



# Evaluating racial disparity in referral source and successful completion of substance abuse treatment



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## HIGHLIGHTS

- Race moderates the difference between referral and successful treatment completion.
- Employment referral is associated with greater completion for Black clients.
- Criminal justice referral is associated with greater completion for White clients.
- Multicultural considerations may improve successful treatment completion.

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## ABSTRACT

Health disparity is a significant problem in the United States, and particularly for substance abuse treatment programs. A better understanding of racial differences in treatment pathways associated with successful treatment completion is needed to reduce the existing health disparities. Referral source is a strong predictor of treatment success and most research on health disparities has focused on the criminal justice referrals. However, little research has examined other types of referral sources, and the interaction with race. The current study sought to compare the effect of referral sources on national substance abuse successful treatment completion rates between Black clients ( $n = 324,625$ ) and White clients ( $n = 1,060,444$ ) by examining the interaction of race on referral source and successful treatment completion. Race significantly moderated the difference between referral source and successful treatment completion (Wald  $\chi^2 = 1477.73$ ,  $df = 6$ ,  $p < 0.0001$ ). Employment referral was associated with the greatest percentage of successful treatment completion for Black clients. Criminal justice referral was associated with the greatest percentage of successful treatment completion for White clients. Results from the present study support a reevaluation of incentives leading to successful treatment completion with a multicultural perspective.

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## 1. Introduction

Health disparity is a significant problem in the United States and a growing problem for substance abuse treatment programs. For instance, Whites are nearly two times more likely to exhibit and report substance dependence within the past year than Blacks (Arndt, Vélez, Segre, & Clayton, 2010). Once clients are placed in treatment, Blacks are two times less likely to complete substance abuse treatment than Whites (Arndt, Acion, & White, 2013; Bluthenthal, Jacobson, & Robinson,

2007; Guerrero et al., 2013; Saloner & Lê Cook, 2013). The pathways to, and barriers against, treatment services may account for racial and ethnic disparities (Schmidt, Greenfield, & Mulia, 2006). For example, minorities experience more barriers to care, as well as poorer quality of care (Schmidt et al., 2006; Wells, Klap, Koike, & Sherbourne, 2001). A better understanding of treatment pathways associated with racial groups' successful treatment completion is important in order to reduce the existing racial disparity in treatment outcomes and improve programming (Burlew et al., 2011; Guerrero & Andrews, 2011; Guerrero et al., 2013; Mulvaney-Day, DeAngelo, Chen, Cook, & Alegría, 2012).

Referral source as a pathway to treatment is a strong indicator of successful treatment completion (Arndt et al., 2013; Atkinson, Misra, Ryan, & Turner, 2003). For example, clients referred through employers

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and criminal justice pathways are associated with the highest percentage of successful treatment completion, while self-referrals and healthcare referrals are associated with the lowest percentage of successful treatment completion (Arndt et al., 2013). A substantive body of research on referral sources within the criminal justice system exists due to the large volume of offenders in treatment (Defulio et al., 2013). Court appointed referrals are associated with the highest treatment completion rates (Atkinson et al., 2003; Defulio et al., 2013; Guerrero et al., 2013). However, racial and ethnic differences appear to occur in treatment and referral source. In one study in Oklahoma, Native Americans, Blacks, and Hispanics were associated with differential positive outcomes compared to Whites in both criminal justice and healthcare referral sources (Acevedo et al., 2013). These findings have strong implications for differential treatment completion among racial groups, but little research has specifically evaluated how different types of referral sources are associated with successful treatment completion among racial groups.

A number of internal and external factors that differ by race/ethnicity may be associated with successful treatment completion. Coercion is one factor involved in the high rates of successful treatment completion among clients referred by criminal justice sources (Defulio et al., 2013; Wild, Cunningham, & Ryan, 2006; Wild, Newton-Taylor, & Alletto, 1998). In the criminal justice setting, the coercive incentive would be incarceration as punishment. However, Wild et al. (2006) suggest that coercion may be a factor in other referral sources based on client perceptions of coercive incentive. Other coercive incentives may be threat of job loss or health complications as negative consequences. Furthermore, cultural perceptions of coercive incentive may differ, thus, affecting treatment outcomes (Arfken, Said, & Owens, 2012). Differences among successful treatment completion due to referral source may be moderated by racial differences. While most of the treatment research on health disparities has focused on the criminal justice system, little research has examined other types of referral patterns in the non-incarcerated population.

