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## Does Competitive Work Improve Quality of Life for Adults with Severe Mental Illness? Evidence from a Randomized Trial of Supported Employment

Paul B. Gold, PhD, Cathaleene Macias, PhD, and Charles F. Rodican, MSW

### Abstract

A randomized trial comparing a facility-based Clubhouse (N=83) to a mobile Program of Assertive Community Treatment (PACT; N=84) tested the widely held belief that competitive employment improves global quality of life for adults with severe mental illness. Random regression analyses showed that, over 24 months of study participation, competitively employed Clubhouse participants reported greater global quality of life improvement, particularly with the social and financial aspects of their lives, as well as greater self-esteem and service satisfaction, compared to competitively employed PACT participants. However, there was no overall association between global quality of life and competitive work, or work duration. Future research will determine whether these findings generalize to other certified Clubhouses or to other types of supported employment. Multi-site studies are needed to identify key mechanisms for quality of life improvement in certified Clubhouses, including the possibly essential role of Clubhouse employer consortiums for providing high-wage, socially integrated jobs.

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Supported employment<sup>1</sup> is widely believed to be an effective intervention for promoting quality of life for adults with severe mental illness because it facilitates participation in competitive work.<sup>2–4</sup> However, empirical support for this belief is weak. Several randomized trials have reported positive associations between competitive work and global quality of life in secondary analyses that do not test for program effects,<sup>5–10</sup> but these and other correlational findings<sup>11</sup> do not clarify whether competitive work improves quality of life or whether individuals who are generally satisfied with their lives are more capable of pursuing competitive employment.<sup>12</sup>

Lack of evidence for a causal association between enrollment in a supported employment program and subsequent quality of life improvement may be due to design limitations common to most supported employment randomized controlled trials. For instance, most trials have low statistical power to detect program differences in quality of life change

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Address correspondence to Paul B. Gold, PhD, Department of Counseling, Higher Education, and Special Education, University of Maryland at College Park, College Park, MD 20742, USA. Phone: +1-301-4058414; Fax: +1-301-4059995; pbgold08@gmail.com.

Cathaleene Macias, PhD, Community Intervention Research, McLean Hospital, Belmont, MA, USA.

Charles F. Rodican, MSW, Community Intervention Research, McLean Hospital, Belmont, MA, USA.

Cathaleene Macias, PhD, Harvard Medical School, Boston, MA, USA.

Charles F. Rodican, MSW, Harvard Medical School, Boston, MA, USA.

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associated with competitive work because few comparison program participants ever enter competitive employment.<sup>5,13</sup> Statistical power is much higher for multi-sample studies, such as the EQOLISE collaboration, which conducted randomized trials in six European nations.<sup>6</sup> However, the results of the EQOLISE study do not demonstrate a causal association between supported employment and quality of life improvement even though supported employment participants worked more weeks during their study periods compared to comparison program participants.<sup>14</sup> In fact, the reverse was true. Participants in the comparison programs who worked competitive jobs reported higher concurrent quality of life compared to supported employment participants.

This unexpected finding might be explained by another primary difference between experimental programs in most randomized controlled trials: Whereas most supported employment interventions provide only employment services,<sup>15</sup> many comparison programs provide both employment services and opportunities to interact with peers,<sup>16</sup> suggesting that social interaction (e.g., emotional support, praise, camaraderie) may be an essential prerequisite for a positive association between competitive work and quality of life improvement.<sup>12</sup>

Although many people with severe mental illness report that informal social support is an important reason for their work success,<sup>17,18</sup> only a single observational study has found that informal social support (i.e., family contact) is associated with a stronger positive association between competitive work and quality of life.<sup>19</sup> To our knowledge, no empirical study has investigated whether supported employment is more effective for promoting a positive association between competitive work and quality-of-life improvement when implemented in a work-oriented social setting.

This study tests two hypotheses. First, *participants who work a competitive job after random assignment to a supported employment program that provides work-oriented opportunities to socialize with peers and staff (certified Clubhouse)<sup>20</sup> will report greater quality of life improvement over time, compared to participants who work a competitive job after random assignment to a supported employment program that does not offer work-oriented opportunities to socialize (Vocationally Integrated Program of Assertive Community Treatment).<sup>21</sup>* Second, *the more weeks participants in a certified Clubhouse work in competitive jobs, the more quality-of-life improvement they will report, compared to participants in a Clubhouse program who do not work a competitive job and to all PACT participants whether or not they hold a competitive job.*

## Methods

Data for these analyses come from a randomized controlled trial of two supported employment programs conducted in Massachusetts<sup>22</sup> from 1995 to 2000 as part of the Substance Abuse and Mental Health Service Administration's Employment Intervention Demonstration Project,<sup>23</sup> with Institutional Review Board review and approval from Fountain House, Inc. in New York and McLean Hospital in Massachusetts. The Clubhouse ("Clubhouse") was certified by the International Center for Clubhouse Development (ICCD) as being in compliance with the Standards for Clubhouse Programs,<sup>20</sup> and was typical of

ICCD-certified clubhouses in the United States with similarly sized memberships and comparable operating budgets in regard to staffing, services provided, attendance rates, and employment outcomes.<sup>24,25</sup> The Vocationally Integrated Program of Assertive Community Treatment (“PACT”) was mentored by Leonard Stein and Jana Frey, who ensured operational comparability to the original PACT model program in Madison, Wisconsin, and verified compliance with PACT fidelity standards.<sup>26</sup>

The Clubhouse and PACT programs provided similar supported employment services. Vocational staff in both programs were trained together by the same supported employment expert, both programs maintained acceptable fidelity over the 4-year research period to supported employment model standards as assessed by a second supported employment expert, and both targeted competitive jobs by conducting individual job searches (e.g., job development, newspaper ads, temp agencies, social networking). However, the Clubhouse program also created and relied on an employer consortium, which has been a typical job-finding strategy for all certified Clubhouses since its origination at Fountain House in New York City in the 1950s.<sup>27</sup> This study’s Clubhouse consortium of local employers reserved transitional entry-level employment positions for clubhouse participants and hired job-qualified participants directly into permanent positions as vacancies arose. Clubhouse participants who worked these consortium jobs, or who sought these jobs, were invited to attend weekly dinners at which work experiences were discussed and successes celebrated. In 1996, the Clubhouse consortium consisted of 14 employers providing 24 transitional employment placements; in 1998, 12 employers provided 25 placements. Any Clubhouse participant could qualify for these jobs whether or not he or she were enrolled in the research project. The newer PACT program did not create an employer consortium, but did place clients in jobs reserved for adults with mental illness by the regional Department of Mental Health or by the PACT auspice agency, a multi-service community mental health center. PACT clients could also apply directly for jobs at any company that was part of the Clubhouse employer consortium.

