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To cite this article: Siobhan Morse & Samuel MacMaster (2015) Characteristics and Outcomes of Young Adult Opiate Users Receiving Residential Substance Abuse Treatment, Journal of Evidence-Informed Social Work, 12:6, 556-566, DOI: [10.1080/15433714.2013.872071](https://doi.org/10.1080/15433714.2013.872071)

To link to this article: <http://dx.doi.org/10.1080/15433714.2013.872071>



Published online: 16 Apr 2015.



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# Characteristics and Outcomes of Young Adult Opiate Users Receiving Residential Substance Abuse Treatment

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Opiate use patterns, user characteristics, and treatment response among young adults are of interest due to current high use prevalence and historical low levels of treatment engagement relative to older populations. Prior research in this population suggests that overall, young adults present at treatment with different issues. In this study the authors investigated potential differences between young adult (18–25 years of age) and older adult (26 and older) opiate users and the impact of differences relative to treatment motivation, length and outcomes. Data for this study was drawn from 760 individuals who entered voluntary, private, residential treatment. Study measures included the Addiction Severity Index (ASI), the Treatment Service Review (TSR), and University of Rhode Island Change Assessment (URICA). Interviews were conducted at program intake and 6-month post-discharge. Results indicate that older adults with a history of opiate use present at treatment with higher levels of severity for alcohol, medical, and psychological problems and young adults present at treatment with greater drug use and more legal issues. Significant improvement for both groups was noted at 6 months post treatment; there were also fewer differences between the two age groups of opiate users. Results suggest different strategies within treatment programs may provide benefit in targeting the disparate needs of younger opiate users. Overall, however, results suggest that individualized treatment within a standard, abstinence-based, residential treatment model can be effective across opiate users at different ages and with different issues, levels of severity, and impairment at intake.

*Keywords:* Substance use, co-occurring disorders, opiate use, young adults

Opiate use and prevalence rates increased markedly in the past decade. Prescription opiates are the most significant factor with 1.9 million new nonmedical users of pain relievers over the age of 12 in 2011 (Substance Abuse and Mental Health Services Administration, 2012). The CDC reports that four times as many prescription painkillers were sold to pharmacies, hospitals, and doctors' offices in 2010 than in 1999 (National Center for Injury Prevention and Control, Division of Unintentional Injury Prevention, 2012). Results from the 2011 National Survey on Drug Use and Health indicate that 4.5 million Americans over the age of 12 were current nonmedical users of painkillers, the largest single category of illicit drug use other than marijuana (Substance Abuse and Mental Health Services Administration, 2012), and 1.8 million persons had pain reliever abuse or dependence.

The United States and Canada combined account for 6%–22 tons—of the world's heroin consumption in 2010 (United Nations Office on Drugs and Crime, 2010). In 2011, 620,000 were past year users of heroin, nearly double that of 2007 (Substance Abuse and Mental Health Services Administration, 2012).

The societal costs of opioid abuse, dependence, and misuse include health care consumption, lost productivity, and criminal justice costs and were estimated at 55.7 billion in 2007 (Birnbaum, 2011). Significant diminishment of quality of life is reported for both current and former opiate users; including relationships, financial situations, and health related quality of life (De Mayer, 2011) and length of use has been positively and significantly correlated to diminished functionality (Butler, 2010). In a recent study conducted with university students, analgesic use predicted low quality of life scores in the emotional domain; specifically higher levels of depression and less accomplishment due to emotional problems (Ahongshangbam, 2013).

Opiate abuse is associated with higher risk of HIV, Hepatitis, and premature death as well. Hepatitis C incidence rates remain high, especially for young adults abusing injection drugs (Page, Morris, Hahn & Prins, 2013). A CDC study done in Massachusetts revealed that although declines were evident among reported cases overall during 2002–2009, an increase was observed among cases in the 15–24 year age group, representing an epidemic related to intravenous drug use among young adults (Center for Disease Control and Prevention, 2011). Data compiled internationally indicate that the greatest risk of mortality among illicit drug users occurs among opioid users (Darke, 2006).

In 2011, the rate of substance dependence or abuse among adults aged 18 to 25 (18.6%) was higher than that among youths aged 12 to 17 (6.9%) and among adults aged 26 or older (6.3%: Substance Abuse and Mental Health Services Administration, 2012). College age students who report nonmedical prescription opiate use are more likely to report additional substance use as well as other high risk behaviors (Lord, 2009; McCabe, 2005).

