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Rate and Predictors of Employment among Formerly Polysubstance Dependent Urban Individuals in Recovery

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Abstract

Employment is a key functioning index in addiction services and consistently emerges as a goal among persons in recovery. Research on employment in the addictions has focused on treatment populations and/or welfare recipients; little is known of employment rates or their predictors among persons in recovery. This study seeks to fill this gap, capitalizing on a sample (N = 311) of urban individuals at various stages of recovery. Fewer than half (44.5%) were employed; in logistic regressions, male gender and Caucasian race enhanced the odds of employment whereas having a comorbid chronic physical and/or mental health condition halved the odds. Implications center on the need to identify effective strategies to enhance employability among women and minorities, and for integrated care for persons with multiple chronic conditions.

Keywords

Recovery; employment; functioning; substance use disorder; addiction

Introduction

Employment is consistently considered among key indices of improvement for persons with a substance abuse disorder (SUD) and is implicit in experts' guiding criteria to evaluate SUD treatment.[1] Employment is one of the domains assessed in commonly used treatment outcome measures including the Addiction Severity Index (ASI),[2,3] in SAMHSA's National Outcome Measures[4] and CSAT's Government Performance and Results Act (GPRA) client outcome measures for discretionary programs. Employment has both economic and non-economic benefits for recovering individuals; in addition to its legitimate income producing potential, work provides structure, an opportunity for social connections and for socialization with non substance users who can function as role models, and a valued and respected role in society. The latter is especially important for persons who may have been stigmatized and discriminated against because of their substance use history.[5] Moreover, by providing something valued that can be lost to active addiction (i.e., relapse), employment can strengthen commitment to recovery.[6] Across studies of individuals recruited in SUD treatment, be it methadone maintenance or abstinence based, employment is one of the best predictors of positive treatment outcome: Positive associations between improved employment and improved functioning in other areas (e.g., those measured by the ASI) have been reported [7] including lower rates of relapse, less criminal activity, and fewer parole violations among employed compared to unemployed persons.[8–12][13–16] Securing employment is not only one of society's priorities for SUD affected persons,[17] it is also

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consistently cited as a top priority by SUD affected individuals at all stages of recovery.[5,18,19] We examined life priorities as a function of duration of abstinence among former polysubstance dependent persons living in the community; employment was consistently the second most frequently mentioned priority across recovery stages from early to stable (see later discussion) after 'staying clean and working on my recovery', with a trend whereby the proportion of participants citing employment as a priority increased as recovery progresses -from 31.1% in recovery < 6 months to 36.2% in recovery 6 to 18 months and 35.1% for those in recovery 18 months to 3 years.[5]

Regrettably, unemployment is a chronic problem among persons with SUDs.[20–23] Most of the available data come from treatment evaluation studies that assess participants' working status at follow-ups as a secondary outcome. For example, in the multisite multimodality DATOS study, the highest rates of employment across modalities at one- and five-year follow-ups were 43.2% and 54.3%, respectively, both observed in the short term inpatient arm of the study.[24] Recent data from the national Drug and Alcohol Services Information System (DASIS) also show low employment rates among SUD treatment adult clients: fewer than one-third of the sample (31%) were employed[25]. Starting some fifteen years ago, welfare reform and other legislation dramatically altered the availability of social safety net benefits for individuals with SUD. In particular, the Temporary Assistance for Needy Families (TANF) legislation imposed time limits on benefits, significantly reduced the availability of disability benefits for those with SUD by requiring certification of a co-occurring physical or mental health condition, and tied receipt of benefits to participation in work related activities (e.g., training) and eventual employment. [21,26] As a result, treatment programs have increased their focus on employment and implemented interventions to enhance clients' job readiness and employment rates to facilitate transition to self-sufficiency.[27,28] While some of the interventions have proven useful, [23,29] a significant proportion of SUD affected individuals do not benefit sufficiently to secure employment. For example, a recent control trial testing the efficacy of a coordinated care management intervention reported that while the intervention was somewhat beneficial for women, across study conditions (intervention and usual care) one third of men and two thirds of women reported no days of employment during the follow-up year. [21] Most recently, a large scale trial of a Job-Seeking Workshop intervention consisting of three weekly 4-hour sessions conducted in abstinence-based and methadone maintenance programs reported similar outcomes for participants in the experimental and the control (standard care) group: At 12-weeks follow-up, about one fifth of each group (20.1% and 24.3%, respectively) had positive outcomes (i.e., obtaining a new taxed job or enrollment in a training program) and nearly a third at the 24-week mark (31.4 and 31.9%).[30] These findings are particular noteworthy as 'expressed interest in obtaining work' was one of the study inclusion criteria. Such disappointing results have lead researchers to examine predictors of employment among SUD populations to guide policy and employment enhancing programs.

