

## Return-to-Work Corner

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# The role of employment status, change, and satisfaction for people who have completed substance use disorder treatment

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Received

Accepted

### Abstract.

**BACKGROUND:** Substance use disorder (SUD) is a complex disabling condition that is not often well understood. Despite decades of SUD research and intervention, prevalence rates remain stable and many traditional treatment options are largely ineffective in helping individuals with SUDs attain long-term abstinence and recovery. One avenue that shows promise in facilitating higher recovery and quality of life (QoL) outcomes in people with SUD is employment that occurs alongside traditional treatment.

**OBJECTIVE:** This study sought to understand the role that meaningful and satisfying employment has in SUD outcomes for treatment completers.

**METHODS:** Employing a quasi-experimental, cross-sectional, nonequivalent group design, this study examined 197 individuals with SUDs who completed treatment to explore how their employment status during treatment, employment status change from their treatment to the time of the survey, and job satisfaction influenced their recovery and QOL.

**RESULTS:** Analyses of covariance (ANCOVAs) revealed that those who made the transition from unemployed at treatment to employed at time of survey and those who were employed in “very satisfying” jobs had higher rates of recovery and QOL than those who were in “very dissatisfying” jobs or made the transition from employed during treatment to unemployed at time of survey.

**CONCLUSION:** The results of this study are promising in that employment and job satisfaction seem to be facilitative of recovery and QOL outcomes for this population of SUD treatment completers.

Keywords: Substance abuse, work, job satisfaction, quality of life

## 1. Introduction

Approximately 8–11% of Americans have a substance use disorder (SUD) [1, 2]. Worldwide,

approximately 5% of people have an alcohol use disorder (AUD) while 0.5% have an illicit drug use disorder [3]. Dependence on drugs and/or alcohol is a significant risk factor for disability and early death [3]. Having an active SUD can preclude one from living a happy, healthy, and successful life in that it can significantly disrupt one’s well-being in numerous ways, particularly in employment. Employment is important to well-being for several reasons. From an

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existential standpoint, employment provides one with a sense of purpose, and from an economic or practical position it provides one with a steady source of income and benefits including health insurance coverage. Those with SUDs are often at a higher risk of being unemployed and facing difficulties in obtaining employment when compared to people who do not have a SUD. For those who are employed, SUD can negatively impact work performance and job satisfaction, putting them at increased risk for disengagement from the labor force.

Being employed is an important status in society. People who are employed tend to be healthier and happier than those who are not; and employment that is meaningful and satisfying may be an instrumental and critical component to SUD recovery.

### *1.1. Statement of the problem*

The recidivism rate for people who seek SUD treatment remains dramatically high, even after decades of research [4]. Although approximately 46.1% of people with SUDs resolve their SUD without engaging in formal treatment or any support services [5], many require or would benefit from effective, evidence-based treatment. Many people with SUDs seem to recover on their own, or “mature out” of their SUD. This is not to conclude, however, that if one has an SUD their highest chances for recovery would result from doing nothing, “waiting it out,” or avoiding treatment. If one has an SUD, treatment can certainly facilitate recovery and lead to long-term positive outcomes. The problem in the realm of SUDs, however, is that those who seek treatment often struggle for the majority of or all their lives to remain abstinent and have high rates of relapse (approximately 40-60%) [6-8].

In 2017, an estimated 19.7 million people in the United States aged 12 or older had an SUD, yet only one-in-eight received specialty treatment, and even fewer (approximately one-in-thirteen) received non-specialty treatment [5]. According to the National Institute on Drug Abuse [9], approximately 85% of people with SUDs relapse within a year of treatment, whereas many clinical treatment studies report approximately 66% relapse within weeks [10]. The goal of treatment is long-term recovery. Identifying interventions that contribute to reducing the risk of relapse and extending periods of abstinence, therefore, is a priority [11, 12].

One issue contributing to the high rates of relapse is that SUD treatment facilities and programs often

solely target the client’s immediate, acute recovery needs [13], such as combating physical dependency, negative withdrawal symptoms, and the most obvious or overt destructive behaviors. While it is important to tackle these issues first, recovery from SUD requires long-term efforts and often multiple treatment sequences across various intervention programs. People completing SUD treatment are often discharged and return to their communities without being provided the social, psychological, and environmental supports needed for long-term recovery [13]. Without these supports, people with SUDs are at increased risk for using again. Relapse rates are high for those who complete treatment, and the risk is typically highest in the first two months after treatment discharge [14].

Those with the most severe cases of SUD generally want and need treatment. A fraction of those who need treatment receive it, and many of those who do receive it have high rates of relapse and low rates of long-term treatment success. Treatment is effective in reducing the immediate and acute SUD problems, but there appears to be a critical piece that is missing to maximize treatment success and increase chances for long-term recovery. Some scholars have hypothesized that employment may be an important component in helping to avoid relapse, but few have examined the relationship between meaningful, satisfying employment post-treatment and SUD recovery. In addition, few have examined the direct effects of employment on SUD recovery, and many of the specific benefits of work that may lead to positive outcomes have not yet been delineated.

In summary, many people with SUDs who seek treatment relapse and do not achieve their long-term recovery goals. An exploration of what is “missing” from traditional treatment suggests that employment appears to have an important role. Despite the challenges in obtaining and maintaining employment that people with SUDs face, employment may prove to be an essential element of recovery as it has been shown to positively influence the domains that SUDs harm, including the physical, psychological, social, and spiritual aspects of life. It is expected that satisfying, meaningful employment can be an essential element of integrated SUD treatment and facilitate long-term recovery outcomes.

### *1.2. Research questions*

Three research questions were evaluated in this study: (a) Does employment status during treatment

influence recovery and quality of life (QOL)? (b) Does employment status change from during treatment to time of survey influence recovery and QOL? (c) Does current job satisfaction influence recovery and QOL?

## 2. Method

This study employed a quasi-experimental, cross-sectional, nonequivalent group design. Approval for this study was provided by the University of Wisconsin-Madison's Education and Social/Behavioral Sciences Institutional Review Board office. The study was determined to meet the criteria for exempting human subjects from review in accordance with the following category as defined under 45 CFR 46: (2) (ii) Tests, surveys, interviews, or observation (low risk).