The percent of persons seeking treatment for a problem with nonmedical pain reliever use increased from 8.7% to 19% in 2011. (Substance Abuse and Mental Health Services Administration, 2012). Opiate abuse was the primary reason in 19% of substance abuse treatment admissions in 2007 (SAMHSA, Office of Applied Studies, 2009, August), and in 2011, 726,000 persons in the United States received treatment for pain reliever dependence and another 430,000 persons received treatment for heroin dependence (Substance Abuse and Mental Health Services Administration, 2012). Completion rates for long-term treatment have been reported lowest among primary opiate abusers and dropout rates for short term treatment are highest among primary opiate abusers (SAMHSA, Office of Applied Studies, 2009, February).

Treatment of opioid dependence has been historically and heavily dependent upon Medication-Assisted Treatment (MAT). MAT is a form of pharmacotherapy and when used in treating opiate dependence includes methadone, buprenorphine, and naltrexone. The Department of Health and Human Services recently moved to “allow more flexibility in dispensing take-home supplies of buprenorphine—removing restrictions on the time a patient needs to be in treatment in order to receive take-home supplies . . . ” (Government Printing Office, 2012). As opioid abuse and the associated social consequences impact more individuals, office-based pharmacotherapy has become the treatment of choice for individuals to whom traditional, abstinence-based, residential treatment does not appeal.

Through this study the authors seek to describe possible differences between young adult (18–25) and older adult (26 and older) opiate users in abstinence-based, residential, dual diagnosis treatment. Specifically, are there differences between young adult and older adult opiate users in regards to characteristics entering treatment (baseline), treatment length, and outcomes 6 months following treatment?

## METHOD

### Setting

Data were collected at three residential facilities that provide integrated substance abuse and mental health treatment services in Memphis, Tennessee, Malibu, California, and Palm Springs,

California. Foundations Recovery Network (FRN), a private for-profit substance abuse treatment provider offering residential and outpatient substance abuse treatment services to individuals nationwide owns and operates all three programs. Service recipients at all three facilities are drawn from across the United States and Canada. Services are individualized and based on an integrated dual diagnosis model of mental health and substance abuse services consisting of both individual and group evidence-based interventions. Model fidelity is assessed annually using the Dual Diagnosis Capability in Addiction Treatment (DDCAT) Toolkit (SAMHSA, 2011). Opiate users are treated with individualized services tailored to their specific medical and social needs. Services typically consist of short-term medically managed detoxification followed by approximately a month of residential treatment.

## Participants

All program participants who enter residential services are offered an opportunity to participate in the ongoing study during the initial phase of treatment. A trained intake person located at each facility describes the evaluation, reviews, and obtains informed consent, and collects the locator information for post-discharge interviews. If informed consent was obtained, the Addiction Severity Index (ASI) from the initial clinical assessment is used as the baseline assessment. The initial clinical assessment is completed within the first 4 days following admission to FRN's residential programs. Additional data for the current study were collected at 6 months post-discharge. A community-based Institutional Review Board approved the study protocol to assure the protection of human subjects.

The participants were 760 individuals who reported using heroin, non-prescribed methadone, and/or other opiates during the 30 days prior to treatment and who voluntarily sought residential treatment at one of the three treatment centers. All participants received an intake assessment by a multidisciplinary team which provides the basis for an individual treatment plan to address substance use, psychiatric disorder, and medical and social service needs—at this time the baseline evaluation data were collected for those individuals who signed informed consent to participate in the evaluation process. Retention was measured through a review of discharge records. At the time that data was analyzed, (75.8%) individuals had provided follow up data. Individuals who did not participate in the follow up were not included in further analyses. Their data was similar to the study population on all measures, with the exceptions of the following statistically significant differences. Individuals who did not participate in the follow up reported fewer average days of alcohol use in the last 30 days (10.6 vs. 12.4), more average days of other sedative use (5.1 vs. 3.8), and more average days of other opiate use (6.8 vs. 5.5) at baseline. Individuals who did not follow up also had lower average ASI alcohol composite scores and higher average ASI drug composite scores at baseline. Among individuals who did not follow up there were higher proportions of men (42% vs. 36%), opiate users (45% vs. 38%), and heroin users (15% vs. 11%). While there was no statistically significant difference in the number of days of treatment completed, individuals who did not follow up completed 3 weeks of treatment at a lower rate, (74% vs. 83%).

