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Predictive Factors of Aftercare Participation

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Abstract

Introduction: Persons discharging from residential or inpatient substance use treatment experience the highest level of vulnerability to relapse in first three months post-treatment. Participation in long-term continuing care, also known as post-treatment aftercare, following initial inpatient or residential SUD treatment supports individuals in sustaining their recovery efforts. Due to the well-established role of aftercare participation in long-term recovery, the factors associated with aftercare participation warrant attention. As individuals with SUDs experience better long-term recovery outcomes when they are stably housed, the predictive factors of entering a SLE after the completion of residential or inpatient treatment also merit study. **Methods:** A de-identified dataset was obtained from a non-profit agency, which provides SUD treatment and prevention services in a large urban county. The dataset included a sample of 200 clients admitted to abstinence-based residential SUD treatment between August 1, 2017, and March 1, 2018. The dataset included information provided by the clients during their ASAM Multidimensional Assessment and the treatment disposition, prognosis, and aftercare services listed in the Discharge/Transfer Form. The sole dependent variable of interest in this study for those clients' who successfully completed residential SUD treatment (n = 95), a categorical variable, was clients' enrollment in aftercare services. **Results:** Based on the likelihood ratio tests, the following variables were found to be significant in predicting participants' treatment outcomes: living arrangement (p < .003) and duration of participation in treatment (p < .012). Compared to participants who completed residential SUD treatment and did not pursue aftercare services, participants identifying as homeless were 5.442 times more likely to participate in both intensive outpatient treatment and SLE. However, there were no significant predictors of participation in standalone intensive outpatient treatment compared to those who completed residential SUD treatment and did not pursue aftercare services. **Conclusions:** Housing insecurity appears to be a strong motivator for clients to participate in aftercare services, when access to no-cost SLE is contingent upon participation in intensive outpatient treatment services. As participation in post-treatment aftercare services increase the likelihood of long-term recovery, government and social service agencies should enhance access to no-cost SLEs for Medicaid beneficiaries who enroll in intensive outpatient treatment services.

Keywords: Addiction research; Addiction therapy; Aftercare; Intensive outpatient treatment; Sober living environments; Recovery; Substance use disorder

Introduction

With the ever-rising death toll associated with alcohol and drugs since the onset of the COVID-19 pandemic [1] and the high rates of relapse in the three months post-treatment [2-8], promoting engagement in post-treatment aftercare is imperative in the efforts to prevent relapse and drug-related overdose deaths. Multiple studies have established the protective role of participation in long-term continuing care, also known as post-treatment aftercare, following initial inpatient or residential SUD treatment to support persons with SUDs to sustain their recovery efforts [5, 9-12]. Aftercare services include both professional care and informal support, such as structured outpatient SUD treatment, 12-step meetings (e.g. Alcoholics Anonymous [AA], Narcotics Anonymous [NA]), and post-treatment individual counseling [13]. Due to the well-established role of aftercare participation in long-term recovery, the factors associated with aftercare participation warrant attention.

Research studies have examined a limited number of demographic variables, including age [13], educational attainment [14], criminal justice involvement [11], gender [13-16], substance use[11, 13, 17-21], duration of residential/inpatient SUD treatment episode [9, 13, 22] and CODs [13,14,20,23-25] in relationship to aftercare participation. However, no known studies have focused on the role of race/ethnicity, housing, involvement with the child welfare system, or trauma in predicting participation in aftercare services following intensive SUD treatment, such as inpatient or residential SUD treatment.

Research has examined the role of pretreatment substance use in participation in aftercare services; however, these studies have yielded mixed results. One study by Connors and colleagues[17] reported that pretreatment substance use was associated with AA aftercare participation. On the other hand, pretreatment substance use was not predictive of self-help group participation in two other studies [18, 19].

Several studies have demonstrated the predictive role of length of SUD treatment episode in aftercare service participation. Longer treatment duration has been positively associated with participation in aftercare [9, 22]. Another study by Arbour and associates [13] found that each additional day the participants spent in residential treatment increased their odds of attending 12-step meetings and post-treatment individual counseling.

Overall, participants with SUDs only were more likely to utilize aftercare services compared to participations with CODs. For instance, participants without a co-occurring psychiatric disorder were more likely to attend structured outpatient SUD treatment after completing residential SUD treatment in a study by Arbour and colleagues [13].

