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Clinical Characteristics as a Function of Referral Status among Substance Users in Residential Treatment

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Abstract

In the United States, substance users who voluntarily (VO) elect to receive treatment and substance users who are court-mandated (CM) to receive treatment typically obtain care within the same facilities. Little is known about the clinical characteristics that differentiate these individuals. The current study provides rates of specific DSM-IV Axis I and II psychiatric and substance use disorders, comorbidities, childhood trauma, motivation, and other clinical and demographic characteristics as a function of referral status, among individuals in residential substance use treatment (463 participants, *M* age = 43.3; 69.7% male; 88.4% African American). Participants were interviewed and diagnosed using the Structure Clinical Interview for DSM-IV and the Diagnostic Interview for Personality Disorders. Within our sample, VO individuals, as compared to CM individuals had significantly higher rates of psychiatric disorders (68.7% versus 55.2%, respectively), including mood disorders, major depressive disorder, generalized anxiety disorder, and borderline personality disorder. Additionally, they were significantly more likely to have alcohol dependence (43.0% versus 20.8%) and cocaine dependence (66.5% versus 48.9%). Elevated rates of comorbidities and childhood abuse were also observed among VO individuals, while motivation did not differ as a function of referral status. Overall, VO individuals appeared to have more severe problems than their CM counterparts which may suggest that they require more intensive or different types of treatment.

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Contributors

Anne N. Banducci took the lead on developing the conceptualization for the paper, writing the first draft of the paper, and editing the final manuscript. Jennifer Dahne and Jessica F. Magidson conducted literature searches and contributed to writing the manuscript. Kevin Chen conducted the statistical analyses. C.W. Lejuez and Stacey B. Daughters contributed to the study design, oversaw the study implementation, and were involved with all stages of manuscript preparation. All authors have contributed to and have approved of the final manuscript.

Conflict of Interest

All authors declare that they have no conflicts of interest.

Keywords

court-mandated; residential substance use treatment; comorbidities; substance dependence; psychiatric disorders

1. Introduction

In the United States, substance users who voluntarily elect to receive treatment and substance users who are court-mandated (CM) to receive treatment typically obtain care within the same facilities (e.g. Daughters et al., 2008; Gregoire & Burke, 2004; Kline, 1997; SAMHSA, 2004; Young & Belenko, 2002). Research comparing these two groups indicates that CM individuals are less likely to drop out of substance use treatment, are more likely to be employed post-treatment, and are less likely to recidivate post-treatment, as compared to voluntary (VO) individuals (Farabee, Prendergast, & Anglin, 1998; Glass & Marlowe, 1994; Gottfredson, Najaka, & Kearley, 2003; Harrell & Cavanaugh, 1995; Hiller, Knight, Broome, & Simpson, 1998; Marlowe, 2001; Martin et al., 2003; Young & Belenko, 2002). Some suggest these unexpected superior outcomes among CM individuals are due to concerns about parole violations or the consequences related to leaving treatment (Longshore & Teruya, 2006; Young, Fluellen, & Belenko, 2004).

Beyond understanding the relationship between referral status and treatment outcome, there have been a small number of studies examining broad indicators of psychosocial functioning among CM versus VO individuals. These studies reveal higher rates of psychiatric symptoms (Illgen, Harris, Moos, & Tiet, 2007; Kelly et al., 2005; Kline, 1997; Marshall & Hser, 2002), more extensive histories of prescribed psychiatric medications (McSweeney et al., 2007), a greater likelihood of having experienced childhood abuse (Simpson & Miller, 2002), and elevated rates of suicide attempts (Kline, 1997; McSweeney et al. 2007; Marshall & Hser, 2002) among VO individuals compared to their CM counterparts. However, to our knowledge, rates of DSM-IV psychiatric disorders have not been compared as a function of referral status. Moreover, prior findings demonstrating differences in rates of prior psychiatric treatments and abuse histories have not been replicated across diverse samples.

