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Authors

Storholm, Erik David
Silverberg, Michael J
Satre, Derek D

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Racial and Ethnic Differences in Substance Use Diagnoses, Comorbid Psychiatric Disorders, and Treatment Initiation among HIV-Positive and HIV-Negative Women in an Integrated Health Plan

Erik D. Storholm¹, Michael J. Silverberg², and Derek D. Satre³

¹RAND Corporation, Santa Monica, CA, USA

²Kaiser Permanente, Northern California Division of Research, Oakland, CA, USA

³University of California at San Francisco, Department of Psychiatry, San Francisco, CA, USA

Abstract

Access to substance use disorder (SUD) treatment is a critical issue for women with HIV. This study examined differences in SUD diagnoses, comorbid psychiatric diagnoses, and predictors of SUD treatment initiation among a racial/ethnically diverse sample of HIV-positive women (N=228) and a demographically similar cohort of HIV-negative women (N=693). Diagnoses and service utilization data were obtained from electronic health records of members of a large integrated healthcare system in Northern California. Overall, HIV-positive women were less likely to initiate SUD treatment. Among HIV-positive women, being diagnosed with an amphetamine use disorder, comorbid depressive disorder, and anxiety disorder was more common among white women, while cocaine diagnosis was more common among black women. Among HIV-negative women, a diagnosis of alcohol SUD, comorbid depressive disorder, and comorbid anxiety disorder was more common among white women; diagnosis of cannabis SUD and cocaine SUD was more common among black women; and a diagnosis of amphetamine SUD and depressive disorder was more common among Latina women. Multivariable logistic regression models showed that alcohol, cannabis, and opiate diagnoses were predictive of SUD treatment initiation for both cohorts, while amphetamine SUD, comorbid depressive disorder, and being white or Latina were predictive of SUD treatment initiation for HIV-negative, but not HIV-positive women. Findings suggest that clinicians need to be aware of differences in substances of abuse, comorbid psychiatric disorders, and to consider the demographic and social factors that may contribute to differences in SUD treatment initiation among HIV-positive and HIV-negative women.

Keywords

Disparities; Race/Ethnicity; HIV; Substance Use; Substance Use Treatment; Women

Introduction

Previous studies of women with SUDs have found that there is a high rate of comorbidity with psychiatric disorders, specifically depressive and anxiety disorders (Brady & Randall, 1999; Greenfield et al., 2007). Comorbid depressive and anxiety disorders have also been significantly associated with higher rates of SUD treatment initiation among women with diagnosed SUD (Greenfield et al., 2007; Satre, Campbell, Gordon, & Weisner, 2010). HIV-positive women have been shown to have significantly higher rates of major depressive disorder and significantly higher anxiety symptom scores than HIV-negative women (Morrison et al., 2002). However, little attention has been paid to differences in the co-occurrence of these disorders among HIV-positive and HIV-negative women (Amaro et al., 2005; Morrison et al., 2002).

Further, in the United States, racial and ethnic minority women remain disproportionately affected by the HIV epidemic. While women constitute only 23% of newly diagnosed cases of HIV each year in the United States, 64% of these are among black women, even though black women only constitute about 12% of the female population (Centers for Disease Control and Prevention, 2012). Previous work has established a positive association between SUD diagnosis and risk for HIV infection among women (Wenzel et al., 2004). Among women infected with HIV, those with a diagnosed SUD have poorer health outcomes and mortality, yet receiving SUD treatment can improve outcomes (DeLorenze, Satre, Quesenberry, Tsai, & Weisner, 2010).

In 2006, the Institute of Medicine published a report suggesting that high-quality care for SUDs should be on par with treatment for other medical problems, and not vary based on personal characteristic such as gender or race/ethnicity (Horgan & Garnick, 2005; Institute of Medicine, November 2006). However, racial/ethnic minorities have been found to suffer greater consequences from substance use than white substance users (Iguchi, Bell, Ramchand, & Fain, 2005; Schmidt, Ye, Greenfield, & Bond, 2007) and black patients have been shown to be less likely to initiate SUD treatment (Acevedo et al., 2012). Specifically among women, racial/ethnic minorities have also been shown to be less likely to initiate substance use treatment than their white counterparts (Weisner, 1993). To the best of our knowledge, no previous studies have examined the predictors of SUD treatment initiation for HIV-positive and negative women of differing racial/ethnic groups. Elucidating these predictors is especially important if we are to reduce the disparities in connecting female minorities to SUD treatment.