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Similarly, individuals who completed inpatient detoxification and subsequently participated in aftercare services were less likely to have previous history of treatment for psychiatric conditions [23]. As approximately 8 million adults in the United States have CODs and are disproportionately represented in the criminal justice system and affected by homelessness [26], greater attention on CODs in relationship to aftercare service participation is warranted, due to its potential to promote long term recovery in this highly vulnerable population.

This study aims to enhance the research related to predictive factors for post-treatment aftercare service enrollment for those participants who successfully completed residential SUD treatment. Similarly, this study will also examine the relationships between traumatic experiences, psychiatric illness and treatment, readiness for change, and self-reported history of self-medication for psychiatric disorders and post-treatment participation in aftercare services and residence in SLEs, respectively. Other variables of particular interest include duration of residential SUD treatment episode, external coercion from the criminal justice and child welfare systems, housing, age, gender, and race/ethnicity [27, 28].

Material and Methods

To address these gaps, this study examined a de-identified dataset provided by a local non-profit agency, which provides publicly funded residential SUD treatment services at the 3.1 and 3.5 ASAM LOC for clients enrolled in or eligible for Medicaid or a county-based no-cost health insurance plan for low-income individuals in a large urban county. This dataset included all of the information recorded in the ASAM Multidimensional Assessment and the treatment disposition, prognosis, and aftercare services listed in the Discharge/Transfer Form. The central research focus for this analysis was to determine the predictive factors of post-treatment aftercare service participation. This research was approved by the IRB.

Sample

Inclusion criteria: The sample includes all clients admitted into an abstinence-based residential treatment facility located in a large urban county between August 1, 2017, and March 1, 2018. These clients all possessed or were eligible for Medicaid, a county-based no-cost health insurance plan for low-income individuals, or participants in county funded programs for persons who are indigent or involved with the criminal justice or child welfare system; aged 18 and older; and were residents of the large urban county for at least the past 60 days prior to their assessment. Additionally, all of the clients in the sample met the criteria for a DSM-5 SUD with a moderate or severe specifier. The dataset includes 200 clients (n = 200). However, for this analysis, after excluding cases in which clients did not complete their residential SUD treatment episode, the final sample included 95 clients.

Exclusion criteria: As this residential SUD treatment facility is not authorized to provide services to minors, no minors were included in the sample. Clients seeking treatment who tested positive for opiates, alcohol, or benzodiazepines at the time of assessment were also excluded from this study, as they were referred to treatment at facilities licensed to provide withdrawal management (WM) services. Furthermore, this residential SUD treatment facility operates in English; therefore, there were no monolingual non-English speakers receiving services in this sample.

Measures

Aftercare Participation: The dependent variable of interest in this study was patients' enrollment in aftercare services, which was documented by their primary AOD Counselor on their SAPC Discharge/Transfer form. The following categorical outcomes were recorded: 1 = no aftercare services, 2 = outpatient SUD treatment services, and 3 = outpatient SUD treatment services and sober living environment (SLE).

Pretreatment Substance Use: Types of Polysubstance Use was constructed through performing Ward's Method of Cluster Analysis. Four distinct classifications of combinations of types of substances used emerged: participants who reported predominantly using MA and alcohol; participants who reported predominantly using alcohol and marijuana; participants who reported predominantly using MA and marijuana; and participants who reported predominantly using MA, alcohol, heroin, and marijuana.

Number of days of MA use in past 30 days was a continuous variable constructed for all participants who reported MA as either their primary or secondary DOC and the corresponding number of days they reported using MA out of the past 30 days.

Number of days of primary substance use in past 30 days was a continuous variable constructed for all participants based on the number of days they reported using their primary substance used out of the past 30 days.

Presence of active withdrawal symptoms was a dichotomous variable constructed based on participants' responses to, "Are you currently experiencing withdrawal symptoms?" The variable was coded 1 for participants who responded yes and reported withdrawal symptoms. The variable was coded 0 for participants who responded no and did not report any active withdrawal symptoms.

Trauma History

History of Abuse was a dichotomous variable constructed based on participants' responses to, "Have you ever experienced physical, emotional, or sexual abuse in your lifetime?" The variable was coded 0 = no, for participants who did not report a history of abuse, and 1 = yes, for participants who reported a history of abuse.

History of Other Significant Trauma was a dichotomous variable constructed based on participants' responses to, "Have you ever experienced a traumatic event in your lifetime?" The variable was coded 0 = no, for participants who did not report a history of traumatic events, and 1 = yes, for participants who reported a history of traumatic events.

