness is the question of the effectiveness of psychiatric rehabilitation approaches developed for the broader population of persons with severe mental illness. In order to provide effective, personalized intervention it is important to evaluate the effectiveness of rehabilitation approaches in minority populations, and to determine whether adaptations are needed to address the needs of specific cultural or ethnic subgroups. For example, Mausbach and colleagues (2008) found that a social skills training program for older Latinos with severe mental illness was more effective when the skills-training procedures and curriculum had been adapted to the Mexican American culture in which the consumers lived, compared with the original version of the program that was developed and validated for older, non-Latino White consumers.

The question of what vocational rehabilitation models are most effective for Latino consumers is of particular importance. Compared with non-Latino Whites, Latinos in the general population are less likely to be employed, are paid less when they are employed, and are more likely to live in poverty (Therrien & Ramirez, 2000). Rates of competitive employment among people with severe mental illness tend to be low, typically below 20% (Anthony & Blanch, 1987; Marwaha & Johnson, 2004; Marwaha et al., 2007), although few data are available for Latinos with severe mental illness. Improving vocational outcomes for consumers with severe mental illness, especially those who are ethnic or racial minorities, is an important treatment priority.

Supported employment has been found to be more effective at improving competitive employment for persons with severe mental illness than a variety of other vocational rehabilitation approaches, such as sheltered workshops, group-skills training, brokered vocational services, or diversified work placement; thus far,16 randomized, controlled trials have been completed (Bond, Drake, & Becker, 2008). To date, only one controlled study of supported employment has included a significant proportion of Latino consumers (30%), and the primary outcome paper from that study did not specifically examine the impact of the vocational rehabilitation programs on that subgroup of consumers (Mueser et al., 2004). The present further analysis of data from that study was conducted to evaluate the effect of supported employment on Latino consumers with severe mental illness, and to explore whether and how the Latino study participants may have differed from the other study participants in terms of demographic, diagnostic, clinical, or quality-of-life characteristics.

Method

The present paper is a secondary analysis of data from a randomized controlled trial of 204 consumers with severe mental illness comparing three different vocational rehabilitation programs: supported employment, a psychosocial clubhouse program, or standard services. The study included a multiethnic and multiracial sample of consumers receiving services at the Capitol Region Mental Health Center, the lead state funded mental health agency serving individuals with severe mental illness living in the Hartford, Connecticut area. The primary findings from the study were that consumers randomized to supported employment had better competitive work and all paid work outcomes over two years, and demonstrated better overall functioning, compared with consumers assigned to the psychosocial clubhouse or standard services programs (Mueser et al., 2004). All of the research procedures were approved by the relevant institutional review boards.

Participants

Eligibility criteria for participation in the study included: (a) severe mental illness, as determined by the State of Connecticut Department of Mental Health and Addiction Services, defined as having a *DSM–IV–TR* Axis I (APA, 2000 disorder or borderline personality disorder combined with severe impairment in psychosocial functioning; (b) not competitively employed; (c) interested in competitive work; and (d) willing and capable of giving informed consent to participate in the study.

Participants were recruited through weekly research introduction groups, based on the approach described by Drake, Becker, and Anthony (1994). A total sample of 204 consumers was enrolled, including 91 non-Latino African Americans, 64 Latinos, 43 non-Latino Whites, and six Asians. Among the 64 Latinos, 30 (47%) identified Spanish as their preferred language, as indicated by electing to conduct the study interviews in Spanish. Comparisons between the 204 clients who consented to participate in the project and the 79 who did not indicated no statistically significant differences in age, gender, or chart diagnosis. However, ethnicity was related to participation, with Latino consumers most likely to participate ($N = 64$ consents/74 total; 86%), followed by non-Latino African American consumers ($N = 91/112$; 81%), followed by non-Latino White consumers ($N = 43/65$; 66%), $\chi^2(df = 2, N = 251) = 9.27$, $p = .01$. Because of the small number of Asian consumers in the study, these individuals were excluded from the analyses presented here. The baseline demographic, clinical, and employment history characteristics of each of the three ethnic/racial groups for each of the three vocational programs are summarized in Table 1.

Vocational Programs

After completion of the baseline interview, study participants were randomized to one of the three vocational programs: supported employment, psychosocial clubhouse program, or standard services.