Predictors of employment among persons with substance use disorders

Substance use is understandably thought as a key barrier to employment; however, findings across studies consistently suggest that it is not significantly associated with employment.[31–32] Reporting on a recent clinical trial of coordinated care management compared to usual care, the authors concluded that substance use severity, considered a major barrier to employability, did not predict job outcomes for either group[21] (p. 116). There is however evidence for an association between substance use patterns and employment such as research on various forms of treatment tying treatment participation with abstinence and associated with reduced crime and improved employment rates.[33–35] Using an 8-year longitudinal design, Dennis and colleagues found that longer periods of abstinence are associated with significantly more days of work and with higher individual

income from employment.[36] While the association between SUD and employment is inconsistent across studies, the knowledge base is more solid with respect to several other barriers to employment, most of which frequently co-occur with SUD; they include physical and mental health conditions, legal and housing problems, poor work experience or skills and low educational attainment, family size and family/childcare responsibilities.[21,28,31,32,37–39] Not surprisingly, there is also strong evidence that experiencing a greater number of overall barriers is associated with lower rates of job acquisition and job stability.[40,41] Gender consistently emerges as a predictor of employment with higher post-treatment rates and greater readiness to work among males.[21,42,43] In sum, employment rates are typically low following SUD treatment. By limiting the duration and availability of benefits to SUD affected person, welfare reform has emphasized the need to enhance employability and employment in this population; a number of employment enhancing interventions have been developed and researchers have also identified predictors of employment among SUD populations,

Study Objectives

The broad construct of recovery – i.e., abstinence or significant reductions in substance use, and improved functioning in addiction-impaired areas[44] - is increasingly guiding SUD services and policy. Specialty care SUD treatment is being supplemented by an array of recovery support services aimed at promoting recovery initiation and maintenance.[45] Unlike specialty care that generally serves individuals either still actively using substances or quite early in the change process, recovery support services are accessible to all persons in recovery regardless of formal diagnosis, how recovery was attained (e.g., whether formal treatment was ever sought) or how long ago it was attained (i.e., duration of abstinence). As with other aspects of the recovery experience, the empirical basis available to guide recovery support services remains in its infancy.[46] In the area of employment, we located a small-scale study of community based persons in recovery in Scotland that reported employment rates of 34% among persons in recovery under 5 years, and 50% for those over five years.[47] Generally, we know little of the employment rates or their predictors among persons in recovery: most studies on employment, employability or barriers to employment among SUD affected individuals have focused on two subpopulations: treatment clients and/or welfare recipients. As a consequence, current knowledge is restricted to individuals who are more likely to participate in SUD treatment or in work enhancing interventions, persons who meet strict eligibility criteria of intervention evaluation studies, limiting external validity [21] and individuals in early recovery (e.g., early treatment admission).[30] Given the importance of employment to individuals in recovery (see earlier) and to society, information is needed about factors associated with employment rates in under-investigated populations to inform policy and the development of training and other job preparedness services. Such services will become increasingly needed as the substance abuse service field is slowly adopting a chronic disease, continuing care model designed to promote not only reductions in substance use but the broader goal of ‘recovery’ to which employment is central.[45,48] This cross-sectional study examines rates and predictors of employment status in a sample of urban individuals in representing various stages of recovery from polysubstance dependence.