Mental health

Number of Lifetime Inpatient Psychiatric Hospitalizations was a continuous variable constructed for all participants based on number of days they reported previous inpatient psychiatric hospitalizations in their lifetime.

History of Diagnosis with a Psychiatric Condition was a dichotomous variable constructed based on participants' responses to, "Have you ever been diagnosed with a mental illness?" The variable was coded 0 = no, for participants who did not report a history of diagnosis with a psychiatric condition, and 1 = yes, for participants who reported a positive history of psychiatric condition(s).

History of Treatment for a Psychiatric Condition was a dichotomous variable constructed based on participants' responses to, "Have you previously received treatment for psychiatric or emotional problems?" The variable was coded 0 = no, for participants who did not report a history of treatment for a psychiatric condition, and 1 = yes, for

participants who reported a history of treatment for a psychiatric condition.

Need for Psychiatric Assessment was a dichotomous variable constructed based on the response provided by the clinician, who conducted the ASAM Assessment with the participant, to the question, "Is further assessment of mental health needed?" The variable was coded 0 = no, for participants who did not require a psychiatric assessment at time of intake based on the clinician's judgment, and 1 = yes, for participants who required a psychiatric assessment at the time of intake based on the clinician's judgment.

Current Mental Health Provider was a dichotomous variable constructed based on participants' responses to, "Are you currently receiving treatment for psychiatric or emotional problems?" The variable was coded 0 = no, for participants who did not have a mental health provider at the time of intake, and 1 = yes, for participants who had a mental health provider at the time of intake.

Current Psychotropic Medication was a dichotomous variable constructed based on participants' responses to, "Are you currently taking medication for a psychiatric condition?" The variable was coded 0 = no, for participants who were not taking psychotropic medication at the time of intake, and 1 = yes, for participants who were taking psychotropic medication at the time of intake.

Self-medication for psychiatric distress

Triggers to Use - Mental Health Symptoms was a dichotomous variable constructed based on participants' responses to, "Are you aware of your triggers to use alcohol or drugs?" One of the triggers listed was "Mental Health." The variable was coded 0 = no, for participants who reported that mental health symptoms were not a trigger for substance, and 1 = yes, for participants who reported that mental health symptoms were a trigger for substance use.

Triggers to Use - Negative Intrapersonal Contexts was a dichotomous variable constructed based on participants' responses to, "Are you aware of your triggers to use alcohol or drugs?" One of the triggers listed in was "Negative Emotions." The variable was coded 0 = no, for participants who reported that negative emotions were not a trigger for substance, and 1 = yes, for participants who reported that negative emotions were a trigger for substance use.

Barriers to Recovery - Mental Health was a dichotomous variable constructed based on participants' responses to, "What are potential barriers to your recovery?" in Dimension 4, Readiness for Change, in the SAPC ASAM Assessment Tool. The variable was coded 0 = no, for participants who did not verbalize mental health symptoms as a barrier to their recovery as well as for those participants who could not identify any barriers to recovery. The variable was coded 1 = yes, for participants who explicitly stated that mental health symptoms would be a barrier to their recovery.

Barriers to Recovery-Negative Intrapersonal Contexts was a dichotomous variable constructed based on participants' responses to, "What are potential barriers to your recovery?" The variable was coded 0 = no, for participants who did not verbalize negative emotions as a barrier to their recovery as well as for those participants who could not identify any barriers to recovery. The variable was coded 1 = yes, for participants who explicitly stated that negative emotions would be a barrier to their recovery.

Readiness for change

Dimension 4 Severity Rating was a categorical variable coded as 0 = None - "Willing to engage in treatment," 1 = Mild - "Willing to enter treatment but ambivalent to the need to change," 2 = Moderate - "Reluctant to agree to treatment; low commitment to change substance use; passive engagement in treatment," 3 = Severe - "Unaware of need to change; unwilling or partially able to follow through with recommendations for treatment," and 4 = Very Severe - "Not willing to change; unwilling/unable to follow through with treatment recommendations." Each participant was assigned one of the aforementioned ratings based on the clinician's perception of one's "Readiness to Change." The variable was later collapsed into 1 = Low - Willingness to participate in treatment (e.g. those participants who had been rated None to Moderate) and 2 = High - Limited to no willingness to participate in treatment (e.g. those participants who had been rated Severe to Very Severe).