Substance use findings for CM and VO individuals have been somewhat more mixed than the aforementioned psychosocial findings. Kelly and colleagues (2005) reported higher rates of substance dependence among VO than among CM individuals, but did not indicate the *types* of substances on which these individuals were dependent. Kline (1997), in contrast, observed that CM clients were more likely to use heroin and hallucinogens than VO individuals, but did not examine dependence rates. Similarly, McSweeney and colleagues (2007) reported that CM individuals were more likely to use heroin and cocaine than their VO counterparts, but did not examine rates of abuse or dependence. Overall, the substance use picture among CM and VO individuals is somewhat unclear; although VO individuals seem to have more severe substance use problems, CM individuals are more likely to use substances like heroin, crack cocaine, and hallucinogens. In terms of receiving substance use treatment, some have reported that VO individuals are significantly more likely to have previously received substance use treatment than CM individuals (Kelly et al., 2005; Marshall & Hser, 2002), whereas others have not observed this difference (Kline, 1997). Finally, CM clients' motivation to change their substance use behaviors has been shown to be higher, lower, or equivalent to that of their VO counterparts across a number of studies (Gregoire & Burke, 2004; Marshall and Hser, 2002; Stevens et al., 2006, respectively). In general, research seems to suggest more severe problems among VO individuals in some cases, but among CM individuals in other cases. A clearer understanding of the potentially different rates of different types of substance dependencies, prior rates of substance use

treatment, and motivation levels between these two groups is relevant for treatment planning.

Towards the goal of providing a more complete clinical picture of VO and CM individuals, the current paper will present data from a sample of these two groups in residential substance use treatment in inner city Washington D.C. We compare demographics, abuse history, treatment variables, rates of specific Diagnostic and Statistical Manual (DSM-IV) Axis I and II diagnoses, motivation, and specific psychiatric and substance use disorder comorbidities, as a function of referral status. Additionally, we chose to compare VO and CM groups on these variables because they have been previously implicated in substance use treatment outcomes. For example, demographics (e.g., McCaul, Svikis, & Moore, 2000), abuse history (e.g., Simpson & Miller, 2002), and motivation for treatment (e.g., George, Simpson, & Broome, 1998) have all been linked to treatment outcomes in past work. Thus, the current study presents comparisons across these aforementioned variables, as a function of referral status, so as to provide the most complete information to clinicians and researchers working with these types of clients.

2. Material and method

2.1. Participants

A total of 463 participants (M age = 43.3; $S.D.$ = 9.79; 69.7% male; 88.4% African American) were recruited from a residential substance use treatment center in Northeast Washington D.C. Participants were recruited during their first week of residential treatment after complete detoxification and a negative urine screen. Residential treatment at this facility lasts between 30 and 180 days and includes a variety of programs from 8am to 9pm daily based on the 12-step philosophy. During treatment, participants are only permitted to leave for scheduled appointments (e.g. with psychiatrists, primary care physicians, and court appearances). More than 40% of clients in this setting enter treatment voluntarily. Court-mandated clients in this setting are referred through Court Services and Offender Supervision Agency (CSOSA) and Addiction Prevention and Recovery Administration (APRA).

2.2. Recruitment and consent

All participants in this study received a diagnostic assessment administered by doctoral level graduate students and senior research staff as a part of the treatment center's intake process during the first week of treatment. Upon finishing the interview, participants were invited to be involved with research and informed consent was obtained. Counselors were unaware of whether clients agreed to participate in research in order to limit coercion. Data presented here are only from individuals who consented to participate in research (< 5% refused research). The University of Maryland Institutional Review Board reviewed and approved the study protocol.

2.3. Procedures

Diagnostic interviewers were extensively trained and comprehensively supervised to ensure the accuracy of diagnoses. Training included viewing the full video protocol for the Structured Clinical Interview for the DSM-IV (SCID-IV; First, Spitzer, Gibbon, & Williams, 1995), conducting two mock interviews using the SCID-IV and the Diagnostic Interview for Personality Disorders (DIPD; Zanarini, Frankenburg, Chauncey, Gunderson, 1987), observing two full interviews by experienced interviewers, conducting a final certification practice interview, being observed while conducting two real interviews at the treatment center (with the SCID-IV and the DIPD), and participating in weekly supervision led by a clinical psychologist.