Methods

Recruiting Procedure and Sample

Recruiting took place in New York City through media advertisements placed in free newspapers and flyers posted throughout the community over a one-year period starting in March 2003. Prospective participants were briefly screened by telephone for the following eligibility criteria: (1) Fulfilling the DSM-IV criteria for dependence of any illicit drug [49] for

at least one year in one's lifetime, but not in the past month; (2) Self-reported abstinence from illicit drugs for at least one month, and (3) Not being enrolled in residential treatment.[a] Seven hundred and two unduplicated screenings were conducted; of those, 440 were eligible; 354 were interviewed (81% of eligibles); interviewing ended when the target sample size was attained. Additional details about recruiting and other methodological considerations are more fully described in previous studies.[50,51] The study was reviewed and approved by the author's Institutional Review Board and we obtained a certificate of confidentiality from the funding agency. Data were collected through in-person interviews using interviewer-administered computer-assisted software (Questionnaire Development System, QDS: Nova Research). As described below, participants' background data (e.g., gender, ethnicity) come from the intake interview, all other data were obtained at the one year-follow-up interview (F1) that included questions on current employment. Participants received $30 for the intake interview and $40 at the follow-up interview. The study sample consists of 311 individuals who completed the F1 interview, representing a 90.9% retention rate among the surviving study cohort.

Measures

Based on a review of the extant literature, the following domains were examined as predictors of employment status at F1.

Background and demographics—In addition to gender, age, race, ethnicity (Hispanic: yes/no) and educational attainment (up to high school vs. post secondary education), we examined: (a) Past year homelessness (yes/no); (b) Current legal status (dichotomized to current involvement with the legal system: yes/no);

Employment history—Employment status at baseline (employed: yes/no) *Mental health* (a) Ever diagnosed with a mental health disorder? (yes/no) (b) Received treatment for an ('ongoing') mental health problem in the past year (yes/no) (c) Currently taking medications prescribed for a chronic mental health/emotional problem (yes/no); (c) Mental health self rating on a scale ranging from 1 (poor) to 5 (excellent).

Physical health—(a) Took medications prescribed for a chronic physical health problem in the past year (yes/no); (b) Infectious disease (HIV+ and/or HepC+) status ; (c) Physical health selfrating on a scale ranging from 1 (poor) to 5 (excellent).

Substance use (a) Dependence severity—We used the Lifetime and past year versions of the Non-alcohol Psychoactive Substance Use Disorders subscale of the Mini International Neuropsychiatric Interview (M.I.N.I.), a short structured diagnostic interview developed in the United States and Europe for DSM-IV and ICD-10 psychiatric disorders.[52] The MINI is a structured psychiatric interview that has been validated against the much longer Structured Clinical Interview for DSM diagnoses (SCID-P) and against the Composite International Diagnostic Interview for ICD-10 (CIDI). Chronbach Alpha = .81 in this sample.

(b) Drug and alcohol use past year—Substance use was collected using a list of 13 substances included in the Addiction Severity Index (ASI).[3] For each substance 'ever' used once or more, participants provided the last date of use. A variable was computed for abstinence duration from *each* substance ever used and a summary variable representing the duration of time since *most recent use of any of the illicit drug* ever used, in months (i.e., if a

[a]This study is a naturalistic investigation of the role of psychosocial factors on long-term recovery, we wanted to be able to assess the role of BL community-related factors on subsequent outcome.

participant last used heroin 4 years ago and crack 5 months ago, abstinence length is 5 months). From these data we computed a variable representing whether participants had used any drugs or alcohol in the past year (yes/no). Self reported use of cocaine, opiates, THC and methamphetamine were corroborated with saliva sample analyses.

(c) Abstinence duration and Remission stage—Two variables were used to examine the association between duration/stage of abstinence and employment status: A continuous variable representing duration of continuous abstinence from alcohol and drug abstracted from self-reports as described above, and a categorical summary of this variable representing 'recovery stage' using four time-linked benchmarks 'stages': Under 6 months of abstinence, 6 to under 18-months, 18 to 36 months, and over three years as previously reported.[53]

Overview of analyses

The study outcome was current employment status at F1, collected as working part- or full-time, or not working, and recoded to a dichotomous variable: employed yes/no. Predictors of employment were identified using a two-stage strategy. First, the strength of the bivariate association between each independent potential predictor domain and employment status was examined using logistic regressions from which we present the odds ratio and confidence interval. Next, all predictor domains yielding significant associations with employment status (<.05) at the zero-order level were entered in a hierarchical logistic regression analyses: demographics were entered on the first step, indicators of the functioning domains (mental and physical health and substance use history) on the next step. When several variables within the same domain had yielded statistical significance at the bivariate level, current (vs. historical) indicators were selected to maximize the usefulness of data in guiding service development.