History of SUD Treatment was a dichotomous variable constructed based on participants' responses to, "Have you received help for alcohol and/or drugs in the past?" The variable was coded 0 = no, for participants who never previously received any form of SUD treatment, and 1 = yes, for participants who previously received SUD treatment.

Duration of participation in residential SUD treatment

Duration of Participation in Residential SUD Treatment was a continuous variable calculated by subtracting the participants' intake dates from their completion dates.

Sociodemographic variables

Gender was a dichotomous variable was coded male = 1, female = 2. Since only one transgender woman and no transgender men entered treatment during the course of the study, the transgender woman was collapsed into the category "female."

Race/ethnicity was a categorical variable constructed from participants' responses to "How do you identify in terms of race or ethnicity?" The variable was coded as 1 = Caucasian, 2 = Black, 3 = Hispanic, 4 = Asian/Pacific Islander, 5 = Native American, 6 = Multiracial, and 7 = Other. Categories with less than 10% of the sample population were collapsed. As a result, the following four categories remained: 1 = Caucasian, 2 = Black, 3 = Hispanic, and 4 = Other.

Age was a continuous variable calculated by subtracting birth year, month, and day from the intake date to residential SUD treatment.

Living Arrangement was categorical variable coded as 1 = homeless, 2 = independent living, and 3 = other. As none of the participants reported "other," the variable was collapsed into 1 = homeless and 2 = independent living.

Forensic Status was a categorical variable constructed based on participants' responses to "Are you currently involved with social services or the legal system (e.g. child welfare, court mandated, probation, parole)?" The variable was coded as 1 for participants who responded that they were on probation or parole, had been court mandated to SUD treatment, or were participants in the in-custody release program. The variable was coded 0 for participants who denied any type of forensic involvement.

Child Welfare Status was dichotomous variable constructed based on participants' responses to, "Are you currently involved with social services or the legal system (e.g. child welfare, court mandated, probation, parole)?" The variable was coded as 1 for participants who responded that they had an open child welfare case and 0 for

participants who denied that they had an open DCFS case.

Analysis

Descriptive information including means, standard deviations and frequencies were generated for all variables in the dataset (Table 1). Correlations and/or associations were produced for all the variables in the study. Since the majority of the variables in the dataset were categorical, associations were presented (Table 2). For the continuous variables, correlations were provided.

Table 1: Descriptive statistics.

	Means/SD or percent (n)
Sociodemographic Characteristics	
Gender	
Male	56.8% (54)
Female	43.2% (41)
Race/Ethnicity	
Caucasian	32.6% (31)
Black	27.4% (26)
Hispanic	33.7% (32)
Other	6.3% (6)
Age	
	37.2; SD = 10.54
Living Arrangements	
Homeless	53.7% (51)
Independent Living	46.3% (44)
Forensic Status	
Yes	46.3% (44)
No	53.7% (51)
Child Welfare Status	
Yes	16.8% (16)
No	83.2% (79)
Substance Use	
Combination of Substances Used	
MA and Alcohol Use	32.6% (31)
Alcohol and Marijuana Use	28.4% (27)
MA and Marijuana Use	25.3% (24)
MA, Alcohol, Heroin, and Marijuana Use	13.7% (13)
Past 30 Day Use of Primary Substance Used	
	10.7; SD = 11.29
Past 30 Days of MA Use	
	6.8; SD = 11.11
Active Withdrawal Symptoms	
Yes	82.1% (78)
No	17.9% (17)
Mental Health	
Need for Psychiatric Assessment	
Yes	46.3% (44)
No	53.7% (51)
History of Diagnosis with Psychiatric Condition	
Yes	52.6% (50)
No	47.4% (45)
History of Treatment for a Psychiatric Condition	
Yes	51.6% (49)
No	48.4% (46)
Current Mental Health Provider	
Yes	31.6% (30)
No	68.4% (65)
Current Psychotropic Medication	
Yes	20% (19)

	Means/SD or percent (n)
No	80% (76)
Number of Inpatient Psychiatric Episodes	
	0.38; SD = 0.90
Trauma History	
History of Abuse	
Yes	45.3% (43)
No	54.7% (52)
History of Significant Trauma	
Yes	80% (76)
No	20% (19)
Self-Medication for Psychiatric Distress	
Triggers to Use - Mental Health	
Yes	51.6% (49)
No	48.4% (46)
Triggers to Use - Negative Intrapersonal Contexts	
Yes	15.8% (15)
No	84.2% (80)
Barriers to Recovery - Mental Health	
Yes	7.4% (7)
No	92.6% (88)
Barriers to Recovery - Negative Intrapersonal Contexts	
Yes	15.8% (15)
No	84.2% (80)
Readiness for Change	
History of SUD Treatment	
Yes	76.8% (73)
No	23.2% (22)
Dimension 4 Severity Rating	
Low - Willingness to Participate	75.8% (72)
High - Limited to No Willingness to Participate	24.2% (23)
Duration of Participation in Residential SUD Treatment	
	68.7; SD = 19.0