## Design

The study is based on a retrospective, naturally occurring, quasi-experimental design. Analyses were made to measure differences between two age groups of individuals who reported opiate use at baseline: 18–25 years of age and those 26 and older. Comparisons were made at baseline and follow-up measures taken at 6-months post-discharge utilizing basic bivariate analyses, for example *t*-tests and chi-square tests.

## Instruments

**Addiction severity.** The scalable questions that make up the composite scores of the ASI were utilized to measure addiction severity. The ASI was developed to measure problem severity in each of seven areas: alcohol use, drug use, medical health, psychiatric health, employment/self-support, family relations, and illegal activity (McLellan, 2006). In order to ensure that each question within a given problem area is given the same weight in calculation of the composite score each item in a subscale is divided by its maximum value and by the total number of questions in a composite. This scoring yields a score from 0–1 in each composite measure. (McGahan, 1986).

**Readiness for change.** The University of Rhode Island Change Assessment (URICA) is a measure of readiness to change that has been studied with a range of different populations. The instrument consists of 32 statements that subjects endorse on a 5-point Lickert-type scale from *strongly agree* to *strongly disagree*. The URICA yields scores on each of four scales; Precontemplation, Contemplation, Action, and Maintenance (Allen, 2003), that approximate four of the five stages of change described by Prochaska, DiClemente, and Norcross (1992). Additionally, the scores from these sub-scales are used to calculate a Readiness to Change composite score. The Readiness to Change score was derived for this study in the same manner used in Project MATCH (Project MATCH Research Group, 1997). Taking the sum of the average of the Contemplation, Action, and Maintenance scores and subtracting the average of the Precontemplation score from the subtotal determined the calculation of the score.

**Treatment service review.** Items measuring the types and frequencies of service use were drawn from the Treatment Service Review (TSR). The TSR was used in concert with the ASI to evaluate service usage during and after substance abuse treatment and covers a host of professional and peer support services (McLellan, 1992). Participants recorded their service usage in all follow up interviews related to informal support group meetings, as well as professional medical, substance use, and mental health services.

## BASELINE CHARACTERISTICS

Data was available for nearly 760 persons reporting opiate use within the 30 days before entering treatment during a two and a half year period of time between January of 2008 and June of 2010. The average age of the young adults was 21.37 years and the older adults averaged 39.4 years of age ( $p \leq .000$ ). There were no significant differences in the gender or race composition between the two groups. Males comprised 63.4% of the young adult group and 56.5% of the older adult group. Both groups were primarily Caucasian, representing over 90% in each group. There were also no significant differences in the percent of each group that was employed, with 50.9% employment in the young adults and just slightly higher at 54.9% in the older adults. (see Table 1)

Participants were asked specifically about their substance use patterns during the 30 days prior to the pre-treatment, baseline interview. Overall, more than a third, 39.8% of all patients participating in research at the three sites reported opiate use in the 30 days prior to enrolling in treatment. More than one tenth (11.8%) of patients enrolling reported heroin use, 5.4% reported nonprescription methadone use, and 32.4% reported other opiate use. There was some overlap between these three groups, as there were 8.4% of the total population reported using more than one of the three types of opiates. With regard to opiate users specifically, younger adults reported significantly more days of heroin use ( $p \leq .000$ ) while older adults reported more days of other opiates use ( $p \leq .005$ ). Young adults were more likely to report having received money from illegal activities in the prior 30 days ( $p \leq .01$ ), to spend significantly more money on drugs than older adults ( $p \leq .05$ ), to use more than one substance more often ( $p \leq .05$ ), and yielded higher drug use composite ASI scores indicating higher levels of severity/impairment ( $p \leq .000$ ), yet when asked how troubled or

TABLE 1  
Demographics

	Young Adults (n = 273)	Older Adults (N = 487)	
Age	21.37 (sd = 2.2)	39.4 (sd = 9.7)	$p \leq .000$
Gender			
Females	36.6%	43.5%	<i>n.s.</i>
Males	63.4%	56.5%	
Race/Ethnicity			
Caucasian	96.0%	91.3%	<i>n.s.</i>
African-American	1.5%	5.1%	
Hispanic	1.0%	2.2%	
Other	1.5%	1.4%	
Employment	50.9%	54.9%	<i>n.s.</i>

bothered they were by their drug use and how important treatment for these problems was to them, there was no significant difference between young and older adults.

