Published in final edited form as:

Adv Dual Diagn. 2016 ; 9(1): 38–47. doi:10.1108/ADD-07-2015-0015.

Comparative Analysis of Treatment Conditions upon Psychiatric Severity Levels at Two Years Among Justice Involved Persons

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Abstract

Purpose—The aim of this investigation was to compare the effects of two types of community-based, residential treatment programs among justice involved persons with dual diagnoses.

Design/methodology—A randomized clinical trial examined treatment conditions among justice involved persons with substance use disorders who reported high baseline levels of psychiatric severity indicative of diagnosable psychiatric comorbidity. Participants ($n = 39$) were randomly assigned to one of three treatment conditions upon discharge from inpatient treatment for substance use disorders: a professionally staffed, integrated residential treatment setting (therapeutic community), a self-run residential setting (Oxford House), or a treatment-specific aftercare referral (usual care). Levels of psychiatric severity, a global estimate of current psychopathological problem severity, were measured at two years as the outcome.

Findings—Participants randomly assigned to residential conditions reported significant reductions in psychiatric severity whereas those assigned to the usual care condition reported significant increases. There were no significant differences in psychiatric severity levels between residential conditions.

Research limitations/implications—Findings suggest that cost-effective, self-run residential settings such as Oxford Houses provide benefits comparable to professionally-run residential integrated treatments for justice involved persons who have dual diagnoses.

Social implications—Results support the utilization of low-cost, community-based treatments for a highly marginalized population.

Originality/value—Little is known about residential treatments that reduce psychiatric severity for this population. Results extend the body of knowledge regarding the effects of community-based, residential integrated treatment and the Oxford House model.

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All work related to this investigation was done within the United States of America.

Keywords

psychiatric severity; dual diagnoses; justice involved persons; Oxford House; integrated treatment; randomized clinical trial

Persons who have comorbid psychiatric and substance use disorders (i.e., “dual-diagnoses”) have mental health issues that increase their risk for harm while challenging their ability to engage in recovery from substance use. For example, dually-diagnosed persons have worse post-treatment outcomes compared to persons with substance use disorders in terms of disability symptoms and alcohol use (Burns et al., 2005), high rates of relapse (Kushner et al., 2005), and high levels of psychiatric severity that are associated with increased HIV-risk sexual behavior (Majer et al., 2015) and poor improvements in terms of fulfilling treatment plan objectives related to treatment drop-out in therapeutic communities (Vergara-Moragues et al., 2013). Although the need for stable housing is great among persons with dual diagnoses (Burnett et al., 2011; Davis and O'Neill, 2005), there are not many options for this population in the United States.

Therapeutic communities (TCs) are staff-run, residential settings that are one of the most common modes of treatment for substance use disorders (De Leon, 1985) that might provide such housing. Although TCs vary widely in their capacity, program philosophies, and services they typically incorporate mutual self-help principles in their residential milieu (De Leon et al., 2008). However, the complexity of mental health and substance-related problems among persons with dual diagnoses might be better approached by offering services that are specific to this population (i.e., integrated treatment) within residential settings (Drake, 2007).

Research investigations on residential integrated treatments have shown promising results for persons with dual diagnoses. For instance, high levels of psychiatric severity were found to be stronger predictors of treatment retention than treatment readiness, employment and medical problem severity (Choi et al., 2013), suggesting that integrated treatments at the residential level are a good fit for persons with dual-diagnoses. A one-year follow-up investigation found significant reductions in levels of psychiatric severity among dually-diagnosed persons receiving high intensity integrated treatment programs (Chen et al., 2006). In addition, no differences in psychiatric severity levels at one-year follow-up were observed between dually-diagnosed persons who were randomly assigned to high intensity integrated treatment programs that were hospital-based or community-based (Timko et al., 2006), suggesting that community-based approaches might be comparable alternatives to hospital-based integrated treatment programs.