Multinomial logistic regression was used to determine the predictors of enrollment in aftercare services for those who completed residential SUD treatment (Table 3). This study explored the role of substance use, trauma history, mental health, readiness for change, duration of participation in residential SUD treatment, and self-medication for psychiatric distress to predict enrollment in aftercare services. The following sociodemographic variables also were included in the analysis: gender, race/ethnicity, age, living arrangements, forensic status, and child welfare status. SPSS 25 was used to conduct the statistical analyses.

Variable selection approach: The number of variables in this study were considerable, let alone the number of parameter estimates. As a result, user determined hierarchical regression was conducted. Variables significant at $p < .05$ for each conceptual domain were included in the full model.

Results

Descriptive statistics

Only those clients who successfully completed residential SUD treatment (n = 95) were eligible to participate in the post-treatment aftercare services offered through the large urban county's Medicaid and public health department, which included intensive outpatient treatment (IOP) and sober living (SLE) at no cost. In terms of post-treatment aftercare attendance, 41% of participants enrolled in two

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Table 2: Associations.

	1	2	3	4	5	6	7	8	9	10
(1) Type of Aftercare Participation										
(2) Gender	.173									
(3) Living Arrangement	.381*	.213*								
(4) Race	.176	.017	.151							
(5) History of Abuse	.220	.531*	.293*	.134						
(6) Current Mental Health Provider	.165	.140	.222*	.252*	.292*					
(7) Duration of Participation in Treatment	.338	.673	.644	.652	.689	.628				
(8) Primary DOC Past 30 Days of Use	.545	.533	.477	.544	.451	.478	-.208*			
(9) Combination of Substance Use	.143	.191	.098	.241	.118	.234	.667	.569		
(10) Dimension 4 Severity	.079	.004	.081	.026	.020	.039	.648	.381	.238	

Table 3: Multinomial logistic regression for type of aftercare service participation.

Pseudo R-Square	
Nagelkerke	.408
Likelihood Ratio Tests	
Gender (Reference - Male)	.931
Living Arrangement (Reference - Not Homeless)	**.002**
Race (Reference - White)	.417
History of Abuse	.942
Current Mental Health Provider	.429
Duration of Participation in Treatment	**.011**
Primary DOC Past 30 Days of Use	.713
Combination of Substances Used	.527
Dimension 4 Severity Rating (Reference - Low)	.898

Table 4: Odds Ratio, Significance, Lower and Upper values of Variables.

Variable	Odds Ratio	Significance	Lower	Upper
Intensive Outpatient Treatment Only				
Gender (Reference - Male)	.929	.929	.185	4.668
Living Arrangement (Reference - Not Homeless)	.642	.554	.148	2.786
Race (Reference - White)	2.510	.318	.412	15.299
History of Abuse	.790	.792	.136	4.575
Current Mental Health Provider	2.736	.214	.558	13.411
Duration of Participation in Treatment	.959	.082	.914	1.005
Primary DOC Past 30 Days of Use	1.020	.512	.961	1.083
Methamphetamine and Alcohol	3.610	.327	.277	46.967
Alcohol and Marijuana	1.833	.628	.158	21.214
Methamphetamine and Marijuana	1.054	.970	.072	15.252
Methamphetamine, Alcohol, Heroin, and Marijuana	0ᵃ			
Intensive Outpatient Treatment and RBH				
Gender (Reference - Male)	1.247	.708	.393	3.960
Living Arrangement (Reference - Not Homeless)	5.442	**.003**	1.758	16.848
Race (Reference - White)	.744	.603	.243	2.274
History of Abuse	1.100	.880	.318	3.803
Current Mental Health Provider	1.535	.480	.467	5.052
Duration of Participation in Treatment	1.025	.089	.996	1.056
Primary DOC Past 30 Days of Use	.992	.754	.942	1.044
Methamphetamine and Alcohol	3.505	.143	.656	18.732
Alcohol and Marijuana	2.737	.247	.497	15.063
Methamphetamine and Marijuana	.970	1.032	.195	5.462
Methamphetamine, Alcohol, Heroin, and Marijuana	0ᵃ			
*The base category is No Aftercare Services.				

types of aftercare - outpatient SUD treatment and SLE. Comparatively, only 16% of participants enrolled only in outpatient SUD treatment (no SLE component). However, 43% of participants did not enroll in any form of aftercare services following the successful completion of their residential SUD treatment episode (Table 1).