To address these gaps, this study examined differences in SUD diagnoses, depressive and anxiety disorders, and SUD treatment initiation among racially and ethnically diverse HIV-positive and HIV-negative women diagnosed with an SUD within a large integrated healthcare system offering both HIV and SUD treatment. Because HIV positive women with SUDs are a clinically complex yet under-studied population, and because diagnostic and service use patterns may differ by HIV status and racial/ethnic status, we examined SUD diagnostic patterns and predictors of SUD treatment initiation among racially and ethnically diverse sample of HIV-positive women and HIV-negative women.

This study examines differences in type of substance use disorder (SUD) diagnoses and treatment initiation among a racially and ethnically diverse sample of HIV-positive and HIV-negative women within an integrated health plan. Based on prior studies, we suspected that there would be differences in substances of abuse among women based on HIV-status (e.g., higher rate of opiate use disorder among HIV-positive women) and higher rate of comorbidity of depressive and anxiety disorders among HIV-positive women we expected to find higher rates of alcohol disorder among white women and higher rates of cocaine and cannabis disorders among black women irrespective of HIV-status (Cook & Alegria, 2011). We suspected that women with comorbid anxiety disorder and/or depressive disorder would be more likely to initiate SUD treatment as these disorders likely indicate higher levels of distress and/or problems in daily functioning (Greenfield et al., 2007; Satre, Campbell, Gordon, & Weisner, 2010), and lower rates of SUD treatment initiation among black women (Acevedo et al., 2012; Weisner, 1993). Understanding these relationships will help to inform strategies to improve access to SUD treatment among both HIV-negative and HIV-positive women.

Materials and Methods

Participants

Participants ($N = 921$) were drawn from a retrospective cohort study of adult HIV-positive and demographically matched HIV-negative subjects identified in 1996-2011, previously described (Silverberg et al., 2011). Briefly, HIV-positive patients were identified from the Kaiser Permanente Northern California (KPNC) HIV registry, which included all known HIV cases among members since the early 1980s. HIV status was confirmed by chart review or comparison with medical center case lists. Individuals not included in the HIV registry were considered to be HIV-negative, and were matched to the HIV positive cohort based on age, medical center, and index year (i.e., latest date of the following: receiving HIV+ test result, year 1996, turning 18 years of age). The study population for the current analysis was the subset of women who were assigned at least one SUD diagnosis within the period of analysis. Since race/ethnicity was the primary predictor of interest, we only included white, black and Latina women, the most common racial/ethnic categories; those with unknown or less common race/ethnicities (8%) were excluded. The final sample included 228 HIV-positive and 693 HIV-negative women. All study procedures were approved by the Kaiser Permanente Division of Research Institutional Review Board.

Measures

Data extracted from the HIV registry and KPNC's electronic health record (EHR) included age, HIV-status, self-identified race/ethnicity, date of SUD treatment initiation, substance use diagnoses and psychiatric disorders were assigned based on and diagnostic and statistical manual of mental disorders DSM-IV-TR fourth edition (APA, 2000) and comorbid psychiatric disorders (if any) needed to be diagnosed and entered into the EHR prior to the date of SUD treatment initiation. HIV, SUD, and psychiatric diagnoses were assigned and entered into the EHR by providers and demographic and treatment initiation variables were entered into the EHR by hospital staff at intake and/or time of admission. We measured the two categories of psychiatric disorders most common among women with SUDs: anxiety

disorders and depressive disorders (Morrison et al., 2002). We measured five categories of SUD: alcohol, cannabis, opiate, cocaine, and amphetamine. A key outcome of interest was a date of SUD treatment initiation within the two years following a SUD diagnosis in the EHR.

Analytical methods

We first descriptively characterized the sample, including differences in age between women of different racial/ethnic categories. We then conducted Pearson χ^2 -test of independence to assess for racial/ethnic differences in specific type of SUD and psychiatric diagnoses among the HIV-positive and HIV-negative women, respectively. Next, we conducted Pearson χ^2 -test of independence to assess for racial/ethnic differences in SUD treatment initiation separately by HIV status. We entered all significant bivariate variables into two separate multivariate logistic regression models to assess for significant predictors of SUD treatment initiation among HIV-positive and HIV-negative women. Finally, we combined all the women into a single model to test whether HIV-status was predictive of SUD treatment initiation independent of all other variables.

Results

Among the 228 HIV-positive women, 104 (45.6%) were black, 103 (45.2%) were white, and 21 (9.2%) were Latina. Among the 693 HIV-negative women, 148 (21.4%) were identified as black, 436 (62.9%) as white, and 109 (15.7%) as Latina. Among the HIV-positive women there were no age differences among the black ($M = 53.2$, $SD = 8.7$), white ($M = 52.9$, $SD = 9.3$), and Latina ($M = 50.7$, $SD = 9.7$) women. There were differences in age among the HIV-negative women with white ($M = 53.9$, $SD = 10.1$) being older than both black ($M = 50.9$, $SD = 11.0$; $t(1, 582) = 3.0$, $p < .01$), and Latina ($M = 49.3$, $SD = 10.5$; $t(1, 543) = 4.1$, $p < .001$) women. There were no significant age differences by HIV-status, as expected, since the source cohort was matched on this factor.