The Oxford House model of recovery from substance use disorders is a community-based, residential treatment approach that has received considerable attention in the literature and has been placed on Substance Abuse and Mental Health Service Administration's (SAMHSA's) National Registry of Evidence-Based Programs and Practices in the US (2011). Oxford Houses are self-run, communal-living settings for persons recovering from substance use disorders. Since its inception in 1975, the number of Oxford Houses has grown to 2,000; mostly in the US but with Houses in Australia, Canada, England, and

Ghana. Residents live in moderately sized, single-sex, single-family homes, and many of these homes contain individuals who have been previously incarcerated (Jason, Olson, & Foli, 2008).

TCs and Oxford Houses are similar in that they both provide residents a supportive abstinent social support system within a residential setting. However, they differ in several ways: TCs put emphasis on various therapies, consist of professional staff who share responsibilities with residents, have restricted lengths of stay (ranging from 6 to 15 months), and some include integrated treatment for those with dual diagnoses, whereas Oxford Houses are self-run and have no limit to residents' length of stay. Nonetheless, there is some evidence that persons with dual-diagnoses benefit by Oxford House model.

For instance, considerable rates of lifetime history of psychiatric disorders were observed among Oxford House residents in one investigation (Majer et al., 2002) that found high rates of abstinence and community reintegration at six months. A clinical trial investigation (Jason et al., 2007) found comparable rates of substance use at two-years between participants diagnosed with/without mood and anxiety disorders who were randomly assigned to an Oxford House upon discharge from inpatient treatment for substance use disorders. However, those assigned to the control/usual care condition reported greater substance use, and substance use rates were greater among those with dual diagnoses assigned to this condition (Jason et al., 2007). In addition, a national investigation of Oxford House residents (Majer et al., 2008) found those who had high levels of psychiatric severity indicative of diagnosable co-occurring psychiatric disorders also reported improvements in mental health outcomes (e.g., medication use, outpatient services). These individuals also had comparable rates of abstinence, duration of stay in Oxford Houses, and frequencies of psychiatric hospitalizations at one-year follow-up compared to residents who did not report any psychiatric severity at baseline.

Findings across these investigations suggest that the Oxford House model might be an effective residential treatment approach for persons with dual-diagnoses. However, these investigations have limitations with respect to diagnostic assessment in terms of lifetime rates (Majer et al., 2002), limited scope of comorbidity types (Jason et al., 2007), and a lack of a comparison (i.e., alternative treatment or control) condition among those with high psychiatric severity (Majer et al., 2008). Thus there is a need to more rigorously examine the Oxford House model by comparing it to residential integrated treatment to determine whether it can reduce psychiatric severity among justice involved persons with dual diagnoses.

Little is known about community-based treatments for justice involved persons who have dual diagnoses, particularly with respect to mental health outcomes. Investigations with this population have examined criminal behavior outcomes among those receiving integrated treatments at the residential (Sacks, Sacks, McKendrick, Banks, & Stommel, 2004) and non-residential levels (Calsyn, Yonker, Lemming, Morse, Klinkenberg, 2005). However, there is a need to replicate previous investigations on psychiatric severity (Chen et al., 2006; Choi et al., 2013; Timko et al., 2006) with justice involved persons who have dual diagnoses to

determine whether community-based residential treatments are effective in reducing mental health problem severity for this population.

The present study investigated levels of psychiatric severity among justice involved persons with substance use disorders who reported very high levels of psychiatric severity indicative of dual diagnoses at baseline, and examined their levels of psychiatric severity as the outcome variable at two-years in relation to treatment condition. Participants were randomly assigned to one of three conditions upon discharge from inpatient treatment for substance use disorders: an Oxford House condition, a residential therapeutic community condition (that included integrated treatment for persons with dual diagnoses), and usual care condition (control) and followed up at two-years. This is a secondary analysis of a recent investigation (Jason et al., 2015) that examined these conditions and found those assigned to the Oxford House condition had better employment outcomes, continuous alcohol abstinence rates, and more favorable cost-benefit ratios. A significant time effect (but not condition effect) for psychiatric hospitalizations was observed, suggesting that some participants had psychiatric comorbidities. However, Jason et al. (2015) did not examine condition effects among participants with psychiatric comorbidity or levels of psychiatric severity. Therefore, we hypothesized participants with dual diagnoses who were randomly assigned to the Oxford House condition would report significant reductions in psychiatric severity levels at two-year follow-up. However, because greater levels of integration of substance and mental health treatments have been found to be more effective than less integrated treatments (Brunette et al., 2004), we hypothesized that such participants randomly assigned to the therapeutic community condition would report significantly lower levels of psychiatric severity than participants assigned to the Oxford House and usual care conditions at two-years.