Supported employment. Supported employment was provided based on the individual placement and support model (Becker & Drake, 2003). This model specifies seven principles of supported employment, including a zero-exclusion criterion for

Table 1
Sociodemographic and Clinical Characteristics of Latino, Non-Latino African-American, and Non-Latino White Study Participants

Categorical variables: *N* (%)	Latino (*N* = 64)	Non-Latino African-American (*N* = 91)	Non-Latino White (*N* = 43)	Chi square
Gender				
Male	37 (58)	57 (63)	26 (60)	0.367
Female	27 (42)	34 (37)	17 (40)	*ns*
Education				
<High School	49 (77)	46 (51)	10 (23)	29.758
High School Grad	15 (23)	45 (49)	33 (77)	$p = .000$
Marital status				
Never married	39 (61)	73 (80)	30 (70)	6.990
Married/divorced/separated	25 (39)	18 (20)	13 (30)	$p = .030$
Diagnosis				
Schizophrenia spectrum	38 (62)	77 (86)	32 (76)	11.838
Mood disorder	23 (38)	12 (14)	10 (24)	$p = .003$
Anxiety disorder				
No	45 (70)	82 (90)	38 (88)	11.603
Yes	19 (30)	9 (10)	5 (12)	$p = .003$
Current alcohol-use disorder				
No	50 (78)	74 (83)	35 (90)	2.311
Yes	14 (22)	15 (17)	4 (10)	*ns*
Current drug-use disorder				
No	55 (86)	58 (65)	36 (92)	15.328
Yes	9 (14)	31 (35)	3 (8)	$p = .060$
Competitive work past 5 years				
No	48 (75)	52 (57)	24 (56)	6.208
Yes	16 (25)	39 (43)	19 (44)	$p = .045$
Continuous Variables: Mean (*SD*)				F^1 / *p*
Age	36.74 (8.93)	36.35 (8.62)	42.23 (9.14)	7.10 / 0.001 L < W, AA < W
Total monthly disability income	416.75 (175.58)	469.89 (182.70)	529.90 (207.29)	4.79 / 0.007 L < W
Positive and Negative Syndrome Scale				
Negative	2.62 (0.68)	2.33 (0.68)	2.38 (0.62)	3.66 / 0.028 L > AA
Positive	2.03 (0.72)	2.08 (0.66)	1.96 (0.69)	0.27 / *ns*
Excitement	1.83 (0.52)	1.57 (0.55)	1.62 (0.58)	4.34 / 0.014 L > AA
Depression	2.56 (0.81)	1.76 (0.50)	2.18 (0.80)	26.08 / 0.000 L > W > AA
Cognitive	2.80 (0.65)	2.27 (0.58)	2.12 (0.69)	19.04 / 0.000 L > AA, L > W
Brief Quality of Life Interview				
General	4.42 (1.29)	4.79 (1.14)	4.66 (1.18)	1.81 / *ns*
Housing	4.67 (1.05)	4.60 (1.11)	4.81 (1.12)	0.56 / *ns*
Family Relations	4.80 (1.41)	4.45 (1.30)	4.46 (1.27)	1.51 / *ns*
Social Relations	4.77 (1.12)	4.79 (1.05)	4.70 (0.96)	0.10 / *ns*
Leisure	4.63 (1.13)	4.88 (1.07)	4.84 (1.05)	1.00 / *ns*
Safety	4.40 (1.18)	4.31 (1.21)	4.71 (1.00)	1.82 / *ns*
Finances	4.02 (1.32)	3.68 (1.14)	4.08 (1.28)	2.24 / *ns*
Health	4.47 (1.38)	4.81 (1.15)	4.60 (1.14)	1.48 / *ns*
Social Adjustment Scale				
Leisure	3.02 (0.62)	2.79 (0.48)	2.65 (0.54)	6.76 / 0.001 L > AA, L > W
Romantic	1.55 (0.67)	1.62 (0.55)	1.66 (0.62)	0.19 / *ns*
Global	4.94 (0.61)	4.22 (0.60)	4.35 (0.63)	27.55 / 0.006 L > AA, L > W
Rosenberg Self-Esteem	26.84 (4.21)	29.32 (3.77)	28.64 (4.47)	7.10 / 0.001 AA > L

Note. 1. Degrees of freedom = 2. $N = 195$ for all F tests.

participation in the program, rapid job search without extensive prevocational assessments or required skills training, focus on competitive jobs in integrated community settings, attention to consumer preferences with respect to types of jobs desired and nature of supports provided, provision of follow-along supports after consumer has obtained a job, integrated vocational and mental health services, and benefits counseling. Fidelity to the principles of supported employment was monitored annually using a

standardized scale (Bond, Becker, Drake, & Vogler, 1997), and was found to be implemented with high fidelity throughout the study period (Mueser et al., 2004). Supported employment was provided by three employment specialists, including one who was bilingual in Spanish and English, who served as members of the clinical treatment teams at the mental health center and attended regular team meetings.