Associations

Numerous significant associations were also found for the full model for the multinomial logistic regression for type of aftercare service participation (Table 2). These significant positive associations included the following between: Type of Aftercare Service Participation and Living Arrangement (V = .381), Gender and Living Arrangement (V = .213), Gender and History of Abuse (V = .531), Living Arrangement and History of Abuse (V = .293), Living Arrangement and Current Mental Health Provider (V = .222), Race and Current Mental Health Provider (V = .252), and History of Abuse and Current Mental Health Provider (V = .292). There was also a significant negative correlation between Past 30 Days of Use of Primary Substance Used and Duration of Participation in residential SUD treatment (r = -.208), respectively.

Inferential statistics

Given the relatively large number of predictors, multinomial logistic regression was conducted for each of the seven conceptual blocks (e.g. sociodemographic, substance use, mental health, trauma history, readiness for change variables, self-medication for psychiatric distress, and duration of participation in residential SUD treatment, respectively). Within each of the blocks, those predictor variables that significantly predicted type of aftercare participation at the p < .05 level were entered into the corresponding multinomial logistic regression analysis. From the sociodemographic conceptual block, only living arrangement was significant (p < .003). In terms of the substance use conceptual block, none of the variables were significant. From the mental health conceptual block, current mental health provider (p <

.013) was significant. None of the variables from the readiness for change conceptual block were significant. Similarly, none of the variables in the traumatic exposure block were significant, nor were any of the variables in the self-medication for psychiatric distress block. However, duration of participation in treatment (p < .004) was significant.

A test of the model using all of the aforementioned predictor variables as well as race, gender, past 30 day use of primary substance used, combination of substances used, history of abuse, and Dimension 4 Severity rating was significant (p < .025) with a R² value of .408 [29], as shown in Table 3. Based on the likelihood ratio tests, the following variables were found to be significant in predicting participants' treatment outcomes: living arrangement (p < .003) and duration of participation in treatment (p < .012).

Compared to participants who completed residential SUD

treatment and did not pursue aftercare services, participants who were homeless were 5.442 times more likely to participate in intensive outpatient treatment and SLE. However, there were no significant predictors of participation in intensive outpatient treatment compared to those who completed residential SUD treatment and did not pursue aftercare services (Table 4).

Discussion

The results indicate that participants who identified as being "homeless" were significantly more likely to participate in intensive outpatient treatment and enroll in the SLE program compared to participants who completed treatment and did not pursue any form of aftercare services. To date, no other research studies have examined the role of participants' living arrangements and housing in their participation in aftercare services, including enrollment in a SLE, following their completion of residential SUD treatment. These findings illustrate the importance of providing transitional housing contingent on ongoing participation in SUD treatment on an outpatient basis in order to promote post-treatment aftercare service participation among persons experiencing housing instability in large urban areas.

Results from the multinomial logistic regression analysis revealed that for each additional day the participants spent in residential SUD treatment, participants were 7% more likely to enroll in outpatient SUD treatment and SLE as compared to participants who enrolled only in outpatient SUD treatment. As longer treatment durations increased the likelihood of aftercare participation and aftercare participation has been shown to be associated with higher rates of long-term recovery [13], the findings from the present study highlight the importance of the length of residential SUD treatment episodes for unstably housed clients diagnosed with moderate to severe SUDs. Additionally, the results from the present study illustrate the crucial connection between the residential component of SUD treatment and the subsequent transition to aftercare, particularly among a very vulnerable segment of the population - indigent, unstably housed, Medicaid recipients with moderate to severe SUDs.

Aftercare service participation was not predicted by the sociodemographic characteristics of the participants, with the exclusion of participants' living arrangement, which coincides with the majority of findings from previous research [13-15]. While participants without a psychiatric comorbidity were found to be more likely to participate in outpatient treatment following the completion of their residential SUD treatment in previous studies [13,23], the mental health variables (e.g. history of abuse and current mental health provider) were not significant in the current study. Additionally, participants with a current mental health provider were not more likely to participate in aftercare services contrary to the findings in previous studies [20, 25].