2.4. Measurements

2.4.1. Demographic, Abuse History, and Treatment Variables—Participants self-reported their referral status, gender, age, race, marital status, income, education, previous substance use/psychiatric disorder treatment, drug use frequencies, motivation, and childhood trauma experiences. Participants' referral status was validated using data provided to our staff by the treatment center; when information provided by participants differed from that provided by the center we utilized the information provided by the center. To measure participants' motivation for treatment, the 19 item short version of the Stages of Change Readiness and Treatment Eagerness Scale (SOCRATES 8D; Miller & Tonigan), was utilized. This measure has strong reliability and validity (Miller & Tonigan, 1996). We examined participants' recognition of their problems and their ambivalence related to seeking treatment; these Recognition and Ambivalence subscales had adequate to excellent internal consistency (.90 and .73, respectively). Participants' experience of childhood abuse was assessed using the Childhood Trauma Questionnaire-Short Form (CTQ-SF; Bernstein et al., 2003), which is a self-report retrospective questionnaire. In the current study we administered the 15 items comprising the emotional, physical, and sexual abuse subscales, with scores above nine on the subscales indicative of abuse (Bernstein & Fink, 1998). Among adult substance abusers, the CTQ has good test-retest reliability ($r = .86, p < .01$; Bernstein & Fink, 1998) and in the current study, the internal consistency of the emotional, physical, and sexual abuse subscales was good to excellent (.88, .86, .96, respectively).

2.4.2. Diagnostic assessments—The Structured Clinical Interview for the DSM-IV was used to assess for Axis I disorders (SCID-IV; First, Spitzer, Gibbon, & Williams, 1995), including major depressive disorder, bipolar I disorder, panic disorder, social phobia, obsessive compulsive disorder, posttraumatic stress disorder, generalized anxiety disorder, and drug dependencies (see below). We also assessed for the presence or absence of psychotic symptoms using a screener included in the SCID-IV. For SUDs, we only assessed substance dependence (not abuse, given the severity of the sample), and we report here on alcohol, cannabis, opioid, hallucinogen/PCP, and crack/cocaine dependence, as these were the most frequently used substances in this sample. Participants were diagnosed with substance dependence with the SCID-IV when they endorsed three dependence symptoms during the prior year. Interviewers attended to the timeline of substance use so as to determine whether Axis I diagnoses (e.g. depression, mania, psychotic symptoms) were due to substance use or to other underlying causes. Diagnoses were only made when the disorder was not substance-induced or due to a general medical condition (data are presented here for substance-induced major depressive disorder). Antisocial personality disorder (ASPD) and borderline personality disorder (BPD) were also assessed, using the SCID-IV for the former and the DIPD for the latter, as the DIPD has been argued to be a more comprehensive and precise measure of BPD than the SCID-IV (Zanarini, Frankenburg, Chauncey, & Gunderson, 1987). We assessed these Axis II disorders because they are particularly prevalent among substance users (Kokkevi, Stefanis, Anastasopoulou, & Kostogianni, 1998; Torrens, Gilchrist, & Domingo-Salvany, 2011).

2.5. Analytic strategy

Data were analyzed using ANOVA's (for continuous variables) and chi-square tests (for categorical variables) to examine the significance of group differences. Odds ratios and effect sizes were calculated for the relevant analyses. We did not utilize any imputation procedures for missing data; results for each analysis are based on participants with valid and complete responses for the specific analysis. Therefore, the number of participants for each analysis varies slightly depending on the number of individuals who completed the given measures for the particular analyses.

The Childhood Trauma Questionnaire (CTQ) and SOCRATES 8D, were not originally included in the study protocol, but rather were later added because of their relevance for treatment planning. Demographic characteristics (race, age, gender, marital status, employment status, education completed, and referral status) of participants who completed the CTQ ($N = 279$) and those who did not complete the CTQ were compared; no significant differences emerged (all p 's $> .05$), except for income level (68.8% of participants making over \$10,000 annually, versus 57.5% making less than \$10,000 annually, completed the CTQ, $p = .021$). Therefore, we controlled for income in all analyses examining the CTQ. For the SOCRATES 8D, demographic characteristics were also compared between individuals who did and did not complete the measures; rates of completion differed as a function of gender (30.7% of men versus 19.5% of women completed these measures, $p = .016$), but not for any other demographic characteristics. Thus, we controlled for gender in all analyses examining the SOCRATES 8D.

3. Results

3.1. Demographic and background information

Of the total 463 participants in this sample, 57.6% ($N = 267$) were referred through the court system to attend residential substance use treatment. Voluntary and CM participants did not differ by age, gender, or previous treatment for a SUD (Table 1). However, VO participants earned less money, were more likely to have attended 12-step groups in the past, and were more likely to have received psychological and psychiatric treatment for psychiatric disorders than CM participants (all p 's $< .01$; see Table 1). The majority of participants in both referral groups had spent time in jail/prison, although significantly fewer VO individuals reported past incarcerations as compared to CM individuals (76.4% of VO participants versus 92.6% of CM participants, $p < 0.001$).