Successful treatment completion is a clinically utile outcome measure predicting longer-term outcomes such as criminal involvement and treatment readmission (Evans, Li, & Hser, 2009; Garnick, Lee, Horgan, & Acevedo, 2009; Zarkin, Dunlap, Bray, & Wechsberg, 2002). Successful treatment completion rates can be used to assess national and state-level systems (Alterman, Langenbucher, & Morrison, 2001; Garnick et al., 2009). The current study seeks to compare the effect of referral sources on substance abuse successful treatment completion rates between Blacks and Whites. First, we evaluated demographic and treatment variables' predictive of successful treatment completion to be used as covariates. Then, we examined the interaction between race and referral source on successful treatment completion. We hypothesize that the referral sources may differ in successful treatment completion for the Black and White groups.

## 2. Methods

### 2.1. Data sources

The Substance Abuse and Mental Health Services Administration (SAMHSA) requests admission and discharge information from all public and private treatment facilities receiving public funding in the United States. The treatment facilities include those found in urban and rural counties. These data are available as the Treatment Episode Datasets—Discharge (TEDS-D). We used the concatenated 2006–2008 dataset (United States Department of Health and Human Services, Substance Abuse and Mental Health Services Administration, & Office of Applied Studies, 2009) and the 2009 dataset (United States Department of Health and Human Services, Substance Abuse and Mental Health Services Administration, & Office of Applied Studies, 2010) providing 5 years of discharge data ( $N = 8,096,795$ ). We then selected only clients ages of 18 and older ( $n = 7,499,046$ ). In addition, clients not receiving

medication assisted opioid therapy (e.g., methadone) were included ( $n = 7,071,833$ ), as this is often an ongoing, lifetime treatment that may misrepresent treatment retention rates. TEDS-D includes all admissions/discharges rather than individuals. We selected only those records where the client indicated that he or she had no prior treatment in a drug or alcohol program ( $n = 2,519,308$ ). By only including admissions with no prior treatment history, we ensure a non-duplicative group of individuals admitted and discharged from treatment for the first time. We also restricted the data to records reported from non-intensive outpatient and ambulatory intensive outpatient settings ( $n = 1,678,472$ ), which excluded brief or acute intervention data from in-patient and detoxification settings. Only clients identifying as White non-Hispanic ( $n = 1,060,444$ ) or Black ( $n = 324,625$ ) were included for racial disparity comparisons. The final inclusion criteria resulted in 1,385,069 observations. Because these data represent de-identified existing public information there was no informed consent and the University of Iowa Human Subjects Office, Institutional Review Board exempted this study.

### 2.2. Primary outcome variable

The primary outcome variable of successful treatment completion was coded into several categories by treatment agency staff. We dichotomized successful treatment completion as “Treatment Completed” versus all other reasons (e.g., left against professional advice, terminated by facility, incarcerated, transferred, other). We then compared successful treatment completion percentages with race and referral source. We also ran a complete set of analyses using only the “Treatment Completed” versus left against professional advice. As the results were not appreciably different, we only report only the contrast with all other reasons.

### 2.3. Demographic variables

At admission, agency staff identified patients' demographic and treatment characteristics by interview. Individual treatment facility staff collects demographic characteristics at admission and reports data to SAMHSA. The current study analyzed age, gender, race/ethnicity, education, region, and living arrangements. Age was recoded into a categorical variable by SAMHSA for confidentiality purposes. In addition, we categorized race and ethnicity into two groups. The White group included all Caucasians who did not indicate Hispanic/Latino ethnicity ( $n = 1,060,444$ , 76.56%). The Black group included all admissions indicating their race as Black/African American regardless of ethnicity ( $n = 324,625$ , 23.44%).

### 2.4. Treatment variables

Treatment characteristics used in this study were referral source, number of substances, primary problem substance, and age at first use (of primary problem substance). Referral source included the seven categories of individual/self-referral, alcohol/drug abuse agency, healthcare professional, school, employer/EAP, other community referral, and criminal justice agency. Primary problem substance (i.e., alcohol, marijuana, cocaine, heroin, and methamphetamine) was recorded on admission self-reports. Age at First Use refers to the clients' first experience with their primary problem substance. In addition, several drug categories were collapsed for analysis due to low percentages. Non-prescription methadone and opiates and synthetics were collapsed into an “other opiates and synthetics” category. Other hallucinogens and PCP were collapsed into one “other hallucinogens” category. Benzodiazepines, other non-benzodiazepine tranquilizers, barbiturates, and other non-barbiturate sedatives or hypnotics were collapsed into an “other non-barbiturates” category. Other stimulants and other amphetamines were collapsed into an “other stimulants” category. Inhalants,

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