Method

Procedures

Participants were recruited through inpatient treatment facilities for substance use disorders or reentry/case management programs. The majority of the participants ($n = 251$) were recruited from inpatient treatment facilities where they were receiving inpatient services, and the remainder of the sample ($n = 19$) was referred to the project through chain-referral sampling though they had recently completed inpatient treatment for substance use disorders. Recruitment began in March 2008 and continued through May 2011.

The present investigation was proposed to and approved by an institutional review board. Eligible participants were enrolled in a larger randomized clinical trial of alternative models of aftercare, described in detail elsewhere (Jason et al., 2015). Eligibility for the present study consisted of having been released from prison or jail in the past 24 months, recovering from a substance use disorder, and agreeing to be randomly assigned to an experimental condition: Oxford House, therapeutic community, or usual care (control) condition. Ninety participants were randomly assigned to each of the three conditions. The Oxford House condition consisted of self-run, communal-living, residential settings that did not include any professional treatment elements though residents were free to seek professional treatments. The therapeutic community condition was a licensed, professional organization

that consisted of a residential therapeutic community environment that included professional staff and integrated services for those with dual-diagnoses. The usual care condition consisted of what participants would ordinarily receive upon discharge from inpatient treatment (e.g., outpatient, intensive-outpatient treatment, twelve-step groups, etc.), and they stayed with family, friends, in their own apartment, in homeless shelters, or other settings. Exclusion criteria consisted of not meeting eligibility criteria and/or having a legal history of engaging in violent crime (the latter criterion imposed by the therapeutic community condition). Of the participants approached, 26 were excluded for eligibility violations (no substance use, no criminal history, convicted of violent crimes). All participants were engaged in a process of informed consent. They completed interviews prior to or on the day of completing their inpatient treatment program and again at two-years, and received \$40 for their involvement at each assessment interval.

Measures

Psychiatric severity—The *Addiction Severity Index-Lite* (ASI-Lite; McLellan et al., 1997), a briefer version of the *Addiction Severity Index* (ASI; McLellan et al., 1992), was used to assess problem severity in areas commonly affected by substance use, including psychiatric problems. The ASI has good internal consistency, excellent predictive and concurrent validity (McLellan et al., 1992), and the ASI-Lite has been demonstrated as being comparable to the ASI with good validity and reliability (Cacciola et al., 2007).

We used the Psychiatric Severity Index (PSI) to assess psychiatric severity at baseline and at two-years. The PSI is an ASI subscale that is calculated by a weighted formula to produce a composite score index reflecting a range of current psychiatric symptoms and problems (McLellan et al., 1992). Scores range from .00 to 1.00, with higher scores representing greater psychiatric severity. The PSI is a valid and reliable global estimate of psychopathological severity without regard to any particular diagnostic category (McLellan et al., 1983). It has been demonstrated as having good internal consistency ($> .70$; McLellan et al., 1992), and is one of the few ASI indices to demonstrate high internal consistency across studies (Makela, 2004). We examined changes in PSI scores from baseline to two-year follow-up as the outcome for our analytic model.

In addition, baseline PSI scores were dichotomized into 2 groups (i.e., high vs. low) to assess dual diagnosis, and this approach to assessing dual diagnoses has been used in previous investigations (Ball et al., 2004; Cridland, Deane, Hsu, & Kelly, 2012; Majer et al., 2008; Majer et al., 2015). McLellan et al. (1983) defined high and low PSI scores as 1 *SD* from the mean. The present sample had a mean of .14 and a *SD* of .17. We selected participants ($n = 39$) with PSI scores above .31 (.14 plus .17) to represent the high PSI group, and those participants ($n = 102$) with a PSI score of .00 to represent the low PSI group. This provided us with a measure of dual diagnosis prevalence in the sample (i.e., among those who met the criterion cut-off for placement in the high PSI group) at baseline.