The Clubhouse and PACT programs approached opportunities for social interaction in distinctly different ways. The Clubhouse, a facility-based program, offered a wide variety of work-oriented opportunities for participants to socialize, including the “Work-Ordered Day” and weekend and evening activities. In contrast, the PACT program did not provide any scheduled occasions to socialize, although it routinely referred participants to a separate drop-in social and skills-training program sponsored by its auspice agency.

## Participants

Eligibility criteria included a clinician-diagnosed severe mental illness, being currently unemployed, being age 18 or older, and no exposure to either experimental program in the preceding 2 years. In keeping with program fidelity standards, the research project did not screen for work interest. Participants were randomly assigned to enroll in the Clubhouse ( $n=89$ ) or PACT ( $n=88$ ). Six Clubhouse participants are omitted from this study: five died during their participation period; one withdrew consent. Four PACT participants were omitted: three resided continuously in the state hospital; one crossed over to Clubhouse services. This study’s sample size ( $N=167$ ) exceeds the sample size ( $N=121$ ) for the original

report of the randomized trial's employment outcomes<sup>22</sup> because that report restricted analyses to project enrollees who stated an interest in working, a common inclusion criterion for supported employment trials.

## Measures

**Quality of life**—Interviewers verbally administered Lehman's Brief Version of the Quality of Life Interview (QOLI)<sup>28</sup> to all participants at 6-month intervals based on individual time from enrollment. The present study uses only "subjective" QOLI items, which all have an identical Likert scaling (1, "Terrible" to 7, "Delighted"). The focal measure, *global quality of life* (*global QOL*), was calculated following manual instructions<sup>29</sup> as the sum of the QOLI's first and last items, worded identically, "How do you feel about your life in general?" Possible score range was from 2 to 14, with higher scores indicating more satisfaction. At baseline, the sum score for all QOLI subjective items correlated  $r=0.77$  with the *global QOL* two-item sum score. *Global QOL* scores were available at either the 18th or 24th month interview for 89% ( $n=148$ ) of the full sample, and for 92% ( $n=81$ ) of participants who worked a competitive job.

The value of *global QOL* as a longitudinal research measure is that it usually has fewer missing item responses compared to other QOLI subscales, and it allows the respondent to conceptualize life quality in any meaningful way. However, because *global QOL* lacks specificity, it is necessary to examine domain-specific QOLI subscales to identify the dominant meaning of *global QOL* change for a particular group of participants. Because our first hypothesis does not specify the social mechanism by which a Clubhouse might promote *global QOL* improvement for participants who enter competitive work (e.g., more respect from family vs. new friends), and because the mechanism could be different for different types of people, a composite *social QOL* score was calculated by summing scores across four nominally "social" QOLI subscales: *home living situation* (e.g., "The living arrangements where you live?"), *family interpersonal relations* (e.g., "The way you and your family act toward each other?"), *non-family interpersonal relations* (e.g., "The people you see socially?"), and *daily leisure activities* (e.g., "The amount of fun you have?"). Possible total scores for the 12-item *social QOL* measure range from 12 to 84, with higher scores indicating more satisfaction.

Three other domain-specific QOLI subscales included in the interview package were examined separately as a test of discriminant validity: *financial QOL* (three items), *safety QOL* (three items), and *health QOL* (three items). Possible scores for each subscale range from 3 to 21, with higher scores indicating more satisfaction. At baseline, *global QOL* scores correlated significantly with all domain-specific subscale scores, with the highest correlations being with *health QOL* ( $r=0.73$ ) and *daily leisure activities* ( $r=0.71$ ), and the lowest being with *safety QOL* ( $r=0.22$ ).

Missing item data for all QOL measures were randomly distributed, with no bias in favor of either program, or in favor of participants who did versus did not work a competitive job.

**Self-esteem**—The 10-item Rosenberg Self-Esteem Scale<sup>30</sup> is a widely used measure of self-regard with well-established validity and test-retest reliability.<sup>31</sup> The correlation

between *self-esteem* and *global QOL* was  $r=0.64$  at baseline and  $r=0.45$  at the 24-month interview.

**Service satisfaction**—The Service Evaluation Questionnaire (SEQ)<sup>32,33</sup> is an eight-item general measure appropriate for assessing client satisfaction with any type of service program. The SEQ has demonstrated reliability and validity in large-scale evaluations of the therapeutic effectiveness of outpatient mental health and medical treatment.<sup>34,35</sup> *Service satisfaction* scores did not correlate significantly with *global QOL* at any time point.

**Competitive employment**—All Clubhouse and PACT supported employment staff submitted weekly reports of participants' work activities, including hourly wage rate, total hours worked, and total earnings. These program records were supplemented and verified by participant and family member reports on work status in semi-annual research interviews. *Mean hours of work per week* and *mean hourly wage* equaled each participant's mean score on each of these two variables across all weeks employed over the study period. Wages paid by-the-job, or paid on a biweekly or monthly basis, were converted to the equivalent *hourly wage*. For participants who worked two jobs concurrently, both *hours of work per week* and *hourly wage* were first averaged across jobs before being averaged across weeks of concurrent work.

