Drug and Alcohol Dependence 132 (2013) 547–554

Contents lists available at ScienceDirect

Drug and Alcohol Dependence

journal homepage: www.elsevier.com/locate/drugalcdep

How the states stack up: Disparities in substance abuse outpatient treatment completion rates for minorities

Stephan Arndt[a,b,c,*], Laura Acion[b,c], Kristin White[c]

[a] Department of Psychiatry, Carver College of Medicine, University of Iowa, Iowa City, IA 52242, USA
[b] Department of Biostatistics, College of Public Health, University of Iowa, Iowa City, IA 52242, USA
[c] Iowa Consortium for Substance Abuse Research and Evaluation, 100 MTP4, University of Iowa, Iowa City, IA 52245-5000, USA

ARTICLE INFO

Article history:
Received 27 November 2012
Received in revised form 25 March 2013
Accepted 30 March 2013
Available online 7 May 2013

Keywords:
Racial disparity
Treatment completion
Epidemiology
Treatment Episode Datasets–Discharge
Health policy
State government

ABSTRACT

Background: This study was an exploratory investigation of state-level minority disparities in successfully completing outpatient treatment, a major objective for attending substance abuse treatment and a known process outcome measure.
Method: This was a retrospective analysis of state discharge and admission data from the 2006 to 2008 Treatment Episode Datasets–Discharge (TEDS-D). Data were included representing all discharges from outpatient substance abuse treatment centers across the United States. All first treatment episode clients with admission/discharge records meeting inclusion criteria who could be classified as White, Latino, or Black/African American were used (n = 940,058).
Results: States demonstrated racial and ethnic disparities in their crude and adjusted completion rates, which also varied considerably among the states. Minorities typically showed a disadvantage. A few states showed significantly higher completion rates for Blacks or Latinos.
Conclusions: Realistically, a variety of factors likely cause the state race/ethnic differences in successful completion rates. States should investigate their delivery systems to reduce completion disparities.

1. Introduction

Successfully completing treatment is a major objective for clients attending substance abuse treatment. Completing treatment is usually a clinical judgment based on attending the full course as well as meeting individualized goals of the treatment program. Successful completion is a known process outcome measure because it predicts longer-term outcomes, e.g., less future criminal involvement and fewer readmissions (Evans et al., 2009; Garnick et al., 2009; Zarkin et al., 2002). Successful termination also predicts employment and income one year after treatment (Arria et al., 2003). As an outcome, successful treatment completion rates also can be used to assess national and state-level systems (Alterman et al., 2001; Garnick et al., 2009; U.S. Department of Health and Human Services, March 2012).

There is recent concern that clients from ethnic minority groups are less likely than White clients to complete treatment successfully. Few reports regard macro level (e.g., state) completion rates and their disparity across racial/ethnic groups. Most studies focus on individual or treatment level factors. Thus, the goal of the current study was to assess race/ethnicity disparities in successful completion of ambulatory, non-intensive substance abuse treatment at the level of the state.

One study found that African American men successfully complete treatment less often than White men (4–1), although their lengths of stay were not significantly different (Cooper et al., 2010). Another national report shows an approximately 11 percentage point advantage for non-Hispanic Whites compared to other race and ethnic groups (Substance Abuse and Mental Health Services Administration, 2009). Other studies of race/ethnicity effects have reported more complex patterns. One such finding is that race/ethnicity effects may appear in univariate analyses, but that this client-level factor becomes nonsignificant once controlling for other variables, such as age (Ball et al., 2006).

While race/ethnicity, per se, may not consistently predict treatment completion once other client factors are taken into account (Jacobson et al., 2007), other organizational and treatment factors may play a role in the completion disparities. For example, one nationally representative study found that variables assessing culturally sensitive beliefs in program managers predicted client retention (Guerrero and Andrews, 2011). Furthermore, managers' sensitivity to cultural issues and agency size (i.e., number of professionals) play a role in the agencies adoption of culturally sensitive treatment efforts (Guerrero, 2010, 2012). Another study found that

* Corresponding author at: Department of Psychiatry, Carver College of Medicine, University of Iowa, Iowa City, IA 52242, USA. Tel.: +1 319 335 4921; fax: +1 319 335 4484.
E-mail address: stephan-arndt@uiowa.edu (S. Arndt).

0376-8716/$ – see front matter © 2013 Elsevier Ireland Ltd. All rights reserved.
http://dx.doi.org/10.1016/j.drugalcdep.2013.03.015

Black and Latino adolescents reported receiving less informal treatment options (Alegria et al., 2011). Thus, there may be more to learn from looking at race/ethnicity disparities regarding organizational factors, including cultural competencies and clients' program acceptance. However, some of the conflicting findings may be produced by local phenomena since many studies rely on samples within a state. Such findings may not generalize to other places if states differ markedly in their service delivery system, completion rates, or patterns of treatment completion disparities.