Results

Sample characteristics

Key sample characteristics are presented in Table 1. The sample was 45% female, nearly two thirds African American and ranged in age from 19 to 65 years (mean = 43, Std. Dev = 8.0). Educational attainment ranged from 5 to 18 years of schooling (mean = 12 years, Std. Dev = 2); 39.9% had less than a high school education, 21.20% had a high school level education and 38.9% reported post secondary schooling; in addition, 15.9% had attended school, college or a training program in the past year (2.9%, 2.4% and 10.3% respectively). Although nearly half had a history of incarceration (44.4%), most reported no current involvement with the criminal justice system (89.7%). Over two-thirds (69.5%) had experienced a period of homelessness, 6.75% in the past year. One half of the sample (51.6%) derived their *primary* income from government programs while 39.5% cited employment as their primary income source (other income sources: retirement pension 2.3%, veterans' benefits 1%, 'other legitimate income' 5.9%); 18.5% reported a secondary source of income, all from employment (94.5% from a job 'on the books').

Employment—Slightly under one half (44.5%) were currently employed part- or full-time (28.4% and 16.1%, respectively); job tenure ranged from under one month to over twenty years (mean = 32.5 months, median = 12 months, Std Dev = 49 months). Only three study participants reported currently participating in the Work Experience Program (WEP or "workfare"). At intake, 42.1% had reported being employed full or part-time (22.2% and 19.9%, respectively).

Physical health—The mean health rating was 3.03, corresponding to the scale midpoint ('good'). Over one half (53.1%) had taken medications prescribed for an ongoing (chronic) medical condition in the past year. Of those (N = 165), 44.85% reported multiple chronic medical conditions. The five chronic diseases cited most frequently were cardiovascular disease (38.2%), HIV (31.8%), pulmonary/respiratory problems (18.8%), diabetes (12.1%), and arthritis (10.9%). The prevalence of infectious disease was relatively high in this sample, with 24% reporting being HIV+ and 31.8% HCV+; 45.6% reporting testing positive for either HIV and/or HepC.

Mental health—Over one third (38.7%) had been diagnosed with a mental health disorder; among those 'ever' diagnosed, most frequent diagnoses were depression (56%), bipolar disorder (21%) and anxiety disorder (17.7%). One quarter (22.5%) had been treated for ongoing mental health issues in the past year and 22.8% had taken medications prescribed for mental health in the past month. Mean self rating of mental health was 3.19, corresponding to the scale midpoint ('good').

Drugs and alcohol use—The sample's substance use history was extensive: Mean lifetime dependence severity was high (11.7 out of maximum score of 14, Std. Dev. = 2.4). Crack cocaine was cited as the primary problem substance for over half the sample (59.4%) followed by heroin (17.50%) although the majority of respondents were polysubstance users. Regular drug use (once a week or more) had lasted on average 18.7 years (St. Dev.=12 years). One third (33.8%) had used drugs or alcohol in the past year at F1; mean F1 dependence severity in the past year was low (1.5, Std Dev. = 3.3) with 75.2% scoring zero. Mean drug and alcohol abstinence duration at F1 was slightly over three years (Mean = 38.1 months, Std dev = 44.5 months). In terms of F1 remission duration ('recovery') stage, 30.4% were classified as abstinent for under 6 months, 12.3% 6 to 18 months, 17.2% 18 to 36 months, and 40.1% for over three years.