A job was defined as “competitive” if it lasted at least 1 week, the worker was paid directly by the employer, and the job met the U.S. Department of Labor's (DOL) definition of competitive work as any individually held and employer-supervised job located in a socially integrated community setting that paid a wage that met or exceeded *both* the current federal minimum wage, and wages paid for similar jobs held by non-disabled coworkers.<sup>36</sup> All individually held Clubhouse transitional employment placements met this DOL definition of competitive employment, but jobs on work crews did not. The primary outcome measure, “worked any competitive job,” was dummy-coded (*yes*=1; *no*=0).

### Data analysis plan

Clubhouse and PACT program participants were first compared, using descriptive statistics, on competitive employment outcomes (*proportion ever holding a competitive job*, *mean total weeks worked*), and five job characteristics (*mean hours worked per week*, *any temp agency job*, *any manual labor job*, *mean hourly wage*, *any consortium job*). A series of four hierarchical linear regression models then tested the extent to which program assignment and three job characteristics (*any manual labor job*, *mean hourly wage*, *any consortium job*) predict mean total *weeks worked* over the 24-month participation period. Order of variable entry was determined by program theory, with *any consortium job* entered last, based on the assumption that certified Clubhouses create employer consortiums to provide participants better jobs than ordinarily available to them in the open job market.

The first study hypothesis, that program assignment moderates a positive association between holding a *competitive job* and improvement in *global QOL*, was tested in a series of six random-regression models specifying *global QOL* as the dependent variable, and *program assignment* and *competitive work status* as predictor variables. Model 1 (unconditional means with no fixed effects and one random intercept for *global QOL*);

model 2 (unconditional growth with one fixed effect and one random effect for linear *time*); model 3 (one fixed effect for the time-invariant explanatory variable *program assignment*); model 4 (one fixed effect for the time-invariant explanatory variable *competitive work*); model 5 (one fixed effect for each of the three two-way interaction terms for the explanatory variables *time*, *program assignment*, and *competitive work*); and model 6 (one fixed effect for three-way interaction term for the explanatory variables *time*, *program assignment*, and *competitive work*).

Because conducting multiple tests increases the risk of type I errors, secondary analyses will be conducted only if the first hypothesis is supported by this omnibus random regression analysis that has *global QOL* as the dependent variable. That is, if the *time\*program assignment\*weeks worked* interaction is significant, and the highest positive *global QOL* change is observed for employed Clubhouse participants, the random regression analysis will be repeated five times with *social QOL*, *financial QOL*, *safety QOL*, *health QOL*, and *self-esteem* sequentially substituted for *global QOL*. If findings for any secondary analysis parallel the findings reported for the omnibus *global QOL* analysis, it will be inferred that *global QOL* change encompasses that specific QOL domain or *self-esteem*. Discriminant validity will be evident if the *time\*program assignment\*weeks worked* interaction is not significant when either *safety QOL* or *health QOL* is the dependent variable because work is not hypothesized to increase a sense of personal safety or health status.

The second “work threshold” hypothesis (i.e., the more weeks Clubhouse participants work in competitive jobs, the more *global QOL* improvement they will report) was tested by rerunning the same six random-regression models for the first hypothesis substituting a rank-order categorical measure of the tri-modally distributed *weeks worked* [0 ( $n=79$ ), 1–20 ( $n=44$ ), >20 ( $n=44$ )], each consisting of a comparable number of Clubhouse and PACT participants, for the binary predictor *any competitive work*. *Weeks worked* was not analyzed as a continuous measure due to the large number of zero values, and defining work groups using other cut-points would have arbitrarily divided clustered adjacent values, creating highly uneven subgroup sizes.

The error covariance structure of all models was specified with a block-diagonal unstructured variance–covariance matrix; all models were fitted using restricted maximum likelihood estimation. Prior to running the regression models, the raw data were examined for evidence of differential attrition as a function of program assignment. Finding that comparable percentages of Clubhouse and PACT participants provided *global QOL* self-ratings at their 24-month of study participation ( $n=64$ , 77.1% vs.  $n=66$ , 78.6%), interview data were assumed to be missing at random. Analyses were carried out with SAS PROC MIXED V9.3.<sup>37</sup>

## Results

### Baseline sample characteristics by program

Table 1 shows that the four study groups, defined by program assignment and eventual work status, closely resembled each other with two exceptions. First, in the Clubhouse condition only, women were more likely to hold a competitive job compared to men (64.3%,  $n=27$  vs.

34.1%,  $n=14$ ;  $\chi^2=7.54$ ,  $p=0.008$ ). Gender was not statistically controlled for in regression analyses because the two programs served fairly comparable percentages of female participants (50.6% vs. 39.3%), and gender did not correlate with *global QOL* for either program at any time point. Second, in both the Clubhouse and PACT conditions, participants who reported a baseline interest in work were more likely than those who were not interested in work to hold a competitive job while in the project (72%,  $n=61$  vs. 33%,  $n=16$ ;  $\chi^2=12.26$ ,  $p<.001$ ). Because this difference was consistent across experimental conditions, baseline interest in work did not require statistical control in regression analyses.

### Competitive employment outcomes and job characteristics by program

Table 2 summarizes competitive employment outcomes for each program. More PACT participants held at least one competitive job during the study period (49.4% vs. 56.0%), but on average, Clubhouse participants worked 13 more weeks compared to PACT participants ( $M=39.7$  vs.  $M=27.0$ ). About one half of each program's employed participants worked one competitive job (43.9% vs. 44.7%), and one third worked two jobs (36% vs. 29%). Similar proportions of Clubhouse and PACT participants were employed by their sixth month of participation (56.1% vs. 46.8%), ninth month of participation (70.7% vs. 68.1%), and 12th month of participation (82.9% vs. 80.9%), making it unnecessary to statistically control for *time-to-first-competitive job* in the regression analysis of *weeks worked*.