Of the individuals who completed the CTQ ($N = 280$), participants voluntarily attending treatment as compared to CM participants experienced higher rates of childhood abuse as measured by the CTQ ($F(1, 279) = 20.55$, $p < .001$; see Table 1). VO participants, as compared to CM participants experienced higher rates of emotional abuse ($F(1, 279) = 34.09$, $p < .001$), physical abuse ($F(1, 279) = 9.58$, $p = .002$), and sexual abuse ($F(1, 279) = 6.85$, $p = .009$). Moreover, the abuse scores of VO participants were above the cutoff score for emotional and physical abuse (cutoff = 9), while the scores of CM participants on these subscales were not above the cutoff (see Table 1). Similar levels of overall motivation, as a function of referral status, were found in the subsample ($N = 127$) who completed the SOCRATES 8D (Table 1). On the Recognition scale, the two groups did not differ, whereas on the Ambivalence scale the scores of VO participants were significantly lower than the scores of CM participants ($F(1, 127) = 5.74$, $p = .018$).

3.2. Psychiatric and substance dependence diagnoses

3.2.1. Psychiatric disorder diagnoses—CM participants were significantly less likely to meet diagnostic criteria for Axis I and II psychiatric disorders ($\chi^2 = 8.63$, $p = .003$; see Table 2), or for multiple psychiatric disorders ($p = .006$) than were their VO counterparts. Overall, they were significantly less likely to have mood disorders ($\chi^2 = 28.11$, $p < .001$), generalized anxiety disorder (GAD; $\chi^2 = 4.27$, $p = .039$), or borderline personality disorder ($\chi^2 = 6.15$, $p = .013$). Only 18.0% of CM participants met diagnostic criteria for major depressive disorder (MDD), as compared to 36.8% of VO participants. Interestingly, rates of antisocial personality disorder (ASPD) did not differ as a function of referral status ($p > .05$).

3.2.2. Substance dependence diagnoses—In our sample, 77% of participants met diagnostic criteria for current substance dependence. Rates of substance dependence

diagnoses differed as a function of referral status (Table 3). As expected, CM participants were significantly less likely to meet diagnostic criteria for substance dependence than were VO participants ($\chi^2 = 12.28, p = .001$). Specifically, CM participants were significantly less likely to meet diagnostic criteria for alcohol dependence ($\chi^2 = 26.26, p < .001$), as well as for cocaine dependence ($\chi^2 = 14.16, p < .001$), than VO participants. Interestingly, CM participants were significantly more likely to meet diagnostic criteria for hallucinogen/PCP dependence ($\chi^2 = 7.84, p = .003$). Rates of dependence across other substances did not differ as a function of referral status (Table 3).

3.2.3. Comorbid substance dependence and psychiatric disorders by referral status

—Overall, CM participants did not have *significantly* higher rates of any psychiatric or substance use disorder that was assessed (excluding current hallucinogen/PCP dependence), as compared to their VO peers (see Tables 2 and 3). Voluntary individuals had particularly elevated rates of comorbidities as compared to CM individuals. In the total sample, 40% of individuals had comorbid cocaine dependence and any DSM-IV Axis I or II disorder, with significantly higher rates of this comorbidity observed among VO as compared to CM individuals ($\chi^2 = 11.98, p = .001$, see Table 4). More specifically, VO individuals were more likely to have comorbid cocaine dependence and MDD, or cocaine dependence and BPD than were their CM counterparts. For comorbid alcohol dependence and any Axis I and II disorders, 23.0% of the full sample met criteria, with higher rates again observed among VO participants as compared to CM participants ($\chi^2 = 18.82, p < .001$). Here, VO individuals had significantly higher rates of comorbid alcohol dependence and mood, anxiety, BPD, or ASPD than did CM individuals. Rates of comorbidities, as a function of referral status, for opioid dependence and any Axis I or II psychiatric disorder ($p = .405$) or cannabis dependence and any Axis I or II psychiatric disorder ($p = .317$, except for comorbid cannabis dependence and ASPD, $\chi^2 = 4.84, p = .028$) did not differ as a function of referral status.