The current study is empirically motivated and exploratory. It assesses whether completion rate disparities vary considerably across states. To address this question, we examined crude rates and disparities of successful completion of ambulatory, non-intensive substance abuse treatment at the level of the state. After finding crude rates and disparities of successful completion to show differences across the states' delivery systems, we estimated rates adjusted for relevant covariates since demographic (e.g., age, employment) and clinical differences (e.g., primary substance used) might vary between states and influence completion rates.

2. Materials and methods

2.1. Analytic sample

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 made available as the Treatment Episode Datasets–Discharge (TEDS-D; U.S. Department of Health and Human Services, 1998–2008). While this dataset includes all admissions/discharges rather than individuals, we selected only those records that indicated the individual had no prior admissions, i.e., the client indicated no prior treatment in a drug or alcohol program. This information is usually self-reported; however, states had the option to use their electronic data system to fill in this variable provided the records were available for at least several years. This selection restricted the admissions providing a non-duplicative total of individuals admitted and discharged from treatment. The concatenated 2006–2008 dataset was used for this study and represents all reported discharges from ambulatory, non-intensive outpatient treatment occurring within this period (n = 977,446). Alabama, Arizona, New Mexico, Pennsylvania, and Wisconsin did not contribute to this dataset since they were missing critical variables from their state files. For example, Arizona did not collect the number of previous treatment admissions. We also excluded 712 admissions/discharges from Puerto Rico, and 36,676 clients receiving medication assisted opioid therapy (e.g., methadone), resulting in 940,058 observations. The District of Columbia was included in the descriptive analyses but excluded from the final logistic regression because of a low number of Whites (n = 7, none of which were successful completions) causing estimation problems. Because these data represent public information and there is no subject identification, the University of Iowa Human Subjects Office, Institutional Review Board exempted this study. Analyses were augmented using U.S. Census estimates of race/ethnic groups within each state.

2.2. Measures

Discharge status, the primary outcome variable, was coded by treatment agency staff as: treatment completed (success) versus all other reasons (e.g., left against professional advice, incarcerated, transferred, other). Due to missing data (4059 cases, 0.43%), the sample size for this variable was 935,999. Using a more selective definition of successful versus unsuccessful completion, excluding neutral discharge categories (e.g., transferred, client death) the state rankings remained very similar (Spearman r = 0.81). Consequently, we retained the simplest version, successful versus all others, including neutral discharges.

At admission, agency staff identified the patient's primary problem substance (i.e., the precipitating substance causing the most problems) by interview. Staff recorded secondary and tertiary problem substances, as necessary. Additional admission data collected by agency staff included demographic information and referral sources. Due to confidentiality concerns, continuous variables, such as age, were categorized. Thus, the categories of continuous variables used in this study were dictated by the TEDS dataset. Because of low percentages, several drug categories were collapsed for analysis. Non-prescription methadone (0.10%) was combined with other opiates and synthetics (2.41%). PCP (0.15%) was collapsed with other hallucinogens (0.10%). Other amphetamines (0.56%) and other stimulants (0.06%) were merged. Benzodiazepines (0.29%), other non-benzodiazepine tranquilizers (0.03%), barbiturates (0.06%), and other non-barbiturate sedatives or hypnotics (0.17%) were merged. Inhalants (0.08%) and over-the-counter medications (0.05%) were added to an "Other" category. Staff also collected referral source and the number of substances used.

Race/ethnic groups were determined by self-report to race and ethnicity questions. Because of missing data for these questions, the dataset was reduced to 878,420 cases (6.56% missing data). The White group included all Caucasians who did not indicate Hispanic/Latino ethnicity (n = 544,987, 58.0%). The Latino group included all admissions indicating a Hispanic/Latino ethnicity and did not indicate their race as Black/African American (n = 155,920, 17.8%). Within the Latino group, 94.0% indicated race as White, "Other single race" or listed their race as missing. Also within the Latino group, 3.2% indicated two or more races (unspecified) and the rest listed American Indian, Asian, etc. The Black group included all admissions indicating their race as Black/African American (n = 177,513, 20.2%) regardless of ethnicity. Thus, 3.2% of the Black/African American group indicated some form of Hispanic origin but were considered in the Black/African American group. Native American, Asian, or other racial groups were excluded (n = 61,638) unless they indicated Latino as their ethnic background.

2.3. Analytic plan

All data analyses were conducted using STATA 12.1. The reliability of state rates was determined by I^2 (Arndt et al., 2011), a measure of between state to within state variance, and using intraclass correlation assessing year-to-year consistency over the 3 years of data. The intraclass correlation was also used to assess the consistency in yearly minority versus White risk differences over the 3 years. χ^2 tests were used for initial simple bivariate analyses and logistic regression was used for multivariate analysis of success rates.

North Carolina was a clear outlier for treatment success rates (6.39%) compared to the national value (44.39%) and the next lowest state (Virginia, 26.7%). Results were little changed with this state removed from analyses.

State differences in disparities were tested in the context of the logistic regression using the race/ethnic by state interaction. An initial logistic regression was performed to provide crude rates uncorrected for covariates. We expressed the race/ethnic disparity as a simple risk difference, for example, the percentage of successful discharge among Blacks in a state minus the percentage of