Table 2 also summarizes job characteristics for each program. On average, Clubhouse participants earned higher mean hourly wages compared to PACT participants (\$7.40 vs. \$6.28). Clubhouse participants were less likely than PACT participants to hold a manual labor job (12.5% vs. 36.2%) or work for a temp agency (2.4% vs. 19.2%), but more likely to work for a company that was part of the Clubhouse consortium of local employers (48.8% vs. 10.6%). Of the Clubhouse participants who worked for a consortium employer, a majority ( $n=16$ , 80%) worked in transitional employment (TE): 10 held only TE jobs, and six worked both TE and non-TE consortium jobs. Clubhouse participants employed in consortium jobs had comparable mean *hourly wages*, *hours of work per week*, and cumulative *weeks worked* as Clubhouse participants who worked only non-consortium competitive jobs.

### Job characteristics predicting total weeks of competitive work

A series of four linear regression models (Table 3) estimated the extent to which program assignment and three program-related job characteristics (Table 2) predict mean total weeks of competitive work (log transformed to normalize score distribution). Temp agency work is not examined because too few participants held these jobs. In model 1, *program assignment* is not a significant predictor of *weeks worked* when this dependent variable is log-transformed. In model 2, *any manual labor job* is a significant negative predictor of weeks worked. In model 3, *mean hourly wage* significantly predicts *weeks worked*, while controlling for the effects of both *program assignment* and *any manual labor job*, and the reduction in the parameter estimate for *any manual labor job* suggests that low wages account for the significant association between *any manual labor job* and *weeks worked* in model 2. In the final model 4, *any consortium job* significantly predicts *weeks worked* over and above all other variables taken together, indicating that participants who obtained a job

through the Clubhouse employer consortium worked more total weeks compared to other participants. *Mean hourly wage* also remains significant in this full model, indicating pay rate is a predictor of *weeks worked* in addition to *any consortium job*.

### **Hypothesis #1: Interactive effect of program assignment and competitive work (yes vs. no) on change in *global QOL***

Table 4 presents the pattern of unadjusted mean *global QOL* scores by program over the five time points of measurement. Clubhouse participants who worked competitive jobs reported the largest increase in *global QOL* over time, and the highest absolute *global QOL* scores for months 12, 18, and 24 compared to Clubhouse participants who did not hold a competitive job and all PACT participants, whether or not they held a competitive job. Although employed Clubhouse participants reported relatively low *global QOL* mean scores at baseline, this group difference was not significant, and the correlation between baseline and 24-month *global QOL* scores was  $r=0.81$  for employed Clubhouse participants, compared to  $r=0.42$ ,  $0.54$ , and  $0.44$  for the other three groups depicted in Table 4, an indication that the relatively large increase in *global QOL* for employed Clubhouse participants was reliable (i.e., the 2-year increase was fairly uniform across participants in that group).

Results of the series of six random regression models (Table 5) reveal that the pattern of unadjusted mean *global QOL* scores evident in Table 4 is predicted by a statistically significant three-way interaction of *time*, *program assignment*, and *competitive work*. Model 1's intraclass coefficient of 0.64 (unconditional means) indicates considerable variance in *global QOL* available to be accounted for by level-2 explanatory effects. The significant fixed effect for *time* in model 2 indicates that whole sample-averaged trajectory for *global QOL* trends upward over time, although the statistically significant random effects for both the intercept (baseline *global QOL*) and *time* indicate moderate inter-individual variation in magnitude over time. *Program assignment* (model 3), *competitive work* (model 4), and their two-way interactions with each other and with time (*time\*program assignment*, *time\*competitive work*, *program assignment\*competitive work*) (model 5) all fail to predict *global QOL*. In the final model 6, the three-way interaction (*time\*program assignment\*competitive work*) significantly and positively predicts *global QOL*, providing support for our hypothesis that Clubhouse participants who held any competitive job reported greater improvements in *global QOL* over the 24-month study period compared to Clubhouse participants who did not hold a competitive job and all PACT participants, whether or not they held a competitive job.

### **Domain-specific interpretations of the dominant meaning of *global QOL* change**

Because the results of the preceding omnibus random regression analysis support the first study hypothesis, secondary analyses were conducted to explore whether temporal change in *global QOL* scores encompassed specific *QOL* domains or *self-esteem*.

**Social QOL**—To test the assumption that the *global QOL* improvement observed for employed Clubhouse participants was substantially social in nature, the main random regression analysis (Table 5) was repeated substituting *social QOL* for *global QOL*. Findings for this analysis paralleled findings reported in Table 5. The same three-way interaction



(*time\*program assignment\*competitive work*) predicted *social QOL* (est. = 2.45, SE=0.98,  $t=2.09$ ,  $p<0.05$ ), with steady gains in mean *social QOL* scores over time only for Clubhouse participants who worked a competitive job, and for PACT participants who did not work a competitive job.

**Financial, safety, and health QOL**—The main random regression analysis (Table 5) was repeated substituting the three other domain-specific QOL subscales (financial, safety, and health) for *global QOL*. The same three-way *time\*program assignment\*competitive work* interaction predicted *financial QOL* (est. = 0.78, SE=0.36,  $t=2.17$ ,  $p<0.05$ ), with steady gains in mean *financial QOL* scores over time only for Clubhouse participants who worked a competitive job, and for PACT participants who did not work a competitive job. However, as expected, the *time\*program assignment\*competitive work* interaction did not predict *safety QOL* or *health QOL*. Because *global QOL* correlated significantly ( $p<0.05$ ) at baseline with *financial QOL* ( $r=0.46$ ), *safety QOL* ( $r=0.22$ ), and *health QOL* ( $r=0.73$ ), the lack of significant findings for the latter two subscales provides discriminant validity for the inference that Clubhouse participants who worked a competitive job increased in *global QOL* not only because their social lives improved but also because they were satisfied with their earnings from competitive work.