Predictors of employment status

Bivariate analyses—Looking first at demographic predictors of employment status, being male and being Caucasian were each associated with twice greater odds of being employed relative to female gender and being non-white (OR = 2.13, 95% CI = 1.34–3.37, $p < .01$, and OR = 2.62, 95% CI = 1.38–4.98, $p < .01$, respectively); younger age predicted slightly greater likelihood of employment (OR = 0.97, 95% CI = 0.95–1.0, $p < .05$) as did higher educational attainment: 52.9% of those with a post-secondary education were employed compared with 38.9% of those with HS or less (OR = 1.76, 95% CI = 1.11–2.79, $p < .05$). Not surprisingly, being employed at the intake interview significantly increased the odds of being employed a year later (OR = 6.04, 95% CI = 3.68–9.01, $p < .001$). All mental health indicators were significantly associated with lower odds of being employed: Those ever diagnosed with a mental health disorder were half as likely to be employed relative to persons without a diagnosis (OR = 0.57, 95% CI = 0.35–0.91, $p < .05$) as were those current taking psychiatric medications (OR = 0.41, 95% CI = 0.23–0.72, $p < .01$). Physical health indicators were the strongest individual predictors of employment status: being on a regimen of prescribed medication for an ongoing medical condition halved the odds of being employed (OR = 0.44, 95% CI = 0.27–0.72, $p < .001$); of note, having an infectious disease (HepC and/or HIV) decreased the odds of being employed by half (OR = 0.47, 95% CI = 0.28 – 0.78, $p < .01$). None of the substance use indicators (historical or current) emerged as statistically significant predictors of employment status.

Multivariate analyses: Final domains model—In addition to the significant demographic and background predictors (i.e., male, white, age, and education level), predictor domains considered in the final model were restricted to current, objective

indicators of functioning that had yielded significant results in bivariate analyses. As shown in Table 2, four variables emerged as significant predictors of current employment status: Being male and being Caucasian were each associated with greater odds of being employed (OR = 1.79, 95% CI = 1.10–2.92, $p < .05$, and OR = 2.62, 95% CI = 1.27–5.42, $p < .01$, respectively) while being on a regimen of prescribed medication for a chronic medical condition halved the odds of being employed (OR = 0.52, 95% CI = 0.31–0.88, $p < .05$) as did being treated for a chronic mental health condition (OR = 0.41, 95% CI = 0.22–0.76, $p < .01$)

Discussion

Reprise of findings

We set out to examine rates and predictors of employment status among community-based urban individuals at various stages of in recovery from polysubstance dependence. Participants had experienced long, severe histories of SUD and equally severe and multiple consequences of chronic SUD (69.5% had a history of homelessness, 44.4% a history of incarceration, 46.5% had an infectious disease often associated with substance use: HIV or HepC). Although in the aggregate participants, rated both their physical and mental health as 'good', 53.1% were being treated for one or more chronic medical conditions and 38.7% had been diagnosed with a mental health disorder. Participants represented a broad range of recovery duration from early to stable (> 3 years) with a mean educational attainment corresponding to the high school level. Overall, 44.4% were currently employed full or part-time for a median duration of one year at their current job. Four domains emerged as predictors of employment status in the final model: being male and being Caucasian roughly doubled the odds of being employed whereas indices of ongoing mental and physical health problems decreased the odds of being employed by about half. Younger age, higher educational attainment and not having a history of homelessness yielded significant results when examined individually but were not retained in the final model. Most notably, no index of substance use (lifetime severity, use past year, abstinence duration) predicted employment status even when examined individually.

Study limitations

This study is among the first to explore the important topic of employment among community-based individuals in recovery from SUD who were not recruited from a treatment program or in the context of an employment enhancing intervention, both of which typically apply multiple exclusion criteria for participation, restricting external validity. The study maximizes the external validity of findings but also has some methodoligical restrictions that need to be considered when interpreting results. First, the cross-sectional design precludes establishing definite causation; however, significant predictors in the final model (race, gender, history of chronic medical and mental health condition) clearly precede employment status chronologically. Second, data rely on self-reports, as is the case in the majority of similar studies; thus we cannot rule out inaccuracy in these reports. Third, we did not collect extensive data on employment history, a domain that has previously emerged as predictor or current employment.[21] Last, the sample represents perhaps the extreme end of the clinical spectrum in terms of duration and severity of dependence as well as social consequences; moreover, the study was conducted in New York City, a large urban center. Therefore findings may not generalize to other subgroups of individuals in recovery such as persons of different socioeconomic status, those living in smaller urban centers, suburbia or rural areas, as well as persons whose history and duration of substance use was less extensive than represented here. With these limitations in mind, we turn to key implications of findings for service, research and policy.