Psychosocial clubhouse program. The psychosocial clubhouse program was located off-site from the mental health center, and used a transitional employment approach to vocational rehabilitation. Consumers participated in a series of preparatory training activities (the training focused on clerical and janitorial skills), followed by transitional employment, and then help in seeking competitive work. The psychosocial clubhouse program was staffed by three employees, including one who was bilingual in Spanish and English. In addition, the clubhouse program offered a drop-in center, skills training and support groups, recreational outings, and residential services. Consumers in all three vocational programs in this study (i.e., supported employment, standard services, or the psychosocial clubhouse) were eligible to participate in the nonvocational services offered at the clubhouse. The program was not certified by the International Center for Clubhouse Development (Macias, Barreira, Alden, & Boyd, 2001). A survey found that the services and program philosophy of this program were typical of other psychosocial rehabilitation programs in Connecticut (Lucca & Allen, 2001).

Standard services. Standard vocational services were offered off-site by vocational service providers funded by the state's vocational services agency. Consumers were provided with access to all the other vocational services for persons with severe mental illness in the Hartford area. Most of these services were provided by one of two programs that contracted directly with the Connecticut Department of Mental Health and Addiction Services: an off-site supported employment program, and a vocational program in which consumers worked in jobs paying subminimum wage or competitive wages in supervised janitorial enclaves in the community. Once consumers were randomized to standard services, they met with the vocational services coordinator at the mental health center, who worked with them to access a program agreeable to them.

Measures

A comprehensive set of measures was used to obtain information about consumers' background, diagnoses, clinical and psychosocial functioning, and employment outcomes. Interview-based assessments were obtained by one of three trained research staff, including one English–Spanish bilingual interviewer. Ongoing interrater reliability checks were conducted throughout the study by having approximately 15% of all interviews rated by two people, either live during the interview, or on the basis of an audiotape interview. For information about the interrater reliability of the interviewers and procedures for translating instruments not previously available in Spanish, see Mueser et al. (2004).

Psychiatric and substance-use diagnoses were determined by Structured Clinical Interview for *DSM-IV* (SCID; First, Spitzer, Gibbon, & Williams, 1996) interviews. Background information demographics, work history, and psychiatric history, were gathered at the baseline interview and by review of medical records.

Employment outcomes. Employment outcomes including hours worked, wages earned, and job tenure, were recorded for each job on a weekly basis, either in logs completed by vocational staff or case managers, or through direct interviews with consumers by the research team. Information about all paid work was recorded. Jobs were categorized in a binary fashion (yes/no) based on whether they were competitive or not, according to the definition provided by SAMHSA (Cook et al., 2005): Jobs paying competitive wages in integrated community settings that were "owned" by the consumer (rather than the vocational agency) and were not set aside for persons with a disability.

Nonvocational outcomes. Psychiatric symptoms, overall functioning, social functioning, and quality of life were assessed by interviews conducted at baseline and every 6 months for 2 years. Symptoms were assessed over the past month with the Positive and Negative Syndrome Scale (PANSS; Kay, Opler, & Fiszbein, 1987). The PANSS was modified to be based entirely on information obtained in the interviews and to exclude other information from clinicians or charts. Five factors from the PANSS were identified in an exploratory analysis of the data drawn from each site participating in the collaborative project. These factors included negative symptoms, positive symptoms, excitement, depression, and cognitive impairment.

Overall functioning was rated at the end of each interview with the Global Assessment Scale (GAS), which has a possible range between 0 and 100, with high scores reflecting better functioning (Endicott, Spitzer, Fleiss, & Cohen, 1976). Social functioning was assessed with the social-leisure and romantic-involvement subscales, and the global social functioning rating, from Social Adjustment Scale-II (SAS; Schooler, Hogarty, & Weissman, 1979). The two subscales are based on items rating the extent of leisure activities and romantic involvement, social contacts, and comfort with relationships on a 1 (*good*) to 5 (*poor*) scale. The interviewer also made a global rating of social adjustment on a similar 5-point scale.