### 2.1. Procedure and participants

Inclusion criteria for participation were: (a) at least 21 years of age and (b) had completed SUD treatment. After providing informed consent, participants were asked to complete an online survey that was posted using the Qualtrics Survey Hosting Service (Qualtrics, Provo, UT). The survey asked participants about their personal and demographic information, substance abuse and treatment histories, and employment status and experience(s), including job satisfaction.

Initially, a snowball sampling method was employed. A flyer containing study information, contact information, an online link to the survey, and a QR code was electronically distributed to several rehabilitation professionals who had connections to SUD treatment centers and facilities, who were then asked to forward the flyer to potential participants and/or other professionals. We received only 14 responses from this initial sampling method.

CloudResearch was then used to recruit additional participants. CloudResearch is a participant-sourcing platform for online research and surveys. Potential participants who are members of the CloudResearch community voluntarily agree to participate in research studies. To identify potential participants, we posed the screener question: "I have utilized or participated in at least one form of traditional treatment to reduce my substance use." If participants responded yes, then they were invited to go on to complete the rest of the survey. If not, then participants were thanked for their time and not included

Table 1  
Participant sample characteristics

Variable	<i>n</i> (%)	<i>Mean</i> ( <i>SD</i> )
Age		37.63 (10.1)
Gender		
Male	93 (47.2%)	
Female	95 (48.2%)	
Transgender	2 (1%)	
Other/prefer not to respond	2 (1%)	
Race/ethnicity		
African American	29 (14.7%)	
Asian American/Pacific Islander	4 (2%)	
Caucasian (white)	125 (63.5%)	
Hispanic/Latino	22 (11.2%)	
Native American	3 (1.5%)	
Multi-racial	11 (5.6%)	
Other	3 (1.5%)	
Co-occurring disability		
Yes	59 (29.9%)	
No	128 (65%)	
Prefer not to respond	10 (5.1%)	
Co-occurring disability type		
Psychiatric	27 (45.8%)	
Physical	16 (27.1%)	
Intellectual/learning	8 (13.6%)	
Neurological	4 (6.8%)	
Sensory	2 (3.4%)	
Other	2 (3.4%)	

in the study sample. This method yielded 230 survey respondents, with 47 not meeting the inclusion criteria, resulting in a sample size of 183. This, combined with the valid responses from the other sampling method described above, yielded a final sample size of 197.

Based on their survey responses, participants were categorized into one of four groups: (a) employed during treatment and still employed at time of survey (Group 1-EE); (b) unemployed during treatment and employed at time of survey (Group 2-UE); (c) employed during treatment and unemployed at time of survey (Group 3-EU); and (d) unemployed during treatment and still unemployed at time of survey (Group 4-UU). Further subdivision compartmentalized participants based on their current job satisfaction. Job satisfaction for groups 1 and 2 was categorized into five categorical levels: very dissatisfied, somewhat dissatisfied, neutral (neither dissatisfied nor satisfied), somewhat satisfied, and very satisfied.

Descriptive statistics for the 197 members of the final study sample are included in Table 1.

Descriptive statistics regarding substance use characteristics are included in Table 2. All participants indicated "yes" to the following two questions, as they both were requirements to participate in the

Table 2  
Substance use characteristics

Variable	<i>n</i> (%)	Mean (SD)
Years dealing with SUD issues (initial to time of survey)		14.59 (9.94)
Time since treatment completion		8.19 (8.73)
Diagnosed with SUD		
Yes	167 (84.8%)	
No but has problems with substance use	30 (15.2%)	
Type of treatment received		
Outpatient	70 (35.5%)	
Short-term residential	49 (24.9%)	
Inpatient	32 (16.2%)	
Other	17 (8.6%)	
Reasons for leaving treatment		
Completed/finished	146 (74.1%)	
Was not helpful	16 (8.1%)	
Prefer not to respond	3 (1.5%)	
Other	32 (16.2%)	
Drug of choice		
Multiple drugs	73 (37.1%)	
Alcohol alone	69 (35%)	
Heroin/opioids alone	29 (14.7%)	
Methamphetamine alone	9 (4.6%)	
Marijuana alone	8 (4.1%)	
Cocaine alone	6 (3%)	
Missing/prefer not to respond	3 (1.5%)	
Currently abstinent/sober		
Yes	116 (58.9%)	
No	75 (38.1%)	
Prefer not to respond	6 (3%)	

Table 3  
Employment characteristics

Variable	<i>n</i> (%)
Employed during treatment	
Yes	108 (54.8%)
No	89 (45.2%)
Employed at time of survey	
Yes	156 (79.2%)
No	41 (20.8%)
Employment group membership	
Employed-employed (EE)	89 (45.2%)
Unemployed-employed (UE)	67 (34%)
Unemployed-unemployed (UU)	22 (11.2%)
Employed-unemployed (EU)	19 (9.6%)
Job satisfaction	
Very dissatisfied	6 (3.8%)
Somewhat dissatisfied	14 (9%)
Neutral	45 (28.8%)
Somewhat satisfied	37 (23.7%)
Very satisfied	54 (34.6%)
Career type	
Business and finance	25 (12.7%)
Information technology	19 (9.6%)
Education and training	24 (12.2%)
Health science	14 (7.1%)
Agriculture, food, natural resources	10 (5.1%)
Science, technology, engineering, and math	7 (3.6%)
Marketing	6 (3%)
Architecture and construction	5 (2.5%)
Arts	5 (2.5%)
Law, public safety, corrections, and security	4 (2%)
Audio/visual technology, and communications	1 (0.5%)
Other	58 (29.4%)
Missing	19 (9.6%)

study: (a) “Do you (now or in the past) have a substance use disorder, or identify as having, now or in the past, a problem with substance abuse (this may include alcohol or other substances)?”; and “Have you ever received treatment for your substance use disorder/problems?”