**Self-esteem**—The main random regression analysis (Table 5) was repeated substituting *self-esteem* for *global QOL*. The same three-way *time\*program assignment\*competitive work* interaction significantly predicted *self-esteem* improvement over the 24-month study period (est. = 1.02, SE=0.41,  $t=2.50$ ,  $p=0.01$ ), with the same pattern of mean scores as for *global QOL* (Table 4), with only competitively employed Clubhouse participants showing a steady increase in *self-esteem* over time.

**Service satisfaction**—Satisfaction with randomly assigned services was not analyzed in a repeated-measure design because no participant was receiving program services at baseline, and no change in *service satisfaction* was expected over the 2-year study period. An analysis of variance (ANOVA) was conducted that specified program assignment and competitive work as independent variables, and each participant's mean *service satisfaction* score (averaged across all available interviews conducted after the baseline interview) as the dependent variable. On average, each participant provided three *service satisfaction* ratings ( $Md=3.00$ ;  $M=2.86$ ,  $SD=1.35$ ; range=1 to 4). The program-by-competitive work interaction in the ANOVA significantly predicted *service satisfaction* ( $F=6.27$ ,  $df=7$ , 148;  $p=0.013$ ;  $\eta^2=0.04$ ), with group means in a pattern similar to that observed for *social QOL*: Clubhouse participants who worked a competitive job reported greater *service satisfaction* compared to other Clubhouse participants ( $M=24.5$ ,  $SD=4.7$ ,  $n=38$  vs.  $M=21.3$ ,  $SD=5.9$ ,  $n=36$ ); PACT participants who worked a competitive job were *less* satisfied with services compared to other PACT participants ( $M=21.9$ ,  $SD=5.6$ ,  $n=46$  vs.  $M=23.2$ ,  $SD=5.3$ ,  $n=32$ ). Overall, participants who did versus did not work a competitive job reported comparable levels of satisfaction with their assigned program ( $M=23.1$  vs.  $M=22.3$ ,  $p=0.41$ ).

## Hypothesis #2: Interactive effect of program assignment and competitive work (total weeks worked) on change in *global QOL*

This hypothesis was tested by repeating the main random regression analysis (Table 5) with the binary predictor, *competitive work* (yes/no), replaced by a rank-ordered measure of *total weeks of competitive work*. The tri-modal distribution of weeks worked divided the sample into three ranked categories: 0 weeks ( $n=79$ ), 1–20 weeks ( $n=44$ ), and >20 weeks ( $n=44$ ). The results of this analysis did not support our hypothesis. In the final model 6, the three-way interaction of *time\*program assignment\*weeks worked* revealed a statistically significant difference in favor of Clubhouse participants on *global QOL* between “0 weeks versus >20 weeks,” (est. = 0.65, SE= 0.27,  $t=2.39$ ,  $p=0.02$ ), but no program difference between “1–20 weeks versus >20 weeks” (est. = 0.29, SE=0.31,  $t=0.95$ ,  $p=0.34$ ). This lack of a difference between the “1–20 weeks versus >20 weeks” categories of work duration tentatively rules out the assumption that Clubhouse participants experienced *global QOL* improvement only if they completed a substantial duration of competitive work.

## Discussion

Findings from a random regression analysis support the first study hypothesis that Clubhouse participants who work one or more competitive jobs would report greater *global quality of life* improvement across their 24-month study participation periods, compared to PACT participants who work a competitive job and all unemployed Clubhouse and PACT participants. Clubhouse participants who held competitive jobs also showed significantly greater increases in *self-esteem* compared to all other study participants. The group difference in *global QOL* is interpreted as meaningful because the raw score increase for employed Clubhouse participants, when recalculated as the mean, rather than sum, of the first and last items of Lehman’s QOLI ( $M=3.29$  to 4.13), is comparable to increases considered to be evidence of intervention effectiveness in clinical studies of patients completing 6 weeks of partial hospitalization cognitive-behavioral therapy for obsessive-compulsive disorder ( $M=3.23$  to 4.00;  $p<0.001$ )<sup>40</sup> and injection opioid users participating in a 6-month randomized comparison of alternate linkages to drug abuse treatment ( $M=3.10$  to 4.00;  $p<0.001$ ).<sup>41</sup>

A slightly different pattern of group differences emerged for domain-specific measures of *social* and *financial quality of life*. PACT participants who did *not* work a competitive job reported *social and financial quality of life* improvements that paralleled those for employed Clubhouse participants, suggesting alternate routes to life improvement for unemployed Clubhouse participants, such as in vivo strengthening of family and friendship bonds.<sup>42</sup> There was no significant change over time for any study group on two other *quality of life* variables for which no significant effects were expected: *safety* and *health quality of life*. However, Clubhouse participants who worked a competitive job reported greater *service satisfaction* compared to unemployed Clubhouse participants, whereas PACT participants who worked a competitive job reported less *service* satisfaction with services compared to unemployed PACT participants.

The inference that *global quality of life* improvement observed for employed Clubhouse participants contained a strongly social element is supported by the overarching operational

difference between the two multi-service programs: The Clubhouse, a facility-based program, offered multiple daily opportunities for social interaction, while the PACT, a mobile treatment team, provided one-on-one service delivery in participants' homes, workplaces, and various neighborhood locations, but no scheduled group activities other than referrals to a drop-in center offered through an auspice agency. Also, employed Clubhouse participants were commonly encouraged to take leadership in work-related social activities ("Work-Ordered Day," weekly dinners for employed participants, evening and weekend recreation), and so may have benefited more than unemployed Clubhouse participants from peer support and egalitarian relationships with staff. The fact that the four quality of life subscales that comprise the aggregate *social quality of life* measure address non-program life experiences suggests that positive experiences gained from competitive work or Clubhouse participation spilled over into these participants' everyday lives so they enjoyed spending time at home, perceived greater respect from friends and family participants, and/or had more enjoyable leisure activities.