Quality of life was assessed with the Brief Quality of Life Interview (QOLI; Lehman, Kernan, & Postrado, 1995). For this report, consumer satisfaction in eight different areas was evaluated, including general satisfaction, and satisfaction with housing, family relations, social relations, leisure, safety, finances, and health. Self-esteem was assessed with the Rosenberg Self-Esteem Scale (Rosenberg, 1965), with higher scores indicating greater self-esteem (possible range = 10–40).

Research Attrition and Program Exposure

Among the 198 consumers in one of the three racial/ethnic groups who participated in the study, 191 (96%) completed at least one follow-up interview. χ^2 analyses indicated that interview completion rates did not differ significantly across vocational programs, ethnicity/race, or any other consumer characteristics.

Retention in vocational programs was examined by evaluating the number of consumers who received vocational services from their assigned program for each 6-month interval of the study. As summarized in Table 2, consumers in supported employment were most likely to receive vocational services, followed by those in the psychosocial clubhouse program, followed by consumers in the standard services program. Within each vocational program,

Table 2
Percentage of Latino, Non-Latino African-American, and Non-Latino White Consumers Who Received Services From Their Assigned Vocational Program Over the Course of the Study

Vocational program	Ethnicity/Race	Months in study			
		1–6	7–12	13–18	19–24
Supported employment	Latino	100	100	95	95
	Non-Latino African-American	100	100	94	87
	Non-Latino White	100	100	100	93
Standard services	Latino	41	64	27	9
	Non-Latino African-American	61	52	32	16
	Non-Latino White	67	42	17	17
Psychosocial clubhouse	Latino	62	62	52	67
	Non-Latino African-American	97	55	59	55
	Non-Latino White	94	69	63	50

there were no significant differences in exposure to services between the three ethnic/racial groups.

Statistical Analysis

We first compared the three ethnic/racial groups on demographic and diagnostic characteristics, as well as the baseline assessment of work history, psychiatric symptoms, psychosocial functioning, and quality of life, using χ^2 analyses for categorical variables and analyses of variance (ANOVAs) for continuous variables. Significant *F* tests were followed up by computing Tukey honestly significantly difference (HSD) tests to identify which groups differed. Second, within the Latino, non-Latino African American, and non-Latino White groups, we compared consumers randomized to the three different vocational rehabilitation programs on demographic and diagnostic differences, and the baseline assessments following the same procedures described above. Third, we compared employment outcomes between the three different vocational programs using χ^2 analyses and ANOVAs. Skewed vocational outcomes such as the number of weeks worked, the number of hours worked, and the wages earned, were log-transformed prior to statistical analysis.

Fourth, because there were differences at baseline between the three ethnic/racial groups in several characteristics potentially related to work (i.e., age, marital status, education, schizophrenia diagnosis, anxiety disorder, monthly disability income, symptom severity at baseline on the PANSS, work over the past 5 years) within the group of consumers who were randomized to supported employment, we explored whether these characteristics were related to employment outcomes, or whether they interacted with ethnicity/race in predicting work outcomes. We conducted a series of linear regression analyses, one for each predictor variable (e.g., age, work over past 5 years), with log-transformed weeks of competitive work as the dependent variable, and the independent variables including the predictor variable, ethnicity/race (coded as two dummy variables, with Latino set as the reference, or 0 category), and the interactions between the predictor and the ethnicity/race variables.

Fifth, within the group of 21 Latino consumers assigned to the supported employment program, we explored whether language preference (based on whether research interviews were conducted in Spanish or English) was related to work outcomes. We conducted χ^2 analyses (categorical variables) and *t* tests (continuous variables) comparing the 10 Latino consumers who conducted the interviews in Spanish with the 11 consumers who conducted them in English on the full range of vocational variables described above.

Results

Table 1 summarizes the analyses comparing the three racial/ethnic groups on these characteristics. Several significant differences emerged from these analyses. Latino consumers were more likely to be married, less likely to have a schizophrenia-spectrum disorder, more likely to have an anxiety disorder, and were less likely to have worked over the past 5 years than the African American or non-Latino White consumers. The Latino and the non-Latino White consumers had lower levels of education than the African American consumers. Non-Latino White consumers tended to be older than Latino or African American consumers. Latino consumers had higher levels of symptoms on four of the five PANSS subscales (negative symptoms, excitement, depression, cognitive symptoms), worse leisure and global functioning on the SAS, and lower levels of self-esteem. The three ethnic/racial groups did not differ on any of the quality-of-life subscales.