4. Discussion

Our goal was to provide a comprehensive comparison of VO and CM individuals across rates of specific psychiatric and substance use disorders, treatment histories, trauma histories, motivation, clinical, and demographic characteristics, using a comprehensive diagnostic assessment battery. In our residential treatment sample, there were significantly different rates of substance dependence, psychiatric disorders, and comorbidity diagnoses as a function of referral status. Moreover, there were significant differences in abuse histories, motivation, and prior treatment histories as a function of referral status.

CM individuals did not have significantly higher rates of *any* psychiatric disorder assessed. This is not to suggest that CM individuals experienced low rates of psychiatric disorders, as more than 50% met diagnostic criteria for a DSM-IV psychiatric disorder, but rather to emphasize the particularly elevated rates among VO individuals. These findings are relevant for practitioners attempting to determine the needs of clients within residential treatment. Our work suggests that VO clients have more severe psychiatric and substance use problems than their CM peers do, supporting the need for more intensive treatments for these individuals. Although our findings support the prioritization of VO clients in treatment programs addressing comorbid substance use and psychiatric disorders, they also suggest that mental health treatment generally is relevant for all individuals receiving residential substance use treatment.

The significantly higher rates of psychiatric disorders, substance dependence, comorbidities, and medication prescriptions in VO individuals in our study was not surprising, as individuals with co-occurring psychiatric and substance use disorders are more likely to seek

treatment than individuals with a single disorder (Bennett, Gjonbalaj, Hersen, Turner, & Beidel, 2007). Part of the reason VO clients may seek substance use treatment is because of the functional impairments and distress they experience from their co-occurring psychiatric and substance use disorders. Since VO individuals have more severe psychiatric and substance use problems than their CM peers do, intervention efforts may need to be altered in order to keep them engaged; indeed, the best treatment outcomes are achieved when psychiatric and substance use treatments are integrated and delivered concurrently (Drake, Brunette, Mueser, & Green, 2005). Unfortunately, this type of integrated treatment rarely occurs, resulting in poorer treatment outcomes, including higher rates of treatment dropout, increased suicidality, and repeated hospitalizations among individuals with comorbid psychiatric and substance use disorders (Benda, 2001; Brady, Krebs, & Laird, 2004; Burnam et al., 1995; Cornelius, Salloum, Mezzich, & Cornelius, 1995; Jerrell et al., 2000; Lipsky et al., 2010). Our findings suggest that VO individuals have received unsuccessful treatments prior to enrolling in their current residential treatment; they are more likely to have attended 12-step groups or to have received psychological and psychiatric treatments in the past than their CM peers. In future research, it would be useful to assess individuals' reasons for seeking treatment to better understand substance use treatment seeking behaviors and how they might differ based on the presence of psychiatric disorders or referral status. This information would be important for treatment providers, as providing the comprehensive care being sought by some VO individuals would likely help retain these individuals in treatment.

Our results are in concordance with the work of previous studies. Specifically, VO participants were more likely to meet diagnostic criteria for substance dependence than were CM participants, which follows the work of Kelly and colleagues (2005), who found that CM participants were less likely to have drug dependence (they did not examine dependencies separately for each type of drug, but rather examined general dependence via chart reviews). An assessment of rates of specific types of substance dependence revealed elevated rates of alcohol and cocaine dependence among VO individuals in our sample, which extends the results of Marshall and Hser (2002), who found that crack cocaine use was more frequently reported as a "problem" by VO individuals than by CM individuals. Further, we observed particularly elevated cocaine dependence and psychiatric disorder comorbidity among voluntary individuals; about 50% endorsed symptoms necessary for this comorbidity diagnosis. The present study found no differences in opioid dependence as a function of referral status, which differs somewhat from the results of some researchers, who found have higher rates of "heroin problems" among CM participants than among VO participants (Kline, 1997; McSweeney et al., 2007). In future research, it will be important to examine whether this pattern holds.

Our findings follow those of Kline (1997), who found lower rates of physical and sexual abuse among CM participants than among VO participants. The current study found that individuals who were voluntarily attending treatment had significantly higher rates of childhood abuse, including physical, emotional, and sexual abuse, than CM participants. This suggests that it may be necessary for substance use treatment facilities to provide a forum, particularly for VO individuals, to address their experiences of childhood abuse.