Implications for services, policy and research

Employment is a top goal of persons in SUD recovery and of society; in this study, fewer than half were working at the time of the study, consistent with prior reports of post treatment employment rates mentioned earlier.[24] Findings on predictors of employment were also consistent with previous reports obtained among SUD treatment clients and SUD affected welfare recipients enrolled in employment enhancing interventions; for instance, higher rates of employment are consistently observed among males.[21,43] However this study extends the knowledge base on predictors of employment to recovering populations including individuals in sustained or stable recovery (>3 years) that currently represent an under-investigation population. That substance use (history and current) did not predict employment status contributes to the currently inconsistent body of science on the role of SUD populations' primary problem on working status. In their study, Hogue and colleagues had noted the sample overall had a restricted (high) range of past SUD severity that may have attenuated the observed association between substance use and work;[21] while the same is true of this sample, there was a broad range of current abstinence *duration* (from one month to over 10 years) that did not emerge as a significant predictor of employment either, even at the zero-order level.

Findings on the role of gender and race on employment status among persons in recovery are not surprising but highlight broader social issues. Historically, the unemployment rate is consistently higher among African Americans than among Whites; for example, between 2002 and 2009, unemployment rates among African Americans ranged from 8.3% (in 2007, the lowest of that period) to 15.8% vs. 4.4% (the lowest of the period, in 2005) to 8.5% among Whites.[54] Moreover, members of minority groups suffer disproportionately from consequences of drug abuse – as do women,[55] even though their overall rates of drug abuse are similar to rates in the general population.[56] These ongoing disparities must be addressed at the policy, funding and service level to maximize opportunities for recovery among underserved groups. Among women, studies have identified multiple barriers to employment in multiple domains among including poor physical health, low labor capital and motivation for work.[21] One study reported superior outcomes among women using an intervention designed to address multiple barriers to employability via Intensive Case Management (ICM) and direct coordination of services with providers.[42]

The high prevalence of mental health problems in SUD populations and the nefarious consequences of these problems on employment have been previously reported.[32,38,57,58] A study examining the association between abstinence duration and other areas of functioning over 8 years among individual recruited at treatment entry found that while there were no significant differences in the trends for physical health as a function of duration of abstinence, *mental health problems* initially peaked between 1 and 3 years of abstinence, followed by decreases.[36] This lag whereby the benefits of substance use cessation on mental health may not be experienced for several years requires further investigation and must be considered when formulating policy and interventions designed to promote employment among former SUD persons. Also note that while mental health issues may decrease over time for some individuals in recovery, there is of course a subgroup whose mental health problems will remain chronic. In a study investigating recovery priorities in a sample of community-based individuals dually-diagnosed with a substance use and a mental health problem, we reported that "Working, finding work, or keeping a job" was endorsed as very difficult by 46% of participants, second only to "Dealing with feelings (anger, pain, shame, guilt, etc.)".[19] As we had discussed in that study, in addition to the very real limitations that may be placed on functioning (e.g., cognitive, emotional) as a result of mental health problems, challenges to securing employment for dually diagnosed persons may include stigma leading to low self-expectations[59] and low self-efficacy[60] so that challenges (e.g., seeking work) are avoided, as well as the entitlement system itself: Receiving entitlements

affects one's sense of self[61] and the rules may provide a strong disincentive to being employed. Disability benefits provide much-needed health insurance covering medications and psychiatric care unlike many of the low-paying jobs filled by persons lacking the technical skills the workplace increasingly demands. That may change gradually as the Affordable Care Act ('healthcare reform') is fully implemented and health insurance coverage is extended to more underserved individuals.