Within each of the three primary ethnic/racial groups, there were no statistically significant differences on any of the baseline characteristics between those assigned to supported employment, the psychosocial rehabilitation program, or standard services. The vocational outcomes of the Latino, the non-Latino African American, and the non-Latino White consumers assigned to the three vocational rehabilitation programs are summarized in Tables 3, 4, and 5, respectively. Across all three ethnic/racial groups, consumers assigned to supported employment had better competitive work outcomes across all of the measures of competitive employment. In addition, consumers in supported employment had better outcomes for any paid work and total weeks of paid work, and there was a trend for them to also have more average weeks of paid work than consumers in the psychosocial clubhouse or standard services vocational programs.

Figure 1 depicts the respective percentages of Latino, African American, and White consumers in each vocational program who were working competitively for each month of the 2-year follow-up period. For each ethnic/racial group, rates of competitive work for those assigned to supported employment tended to increase over the first six months of the program, and remained

Table 3
Vocational Outcomes Over 2 Years For All Latinos in Supported Employment, Standard Services, and Psychosocial Clubhouse Programs

Work	Supported employment (SE; $N = 21$)	Standard services (SS; $N = 22$)	Psychosocial clubhouse program (PC; $N = 21$)	Statistical differences[1]
Any competitive work: *N* (%)	16 (76)	7 (32)	1 (5)	$\chi^2 = 23.32$, $p = .000$
Worked more than 20 hours per week: *N* (%)	6 (29)	2 (9)	0 (0)	$\chi^2 = 8.19$, $p = .017$
Total competitive hours: Mean (*SD*)	330.94 (489.23)	116 (351.29)	2.14 (9.81)	$F = 4.84$, $p = .011$ SE > PC
Total competitive wages: Mean (*SD*)	1733.58 (2534.79)	706.89 (2135.02)	11.25 (51.55)	$F = 4.29$, $p = .018$ SE > PC
Total weeks competitive work: Mean (*SD*)	30.57 (34.65)	4.91 (11.73)	0.10 (0.44)	$F = 12.84$, $p = .000$ SE > SS, PC
Average weeks per competitive job: Mean (*SD*)	25.53 (34.42)	4.29 (11.53)	0.09 (0.44)	$F = 9.02$, $p = .000$ SE > SS, PC
All paid work				
Any paid work: *N* (%)	16 (76)	13 (59)	6 (29)	$\chi^2 = 9.87$, $p = .007$
Worked more than 20 hours per week: *N* (%)	6 (29)	2 (9)	2 (10)	$\chi^2 = 3.98$, *ns*
Total paid work hours: Mean (*SD*)	339.00 (486.21)	264.04 (527.34)	195.94 (354.54)	$F = 1.14$, *ns*
Total paid wages: Mean (*SD*)	1775.41 (2529.63)	1127.82 (2415.82)	487.32 (1086.55)	$F = 1.95$, *ns*
Total weeks paid work: Mean (*SD*)	31.76 (34.00)	21.59 (28.72)	8.14 (18.44)	$F = 3.81$, $p = .028$ SE > PC
Average weeks per paid job: Mean (*SD*)	25.80 (34.25)	17.04 (21.76)	8.14 (18.44)	$F = 2.48$, $p = .092$

Note. 1. Degrees of freedom for all F tests = 2, 61.

stable over the remaining 18 months thereafter, with rates in most months ranging between 30% and 40%. By comparison, the rates of competitive work in the other vocational programs generally ranged between 0% and 10% over the 2-year follow-up period.

None of the exploratory regression analyses evaluating whether selected variables that the three racial/ethnic groups differed on at baseline (i.e., age, marital status, educational level, schizophrenia diagnosis, anxiety-disorder diagnosis, monthly disability income, symptom severity on the PANSS, work over the past 5 years) either predicted weeks worked among consumers who were randomized to supported employment, interacted with race/ethnicity in predicting work, or showed significant main effects or interaction effects. Thus, despite differences between the three racial/ethnic groups in these characteristics at baseline, they did not appear to be associated with competitive employment outcomes among consumers assigned to supported employment, nor did they interact significantly with race/ethnicity in work. Similarly, none of the χ^2 analyses or *t* tests comparing the vocational outcomes of Latino consumers in supported employment who expressed a preference for Spanish in the research interviews compared with those who preferred English were statistically significant. Thus, language preference among the Latino consumers who participated in supported employment was not related to either competitive work or any paid-work outcomes.