Descriptive statistics regarding employment characteristics are included in Table 3. 54.8% of participants were employed during treatment, and 79.2% reported being employed at the time of the survey. The group memberships designated above were as follows: 89 (45.2%) were EE, 67 (34%) were UE, 22 (11.2%) were UU, and 19 (9.6%) were EU. Among the 156 participants who were employed at the time of survey and completed the job satisfaction measure, their results are as follows: 6 (3%) were very dissatisfied, 14 (7.1%) were somewhat dissatisfied, 45 (28.8%) were neutral, 37 (23.7%) were somewhat satisfied, and 54 (34.6%) were very satisfied.

## 2.2. Variables and instrumentation

Independent variables for this study included employment status, employment status change from

during treatment to the time of the survey, and job satisfaction. Employment status was operationalized in two categories, concerning employment status at treatment and at the time of completing the survey. Participants were categorized as employed during treatment and/or time of survey if they were working at least 10 hours per week. Job satisfaction was measured using a 21-item questionnaire adapted from the (Minnesota) Theory of Work Adjustment [15, 16] asking: In respect to your employment experiences, please rate whether you agree with the following statements. Response options included: (a) too little, (b) about right, or (c) too much. “Too little” and “too much” responses indicated dissatisfaction (scored as -1), whereas “about right” indicated satisfaction with any given item (scored as +1). In prior research, internal consistency reliability of the scale has been found to range from 0.78 to .91 [17, 18]. The job satisfaction scale score was converted for the present analyses into a categorical variable with five levels. Scores were categorized as follows: very dissatisfied (-21 to -15); somewhat dissatisfied (-14 to -8); neutral (-7 to 7);

somewhat satisfied (8 to 14); and very satisfied (15 to 21). In this study, descriptive statistics for the job satisfaction scale were as follows:  $M = 6.69$ ,  $SD = 10.77$ ; Cronbach's Alpha = 0.87.

Covariates included years since treatment completion and demographic variables such as gender, age, race/ethnicity, and years dealing with SUD issues. Additionally, since social support has also been shown to be facilitative of treatment outcomes [5], we controlled for this in our analysis. Social support was measured using the PROMIS Short Form v2.0-Emotional Support 4a [19]. This is a 4-item scale that assesses perceived feelings of being cared for and valued as a person, using a five-point response set ranging from 0 = *never* to 4 = *always*. Sample items include "I have someone who will listen to me when I talk" and "I have someone who makes me feel appreciated." Cronbach's alpha has been found to range from 0.88 to .94 [19–21]. Scores range from 25.7 to 63.5, with higher scores indicating greater social support. A score of 50 is average for the United States' general population [19]. In this study, descriptive statistics were as follows:  $M = 48.69$ ,  $SD = 8.3$ ; Cronbach's Alpha = 0.931.

This study had two dependent variables: QOL and recovery. Quality of life, defined by the World Health Organization Quality of Life (WHOQOL) Group as "... an individual's perceptions of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns," was measured with the WHOQOL-BREF [22], a 26-item version of the longer QOL scale, the WHO-QOL-100. The WHOQOL-BREF measures QOL across four domains: physical health (e.g., mobility, sleep, and rest), psychological health (e.g., self-esteem, positive/negative feelings), social relationships (e.g., social support, sexual activity), and environment (e.g., financial resources, transport, home environment). Responses are based on a five-point Likert-type scale ranging from 1 = *not at all* to 5 = *completely*; 1 = *very poor* to 5 = *very good*; 1 = *not at all* to 5 = *an extreme amount*; 1 = *very dissatisfied* to 5 = *very satisfied*; and 1 = *never* to 5 = *always*. Raw scores are converted to a 0-100 point scaled score on which higher scores indicate higher QOL. Regarding psychometrics, Illic and colleagues [23] deemed the WHOQOL-BREF to have "satisfactory" psychometric properties after computing a Cronbach's alpha coefficient for the whole scale of 0.90. In this study, descriptive statistics were as follows:  $M = 58.28$ ,  $SD = 17.81$ ; Cronbach's Alpha = 0.91.

Recovery was measured using the Substance Use Recovery Evaluator (SURE) [24]. The SURE, comprised of 21 items, is meant to measure one's recovery from drug and alcohol dependence. The SURE explores five domains or "factors" related to substance abuse recovery: drinking and drug use, self-care, relationships, material resources, and outlook on life. Respondents are asked to reflect on the prior week of their lives when responding to items. Sample items include "[thinking about the last week] I have drunk too much" and "I have been taking care of my mental health." Responses are based on a five-point Likert-type scale. Each question (despite being based on a five-point scale) is scored either 1, 2, or 3. The instrument was scored according to published protocol. The range of possible scores is 21-63 with higher scores indicating greater recovery. Internal consistency has been found to be high ( $\alpha = 0.91$ – $0.93$ ; [24]) with "good" face and content validity [24]. In this study, descriptive statistics were as follows:  $M = 50.84$ ,  $SD = 10.53$ ; Cronbach's Alpha = 0.94.

### 2.3. Statistical analysis

An analysis of variance (ANOVA) and the general linear model (GLM) with categorical independent variables (ANCOVA) were used to compare recovery and quality of life outcomes among the four employment groups. Specifically, the comparison aimed to evaluate the hypothesis that employment status during treatment would be positively and significantly related to recovery and QOL; employment group assignment (EE, UE, UU, or EU) would be positively and significantly related to recovery and QOL; and, for those who were employed, job satisfaction would be positively and significantly related to recovery and QOL. GLM was used to examine differences between the groups and whether including the covariates of gender, age, race/ethnicity, years dealing with substance use issues, years since treatment completion, and social support changed the results. The two categorical covariates, gender and race/ethnicity, were dummy coded. Gender was narrowed to three dummy variables (male, female, and transgender/other/prefer not to respond), and race/ethnicity was narrowed to five dummy variables (African American or Black, Caucasian (White), Hispanic/Latino, Asian, and Multiracial/Other). Analyses were conducted using the Statistical Package for the Social Sciences (IBM SPSS) version 27.