As found by Arbour and colleagues [13], type of primary substance used also was not a significant predictor of aftercare service participation. Unlike previous studies which found that pretreatment substance use severity was a significant predictor of aftercare participation, past 30 days of use of primary substance used at time of admission was not significant in this study. While two previous studies found pretreatment motivation to be predictive of post-treatment aftercare participation, the results from the present study support the findings of Arbour and colleagues and McKay and associates, in which pretreatment motivation was not a significant predictor of post-treatment aftercare service participation.

Conclusions

The results should be interpreted in light of several considerations. The dataset included clients from one large urban county, so the results cannot be generalized to all persons participating in residential or inpatient substance use treatment programs. Additionally, the participants in this sample overwhelmingly reported MA as their primary substance used. There also may have been biases in the self-reported information related to pretreatment substance use, psychiatric history, and trauma history included in the ASAM Multidimensional Assessment Tool due to social desirability and recall. As the sample size was relatively small (n = 95), the number of parameter estimates included in the full model based on their significance in the conceptual blocks was fairly high. Therefore, the findings should be applied cautiously.

Few studies have addressed the predictive factors of aftercare service enrollment and the types of aftercare services clients pursue. These findings can assist behavioral health care professionals to enhance client engagement in post-treatment aftercare services, which has been linked to lower likelihood of future relapse. As the large urban county in this study adopted a novel approach to promoting aftercare participation by providing no-cost SLEs for those clients who pursue intensive outpatient services subsequent to residential SUD treatment, the present study suggests that such programs provide a strong inducement for clients who struggle with housing instability to participate in aftercare services following the completion of their residential SUD treatment episodes. These findings should encourage states to pursue technical assistance and support through SUPPORT Act: Section 108 in order to provide housing-related support under Medicaid to persons with SUDs.

The findings from this study also should guide publicly funded treatment providers in participating counties to encourage clients to maximize their Medicaid benefits by remaining in treatment for at least 90 days to enhance their likelihood of ongoing participation in aftercare services, including intensive outpatient SUD treatment and SLE, in order to enhance their recovery efforts. Moreover, these findings highlight that the SUPPORT for Clients and Communities Act limitation of residential SUD treatment episodes to 30 days may require further attention and revision to increase the length of residential SUD treatment episodes covered by Medicaid, especially for unstably housed clients with moderate to severe SUDs. In the interim, states that are in the process of submitting waivers for behavioral health provisions subject to the new legislation should consider the use state and local funds to cover the cost of residential SUD treatment beyond the first 30 days covered by Medicaid for unstably housed clients with moderate to severe SUDs.

Funding

Conflict of Interest

No conflict declared.

References

1. Substance Abuse and Mental Health Services Administration (2021) Preventing overdose and death.

2. Alterman AI, McKay JR, Mulvaney FD, Cnaan A, Cacciola JS, et al. (2000) Baseline prediction of 7-month cocaine abstinence for cocaine dependency patients. Drug Alcohol Depend 59: 215-221.

3. Andersson HW, Wenaas M, Nordfjærn T (2019) Relapse after inpatient

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substance use treatment: A prospective cohort study among users of illicit substances. Addict Behav 90: 222-228.

4. Gil-Rivas V, Prause J, Grella CE (2009) Substance use after residential treatment among individuals with co-occurring disorders: the role of anxiety/ depressive symptoms and trauma exposure. Psychol Addict Behav 23: 303-314.

5. Gossop M, Harris J, Best D, Man L, Manning V, et al. (2003) Is attendance at Alcoholics Anonymous meetings after inpatient treatment related to improved outcomes? A 6-month follow-up study. Alcohol Alcohol 38: 421-426.

6. McKetin R, Kothe A, Baker AL, Lee NK, Ross J, et al. (2018) Predicting abstinence from methamphetamine use after residential rehabilitation: Findings from the Methamphetamine Treatment Evaluation Study. Drug Alcohol Rev 37: 70-78.

7. Pasareanu AR, Vederhus JK, Opsal A, Kristensen O, Clausen T (2016) Improved drug-use patterns at 6 months post-discharge from inpatient substance use disorder treatment: results from compulsorily and voluntarily admitted patients. BMC Health Serv Res 16: 291.

8. Suter M, Strik W, Moggi F (2011) Depressive symptoms as a predictor of alcohol relapse after residential treatment programs for alcohol use disorder. J Subst Abuse Treat 41: 225-232.