Despite differences in rates of diagnoses, comorbidities, and abuse histories between CM and VO participants, no overall differences emerged in treatment motivation between the two groups. Within our sample, VO individuals did have lower Ambivalence scores, but their Recognition and overall scores did not differ on the SOCRATES. Previous work by Stevens and colleagues (2006) did not find differences as a function of referral status, while Marshall and Hser (2002) found that CM individuals scored significantly lower on problem recognition, desire for help, and treatment readiness than VO patients. Our findings contrast

with those of Gregoire and Burke (2004), who demonstrated that legal coercion was associated with greater readiness to change; in their study, VO participants were three times less likely to have engaged in recovery-oriented behaviors in the month prior to admission compared to CM participants. The variability in measures used across studies may help to explain some of these differences observed in motivation as a function of referral status. However, this work must be replicated to better understand variability in motivation, which is relevant to treatment planning and can be targeted through Motivational Interviewing.

Although the current data offer novel information about VO and CM individuals in residential substance use treatment, it is important to note the limitations of this work. First, this is not a randomly selected sample, nor is it representative of all residential treatment facilities in the United States. Specifically, our work focuses on low-SES, minority individuals living in an urban area, and thus we cannot assume our findings generalize to all individuals in substance use treatment. Second, it should be noted that these findings, especially as they relate to substance type, might be particularly influenced by the geographical location, such as differential prevalence of substance use in inner city D.C., as compared to other settings. Third, it is possible that CM individuals were less willing to endorse symptoms or diagnoses than VO individuals. To attempt to prevent this, interviewers made efforts to assure participants that assessment results would be kept confidential within the treatment team, and that their answers would not affect their court proceedings or legal statuses. However, it is necessary for future work to replicate this pattern of findings to ensure its consistency. Fourth, despite group differences in mechanism of entry to treatment, VO and CM individuals did not differ in rates of ASPD diagnoses. This null finding could potentially be due to a ceiling effect, as the vast majority of both groups had spent time in jail and rates of ASPD are high among those with histories of incarceration (Fazel & Danesh, 2002; Moran, 1999). Finally, although we took several steps to ensure the accuracy of the diagnoses, it would have been preferable to have audiotaped assessments for review or to have conducted multiple interviews with a subset of participants to establish reliability.

Within the context of these limitations, there are important implications of the current findings that underscore the importance of considering referral status in targeted assessment and treatment for participants in residential substance use treatment settings. Given that VO participants were more likely to have substance dependence and psychiatric disorder diagnoses than CM participants, it would be relevant for treatment providers and referral agencies to consider whether participants are CM or self-referred when formulating their treatment plans and determining where they should be treated. This would be particularly helpful when the resources to administer diagnostic assessments are limited. In general, clinicians may need to provide more intensive care to VO than to CM individuals to ensure treatment retention and positive treatment outcomes. More broadly, VO individuals may need to be offered more intensive treatment options that address all of their problems, rather than solely targeting their substance use.

In future research, it would be interesting to explore mechanisms underlying elevated levels of comorbidities for substance dependence and psychiatric disorders among VO individuals. Additionally, it would be relevant to delve into the impact comorbid psychiatric and substance use disorders have on treatment outcomes and dropout rates within these two groups. Previous work has demonstrated an interaction between referral status, ASPD, and dropout rates (Daughters et al., 2008) and it is likely that similar patterns may exist across other psychiatric diagnoses. Finally, it would be useful to examine whether individuals' reasons for dropping out of treatment differ as a function of referral status and what types of factors would help retain these clients.

In conclusion, we believe this study provides the most comprehensive psychosocial comparison of VO and CM individuals to date. This work opens the door to a number of future studies focusing on the impact of psychiatric and substance use disorders on the treatment outcomes of VO and CM individuals. Further, this work may be extended to inform substance use treatment, where knowledge about differences predicted by referral status could be used to provide targeted interventions.