Table 4  
Descriptive statistics for dependent variables

Group	Recovery			Quality of life		
	M	SD	Range	M	SD	Range
All	50.84	10.53	41	58.28	17.81	87.50
Employed-employed (EE)	49.9	10.1	41	57.54	15.5	78.25
Unemployed-employed (UE)	54.67	9.54	36	64.45	17.6	86
Employed-unemployed (EU)	45.89	12.24	38	47.92	17.83	62.25
Unemployed-unemployed (UU)	47.27	10.34	34	51.66	20.49	82.75
Job satisfaction subgroups						
- Very dissatisfied	49.5	12.91	29	54.25	23.03	54.25
- Somewhat dissatisfied	47.21	13.89	40	53.93	16.64	64
- Neutral	46.4	9.87	41	55.08	13.56	56.50
- Somewhat satisfied	52.43	8.32	32	60.32	15	62.75
- Very satisfied	57.74	6.4	26	69.88	14.48	68.75

### 3. Results

#### 3.1. Descriptive data

Table 4 presents descriptive dependent variable data. Possible recovery scores ranged from 21-63. In the present sample, the SURE scores ranged from 22 to 63. In the present sample ( $N=197$ ), recovery scores were generally high, with a mean of 50.84 ( $SD=10.53$ ). In the original study in which the SURE was validated, out of 350 individuals who defined themselves as “in recovery,” their SURE recovery scores were on average 45.2 [24]. Preliminary analyses revealed recovery score means increasing in the order hypothesized, with those in the UE group ( $N=66$ ) having the highest scores ( $M=54.67$ ,  $SD=9.54$ ), the EE group ( $N=89$ ) second highest ( $M=49.9$ ,  $SD=10.1$ ), the UU group ( $N=22$ ) third ( $M=47.27$ ,  $SD=10.34$ ), and the EU group ( $N=19$ ) or those who were employed during treatment and unemployed at the time of the survey scoring the lowest ( $M=45.89$ ,  $SD=12.24$ ).

For job satisfaction, those who were “very satisfied” had the highest SURE recovery scores ( $M=57.74$ ,  $SD=6.4$ ), followed by “somewhat satisfied” ( $M=52.43$ ,  $SD=8.32$ ), “very dissatisfied” ( $M=49.5$ ,  $SD=12.91$ ), “somewhat dissatisfied” ( $M=47.21$ ,  $SD=13.89$ ), and the “neutral” group had the lowest SURE scores ( $M=46.4$ ,  $SD=9.87$ ).

Possible QOL scores ranged from 0-100, and in this study they ranged from 11-98.50 (range 87.50;  $M=58.28$ ,  $SD=17.81$ ). Regarding the employment group categories, the scores followed the same pattern observed for recovery means: UE had the highest QOL ratings with a mean of 64.45 ( $SD=17.6$ ), followed by EE ( $M=57.54$ ,  $SD=15.5$ ), UU ( $M=51.66$ ,  $SD=20.49$ ), and EU ( $M=47.92$ ,  $SD=17.83$ ).

Table 5

Correlations, means, and standard deviations for variables used in the ANCOVAs

Variable	1	2	3	4	5
1. Employment status during treatment	1				
2. Employment change/transition	.58**	1			
3. Job satisfaction	.17*	.17*	1		
4. QoL	.15*	-.12	.46**	1	
5. Recovery	.17*	-.08	.42**	.56**	1
Mean	1.45	1.87	3.76	58.28	50.84
Standard deviation	.5	.99	1.14	17.81	10.53

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

For the job satisfaction subgroups, the highest QOL scores belonged to those who were “very satisfied” ( $M=69.88$ ,  $SD=14.48$ ), followed by “somewhat satisfied” ( $M=60.32$ ,  $SD=15$ ), “neutral” ( $M=55.08$ ,  $SD=13.56$ ), “very dissatisfied” ( $M=54.25$ ,  $SD=23.03$ ), and the “somewhat dissatisfied” group had the lowest QoL scores ( $M=53.93$ ,  $SD=16.64$ ).

For the covariates, namely, gender, age, race/ethnicity, years dealing with SUD issues, social support, and time since treatment completion, means and standard deviations were as follows: age ( $M=37.63$ ,  $SD=10.12$ ); years dealing with SUD issues ( $M=14.59$ ,  $SD=9.94$ ); social support ( $M=48.69$ ,  $SD=8.3$ ); time since treatment completion ( $M=8.19$ ,  $SD=8.73$ ). Table 5 displays the intercorrelation matrix.

#### 3.2. Research question 1

##### 3.2.1. Effect of employment status during treatment on recovery

55% of participants were employed during treatment, whereas 45% were not. Those who were

employed at treatment had a mean SURE score of 49 ( $SD=10.72$ ), whereas those who were unemployed had a mean SURE score of 52.5 ( $SD=10.4$ ). An ANCOVA was run to determine the effect of employment status during treatment on recovery after controlling for gender, age, race/ethnicity, years dealing with substance use issues, years since treatment completion, and social support. After adjustment for the control variables, no significant relationship was observed ( $F(1, 171)=1.751, p=.188$ ).

3.2.2. Effect of employment status during treatment on present quality of life

Those who were employed during treatment had a mean WHOQOL-BREF score at the time of the survey of 56 ( $SD=16.43$ ), while those who had been unemployed during treatment had a mean QoL score of 60.5 ( $SD=18.7$ ). An ANCOVA was run to determine the effect of employment status during treatment on current QOL after including the covariates. After adjustment for the control variables, there was not a statistically significant difference in QOL between the groups,  $F(1, 169)=1.817, p=.180$ . Research question 1 was not supported.

3.3. Research question 2

3.3.1. Effect of employment group assignment on recovery

Group SURE means were as follows: UE (54.67), EE (49.9), UU (47.27), EU (45.89). An ANCOVA was run to determine the effect of employment status (group assignment) on recovery after including the covariates. After adjustment for the control variables, there was a statistically significant difference in recovery between the groups,  $F(3, 169)=4.578, p=.004$ . Post hoc analysis was performed using a Bonferroni adjustment. The post hoc analysis revealed significant differences between UE vs EU ( $M_{diff} = 8.213$  [95% CI, 1.12 to 14.31],  $p=.014$ ), and UE and UU ( $M_{diff} = 6.708$  [95% CI, .201 to 13.214],  $p=.039$ ). UE scored higher than EU by approximately 8 points, and they also scored higher than UU by approximately 6.5 points. The results of the ANCOVA are presented in Table 6.