The finding bearing on the role of chronic medical conditions on employment in this sample is perhaps the most noteworthy as less attention has been paid to the consequences of SUD on physical health than on mental health thus far. Over half of the sample reported one or more chronic medical conditions, which halved the odds of being employed. The high prevalence of medical conditions among SUD affected individuals has been previously reported.[58] In the same longitudinal study of individuals entering substance abuse treatment mentioned earlier, the authors reported a median time of 27 years from first to last drug use including 9 years from first treatment to last use.[62] Active addiction often leads to chaotic lives that revolve around securing and using drugs, and finding the resources to do so. In that context, self care including tending to one's physical health is typically neglected. Substance use is typically associated with lower access to health services,[63] with high rates of non adherence to medical regimens;[64,65] moreover it hastens and complicates the course of other chronic conditions.[66] Thus physical health deteriorates over several decades of active addiction, progressing too often to a chronic stage that requires ongoing management and negatively impacts functioning in recovery as reported here.

Overall study findings suggest that a large proportion of members of traditionally underserved social groups emerge out of active addiction with chronic mental and physical health conditions that significantly reduces the odds of fullfilling employment goals. Research is needed to further elucidate the level of disability created by chronic mental and physical health conditions among underserved formerly SUD dependent populations, versus other, individual or societal factors that may contribute to decreased odds of being employed in this subgroup. For example, researchers have noted the importance of motivation for work as a predictor of subsequent employment among SUD treatment or employment enhancement intervention clients.[21] In general, higher motivation predicts better employment outcomes [29,41] though a recent report observed the association among males only.[21] Investigating (and intervening on) work motivation to enhance employment is potentially promising as motivation is more malleable than are chronic conditions (or gender and race, other significant predictors of employment in this study).[30] For example, among unemployed methadone maintenance patients, there is evidence that behavioral contingencies can motivate patients to obtain verified employment in the community.[67] Thus it has been noted that realigning welfare interventions to emphasize job training and job seeking during the early stages of welfare management appears to be a promising strategy for this population.[42] As for mental health, it is likely that a subgroup of persons in SUD recovery have chronic medical conditions that have progressed to a level where disability will endure in spite of abstinence and any medical treatment so that regardless of level of motivation for work, employment will remain an elusive goal. This must also be taken into consideration when formulating policy and benefit packages for the underserved and disabled. For some, alternatives to traditional employment such as home based work may fill a gap in this context, especially as ever-developing technologies are reshaping and broadening our concept of the 'workplace.'

Finally, this discussion would not be complete without a brief discussion of the potential of some key tenets of the 2010 Affordable care Act (ACA, http://www.healthcare.gov/) to transform the system and specifically address the needs of populations such as the present sample, at least in the long run, while containing escalating costs.[68,69] Setting aside the

uncertainty of a presidential campaign year where several of the candidates have made reverting ACA a key platform, several elements of the ACA hold great promise in the context of our study. The ACA includes the well publicized projection that that 32 million currently uninsured Americans will be insured under ACA- 6 to 10 million of whom are believed to have a substance use and/or mental health disorder.[70] Being insured may minimize financial barriers to seeking treatment for any condition. Perhaps the most relevant element of the ACA in the context of this study is the integration of primary and behavioral health care (SUD and mental health) in such venues as patient centered integrated chronic care health homes,[71] a model that recognizes that individuals with multiple chronic condition are best (and most cost effectively) treated in a integrated manner. While individuals grapple with multiple life problems simultaneously, professionals (service providers and funders, researchers) had chosen to focus on (specialize in) a single area of human functioning, be it mental health, SUD, or medicine (and on individual conditions and body parts within the field of medicine). For example, this siloed model was the norm in behavioral health until some two decades ago; patients dually diagnosed with mental health problems and SUD often fell through the cracks of the treatment system as the two disorders were typically addressed separately in different programs by clinicians with different training and therapeutic orientations.[72,73] The separation of mental health and substance abuse treatment programs came to be recognized as a significant part of the problem encountered in treating dually-diagnosed clients.[74] Since then, combined integrated treatments where the same clinical team addresses both disorders simultaneously are increasingly being embraced and studies support the effectiveness of this approach.[75,76]