Discussion

The Latino study participants differed from the non-Latino African American and non-Latino White participants in several ways. Latino consumers had lower levels of education and were less likely to have worked a competitive job over the past five years than non-Latino consumers, and they had lower levels of monthly disability income than the non-Latino White consumers. The Latino consumers were also more likely to have been married, to have a mood disorder (and less likely to have a schizophrenia-spectrum disorder), and to have an anxiety disorder than the

Table 4
Cumulative Vocational Outcomes Over 2 Years for All Non-Latino African-Americans ($N = 91$) in Supported Employment, Standard Services, and Psychosocial Clubhouse Programs

Work	Supported employment (SE; $N = 31$)	Standard services (SS; $N = 31$)	Psychosocial clubhouse (PC; $N = 29$)	Statistical differences[1]
Any competitive work: *N* (%)	21 (68)	9 (29)	7 (24)	$\chi^2 = 14.44$, $p = .001$
Worked more than 20 hours per week: *N* (%)	13 (42)	7 (23%)	1 (3%)	$\chi^2 = 12.51$, $p = .002$
Total competitive hours: Mean (*SD*)	434.87 (585.32)	132.77 (405.04)	63.97 (172.89)	$F = 6.50$, $p = .002$ SE > SS, PC
Total competitive wages: Mean (*SD*)	2452.97 (3280.90)	763.45 (2221.07)	369.56 (989.05)	$F = 6.58$, $p = .002$ SE > SS, PC
Total weeks competitive work: Mean (*SD*)	26.19 (31.74)	7.00 (18.22)	4.28 (12.21)	$F = 8.64$, $p = .000$ SE > SS, PC
Average weeks per competitive job: Mean (*SD*)	11.69 (18.91)	5.98 (17.83)	2.25 (5.44)	$F = 2.84$, *ns*
All paid work				
Any paid work: *N* (%)	21 (68)	18 (58)	11 (38)	$\chi^2 = 5.56$, *ns*
Worked more than 20 hours per week: *N* (%)	13 (42)	11 (35)	2 (7)	$\chi^2 = 10.12$, $p = .006$ SE > SS, PC
Total paid work hours: Mean (*SD*)	436.29 (586.11)	282.59 (473.79)	142.57 (323.06)	$F = 2.86$, *ns*
Total paid wages: Mean (*SD*)	2460.90 (3284.62)	1364.45 (2485.51)	747.57 (1534.96)	$F = 3.48$, $p = .035$
Total weeks paid work: Mean (*SD*)	26.39 (31.86)	20.58 (29.15)	11.59 (24.42)	$F = 2.01$, *ns*
Average weeks per paid job: Mean (*SD*)	10.87 (18.21)	17.00 (28.15)	7.77 (19.84)	$F = 1.31$, *ns*

Note. 1. Degrees of freedom for all F tests = 2, 61.

Table 5
Cumulative Vocational Outcomes Over 2 Years For All Non-Latino Whites (N = 43) In Supported Employment, Standard Services, and Psychosocial Clubhouse Programs

Work	Supported employment (SE = 15)	Standard services (SS = 12)	Psychosocial clubhouse (PC = 16)	Statistical differences[1]
Competitive work: *N* (%)	14 (93)	2 (17)	4 (25)	$\chi^2 = 20.49$, $p = .000$
Worked more than 20 hours per week: *N* (%)	4 (27)	0 (0)	2 (12)	$\chi^2 = 3.99$, *ns*
Total competitive hours: Mean (*SD*)	326.93 (415.73)	34.67 (112.74)	48.56 (93.83)	$F = 5.88$, $p = .006$ SE > SS, PC
Total competitive wages: Mean (*SD*)	1925.62 (2634.50)	279.41 (923.50)	317.84 (634.79)	$F = 4.58$, $p = .016$ SE > SS, PC
Total weeks competitive work: Mean (*SD*)	37.80 (35.13)	4.17 (14.12)	6.25 (16.56)	$F = 8.75$, $p = .001$ SE > SS, PC
Average weeks per competitive job: Mean (*SD*)	30.93 (35.97)	4.17 (14.12)	6.25 (16.56)	$F = 5.25$, $p = .009$ SE > SS, PC
All paid work				
Any paid work: *N* (%)	14 (93)	4 (33)	6 (37)	$\chi^2 = 13.20$, $p = .001$
Worked more than 20 hours per week: *N* (%)	4 (27)	0 (0)	2 (12)	$\chi^2 = 3.99$, *ns*
Total paid work hours: Mean (*SD*)	326.93 (415.73)	125.98 (300.47)	167.63 (422.04)	$F = 1.05$, *ns*
Total paid wages: Mean (*SD*)	1925.62 (2634.50)	805.67 (1856.14)	1023.43 (2332.51)	$F = 0.92$, *ns*
Total weeks paid work: Mean (*SD*)	37.80 (35.13)	13.25 (30.12)	16.06 (27.77)	$F = 2.68$, *ns*
Average weeks per paid job: Mean (*SD*)	30.93 (35.97)	13.08 (30.18)	13.25 (21.32)	$F = 1.76$, *ns*