With regard to other substance use, there was no significant difference between mean days in the last 30 days prior to entering treatment of using non-medical methadone, cocaine, barbiturates, sedatives, or amphetamines between young and old opiate users. Significant differences were observed in use patterns for alcohol, marijuana, illegal drugs in general, and the use of more than one substance per day. Older adults had a stronger propensity for alcohol use ( $p \leq .000$ ) while younger adults used illegal drugs ( $p \leq .001$ ), and marijuana ( $p \leq .000$ ) more often prior to coming into treatment.

Levels of readiness for change as measured by the URICA at baseline were nearly identical for the two groups. Older adults scored 10.9 on the scale, while younger adults scored 10.8. The largest proportions of both groups were found in the Contemplation stage.

In terms of mental health concerns, younger adults reported more days of difficulty controlling violent behaviors ( $p \leq .05$ ) while older adults reported more days of depression ( $p \leq .005$ ), suicide ideation ( $p \leq .05$ ) and medical problems ( $p \leq .000$ ). Both groups reported similar experiences with anxiety and cognition/focus during the 30 days prior to treatment as well.

There were some differences in measures of functioning. The two groups were also similar in the percent having a driver's license and access to an automobile. Although there were no significant differences in the percent of each group that reported being employed, older adults reported working more days on average ( $p \leq .01$ ). Young adults reported significantly more days of family conflicts than older adults ( $p \leq .05$ ), but again, there was no significant difference in how bothered they were by these conflicts or in feeling the need to receive treatment or counseling for these conflicts that older adults with significantly fewer issues reported. Younger adults were more likely to have legal action pending ( $p \leq .000$ ) and scored higher indicating greater severity/impairment on ASI legal composite scores ( $p \leq .000$ ); and here there was a corresponding difference in their reports acknowledging the seriousness of these problems ( $p \leq .000$ ) and believing that treatment was needed for these problems ( $p \leq .000$ ; see Table 2).

## POST-TREATMENT ANALYSES

All participants received residential level of services. There were no significant differences found between young adults and older adults in average length of stay. At the time that data was analyzed, over half (51.8%) the individuals had provided follow up data. Individuals who did not participate in the follow up were not included in further analyses. Prior analyses of the larger database suggested

TABLE 2  
Baseline Characteristics

	<i>Young Adults</i> (n = 273)	<i>Older Adults</i> (N = 487)	
Number of days worked in past 30 days	8.79	10.97	$p \leq .01$
Received money from illegal activities in past 30 days	32.2%	10.5%	$p \leq .000$
Opiate use characteristics in past 30 days:			
Heroin use (days)	9.44	3.73	$p \leq .000$
Non-prescription methadone (days)	1.63	2.40	<i>n.s.</i>
Other opiates	12.98	15.64	$p \leq .005$
Substance use in past 30 days:			
Alcohol use (days)	5.9	8.74	$p \leq .000$
Illegal drugs (days)	24.08	22.08	$p \leq .001$
More than one substance	14.97	13.06	$p \leq .05$
Cocaine (days)	3.28	3.26	<i>n.s.</i>
Marijuana (days)	11.36	4.32	$p \leq .000$
Barbiturates (days)	0.97	1.2	<i>n.s.</i>
Sedatives (days)	6.46	5.85	<i>n.s.</i>
Amphetamines (days)	0.86	1.55	<i>n.s.</i>
Monetary expenditure on drugs in past 30 days (dollars)	1890.65	1352.95	$p \leq .05$

that non-responders data is similar to the study population on all measures, with the exceptions of the following statistically significant differences. Individuals who did not participate in the follow up were more likely to report fewer average days of alcohol use in the last 30 days (10.6 vs. 12.4) and more average days of other opiate use (6.8 vs. 5.5) at baseline. Individuals who did not follow up also had lower average ASI alcohol composite scores and higher average ASI drug composite scores at baseline. Among individuals who did not follow up there were higher proportions of men (42% vs. 36%), opiate users (45% vs. 38%), and heroin users (15% vs. 11%). While there was no statistically significant difference in the number of days of treatment completed, individuals who did not follow up completed 3 weeks of treatment at a lower rate, (74% vs. 83%). This study group, therefore, represents those individuals who are least likely to provide follow-up information.