In the context of our study, extending the integration of health care services to physical and behavioral health as proposed by the ACA has appeal given the high prevalence of multiple chronic conditions and their impact on employment. Studies examining interventions designed to improve care delivery for SUD patients illustrate the potential benefits of integrated care where medical services and SUD treatment services are co-located.[77] Integrated care is associated with improved SUD treatment outcomes [78–80] and improved health outcomes.[81,82] A recent randomized trial examining the effects of a continuing care model over nine years after SUD treatment entry, reported that patients receiving the integrated care (i.e., yearly primary care, and specialty substance abuse treatment and psychiatric services when needed) had twice the odds of achieving remission (i.e., abstinence or non problematic use) at follow-ups as those in standard care ($p<.001$).[83] Integrating SUD care with primary care is also likely to improve the outcomes of medical conditions: Optimal treatment of numerous medical disorders requires identification, intervention, and treatment of any underlying SUD that may interfere with treatment adherence or aggravate preexisting conditions.[58,84–87]

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Table 1

Sample descriptives

Domain*	Variable	Total Sample
		N = 311
Gender	Male	55%
Race	African-American	62.80%
	White	15.50%
Ethny	Hispanic (yes)	18%
Age (mean, SD)		43.20 (7.99)
Education:	Years (SD)	12.23 (2.26)
	Less than HS	39.90%
	HS/GED	21.20%
	Postsecondary	38.90%
Legal involvement	Ever incarcerated (yes)	44.37%
	No legal involvement at F1	89.70%
Employment	Currently Employed (PT/FT) at F1	44.40%
	Employed (on- or off-the books) at baseline	42.10%
Primary income source	Employment (on- or off-the books)	39.50%
	Government benefits F1	51.60%
	Pension/retirement	2.30%
	Other	6.60%
Homelessness	Ever homeless (yes)	69.50%
	Homeless past year	6.75%
Physical health	Physical health rating (1 = poor, −5 = excellent)	3.03 (.85)
	Infectious disease (HIV and/or Hep C)	45.60%
	HIV + (yes)	24%
	Hep C+ (yes)	30.20%
	Ongoing treatment for chronic medical condition	53.10%
	Hospitalized past year	16.70%
Mental health	Ever diagnosed (yes)	38.70%
	Treatment past year	22.50%
	Ongoing treatment for chronic mental health condition	22.80%
	Mental health rating (1 = poor, −5 = excellent)	3.19 (.83)
Substance use	Addiction severity: Lifetime (0 – 14)	11.69 (2.35)
	Addiction severity: Past year (0 – 14)	1.49 (3.33)
	Primary substance: Alcohol	8.10%
	Primary substance: Crack	59.40%
	Primary substance: Cocaine other than Crack	9.70%
	Primary substance: Other	5.20%
	Primary substance: Heroin	17.50%

Domain*	Variable	Total Sample
		N = 311
	Used drugs/alcohol past year	33.80%
	Duration of alcohol+drug abstinence (months, mean)	38.1 (44.5)
	Abstinence duration: < 6 months	30.40%
	Abstinence duration: 6 – 18 months	12.30%
	Abstinence duration: 18 – 36 months	17.20%
	Abstinence duration: > 3 years	40.10%

*All F1 except historical/demographics

Table 2

Predictors of employment status (logistic regression)

	B	S.E.	Wald	df	Significance	Odds Ratio (Exp B)	95% CI (Exp B)
Age	−0.016	0.16	1.04	1	0.309	0.98	0.95 – 1.02
Male (vs. Female)	0.583	0.249	5.49	1	0.019	1.79	1.10 –2.92
White (vs. non-white)	0.964	0.371	6.76	1	0.009	2.62	1.27 – 5.42
Education (HS or more vs. <HS)	0.357	0.261	1.87	1	0.171	1.43	.86 – −2.38
Treated chronic physical health condition (past year)	−0.654	0.267	6.01	1	0.014	0.52	.31 – .88
Treated chronic mental health condition (past year)	−0.904	0.321	7.91	1	0.005	0.41	.22 – 76
Constant	0.461	0.727	0.4	1	0.526	.1.58	

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