Note. 1. Degrees of freedom for all *F* tests = 2, 61.

non-Latino participants. Latino consumers also tended to have more severe symptoms, worse self-esteem, and more impaired functioning than the non-Latino African American and non-Latino White consumers, although no significant differences emerged in subjective quality of life.

The lower levels of education and competitive work in the Latino study participants are consistent with trends in the general Latino population living in the U.S. (Campbell, Hombo, & Mazzeo, 2000; Farkas, 2003; Therrien & Ramirez, 2000). Education level is related to competitive employment, both among the general population (Jencks, 1979) and among people with severe mental illness (Daradkeh & Karim, 1994; Mueser, Salyers, & Mueser, 2001). Thus, the lower rate of competitive employment in the Latino consumers for the 5 years prior to participating in this study may be partly attributable to their lower levels of education.

Another factor which may have contributed to the lower rate of competitive employment prior to study entry of the Latino consumers was the greater severity of their psychiatric disorders, including symptomatology and impairment in functioning, compared with their non-Latino African American and White counterparts. Psychiatric symptoms and related impairments interfere with both successful academic performance and employment (Kessler, Foster, Saunders, & Stang, 1995; McGurk & Mueser, 2006; Mueser et al., 2001). The greater psychiatric illness severity of the Latinos is consistent with the tendency of Latinos to be less likely than other racial/ethnic groups to receive mental health services for their psychiatric disorders in the U.S. (Alegría et al., 2008; Hough et al., 1987; Lee, Laiewski, & Choi, 2013 in Advance; Neighbors et al., 2007), and suggests that more severe symptoms and functional impairment may be required to propel Latinos into treatment. The findings also suggest that Latino consumers with severe mental illness may face even more obstacles to community integration and work than other ethnic/racial groups.

Despite the lower educational attainment, worse employment history, and greater symptom severity and functional impairment of the Latino consumers, they benefitted from supported employment as much as the non-Latino African American and White participants. At least some of the positive outcomes in work associated with supported employment may have been due to the higher rates of engagement/retention in vocational services over the project (95–100%), as compared with the intermediate rates for the psychosocial clubhouse program (52–67%), and the lower rates for the standard services program (9–41%; see Table 2). The assertive outreach nature of supported employment, with most services provided in the community, may have been especially critical to successfully engaging and retaining Latino consumers in vocational rehabilitation, and ultimately in improving employment outcomes.

Latino consumers in supported employment were more likely to obtain competitive work, work more competitive hours, earn more competitive wages, and work more competitive weeks than those in either standard services or the psychosocial clubhouse program. Latino consumers in supported employment, like the non-Latino participants, were also more likely to obtain any paid work and worked more weeks at any paid jobs than consumers in the other two programs. Furthermore, these benefits in supported employment were unrelated to language preference in the Latino consumers, with comparable gains shown for consumers who chose to have the research interviews in Spanish and those who chose to have them in English. These findings add to the evidence for supported employment from other randomized controlled trials (Bond, Drake, & Becker, 2012).

Although there were differences between the Latino consumers and the other ethnic/racial groups at baseline in a range of potentially important variables for work, including demographics (age, marital status, education), disability income, recent employment, diagnosis, and symptom severity, none of these variables was related to weeks of competitive work in supported employment, nor did any of them interact significantly with ethnicity/race in predicting competitive work. The sample for these analyses was relatively small ($N = 67$), thereby limiting statistical power to detect either main effects or interaction effects in predicting employment outcomes. However, the absence of significant effects or interactions in these analyses underscores the robustness of the effects of supported employ-