There was not a significant difference in completion rates between opiate users and non-opiate users, (85.8% vs. 88.7%,  $p \leq .219$ ). However, significant differences were found in comparisons of length of stay and rates of treatment completion over time. Opiate users had a shorter average length of stay by almost two days (30.9 vs. 32.8 days,  $t = .204$ ,  $p \leq .041$ ). The table below shows the percentage of individuals who maintained engagement in services on a weekly basis. There was no difference between opiate and non-opiate users for completing 7 days of treatment; however significant differences emerged at every other measure, as opiate users had lower rates of treatment completion at every other weekly measure, peaking at 3 weeks (77.5% vs. 81.1%,  $p \leq .001$ ).

## OUTCOME MEASURES

Young and older adults continued to exhibit similarities in a number of areas. There were no significant differences noted between the groups in those patients reporting having a driver's license or in those reporting access to an automobile. Both groups continued to have similar rates of employment. Similar to baseline analyses, there were no significant differences between use of non-medical methadone, barbiturates, sedatives, cocaine, and amphetamines. Dissimilar to baseline, the 6-month measures revealed no significant differences in the use of other opiates (non-heroin, non-

methadone) as well. Similarities between reported days experiencing anxiety and difficulty focusing remained consistent with baseline similarities as well (see Table 3).

All ASI composite scores demonstrated statistically significant improvement between baseline and 6-month measures for both groups. All changes are positive. Statistically significant differences existed between young adult and older adult opiate users on baseline measures of five composite scores (medical, legal, alcohol, drug, and psychiatric). Young adult opiate users had significantly worse scores on legal and drug composites and older adults had significantly worse scores on medical, alcohol, and psychiatric. At 6-months following treatment, three statistically significant differences remained: young adults continued to have higher composite scores for drug use and legal issues and older adults continued to have higher composite scores for medical issues.

Substance use was measured in days. Participants were specifically asked about the 30 days prior to the interview, the same question asked at baseline, pre-treatment interviews. All substance use measures are statistically significant for changes between baseline and 6-month measures for both groups. All changes indicated statistically significant diminishment of substance use. The between group differences present at baseline for alcohol use, alcohol use to intoxication, and the use of illegal drugs overall were no longer statistically significant. Similarly, the use of non-methadone, non-heroin opiates was no longer reported as significantly different between the two groups. Heroin use and marijuana use continued to be significantly higher for younger adults ( $p \leq .005$ ; see Table 4).

All psychiatric and medical outcome reports demonstrated significant improvement ( $p \leq .05$ ) between baseline and post-treatment. Although older adults entered treatment reporting more days of the prior 30 experiencing depression and suicide ideation, these rates were not significantly different from young adults at the post-treatment follow-up. Young adults reported more difficulty controlling violent behavior in the 30 days prior to the baseline interview, but in the 30 days prior to the 6-month interview, there were no significant differences between the two age groups. However, medical problems persisted as significantly different with older adults reporting more days of medical problems in the 30 days prior to both the baseline and post-treatment interviews (see Table 5).

### Post-Treatment Service Use

Participants self-reported their service use at 6 months post-discharge. There were not any statistically significant differences between young adult and older adult opiate users in the use of

TABLE 3  
ASI Composite Scores

	Young Adults (n = 249)		Older Adults (n = 242)	
	Baseline Mean (SD)	6-Month Mean (SD)	Baseline Mean (SD)	6-Month Mean (SD)
<i>ASI Composite</i>				
Medical <sup>12</sup>	.2120 (.33)	.1096 (.24)*	.3853 (.40)	.2256 (.34)*
Employment	.4298 (.25)	.3926 (.28)	.4031 (.28)	.4011 (.29)
Alcohol <sup>1</sup>	.1682 (.25)	.0903 (.14)*	.2656 (.33)	.0750 (.17)*
Drug <sup>12</sup>	.3368 (.12)	.0726 (.12)*	.3003 (.12)	.0377 (.07)*
Legal <sup>12</sup>	.2325 (.28)	.0880 (.17)*	.1070 (.20)	.0362 (.01)*
Family	.3333 (.26)	.1533 (.21)*	.3441 (.27)	.1408 (.20)*
Psychiatric <sup>1</sup>	.4920 (.19)	.2342 (.23)*	.5251 (.20)	.2760 (.21)*

\*Significant improvement over baseline levels.