3.3.2. Effect of employment group assignment on present quality of life

Group WHOQOL-BREF means were as follows: UE (63.93), EE (57.99), UU (50.41), EU (46.19).

Table 6

Analysis of covariance for recovery by employment group assignment with gender, age, race/ethnicity, years dealing with substance use issues, years since treatment completion, and social support as covariates

Group	Descriptive statistics					
	Unadjusted			Adjusted		
	N	M	SD	M	SE	
EE	83	49.9	10.21	50.81	1.051	
UE	63	54.67	9.68	53.3	1.192	
EU	17	45.89	12.30	45.08	2.350	
UU	20	47.27	10.45	46.59	2.131	
Analysis of covariance						
Source	SS	df	MS	F(3, 169)	p	$\eta^2$
Age	531.95	1	531.95	6.23	.014	.034
YearsDealingWith	26.22	1	26.22	.307	.307	.002
TimeSinceTreatment	6.510	1	6.510	.076	.783	.000
FinalSocSupport	2234.81	1	2234.81	26.17	.000	.130
RE_1	.000	0				
RE_2	.000	0				
RE_3	.000	0				
RE_4	.000	0				
RE_5	.000	0				
GEN_1	.000	0				
GEN_2	.000	0				
GEN_3	.000	0				
GroupNumb	1172.74	3	390.91	4.58	.004	.064
Error	14429.47	169	85.38			

R squared = .306 (Adjusted R squared = .252). Note. Abbreviated terms are as follows: YearsDealingWith=duration in years which participants reported dealing with their substance use issues; TimeSinceTreatment=years passed since participants exited treatment; FinalSocSupport=social support, as measured by PROMIS Short Form v2.0- Emotional Support 4a; RE\_1=African American or Black; RE\_2=Caucasian (White); RE\_3=Hispanic/Latino; RE\_4=Asian; RE\_5=Multiracial/Other; GEN\_1=Male; GEN\_2=Female; GEN\_3=Transgender/Other/PreferNotRespond; GroupNumb=employment group assignment.

An ANCOVA was run to determine the effect of employment status (group assignment) on QOL after including the covariates. After adjustment for the control variables, there was a statistically significant difference in QOL between the groups,  $F(3, 167)=3.755$ ,  $p=.012$ . Post hoc analysis was performed using a Bonferroni adjustment. The post hoc analysis revealed significant differences between UE vs EU ( $M_{diff}=12.218$  [95% CI, 1.41 to 23.03],  $p=.018$ ; see Table 7). Research question 2 was supported.

### 3.4. Research question 3

#### 3.4.1. Effect of job satisfaction on recovery

Recovery group means were as follows: Among those categorized as very dissatisfied, the mean score on the SURE was ( $M=49.5$ ;  $SD=12.91$ ); for those categorized as somewhat dissatisfied ( $M=47.21$ ;  $SD=13.89$ ); for those categorized as neutral ( $M=46.4$ ;  $SD=9.87$ ); for those categorized as somewhat satisfied ( $M=52.43$ ;  $SD=8.32$ ); and for those categorized as very satisfied ( $M=57.74$ ;  $SD=6.4$ ). An ANCOVA was run to determine the

effect of job satisfaction on recovery after including the covariates. After adjustment for the control variables, there was a statistically significant difference in recovery between the groups,  $F(4, 131)=5.652$ ,  $p=.000$ . Post hoc analysis was performed using a Bonferroni adjustment. The post hoc analysis revealed that those who were categorized as very satisfied scored higher on recovery than those who were neutral and those who were categorized as somewhat dissatisfied, both by approximately 8.5 points. Specific mean differences and CIs are as follows: Very satisfied and somewhat dissatisfied ( $M_{diff}=8.37$  [95% CI, .46 to 16.27],  $p=.030$ ), very satisfied and neutral ( $M_{diff}=8.35$  [95% CI, 2.74 to 13.96],  $p=.000$ ). The results of the ANCOVA are presented in Table 8.

#### 3.4.2. Effect of job satisfaction on present quality of life

Group means for job satisfaction on the QOL scale were as follows: Very dissatisfied (36.25;  $SD=23.03$ ), somewhat dissatisfied (53.93;  $SD=16.64$ ), neutral (55.08;  $SD=13.52$ ), somewhat satisfied (60.32;  $SD=15.05$ ), very satisfied (70.12;

Table 7

Analysis of covariance for quality of life by employment group assignment with gender, age, race/ethnicity, years dealing with substance use issues, years since treatment completion, and social support as covariates

Group	Descriptive statistics					
	Unadjusted			Adjusted		
	N	M	SD	M	SE	
EE	82	57.99	15.52	58.32	1.607	
UE	62	63.93	17.77	61.61	1.824	
EU	17	46.19	17.66	49.4	3.575	
UU	20	50.41	18.22	53.52	3.239	
Analysis of covariance						
Source	SS	df	MS	$F(3, 167)$	p	$\eta^2$
Age	571.46	1	571.46	2.89	.090	.023
YearsDealingWith	446.94	1	446.94	2.27	.134	.014
TimeSinceTreatment	9.9	1	9.9	.05	.823	.000
FinalSocSupport	14216.95	1	14216.95	72.13	.000	.292
RE_1	.000	0				
RE_2	.000	0				
RE_3	.000	0				
RE_4	.000	0				
RE_5	.000	0				
GEN_1	.000	0				
GEN_2	.000	0				
GEN_3	.000	0				
GroupNumb	2220.46	3	740.15	3.76	.012	.075
Error	32917.66	167	197.11			

R squared = .410 (Adjusted R squared = .364). Note. Abbreviated terms are as follows: YearsDealingWith = duration in years which participants reported dealing with their substance use issues; TimeSinceTreatment = years passed since participants exited treatment; FinalSocSupport = social support, as measured by PROMIS Short Form v2.0- Emotional Support 4a; RE\_1 = African American or Black; RE\_2 = Caucasian (White); RE\_3 = Hispanic/Latino; RE\_4 = Asian; RE\_5 = Multiracial/Other; GEN\_1 = Male; GEN\_2 = Female; GEN\_3 = Transgender/Other/PreferNotRespond; GroupNumb = employment group assignment.