An autobiographical account written by the third author offers a rich example of the many ways that social interactions in a certified Clubhouse helped to restore his own sense of worth.<sup>43</sup> As this very personal account makes clear, the social connectedness that emerges from clubhouse membership involves far more than co-participation in scheduled activities. Although celebrations of work success are affirming, emotional survival often depends more heavily on how people around you react to failure, and whether everyday relationships are egalitarian and mutually empowering.

Lack of empirical support for the second study hypothesis, that *global quality of life* improves in direct proportion to total *weeks worked*, suggests the absence of a dosage or threshold effect of competitive work on *global quality of life*. That is, Clubhouse participants' relatively long average duration of competitive work does not account for their greater *global quality of life* improvement compared to employed PACT participants. Instead, it appears that simply obtaining a competitive job through the Clubhouse was sufficient to increase *global quality of life*. This lack of evidence for a dosage or threshold effect is similar to findings reported by Fabian,<sup>11</sup> but contrasts sharply with a Chicago Individual Placement and Support (IPS) randomized trial's report of higher quality of life for participants who worked at least 24 weeks at competitive jobs over their 24-month study periods, compared to those who did not work competitively, or worked fewer weeks.<sup>12</sup> One explanation for this study difference is the likelihood that many of the participants who worked at least 24 weeks at competitive jobs in the Chicago study had been assigned to an IPS model of supported employment, which typically continues to provide follow-along support services to employed participants at a steady pace long after the initial job placement.<sup>44,45</sup> If this assumption is correct, Chicago study participants who worked at least 24 weeks may have received sustained support from IPS specialists, in which case the findings of this Chicago study do not contradict present study findings that competitive work will benefit adults with severe mental illness if they receive vocational services from a program that provides personalized social contact.

## Limitations

Study findings may generalize only to certified Clubhouses and high-fidelity PACT programs in the United States during periods of economic prosperity. Also, because participant engagement in specific Clubhouse social activities or job-site social support could not be directly measured, the impact of these social processes based on service model descriptions can only be inferred. There were two primary limitations to the study design. First, subgroup sizes were too small to permit adequately powered multiple threshold tests for the effect of duration of employment. Second, interview measures did not coincide with job start and end dates, so concurrent or lagged change in *global quality of life* could not be assessed.

## Implications for Behavioral Health

Supported employment appears to be most effective for raising the quality of life of adults with severe mental illness when services are provided within a supportive social environment where achievement recognition and mutual support are continuously available. Supported employment services appear to be more effective for *sustaining* competitive employment when jobs are developed through a consortium of local employers willing to reserve well-paying jobs for adults with severe mental illness. To our knowledge, no empirical study has reported empirical support for the effectiveness of formal employer consortiums on employment outcomes for adults with severe mental illness, but the high cumulative employment rates reported for many supported employment programs suggest that staff often develop strong informal alliances with local companies that encourage employers to rehire from that same supported employment program when a client vacates a job. More could be learned about the key ingredients of effective SE if research articles reported not only employment rates but also number of employers and number of consecutive placements of program participants into specific jobs.

One reason for a lack of research on common supported employment practices is the value many funding agencies place on whole-program comparisons within randomized trials. At this point, there is ample evidence from randomized trials that a majority of adults with severe mental illness want to work for pay, and that many can work at least part time when support is available.<sup>46</sup> What is needed now are studies to determine what types of support are most effective for ensuring that mainstream employment will be a beneficial personal experience. That is, what needs to be known is *how* to achieve particular supported employment outcomes (e.g., longer work duration, quality-of-life improvement, career development). Because within-program comparisons generally have low statistical power, this “how-to” research will require multi-site samples of similar programs, with service variations nested within each program. For instance, large samples of certified Clubhouses in the United States, Canada, Europe, and Australia<sup>47</sup> could be recruited to investigate what particular work-related social experiences promote quality of life for adults with severe mental illness.

Future research is also needed to determine the viability and efficacy of blending particular components of this certified Clubhouse into other modalities of supported employment. For instance, the original Madison, Wisconsin PACT that served as the basis for designing the

Vocationally Integrated PACT program in this study now operates a drop-in center in which clients get to know one another and share their work experiences, and this social component appears to have had beneficial effects on PACT client well-being (Jana Frey, personal communication). Likewise, employer consortiums might prove to be effective add-ons to stand-alone supported employment interventions, such as IPS, potentially increasing not only the availability of high-quality jobs but also quality of life for clients who work these jobs.

While the present investigation leaves many questions unanswered, it opens a new door for research on a long-standing policy question: Is it worthwhile to invest scarce human service resources in supported employment for adults with severe mental illness? Although supported employment may never substantially reduce the dependency of adults with severe mental illness on entitlements,<sup>48,49</sup> working a well-paid part-time competitive job appears to improve quality of life and self-esteem for adults with mental illness when provided in tandem with social support from a certified Clubhouse. Future research must determine to what extent these encouraging findings generalize to other modalities of supported employment.

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**Table 1**  
 Baseline characteristics of Clubhouse and PACT participants who did versus who did not work a competitive job