<sup>1</sup>Significant difference between Young and Older Adults at Baseline.

<sup>2</sup>Significant difference between Young and Older Adults at 6 months.

TABLE 4  
Substance Use Rates

	Young Adults (n = 249)		Older Adults (n = 242)	
	Baseline Mean (SD)	6-Month Mean (SD)	Baseline Mean (SD)	6-Month Mean (SD)
<i>Substance Use Days</i>				
Heroin <sup>12</sup>	9.44 (12.1)	1.84 (6.5)*	3.73 (8.9)	0.19 (2.1)*
Non-medical methadone	1.63 (5.8)	0.07 (.68)*	2.40 (7.3)	0.06 (.96)*
Other opiates <sup>1</sup>	12.98 (12.0)	1.55 (5.7)*	15.64 (11.7)	2.73 (8.0)*
Alcohol <sup>1</sup>	5.90 (8.7)	2.64 (5.7)*	8.74 (11.0)	1.91 (5.8)*
Alcohol to intoxic <sup>1</sup>	4.27 (8.0)	1.54 (4.7)*	6.51 (10.2)	1.25 (5.1)*
Cocaine	3.28 (6.9)	0.20 (.69)*	3.26 (7.6)	0.02 (.24)*
Cannabis <sup>12</sup>	11.36 (12.0)	0.73 (1.36)*	4.32 (9.2)	0.14 (.64)*
Other sedatives	6.46 (9.8)	0.28 (.91)*	5.85 (10.1)	0.18 (.77)*
Amphetamines	0.86 (3.8)	0.14 (.69)*	1.55 (5.9)	0.06 (.43)*

\*Significant improvement over baseline levels.

<sup>1</sup>Significant difference between Young and Older Adults at Baseline

<sup>2</sup>Significant difference between Young and Older Adults at 6 months

emergency room services and in overnight hospital stays for physical/medical, mental/emotional, or alcohol/substance abuse since the previous interview. There were also not any statistically significant differences between the two groups in the use of outpatient and halfway house (non-hospital residential) medical and mental health services at 6 months, however there were significant differences in the use of outpatient or halfway house substance abuse services.

There were also not any statistically significant differences in the rates of access or engagement with 12-step recovery meetings. Opiate and non-opiate users reported attending groups at about the same rates at 6 months post-discharge: 77% for young adults and 76% for older adults. There were also not any statistically significant differences in the number of meetings attended each week between groups at either time point. Older adults were more likely to have a sponsor (50%) than young adults (38%:  $p \leq .05$ ).

TABLE 5  
Psychiatric and Medical Outcomes (Number of Days)

	Young Adults (n = 249)		Older Adults (n = 242)	
	Baseline Mean (SD)	6-Month Mean (SD)	Baseline Mean (SD)	6-Month Mean (SD)
<i>Psychological</i>				
Depression <sup>1</sup>	0.70 (.46)	0.28 (.45)*	0.80 (.40)	0.36 (.48)*
Anxiety	0.86 (.35)	0.47 (.50)*	0.85 (.36)	0.49 (.50)*
Cognitive	0.52 (.50)	0.25 (.44)*	0.59 (.49)	0.27 (.45)*
Violence <sup>1</sup>	0.26 (.44)	0.11 (.32)*	0.19 (.39)	0.03 (.18)*
Suicide ideation <sup>1</sup>	0.14 (.35)	0.06 (.24)*	0.21 (.41)	0.08 (.27)*
<i>Medical Problems</i>				
Days last 30 <sup>12</sup>	4.44 (9.1)	1.90 (5.7)*	9.98 (12.8)	4.84 (9.6)*

\*Significant improvement over baseline levels.

<sup>1</sup>Significant difference between Young and Older Adults at Baseline.

<sup>2</sup>Significant difference between Young and Older Adults at 6 months.

## DISCUSSION

Based on all of the results, it is clear that positive change occurred for the entire sample on all outcome measures. The individuals who participated in the study showed significant improvements in all rates of substance use, as well as in substance abuse and mental health symptoms, and improvement in all other related life areas. The results demonstrate that although opiate users entered treatment with high levels of impairment, abstinence-based residential treatment is effective for opiate users.