SD = 15.03). ANCOVA was conducted to determine the effect of job satisfaction on QoL after including the covariates. After adjustment for the control variables, there was a statistically significant difference in recovery between the groups,  $F(4, 129)=8.09$ ,  $p=.000$ . Post hoc analysis was performed using a Bonferroni adjustment. The post hoc analysis revealed three significant relationships. Those who were categorized as very dissatisfied reported significantly lower QoL scores than those who were categorized as neutral, with a mean difference of over 23 points, ( $M_{diff}=-23.09$  [95% CI, -40.09 to -6.09],  $p=.002$ ); those who were categorized as very dissatisfied reported lower QoL scores than those who were categorized as somewhat satisfied by 28 points ( $M_{diff}=-27.85$  [95% CI, -45.53 to -10.16],  $p=.000$ ); and those who were categorized as very dissatisfied reported lower QoL scores than those who were categorized as very satisfied by 33 points ( $M_{diff}=-32.72$  [95% CI, -50.35 to -15.09],  $p=.000$ ). The results of the ANCOVA are presented in Table 9. As significant differences were observed for both dependent variables, research question 3 was supported.

#### 4. Discussion

##### 4.1. Research question 1: Employment status during treatment and recovery and quality of life

In our hypotheses, we predicted that employment status at treatment would be positively associated with recovery and QoL, meaning that those who were employed during treatment would have higher scores on recovery and QoL than those who were unemployed during treatment. We formulated this hypothesis because a significant amount of literature regarding the topic of employment and its relationship to substance abuse treatment and recovery posits that integrated employment (i.e., employment while one is receiving SUD treatment) is associated with higher recovery outcomes [25–28], specifically in regard to the domains of reduction or cessation of use (e.g., [29]), material resources (e.g., [30]) and overall outlook on life [31]. All of these are domains within the recovery instrument (SURE) that was utilized in this study.

Table 8

Analysis of covariance for recovery by job satisfaction with gender, age, race/ethnicity, years dealing with substance use issues, years since treatment completion, and social support as covariates

Group	Descriptive statistics					
	Unadjusted			Adjusted		
	N	M	SD	M	SE	
Very dissatisfied	6	49.5	12.91	54.43	3.79	
Somewhat dissatisfied	14	47.21	13.89	47.66	2.41	
Neutral	40	46.4	9.87	47.67	1.4	
Somewhat satisfied	37	52.43	8.32	52.42	1.45	
Very satisfied	47	57.74	6.4	56	1.3	
Analysis of covariance						
Source	SS	df	MS	F(4, 131)	p	$\eta^2$
Age	192.51	1	192.51	2.6	.109	.017
YearsDealingWith	6.12	1	6.12	.084	.773	.001
TimeSinceTreatment	12	1	12	.162	.688	.001
FinalSocSupport	985.47	1	985.47	13.3	.000	.089
RE_1	.000	0				
RE_2	.000	0				
RE_3	.000	0				
RE_4	.000	0				
RE_5	.000	0				
GEN_1	.000	0				
GEN_2	.000	0				
GEN_3	.000	0				
JobSatIV	1675.1	4	418.78	5.65	.000	.146
Error	9706.02	131	74.09			

R squared = .356 (Adjusted R squared = .287). Note. Abbreviated terms are as follows: YearsDealingWith = duration in years which participants reported dealing with their substance use issues; TimeSinceTreatment = years passed since participants exited treatment; FinalSocSupport = social support, as measured by PROMIS Short Form v2.0- Emotional Support 4a; RE\_1 = African American or Black; RE\_2 = Caucasian (White); RE\_3 = Hispanic/Latino; RE\_4 = Asian; RE\_5 = Multiracial/Other; GEN\_1 = Male; GEN\_2 = Female; GEN\_3 = Transgender/Other/PreferNotRespond; JobSatIV = job satisfaction.

Table 9

Analysis of covariance for quality of life by job satisfaction with gender, age, race/ethnicity, years dealing with substance use issues, years since treatment completion, and social support as covariates

Group	Descriptive statistics					
	N	Unadjusted		Adjusted		
		M	SD	M	SE	
Very dissatisfied	6	36.25	23.03	34.21	5.69	
Somewhat dissatisfied	14	53.93	16.64	55.71	3.63	
Neutral	40	55.08	13.52	57.3	2.11	
Somewhat satisfied	37	60.32	15.05	62.05	2.19	
Very satisfied	47	70.12	15.03	66.93	2	
Analysis of covariance						
Source	SS	df	MS	F(4, 129)	p	$\eta^2$
Age	.133	1	.133	.001	.978	.002
YearsDealingWith	.264	1	.264	.002	.968	.000
TimeSinceTreatment	18.59	1	18.59	.11	.739	.003
FinalSocSupport	7048.55	1	7048.55	42.11	.000	.259
RE_1	.000	0				
RE_2	.000	0				
RE_3	.000	0				
RE_4	.000	0				
RE_5	.000	0				
GEN_1	.000	0				
GEN_2	.000	0				
GEN_3	.000	0				
JobSatIV	5416.01	4	1354	8.09	.000	.157
Error	21591.08	129	167.37			

R squared = .460 (Adjusted R squared = .402). *Note.* Abbreviated terms are as follows: YearsDealingWith = duration in years which participants reported dealing with their substance use issues; TimeSinceTreatment = years passed since participants exited treatment; FinalSocSupport = social support, as measured by PROMIS Short Form v2.0- Emotional Support 4a; RE\_1 = African American or Black; RE\_2 = Caucasian (White); RE\_3 = Hispanic/Latino; RE\_4 = Asian; RE\_5 = Multiracial/Other; GEN\_1 = Male; GEN\_2 = Female; GEN\_3 = Transgender/Other/PreferNotRespond; JobSatIV = job satisfaction.

ANOVAs conducted without covariates revealed that those who were unemployed during treatment had significantly higher scores on recovery and QoL than those who were employed during treatment. However, once the covariates (gender, age, race/ethnicity, years dealing with substance use issues, years since treatment completion, and social support) were included in the analysis the relationship was still negative, but no longer significant.