Substance use—Miller's (1996) *Form-90* was administered at baseline and two-years to collect a continuous record of alcohol and drug use in the past six months. The Form-90 has excellent test-retest reliability (Miller and Del Boca, 1994). We used this measure to control

for the possible effects of recent substance use on levels of psychiatric severity at the two-year follow-up assessment interval.

Demographics—We created a brief survey to collect sociodemographic data at baseline. In addition, this brief survey solicited participants' information regarding their incarceration histories and previous treatments for substance use disorders.

Data Analyses

Descriptive analyses were conducted to provide sociodemographic and other characteristics of the sample in addition to describing rates of PSI scores. Chi-square tests were conducted to examine differences among participants based on categorical sociodemographic data. Only 248 participants of the total sample ($n = 270$) completed baseline psychiatric severity index (PSI) questions with scores that fell in the high ($n = 39$) and low ($n = 102$) PSI groups. A missing values analysis of all the independent and dependent variables indicated that the data were missing completely at random; Little's MCAR test; $\chi^2(6) = 7.12, p = .31$.

A listwise deletion approach was used in our analyses. Data were analyzed by examining differences in psychiatric severity index (PSI) scores between baseline and two-year follow-up assessment intervals among participants (in the high PSI group) in relation to condition (Oxford House, therapeutic community, usual care). A repeated measures ANCOVA was employed, controlling for sociodemographic variables (gender and race), and any substance use in the past six months (at the two-year follow-up assessment interval). We controlled for sociodemographic variables because of the disproportionately high number of African-American men in the sample, and recent substance use at two-years to control for any substance-induced effects in relation to changes in PSI scores.

Results

Participants

The sample consisted of two hundred and seventy (224 men and 46 women) persons exiting treatment for substance use disorders who were seeking a complete-abstinence model of recovery in northern Illinois, in the United States. Sociodemographic characteristics of the sample is presented in Table 1, and detailed characteristics by treatment condition are provided elsewhere (Jason et al., 2015).

The majority (43.2%) reported a history of using heroin/opiates, followed by cocaine (28.9%), alcohol (14.7%), cannabis (7.1%), polysubstance use (5.6%), and amphetamine/crystal methamphetamine (.4%) in terms of substances used. Chi-square tests revealed no significant differences in terms of their histories related to incarceration, psychiatric hospitalizations, or substance use treatment by condition, presented in Table 2.

Preliminary analyses

There were proportionately more men and African-American participants in the sample; $\chi^2(1) = 117.34, p < .01$ and $\chi^2(3) = 532.59, p < .01$, respectively. However, there were no

significant differences in the proportion of participants in the high psychiatric group based on gender, race, or condition.

Participants in the high PSI group reported an average PSI score of .47 ($SD = .13$) at baseline, and .36 ($SD = .24$) at two-year follow-up, and they reported a combined alcohol/drug use average (over the past six months) of 33.33 days ($SD = 41.21$) at baseline and 23.11 days ($SD = 35.06$) at two-year follow-up. Analysis of variance (ANOVA) and chi-square tests revealed no significant differences among participants in the high PSI group across treatment (Oxford House, therapeutic community, usual care) conditions in terms of sociodemographic characteristics, and their incarceration, psychiatric hospitalizations, and substance use treatment histories.

Primary analyses

Repeated measures analysis of covariance (ANCOVA) was employed to test for differences in PSI scores at baseline and two-year follow-up in relation to two factors: PSI group (high vs. low) and condition (Oxford House, therapeutic community, usual care), while treating gender, race (dummy-coded as African American or other), and substance use in the past six months (at two-year follow-up) as covariates of the model. As expected, results from the repeated measures ANCOVA demonstrated a significant main effect for the PSI group factor, Wilks' $\Lambda = 0.81$, $F(1, 107) = 25.34$, $p < .001$, $\eta^2_p = 0.19$, in that differences in PSI scores between high/low PSI groups at baseline remained significant at two-years.