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Highlights

Court-mandated (CM) and voluntary (VO) clients in drug treatment were compared

- VO clients had higher rates of DSM-IV MDD, BPD, and GAD than CM clients
- VO clients had higher rates of alcohol and cocaine dependence than CM clients
- VO clients had severe problems that may require different treatment than CM clients

Table 1

Demographics, Treatment Variables, and Abuse History, as a Function of Referral Status

Total N = 463	Total Sample	Referral Source		p value	Odds Ratios (95% C.I./η ²)
		Voluntary (N 196)	Court (N 267)		
Demographics					
Age [M (SD)]	43.3 (9.7)	43.2 (9.3)	43.3 (10.4)	.835	0.01
Gender (% male)	71.3	72.3	70.5	.675	0.92 (0.61-1.38)
Income (% <\$10,000)	60.2	64.9	56.9	.090	0.87 (0.74-1.02)
Race (% African American)	89.9	86.9	92.1	.071	1.75 (0.95-3.23)
Previous Treatment Experiences (%)					
Inpatient/outpatient treatment for SUDs	63.4	66.7	60.7	.293	0.77 (0.48-1.25)
Inpatient/outpatient psychiatric treatment	44.7	54.5	36.8	.002	0.49 (0.30-0.78)
12-step group attendance	61.0	70.7	53.1	.002	0.47 (0.29-0.76)
Psychiatric medication prescription	33.9	45.9	24.1	.001	0.37 (0.23-0.62)
Spent time in Jail	85.5	76.4	92.6	.001	3.87 (1.89-7.92)
Motivation for Treatment [M (SD)]					
SOCRATES Total	76.15 (13.35)	75.76 (15.35)	76.44 (11.72)	.777	0.01
SOCRATES Recognition	33.48 (5.91)	33.43 (6.88)	33.51 (5.10)	.945	0.01
SOCRATES Ambivalence	13.16 (3.97)	12.21 (4.25)	13.87 (3.61)	.018	0.04
Trauma Experiences [M (SD)]					
CTQ total score	26.86 (14.10)	30.94 (16.09)	23.52 (11.22)	.001	0.07
Emotional abuse subscale score	9.88 (5.62)	11.93 (6.61)	8.20 (3.94)	.001	0.11
Physical abuse subscale score	9.02 (5.13)	10.05 (5.78)	8.17 (4.36)	.002	0.03
Sexual abuse subscale score	7.96 (5.85)	8.96 (6.58)	7.14 (5.05)	.009	0.02

p values are based on chi-square analyses and ANOVAs. Significant analyses are bolded.

Table 2
Prevalence (%) of Participants with Current Psychiatric Disorders as a Function of Referral Status

SCID Diagnosis	Referral Source			P-value ^a	Odds Ratios (95% C.I.)
	Total (%)	Voluntary (N=196)	Count (N=267)		
Total N = 463					
Any psychiatric disorder ^b	60.9	68.7	55.2	.003	0.56 (0.38-0.83)
Any mood disorder ^c	32.6	46.2	22.8	.001	0.34 (0.23-0.51)
Bipolar I disorder	5.2	6.2	4.5	.420	0.71 (.314, 1.62)
Major depressive disorder ^d	25.9	36.8	18.0	.001	0.38 (0.28, 0.50)
Substance-induced mood disorder	5.5	6.3	4.9	.546	0.78 (0.35, 1.75)
Psychotic symptoms	8.4	11.0	6.5	.088	0.56 (0.29, 1.10)
Any anxiety disorder ^e	32.2	35.4	29.9	.208	0.40 (0.06, 2.86)
Panic disorder	2.8	3.6	2.3	.382	0.61 (0.20, 1.85)
Social phobia	9.4	12.4	7.1	.055	0.54 (0.29, 1.02)
Specific phobia	9.2	6.7	10.9	.123	1.70 (0.86, 3.37)
OCD	2.6	3.6	1.9	.252	0.51 (0.16, 1.64)
PTSD	14.0	15.1	13.3	.575	0.86 (0.51, 1.46)
GAD	8.3	11.4	6.0	.039	0.50 (0.25, 0.98)
Borderline personality disorder	24.3	30.2	20.1	.013	0.58 (0.38, 0.90)
Antisocial personality disorder	25.4	26.9	24.3	.528	0.87 (0.57, 1.33)
Multiple Psychiatric Disorders					
1	26.6	24.6	28.0		
2	16.0	20.0	13.1		
3	11.0	13.8	9.0		.006 ^f
4	5.8	8.7	3.7		
5	1.5	1.5	1.5		

Analyses that are bolded are significant.

^aChi-square test for the 2x2 or corresponding contingency table

^bIncludes mood disorders, anxiety disorders, psychotic symptoms, borderline personality disorder, and antisocial personality disorder.

^cIncludes major depressive disorder, bipolar I, and bipolar II, which was not included alone here due to low base rates.

^dSimilar results were found for past major depressive disorder, so we opted to only include current MDD in this table.