Characteristic	Clubhouse (N=83)			PACT (N=84)			$\chi^2$ or <i>F</i>	Effect size <sup>d</sup>
	Competitive work (n=41)		No competitive work (n=42)	Competitive work (n=47)		No competitive work (n=37)		
	n (%) or M (SD)	n (%) or M (SD)		n (%) or M (SD)	n (%) or M (SD)			
Female (n, %)	27 (65.9)	15 (35.7)	15 (31.9)	18 (48.6)	0.60	0.06		
Caucasian (n, %)	34 (82.9)	33 (78.6)	36 (76.6)	28 (75.7)	0.13	0.03		
Age (M, SD)	37.0 (9.9)	39.5 (12.0)	36.8 (9.8)	38.0 (8.0)	0.17	0.00		
Schizophrenia diagnosis (n, %)	17 (41.5)	20 (47.6)	27 (57.4)	23 (62.2)	0.33	0.04		
Psychiatric symptoms (M, SD) <sup>b</sup>	46.9 (10.5)	45.2 (8.8)	47.0 (11.4)	50.0 (10.1)	2.18	0.01		
Physical health problems (M, SD) <sup>c</sup>	6.56 (3.36)	6.97 (2.77)	5.72 (3.48)	5.95 (3.52)	0.03	0.00		
Substance use disorder, current or past (n, %)	13 (31.7)	13 (31.0)	23 (48.9)	11 (29.7)	2.00	0.11		
Baseline level of functioning (poor or fair) (n, %) <sup>d</sup>	28 (68.3)	30 (73.2)	32 (68.1)	22 (59.5)	0.04	0.02		
High school diploma or GED (n, %)	28 (68.3)	28 (66.7)	28 (59.6)	24 (64.9)	0.09	0.02		
Competitive job in 5 years preceding study (n, %)	28 (68.3)	21 (50.0)	26 (55.3)	21 (56.8)	1.14	0.08		
Global quality of life (M, SD) <sup>e</sup>	6.58 (3.07)	7.00 (3.15)	7.47 (3.22)	7.30 (3.33)	0.35	0.00		
Match-to-service preference (n, %) <sup>f</sup>	9 (22.0)	14 (33.3)	10 (21.3)	7 (18.9)	0.57	0.06		
Interest in work (n, %) <sup>g</sup>	32 (78.0)	23 (54.8)	40 (85.1)	22 (59.5)	12.26 <sup>***</sup>	0.27		

Clubhouse program certified by International Center for Clubhouse Development, PACT Vocationally Integrated Program of Assertive Community Treatment

\*  $p < 0.05$ ,

\*\*  $p < 0.01$ ,

\*\*\*  $p < 0.001$

<sup>a</sup> Eta for chi-square ( $\chi^2$ ), partial eta squared for ANOVA (*F*)

<sup>b</sup> Positive and Negative Syndrome Scale<sup>38</sup> total score. Possible scores range from 21 to 147, with higher scores indicating more severe symptoms

<sup>c</sup> Health problem severity measured as the estimated annual costs of medical treatment (log-transformed) using the Chronic Illness and Disability Payment System, which is based on actual treatment costs for a large multi-state sample of Medicaid recipients<sup>39</sup>

<sup>d</sup> Self-rating on single interview item: "Overall, how would you rate your functioning in home, social, and school settings at the present time?" with response options of "poor," "fair," "good," or "excellent"



<sup>e</sup>Lehman's Quality of Life Interview (sum of first and last items).<sup>29</sup> Possible scores range from 7 to 14, with higher scores indicating more satisfaction with life in general

<sup>f</sup>Random assignment to the preferred program=1; random assignment to the non-preferred program or no program preference=0

<sup>g</sup>Response to question: "Are you currently interested in working?" 1=yes, 0=no or uncertain

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Cumulative 24-month competitive employment outcomes and job characteristics for Clubhouse and PACT participants

Table 2

	Clubhouse (n=41)	PACT (n=47)	X <sup>2</sup> , t, or U/z	p	ES <sup>a</sup>
<b>Work outcomes</b>					
Proportion holding one or more jobs (n, %) <sup>b</sup>	41 (49.4)	47 (56.0)	X <sup>2</sup> =0.72	.40	-.07
<b>Total weeks worked</b>					
M (SD)	39.7 (31.8)	27.0 (23.3)	t=4.62	.03	.46
Mad (IQR)	28.0 (12.0–66.0)	16.0 (9.0–41.0)	U=1169/z=1.71	.09	.61
<b>Job characteristics</b>					
<b>Hours worked per week</b>					
M (SD)	17.9 (9.8)	18.5 (9.3)	F=0.09	.77	-.06
Mad (IQR)	17 (10.0–22.1)	18 (10.0–23.6)	U=907/z=-0.47	.64	-.47
Any temp agency job (n, %)	1 (2.4%)	9 (19.2%)	X <sup>2</sup> =6.07	.01	-.26
Any manual labor job (n, %) <sup>c</sup>	5 (12.2)	17 (36.2)	X <sup>2</sup> =6.71	.01	.28
<b>Mean hourly wage (\$)</b>					
M (SD)	7.40 (2.22)	6.28 (1.31)	F=8.41	.005	.62
Mad (IQR)	6.80 (6.00–8.00)	5.76 (5.25–7.28)	U=1332/z=-3.08	.003	.69
Any consortium job (n, %) <sup>d</sup>	20 (48.8)	5 (10.6)	X <sup>2</sup> =15.66	<.001	.42

Note. Clubhouse=Program certified by International Center for Clubhouse Development; PACT=Program of Assertive Community Treatment

<sup>a</sup>ES=effect size. Cohen's d for t-test, eta for chi square (X<sup>2</sup>)

<sup>b</sup>Entire sample: Clubhouse (n=83); PACT (n=84)

<sup>c</sup>Any manual labor job=unskilled job requiring physical labor, such as cleaner, dock loader, kitchen worker

<sup>d</sup>Any consortium job=any job provided by an employer that was part of the clubhouse employer consortium

**Table 3**

Job characteristics as predictors of total weeks of competitive work (log transformed) for Clubhouse ( $n=41$ ) and PACT ( $n=47$ ) participants<sup>a</sup>