Although there was no significant main effect for the condition factor, Wilks' $\Lambda = 0.97$, $F(2, 107) = 1.41$, $p < .25$, $\eta^2_p = 0.03$, a significant interaction between main factors and time was observed. Contrast tests for the interaction of time by PSI group by condition indicated a significant linear trend, $F(2, 107) = 4.18$, $p < .02$, $\eta^2_p = 0.073$, and results are illustrated in Figure 1.

Significant decreases in PSI scores from baseline to two-years follow-up were observed among participants in the high PSI group who were assigned to the Oxford House ($M = .45$ vs. $.26$, $SE = .03$ vs. $.08$) and therapeutic community ($M = .44$ vs. $.28$, $SE = .03$ vs. $.07$) conditions, whereas increased PSI scores were observed from baseline to two-year follow-up among those in the high PSI group assigned to the usual care ($M = .45$ vs. $.52$, $SE = .03$ vs. $.07$) condition. Parameter estimates of the model revealed that there was no significant difference in PSI scores at two-year follow-up between participants in the high PSI group who were assigned to an Oxford House or therapeutic community ($b = .02$, $t = .15$, $p = .88$) condition. No covariate effects were observed. We also ran this model using participants' number of days since their release from incarceration as a covariate. The results were statistically similar to our original model, and days since release was not a significant covariate, Wilks' $\Lambda = 0.99$, $F(1, 107) = .09$, $p < .765$, $\eta^2_p = 0.01$.

Discussion

Significant decreases in levels of psychiatric severity at two-years were observed among participants in the high PSI group who were randomly assigned to the Oxford House condition. This finding extends previous investigations involving Oxford House residents

with dual diagnoses in that current psychiatric status was assessed and not limited to diagnostic types (Jason et al., 2007) or lifetime diagnostic histories (Majer et al., 2002). This finding is consistent with a previous investigation (Majer et al., 2008) that found favorable mental health outcomes among Oxford House residents with high levels of psychiatric severity at one-year. However, the present investigation extends this research in that we used a comparative design and found different effects for participants assigned to a control (usual care) condition who reported significant increases in psychiatric severity levels at two-years.

Decreased psychiatric severity at two years was also observed among participants in the high PSI group who were randomly assigned to the therapeutic community condition (consisting of integrated treatment), suggesting the benefits of such a therapeutic community model extend beyond abstinence for justice involved persons with dual diagnoses (Malivert et al., 2012). In addition, participants in the therapeutic community condition in the present study reported better psychiatric severity outcomes compared to those randomly assigned to a control condition that did not consist of integrated treatment. Taken together, these findings are consistent with previous research that has demonstrated benefits of high intensity community-based integrated treatments for persons with dual-diagnoses (Timko et al., 2006; Timko and Sempel, 2004), and in part confirms previous research on high versus low intensity integrated treatments that were not randomly assigned to participants (Chen et al., 2006). In addition, no differences in levels of psychiatric severity were observed between participants in the therapeutic community and Oxford House conditions, suggesting that Oxford Houses are healing communities that provide a supportive environmental context necessary for recovery for justice involved persons with dual-diagnoses (Drake et al., 2005).

Participants in the high PSI group reported average baseline PSI scores higher than those reported in other treatment investigations consisting of persons with substance use disorders diagnosed with co-occurring psychiatric disorders (Bovasso et al, 2001; Franken and Hendriks, 2001; McKay et. al., 2002), persistent mental disorders (Carey et al., 1997), and have been predictive of mood and anxiety disorders among persons with substance use disorders (Dixon et al., 1996) and increased likelihood of psychiatric hospitalizations (Alterman et al., 2001). The present study used a criterion cut-off score of the PSI as a proxy measure of dual-diagnoses, observed in approximately 14% of our participants. It is likely that our proxy measure had sensitivity in identifying participants who probably had diagnosable co-occurring psychiatric disorders. Although this rate is lower than national averages (SAMHSA, 2010), it is consistent with one national investigation (Kessler et al., 2005) that found rates of serious or moderate psychiatric disorders at 14%. Therefore, we have basis for using a criterion cut-off measure of the PSI to serve as a proxy measure for dual diagnosis prevalence even though this was not assessed in the present study in terms of specific symptom clusters, diagnostic categories, or clinical ratings (Timko and Sempel, 2004).