To first explore possible reasons why in the ANOVA analysis those who were unemployed during treatment had higher scores on QoL and recovery, those who were employed during treatment were asked if they worked part-time or full time. Those who worked part-time reported working, on average, nearly 20 hours a week, while those working full-time reported working 39 hours per week on average. The result may therefore be a matter of time devoted to treatment. For those working 20 or 39 hours a week (4-8 hours a day), that time would be occupied with working. Time off from work, depending on the nature of the job, may have been spent thinking about/planning for work, and dealing with other home responsibilities, and therefore people may have spent

less (focused) time, attention, and energy toward their recovery/treatment efforts. Less engagement in treatment has been associated with lower recovery outcomes [32]. Comparing the means between working part-time during treatment and full-time during treatment did not, however, reveal any significant between group differences.

The ANCOVA results were puzzling in that after controlling for age, race, gender, time since treatment, years dealing with substance use issues, and social support, there were no longer significant differences between the two groups - suggesting that regarding recovery and QoL, final outcomes did not differ based on employment status during treatment. The results for research question 1 are different from what was expected. Based on the literature, we would predict that being employed along with receiving treatment would be facilitative of better participation or quality of life/recovery outcomes. However, the prominent career development models often contain factors other than employment itself. An example of this is educational acquisition/maintenance. Perhaps individuals were not working during treatment, but were in the labor force or enrolled in educational

pursuits conducive to (future) employment. Some may view educational attainment (i.e., being a student and working toward a degree) as a sort of preliminary employment experience, and certainly a domain of participation. It is possible these individuals were not employed but were engaged in other meaningful life activities.

#### 4.2. *Research question 2: Employment group assignment and recovery and quality of life*

Regarding recovery, ANOVA analyses revealed positive significant group differences among the UE group and the EE, UU, and EU groups, with mean differences of approximately 5, 7, and 9 points (based on a 21–63-point scale), respectively, favoring the UE group. This is consistent with our hypotheses and findings in the literature that assert that those who are employed tend to be happier and healthier than those who are not [33–36] (both EU and UU were unemployed at the time of the survey), and further that is not only the overall absence of employment that is detrimental (UU) to recovery and QoL outcomes, but also in the *loss* of employment (EU), where one has lost the financial stability, social support, and physical/community engagement (that they once had) that competitive employment affords and that may foster recovery [5, 28, 37–39]. Indeed, the EU, or “employment lost” group had the lowest scores of recovery in the study. However, these scores were significantly lower than only those belonging to the “employment gained” group (UE).

The finding that those who began treatment unemployed and then reported being employed at the time of survey (UE) had higher recovery scores than those who were employed throughout (EE) is also worth noting. Recall that the ANOVA results revealed that being employed during treatment was associated with lower recovery compared to being unemployed. This also supports Miguel and colleagues’ [27] findings that it is not employment status during treatment (or at intake) that predicts outcomes, but rather, the employment *change* and acquisition of a job. Of course, it may merely be a matter of current (at time of survey) employment status. Post hoc analysis revealed a significant difference on recovery with those who were employed at the time of survey having, on average, recovery scores 5 points higher than those who were unemployed, representing a significant difference ( $p = .004$ ). Since unemployment status during treatment and employment status at time of sur-

vey were independently associated with the highest recovery outcomes, it is understandable that the UE group had the highest scores.

With the covariates included in the full model, significant between-group differences remained; however, UE no longer significantly differed from EE (the weakest difference in the ANOVA analysis). UE was still significantly greater than UU and EU, by approximately 6.5 and 8 points on average, respectively.

Regarding QoL differences between employment group assignments, there were significant differences revealed in both ANOVA and ANCOVA analyses. In the ANOVA, the differences lied between UE and EU, and UE and UU in the same pattern as those regarding recovery: Those who gained employment (UE) had, on average, a mean difference of more than 16 points higher than those who lost their employment (EU). The difference was slightly less robust but still significant between UE and UU (nearly 13 points on a 100-point scale). In the ANCOVA analysis, the mean groups overall were significantly different, with a  $p$ -value of .012. Once post hoc tests were completed, the results revealed only significance between the two opposite or employment transition groups: EU and UE, with a mean difference of approximately 12 and a  $p$ -value of .018.

Considering the “employment lost” and “employment gained” groups and the employment-related tangible and intangible supports and resources one gains and loses, the results here are as expected. A study by Gander and colleagues [33] examined four “professional trajectory groups” that closely parallel the four groups in this study: individuals who are consistently employed (or EE in present study), never being employed (or UU in present study), those who lost employment (or EU in present study), and those who gained employment (or UE in present study). Gander et al. [33] found that the group gaining employment had increases in orientation to pleasure, engagement, and meaning (closely related to current study’s QoL variable) and that “mental health problems” in the group losing employment (akin to lower recovery scores in the present EU group) were also observed.

#### 4.3. *Research question 3: Job satisfaction and recovery and quality of life*

In ANCOVA analyses, the job satisfaction differences on recovery were found to be significant

between those who rated their job satisfaction as very satisfied and those who rated their job satisfaction as neutral and somewhat dissatisfied (mean differences of 8.5 points each, favoring very satisfied).

Someone in recovery who is working and rates their job as “very satisfying” is likely to have higher recovery outcomes than one who rates their job as neutral or somewhat satisfying. Interestingly, the recovery rates for those who were very satisfied with their jobs were not higher than those who rated their jobs as dissatisfying (either “somewhat” or “very”). This may be because the sample sizes for these two groups were very small ( $N=14$  and  $N=6$ , respectively). It also may be due to the notion that people are more likely to leave a job that is actively and acutely negative [40], whereas, when a job is neutral or somewhat satisfying, they may stay. The job may be dissatisfying on some levels, but not dissatisfying enough to leave. The dissatisfying and stressful but constant conditions of people’s jobs may lead to daily stress, anxiety, and days wrought with temptations to use drugs and/or alcohol and actual relapses. This may speak to the lower recovery outcomes for the neutral and somewhat satisfied groups, while, perhaps those in the dissatisfied groups have exit plans on the horizon, and while they may be experiencing acute stress and discomfort, this does not affect their broader, longer-term recovery, as an “end is in sight.”