^eRepresents all anxiety disorders included in this table

^fFor the 2x5 contingency table

Table 3
Prevalence of Participants with Substance Dependence as a Function of Referral Status

SCID Diagnosis (%)	Referral Source			P-value ^a	Odds Ratios (95% C.I.)
	Total (%)	Voluntary (N 196)	Court (N 267)		
Alcohol Dependence	30.1	43.0	20.8	.001	0.35 (0.23, 0.52)
Cannabis Dependence	11.0	11.9	10.3	.577	0.85 (0.47, 1.53)
Cocaine Dependence	56.3	66.5	48.9	.001	0.48 (0.33, 0.71)
Opioid Dependence	21.9	22.4	21.6	.837	0.95 (0.61, 1.49)
Hallucinogen/PCP Dependence	7.0	3.1	9.9	.003	3.42 (1.38, 8.48)
Any Substance Dependence	77.1	85.1	71.3	.001	0.43 (0.27, 0.70)
No Substance Dependence	22.9	14.9	28.7	.042	1.96 (0.01, 3.82)

Analyses that are bolded are significant.

^aPearson's chi-square test.

Comorbidity of Current Psychiatric and Substance Use Disorders as a Function of Referral Status

Table 4

SCID Diagnosis	Total N = 463		Referral Source		p-value ^a	Odds Ratios (95% C.I.)
	Total (%)	VO (N 196)	Court (N 267)			
Alcohol dependence & any psychiatric disorder	23.0	33.2	15.8	.001	0.38 (0.24, 0.59)	
Alcohol dependence & any mood disorder	15.9	24.9	9.4	.001	0.32 (0.19, 0.53)	
Alcohol dependence & any anxiety disorder	13.5	18.7	9.8	.006	0.47 (0.28, 0.82)	
Alcohol dependence & psychotic symptoms	3.6	4.8	2.7	.240	0.55 (0.20, 1.51)	
Alcohol dependence & BPD	12.1	18.3	7.5	.000	0.36 (0.20, 0.65)	
Alcohol dependence & ASPD	11.2	15.1	8.3	.024	0.51 (0.28, 0.92)	
Cocaine dependence & any psychiatric disorder	40.0	49.5	33.5	.001	0.51 (0.35, 0.75)	
Cocaine dependence & any mood disorder	23.3	33.0	16.2	.001	0.39 (0.25, 0.61)	
Cocaine dependence & any anxiety disorder	21.4	24.2	19.5	.228	0.76 (0.49, 1.19)	
Cocaine dependence & psychotic symptoms	6.2	8.4	4.6	.097	0.52 (0.24, 1.135)	
Cocaine dependence & BPD	17.6	21.9	14.7	.046	0.61 (0.38, 0.99)	
Cocaine dependence & ASPD	17.4	19.7	15.8	.285	0.77 (0.47, 1.25)	
Opioid dependence & any psychiatric disorder	14.0	15.6	12.9	.405	0.80 (0.47, 1.36)	
Opioid dependence & any mood disorder	9.6	11.5	8.3	.264	0.70 (0.38, 1.39)	
Opioid dependence & any anxiety disorder	7.9	8.3	7.6	.767	0.90 (0.45, 1.79)	
Opioid dependence & psychotic symptoms	1.8	2.1	1.5	.642	0.72 (0.17, 2.91)	
Opioid dependence & BPD	6.4	5.3	7.2	.406	1.40 (0.63, 3.07)	
Opioid dependence & ASPD	7.3	7.3	7.2	.966	0.98 (0.48, 2.02)	
Cannabis dependence & any psychiatric disorder	8.3	9.8	7.2	.317	0.71 (0.37, 1.39)	
Cannabis dependence & any mood disorder	5.0	6.2	4.2	.327	0.66 (0.28, 1.53)	
Cannabis dependence & any anxiety disorder	4.6	4.1	4.9	.688	1.20 (0.49, 2.96)	
Cannabis dependence & psychotic symptoms	1.1	1.6	0.8	.415	0.48 (0.08, 2.91)	
Cannabis dependence & BPD	3.3	4.2	2.7	.369	0.63 (0.22, 1.76)	
Cannabis dependence & ASPD	4.4	6.8	2.7	.036	0.38 (0.15, 0.97)	

Abbreviations: VO refers to Voluntary. Analyses that are bolded are significant

^a chi-square test