Although residential programs such as the Oxford House model might help reduce psychiatric severity among justice involved persons with dual-diagnoses, there are some limitations in the present study. For instance, we did not control for intensity levels of in treatment conditions. Diagnostic measures were not used and they would have confirmed dual-diagnoses prevalence. Our sample was comprised of mostly African-American men

from the United States thus results may not easily generalize across other populations. Likewise, we did not differentiate whether participants were detained in jail or prison settings prior to their involvement in the present study or include those with violent offenses, and such factors should be considered in future investigations. In addition, the present study did not assess whether participants were receiving treatments under coercion in that their drug problem was identified by agents of the criminal justice system. Medication use was not controlled and might have had an impact on levels of psychiatric severity. However, it is likely that the effects of medications, criminal justice coercive influences, and recent incarceration setting would have been relatively equal across conditions because of random assignment. Finally, the small effect sizes and low power given the sample size for analyses have implications for future research that might detect subtle effects by employing larger samples of persons with dual diagnoses and those with criminal justice involvement. Nonetheless, results in the present study have implications for future research, and our findings suggest that Oxford Houses might be appropriate treatment options for justice involved persons with dual diagnoses.

The present study investigated a sample of justice involved persons with dual diagnoses. The comparative design permitted analyses that yielded intriguing findings in relation to psychiatric severity among participants randomly assigned to community-based (integrated and self-run) residential treatments. In future investigations, with other measures pertaining to mental health outcomes, we can better understand how justice involved persons with dual diagnoses benefit by community-based residential treatments. Overall, findings from the present study suggest that the cost-effective, Oxford House model is an effective residential treatment for justice involved persons with dual diagnoses.

Acknowledgments

The authors appreciate the financial support from the National Institute on Drug Abuse (grant numbers DA13231 and DA19935), Bethesda, Maryland, USA.

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Figure 1.

Table 1

Sociodemographic Characteristics at Baseline

Variable	<i>M</i>	(<i>SD</i>)	%
Age (in years)	40.4	(9.5)	
Gender			
Men			83
Women			17
Race/ethnicity			
African-American			74.1
White			21.1
Hispanic/Latino			3.3
Other			1.5
Education (in years)	10.9	(1.9)	
Income (monthly in US dollars)	\$367	(\$710)	
Employment (in past three years)			
Unemployed			32.7
Part-time			25.4
Full-time			11.2
In a controlled environment/other			30.7
Relationship Status			
Single (never married)			74.9
Divorced/separated/widowed			18.3
Married/partnered			6.8

Table 2

Baseline Characteristics of Incarceration, Psychiatric Hospitalizations, and Substance Use Treatment Histories

Condition	<u>Oxford House (<i>n</i> = 90)</u>	<u>Therapeutic Community (<i>n</i> = 90)</u>	<u>Usual Care (<i>n</i> = 90)</u>
	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)
Times incarcerated	9.56 (14.17)	10.80 (21.85)	9.34 (15.26)
Days since release from incarceration	157.31 (121.27)	147.07 (125.63)	128.93 (112.23)
Duration of most recent incarceration (months)	16.59 (27.58)	15.76 (17.47)	14.03 (14.57)
Incarcerated/detained in (past 30 days)	1.19 (4.34)	3.18 (7.30)	3.66 (8.55)
Psychiatric hospitalizations (lifetime)	1.22 (3.68)	0.76 (1.84)	1.38 (5.41)
Substance use treatments (lifetime)			
Alcohol	0.86 (1.97)	0.49 (2.26)	0.67 (1.51)
Other Drugs	3.28 (2.85)	2.76 (3.91)	2.81 (3.32)