Variable	Model 1			Model 2			Model 3			Model 4					
	<i>b</i>	<i>SE</i>	<i>t</i>	<i>b</i>	<i>SE</i>	<i>β</i>	<i>t</i>	<i>b</i>	<i>SE</i>	<i>β</i>	<i>t</i>	<i>b</i>	<i>SE</i>	<i>β</i>	<i>t</i>
Intercept	2.86	.15	18.7***	3.08	.18		17.4***	2.00	.43		4.68***	1.74	.41		4.28***
Program <i>b</i>	0.36	.22	.17	0.22	.23	.10	0.98	0.06	.23	.03	0.28	-0.29	.23	-.14	-1.23
Any manual labor job <i>c</i>				-0.59	.26	-.24	-2.26*	-0.48	.26	-.20	-1.88	-0.45	.24	-.19	-1.88
Mean hourly wage								0.17	.06	.29	2.76**	0.19	.06	.34	3.36***
Any consortium job <i>d</i>												0.87	.24	.37	3.59***
<i>R</i> <sup>2</sup> / <i>R</i> <sup>2</sup>	.03		—	.08		.05	*	.16		.08	**	.27		.11	***

\*  $p < .05$ ,

\*\*  $p < .01$ ,

\*\*\*  $p < .001$

<sup>a</sup> Conditional on working

<sup>b</sup> Program (Clubhouse=1; PACT=0)

<sup>c</sup> Any manual labor job=unskilled job requiring physical labor, such as cleaner, dock loader, kitchen worker (Yes=1; No=0)

<sup>d</sup> Any consortium job=any job provided by an employer that was part of the clubhouse employer consortium (Yes=1; No=0)

Unadjusted *global quality of life* scores<sup>a</sup> by Clubhouse and PACT programs, and competitive work group, over the 24-month participation period

**Table 4**

Time	<i>n</i> <sup>b</sup>	Clubhouse (N=83)				PACT (N=84)			
		Competitive work		No competitive work		Competitive work		No competitive work	
		<i>M</i> (SD)	<i>n</i>	<i>M</i> (SD)	<i>n</i>	<i>M</i> (SD)	<i>n</i>	<i>M</i> (SD)	<i>n</i>
Baseline <sup>c</sup>	41	6.58 (3.07)	42	7.00 (3.15)	47	7.47 (3.22)	37	7.30 (3.33)	
6 months	33	7.73 (3.04)	27	7.33 (3.05)	38	7.74 (3.03)	30	7.93 (3.02)	
12 months	31	8.61 (3.21)	29	7.86 (3.20)	41	8.10 (2.90)	30	8.20 (2.28)	
18 months	33	8.67 (3.03)	28	7.46 (3.12)	43	8.00 (2.57)	31	8.10 (3.10)	
24 months	34	8.26 (3.23)	30	7.67 (3.06)	38	7.79 (2.98)	28	8.11 (2.96)	

Clubhouse program certified by International Center for Clubhouse Development, PACT Program of Assertive Community Treatment

<sup>a</sup>Lehman's Quality of Life Interview (sum of first and last items);<sup>29</sup> possible scores range from 7 to 14, with higher scores indicating more satisfaction with life in general.

<sup>b</sup>*n*=respondents at each time point of measurement

<sup>c</sup>Test of baseline difference across groups:  $F(3, 163)=0.35, p=0.56, \eta^2=0.00$

**Table 5**

Random regression analyses estimating the main and interactive effects of time, program, and competitive work on global quality of life over the 24-month participation period (N=167)

Fixed effects	Model 2 Time <sup>a</sup>		Model 3 Program <sup>b</sup>		Model 4 Competitive work		Model 5 2-Way Interactions		Model 6 3-Way Interaction	
	Est. (SE)	t	Est. (SE)	t	Est. (SE)	t	Est. (SE)	t	Est. (SE)	t
Intercept	7.31(0.23)	31.9***	7.39(0.30)	24.4***	7.24(0.38)	19.2***	7.77(0.47)	16.5***	7.51(0.48)	15.5***
Time <sup>a</sup>	0.20(0.06)	3.49***	0.20(0.06)	3.49***	0.20(0.06)	3.48***	0.03(0.10)	0.26	0.17(0.12)	1.38
Program <sup>b</sup>			-0.17(0.40)	-0.42	-0.15(0.40)	-0.37	-0.92(0.63)	-1.48	-0.42(0.67)	-0.63
Competitive work					0.27(0.40)	0.67	-0.35(0.61)	-0.57	0.12(0.65)	0.19
Program * competitive work							0.73(0.80)	0.90	-0.23(0.92)	-0.25
Program * time							0.20(0.11)	1.79	-0.06(0.17)	-0.38
Work * time							0.14(0.11)	1.19	-0.10(0.16)	-0.66
3-Way Interaction									0.49(0.23)	2.16*
Random effects	Est. (SE)	z	Est. (SE)	z	Est. (SE)	z	Est. (SE)	z	Est. (SE)	z
Level 1: Within-person	2.70(0.20)	13.8***	2.70(0.20)	13.8***	2.70(0.20)	13.8***	2.70(0.20)	13.8***	2.69(0.19)	13.8***
Level 2: Initial status	6.95(0.97)	7.18***	6.91(0.97)	7.15***	6.93(0.97)	7.15***	6.93(0.97)	7.15***	6.88(0.96)	7.18***
Rate of change	0.20(0.06)	3.11***	0.20(0.06)	3.30***	0.20(0.06)	3.31***	0.20(0.06)	3.19***	0.18(0.06)	3.06**
Covariance	-0.47(0.19)	-2.43*	-0.46(0.19)	-2.38*	-0.47(0.19)	-2.41*	-0.46(0.19)	-2.40*	-0.43(0.19)	-2.30*
Deviance <sup>c</sup> / BIC	3103 / 3134		3103 / 3139		3102 / 3143		3097 / 3154		3093 / 3154	

\* p<.05,

\*\* p<.01,

\*\*\* p<.001

Model 1 (Unconditional means) not shown. Abbreviations: BIC=Bayesian information criterion.

<sup>a</sup>Time denoted as 5 time-points of measurement: baseline, 6 months, 12 months, 18 months, and 24 months

<sup>b</sup>Program: (Clubhouse=1; PACT=0)

<sup>c</sup>Deviance=-2LL (minus twice loglikelihood difference)