The baseline differences seen between young adult and older adult opiate users indicate that young adults enter treatment with higher levels of substance abuse and possibly more anti-social behaviors, such as more illegal activities, more serious problems with family, more difficulty controlling violent behavior, and a greater likelihood of pending legal action. Older adults tend to enter treatment with more medical issues, higher levels of depression, and more suicide ideation. The interesting difference is that younger adults appear to “act out” while older adults appear to “act in.” These findings have clear implications for program planners in the substance abuse treatment arena. Typically younger users are assumed to be a more challenging population for substance abuse treatment services, and we expected to see significant differences in levels of motivation and treatment outcomes; however, results indicated that there were no significant differences in readiness to change between the two groups. Similarly, average length of stay was not statistically different.

All substance use measures are statistically significant for changes between baseline and follow-up. Differences noted at baseline in alcohol consumption and alcohol use to intoxication were no longer significant at 6-months post-treatment. It is important to note that both groups demonstrated significant positive change in opiate uses patterns following treatment. Young adults continued to be more likely to use heroin but the use of other opiates between groups had equalized at follow-up.

All psychological and medical measures demonstrated statistically significant improvement for both groups at the 6-month time point. Apparent significant-between-group differences in psychiatric composite, including days experiencing depression, trouble controlling violent behaviors, and suicide ideation were no longer present at the 6 month time point. However, significant-between-groups differences persisted with older adults remaining more likely to have medical issues. The management of co-occurring psychiatric disorders as part of substance abuse treatment has been clearly and definitively addressed in the literature and by oversight agencies such as SAMHSA. The management of co-occurring medical conditions as part of substance abuse treatment continues to be an important area of study and development especially in the private, for-profit treatment industry.

Post-treatment service use including ER visits, hospitalization, and outpatient participation was similar between the two groups. Both young and older adult opiate users were equally likely to attend 12-step fellowships. However, older adults were more likely to have a sponsor—a possible measure of engagement with the meetings.

Data collected in this study suggest that while there are significant important differences between young adult and older adult opiate users at entry into treatment, individualized, integrated, abstinence-based, and dual diagnosis treatment is effective in addressing not only the substance abuse issues but also in supporting significant positive change in psychiatric and medical severity as well. It is also important to note that the study population was drawn from private for-profit residential treatment centers. This is a population of individuals who generally do not typically enroll in substance abuse treatment research. Historically, research on opiate addiction is even less likely to be conducted in a similar setting, as the preponderance of opiate treatment research is conducted with indigent populations who have accessed outpatient methadone-based services. This aspect of the study is both a strength—this broadens our understanding of opiate addiction treatment to a population underrepresented in the literature—and a limitation, as it may limit the external validity of the study to other similar well-resourced populations.

This study is not without other limitations. Participants in the study were not randomly sampled, thus the generalizability of these findings is limited, as there was no control group, and the results from our study are only applicable to the individuals who participated in the research interviews. Studies based on this type of sampling run the risk of sampling bias, as individuals who were in the sample may not have accurately represented the pool of potential service recipients. For example, in our study, the number of participants who provided follow up data ( $n = 760$ ) represented 51.8% of the total number of all service recipients. While the sample did represent more than half of all eligible participants, it is important that the results of this study are viewed with this limitation in mind. This concern may be lessened by the fact that while most variables between the individuals who participated and did not participate in the follow up were extremely similar, there were some noted differences in the individuals who did not follow up. The lack of a counterfactual, a control group that was randomly sampled, further weakens the generalizability of these results. We used a non-experimental design with only a comparison group. Despite these limitations, the results are important.

All of the outcome measures indicated significant improvements for the individuals involved in the study. The results can be used to further develop and/or enhance services to other groups of similar opiate using individuals in other areas. As the political climate changes and access to treatment is broadened to include more individuals, these results can support both providers and policy makers in decisions regarding the future direction of treatment for opiate use disorders. The project demonstrated that a continuum of intensive residential abstinence-based substance abuse and mental health treatment services may be effective for the target population, especially because this population of substance users has been historically described as more difficult to reach and/or non-adherent to traditional services than other substance users. Further, this project demonstrates that individualized, integrated treatment may overcome significant differences in treatment populations.

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