Regarding QoL, there were significant between-group differences. Post hoc tests showed significant differences among very dissatisfied, neutral, somewhat satisfied, and very satisfied. Those who were very dissatisfied reported the lowest QoL, with respective mean differences being 23, 28, and 33.

When examining the relationship between QoL and job satisfaction, there were three hypotheses that have been found to be supported in the literature. The first is the “spillover hypothesis,” or the notion that job satisfaction is associated with higher QoL. If one is satisfied at their job, then this “spills over” to other aspects of life, and vice versa. The “compensation” hypothesis states that when there is dissatisfaction in one area (work or life), then one “compensates” and seeks satisfaction and refuge in the other. “Segmentation” posits that there are no constant relationships and people can separate and segment different areas of their lives accordingly. Satisfaction in one area of life does not predict satisfaction in another, especially work [41]. The spillover effect is the most supported hypothesis in life satisfaction and job satisfaction research [42], and this appears to be the case in this study as well. For this group of individuals with sub-

stance use disorders who had received treatment and acquired employment, the beneficial and satisfying aspects of their jobs “spilled over” to predict higher quality of life and recovery.

#### 4.4. Implications

Overall, recovery and QoL rates for this sample were generally high. Perhaps this finding itself is telling and may serve as a source of comfort and hope for those who are living with the potentially debilitating condition that is SUD. Indeed, people generally do recover over time [5], and in the data collected in this study there was a mild association between time since treatment and recovery ( $r=.117$ ). Factors in this study, that may predict faster and higher rates of recovery and QoL include employment acquisition following treatment and higher rates of job satisfaction.

The literature is rich with researchers arguing for a more integrated SUD-treatment model where work and employment services delivered alongside traditional treatment should take place to facilitate not only better outcomes, but at a faster rate [e.g., 26, 31, 43, 44]. Results of this study do not seem to support this notion and indicate that work and employment services occurring alongside traditional treatment do not facilitate better outcomes, but if employment can be acquired near the end of or immediately after treatment, then this is beneficial in retaining abstinence and recovery and fostering better well-being and QoL. The physical, psychological, and cognitive consequences of SUD can be immediately and intermediately addressed via medical interventions, mental health counseling and support groups, and time [5, 45–47]. What is often left unacknowledged and unaccounted for, however, are the long-term needs [25].

Feelings of guilt, shame, and isolation can accompany addiction and are often linked to a lack of self-clarity or identity [4]. One method to counter and/or restore these feelings is via participation, whether that be at home, in the community, or at work. The participation needs of those with SUDs and the role that employment may have in fulfilling these needs have been, unfortunately, ignored and/or under-acknowledged. Vocational achievement provides one with basic living needs, and provides one with a sense of competency, identity, self-esteem, positive self-image, and self-worth [31, 36, 48]. The results of this study support that it is not just employment dur-

ing treatment itself that predicts recovery and better QoL, but the achievement of meaningful employment following treatment.

For health and rehabilitation professionals, work and employment should continue to be emphasized for clients with substance use disorders, especially those who are in the middle of or nearing the end of their treatment. Assessment at intake interviews for substance use disorders should take place, not for methods of exclusion, but to better understand and conceptualize a client's situation and needs. Further, when a client with an SUD does relapse, they should not be excused or dismissed from vocational rehabilitation services. Arguably, these are times when they are the most vulnerable and require the most support(s). Further assessment and communication should take place, and, if one has maintained their job in the event of a relapse, it should be explored what triggered their relapse, and if any aspects of their job such as distress and dissatisfaction were contributors. These difficulties and/or triggers can be identified and then addressed through open communication and validated surveys and questionnaires such as the Work Experience Survey (WES).

#### 4.5. *Limitations*

One of this study's most important limitations was the selection of participants. Participants were not randomized, and based on the quasi-experimental nature of the study, we included participants who were already in one of four groups. There are likely several common characteristics/ circumstances that brought participants into one group situation or another that we may not have been able to measure given our design. Also, it might be inferred that those who have in fact engaged in some sort of treatment are more resourceful and motivated to make a change. Perhaps those with low motivation or from low SES or other disadvantaging backgrounds may be underrepresented in our study, and thus results may not generalize to the SUD population broadly, but only to a specific sub-group within that population—those who have the means and resources to engage in services and obtain and maintain employment. This must also be considered when others contemplate replications of or improvements to this study.

A final limitation of this study concerns its self-report nature. In spite of the progress that has been made in the domains and fields of rehabilitation counseling, return to work, and substance abuse, those with substance use disorders and/or prob-

lems are still a highly stigmatized group. Many of these individuals may internalize this stigma and experience some or significant levels of shame and or/regret for their disability and condition, and thus not always answer truthfully in assessments and studies such as this one that ask personal, perhaps intrusive questions about substance abuse and recovery. It is likely that, although this survey was secure and confidential, some participants may have withheld, omitted, downplayed, or exaggerated certain elements of their substance abuse or recovery for social desirability purposes. Due to the surveys being conducted remotely and anonymously without an interviewer/researcher present, it is impossible for us to determine or even guess when this would have happened.

## 5. **Conclusion**

This study sought to examine the effects that employment status during treatment, employment status change from during treatment to time of survey, and job satisfaction had on recovery and quality of life for people with substance use disorders who had completed treatment. Analysis of covariance results showed that employment status change and job satisfaction were significantly related to recovery and quality of life; specifically, those who made the employment change from unemployed during treatment to employed at time of survey, and those who were "very satisfied" at their current jobs had the highest outcomes. More research is needed regarding this topic to further validate and support these results, but the findings of this study are promising in that employment that is meaningful and satisfying to an individual who is in recovery may facilitate further recovery and a better quality of life.

## **Acknowledgments**

The authors wish to thank Dr. Brian Phillips at Utah State University for his generous guidance and assistance in participant recruitment and survey distribution for this study.

## **Conflict of interest**

The authors declare that they have no conflict of interest.

## Funding

The authors report no funding.

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