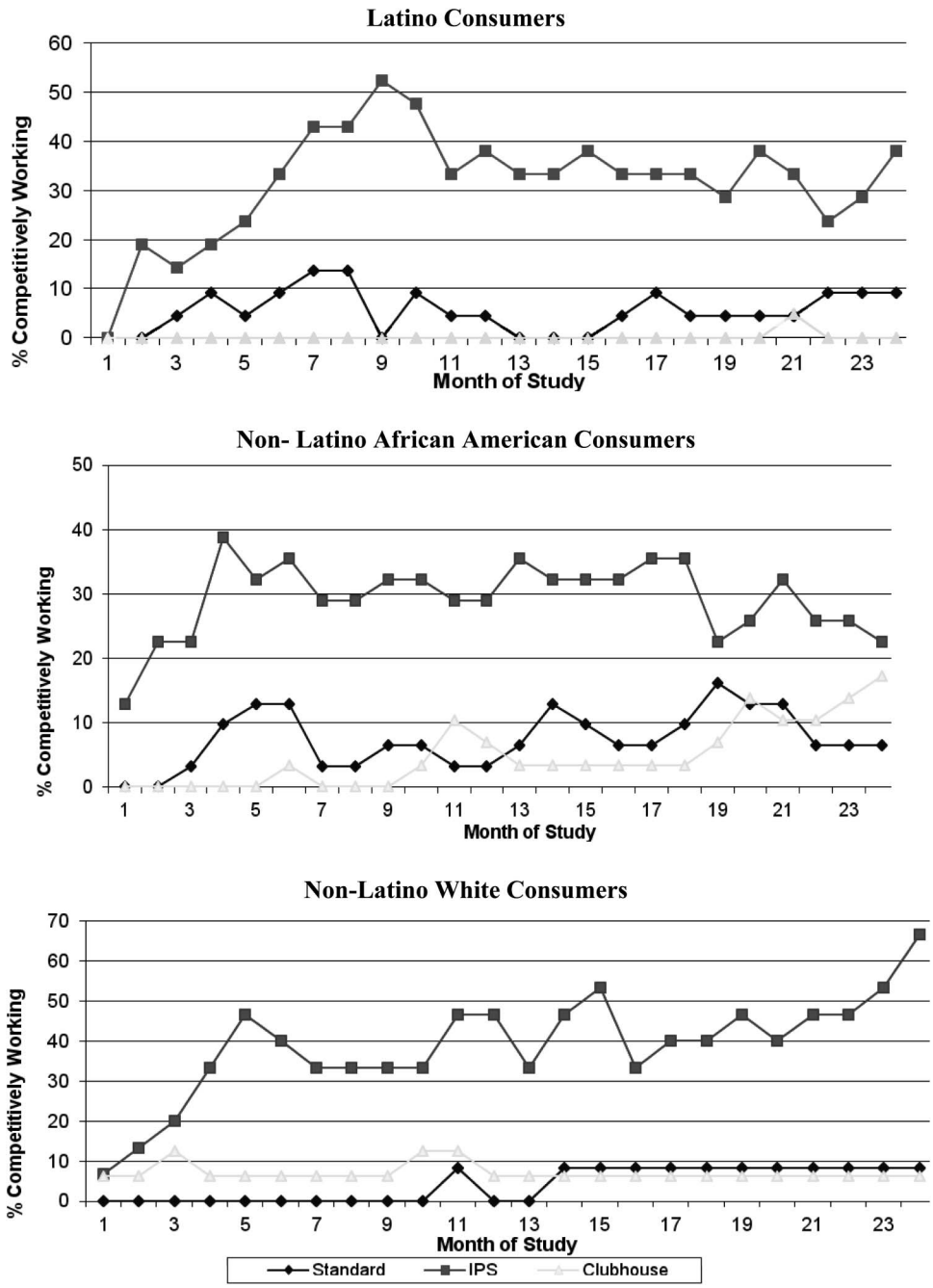

Figure 1. Rates of monthly competitive employment over a 2-year study period for Latino (top), non-Latino African American (middle), and non-Latino White (bottom) consumers randomized to supported employment, psychosocial clubhouse program, and standard services.

ment in improving competitive work outcomes in all three ethnic/racial groups.

In summary, compared with non-Latino African American and White participants, Latino consumers in this study of vocational rehabilitation models for persons with severe mental illness were more socially disadvantaged in terms of lower levels of education and less recent history of competitive work, and tended to have more severe symptoms and functional impairments than the non-Latino study participants. Nevertheless, Latino consumers who were randomized to supported employment benefited significantly more than those assigned to the psychosocial clubhouse program or standard services, and experienced comparable benefits to the non-Latino consumers. Efforts should be made to ensure that Latino consumers with severe mental illness have access to supported employment, which could benefit both their economic standing sand psychiatric disorders.

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