9. Fiorentine R, Hillhouse MP (2000) Drug treatment and 12- step participation-The additive effects of integrated recovery activities. J Subst Abuse Treat 18: 65-74.

10. Hambley J, Arbour S, Sivagnanasundaram L (2010) Comparing outcomes for alcohol and drug abuse clients: A 6-month follow-up of clients who completed a residential treatment programme. J Subst Use 15: 184-200.

11. McKay JR, McLellan AT, Alterman AI, Rutherford MJ, O'Brien CP (1998) Predictors of participation in aftercare sessions and self-help groups following completion of intensive outpatient treatment for substance abuse. J Studies on Alcohol 59: 152-163.

12. Moos RH, Moos BS (2007) Treated and untreated individuals with alcohol use disorders: Rates and predictors of remission and relapse. Int J Clin Health Psychol 6: 513-526.

13. Arbour S, Hambley J, Ho V (2011) Predictors and outcome of aftercare participation of alcohol and drug users completing residential treatment. Subst Use Misuse 46: 1275-1287.

14. Terra MB, Barros HMT, Stein AT, Figueira I, Athayde LD, et al. (2007) Predictors of engagement in the alcoholics anonymous group or to psychotherapy among Brazilian alcoholics: A six-month follow-up study. Eur Arch Psychiatry Clin Neurosci 257: 237-244.

15. Bodin M (2006) Gender aspects of affiliation with Alcoholics Anonymous after treatment. Contemporary Drug Prob 33: 123-141.

16. Sannibale C, Hurkett P, Van Den Bossche E, O'Connor D, Zador D, et al. (2003) Aftercare attendance and post-treatment functioning of severely substance dependent residential treatment clients. Drug Alcohol Rev 22: 181- 190.

17. Connors G, Tonigan J, Miller W, MATCH Research Group (2001) A longitudinal model of intake symptomatology, AA participation and outcome: Retrospective study of the project MATCH outpatient and aftercare samples. J Stud Alcohol 62: 817-825.

18. McKay JR, Alterman AI, McLellan AT, Snider EC (1994) Treatment goals, continuity of care, and outcome in a day hospital substance abuse rehabilitation program. Am J Psychiatry 151: 254-259.

19. Morgenstern J, Labouvie E, McCrady BS, Kahler CW, Frey RM (1997) Affiliation with Alcoholics Anonymous after treatment: A study of its therapeutic effects and mechanisms of action. J Consult Clin Psychol 65: 768-777.

20. Stahler G, Mazzella S, Mennis J, Chakravorty S, Rengert G, Spiga R (2007) The effect of individual, program, and neighborhood variables on continuity of treatment among dually diagnosed individuals. Drug Alcohol Depend 87: 54-62.

21. Stahler G, Mennis J, Cotlar R, Baron D (2009) The influence of neighborhood environment on treatment continuity and rehospitalization in dually diagnosed patients discharged from acute inpatient care. Am J Psychiatry 166: 1258-1268.

22. Claus RE, Orwin RG, Kissin W, Krupski A, Campbell K, et al. (2007) Does gender-specific substance abuse treatment for women promote continuity of care?. J Subst Abuse Treat 32: 27-39.

23. Blondell RD, Smith SJ, Canfield MC, Servoss TJ (2006) Abstinence and initiation of treatment following inpatient detoxification. Am J Addict 15: 462-467.

24. Dewa CS, Tugg L, Stergiopoulos V, Ghavam-Rassoul A (2012) Examining factors associated with primary care and continuity of care among adults with severe mental illness. J Contemporary Psychother 42: 45-54.

25. Gotor L, Gonzalez-Juarez C (2004) Psychiatric hospitalization and continuity of care in immigrants treated in Madrid (Spain). Soc Psychiatry Psychiatr Epidemiol 39: 560-568.

26. Substance Abuse and Mental Health Service Administration (2013) Bheavioral health services for people who are homeless. USA.

27. Houser KA, Salvatore C, Welsh WN (2012) Individual-level predictors of community aftercare completion. Prison J 92: 106-124.

28. De Leon G, Melnick G, Thomas G, Kressel D, Wexler HK (2000) Motivation for treatment in a prison-based therapeutic community. Am J Drug Alcohol Abuse 26: 33-46.

29. Nagelkerke NJD (1991) A note on a general definsition of the coefficient of determination. Biometrika 78: 691-692.