Bivariate analyses

There were significant race/ethnic differences in type of SUD diagnosis among both HIV-positive and HIV-negative women (Table 1). Among HIV-positive women, black participants were more likely to be diagnosed with cocaine use disorder than were white, while whites were more likely to be diagnosed with an amphetamine use disorder. Among the HIV-negative women, white women were more likely to be diagnosed with alcohol use disorder than other substances; black women were more likely to be diagnosed with cannabis and/or cocaine use disorder; and Latina women were more likely to be diagnosed with amphetamine use disorder.

There were also racial/ethnic differences in comorbid psychiatric diagnoses among both HIV-positive and HIV-negative women. White HIV-positive women were more likely to be diagnosed with a depressive and/or an anxiety disorder than their black or Latina HIV-positive counterparts. Further, white HIV-negative women were more likely to be diagnosed with a depressive and/or an anxiety disorder than black or Latina HIV-Negative women.

Overall, HIV-negative black women were less likely to initiate SUD treatment than were either white or Latina HIV-negative women (Table 1). This finding did not hold for black HIV-positive women, although the data seemed to be trending in the same direction.

Multivariate modeling

Based on the bivariate results, we built two separate multivariable binary logistic regression models (by HIV status) to determine whether race/ethnicity would predict SUD treatment initiation. We included age, socioeconomic status (SES), the two psychiatric diagnoses and five SUD diagnoses as covariates in the first block of the model and we entered race/ethnicity into the second block of the logistic regression model to assess for the predictive values of race/ethnicity over-and-above all other variables. The white and Latina categories were compared to the black category in each model.

Significant models were achieved for both the HIV-positive women ($\chi^2(11) = 56.1, p < .001$, Naglekerke $R^2 = .31$) and the HIV-negative women ($\chi^2(11) = 133.4, p < .001$, Naglekerke $R^2 = .24$) (Table 2). Among the HIV-positive women, having an alcohol, cannabis, or opiate use disorder diagnosis, were each associated with SUD treatment initiation. For HIV-negative women, having alcohol, cannabis, opiate or amphetamine use disorder diagnosis, comorbid depressive disorder, and being white or Latina were all associated with SUD treatment initiation. Finally, a significant model was achieved when HIV-positive and HIV-negative women were combined into a single model ($\chi^2(1) = 7.5, p < .01$, Naglekerke $R^2 = .25$) (Table 2). Among the combined sample, having an alcohol, cannabis, opiate, cocaine, or amphetamine use disorder diagnosis, comorbid depressive disorder, being white or Latina, and/or being HIV-negative were each associated with SUD treatment initiation.

Discussion

This study examined differences in substance use diagnoses treatment initiation among a racially and ethnically diverse sample of HIV-positive and HIV-negative women with diagnosed SUDs in a large integrated healthcare system. Overall, HIV-negative women were more likely than HIV-positive women to initiate SUD treatment. Consistent with our expectations among the HIV-negative women, both white and Latina women were more likely to initiate SUD treatment than were black women. In both cohorts, there were also racial/ethnic differences in prevalence of specific substance diagnoses. Among HIV-positive women, white women were significantly more likely to be diagnosed with an amphetamine, depressive, and/or anxiety disorder, while black women were significantly more likely to be diagnosed with a cocaine use disorder. Among HIV-negative women, white women were significantly more likely to be diagnosed with alcohol use disorder, black women were significantly more likely to be diagnosed with cannabis or cocaine use disorder, and Latina women were significantly more likely to be diagnosed with amphetamine use disorder. Depressive and anxiety disorders were significantly more likely to be diagnosed among white and Latina HIV-negative women than among black HIV-negative women.

Other studies examining SUD problems among racial/ethnic minorities have found a higher lifetime prevalence of drug use disorders has been found for whites than for blacks or Latinos (Compton, Thomas, Stinson, & Grant, 2007). Research on SUD treatment initiation

has been mixed, with some reporting higher initiation among blacks and Latinos and others finding whites to be more likely to initiate SUD treatment (Satre et al., 2010). Previous studies set in government funded treatment setting have found that black substance users may be less likely to initiate SUD treatment (Acevedo et al., 2012), and that this may be especially true for women (Zemore et al., 2014). Satre et al. (2010) found that among insured patients receiving care within a large integrated healthcare system, black women were less likely to initiate SUD treatment than were white women. However, to our knowledge, previous studies looking at disparities in SUD treatment initiation among women have not taken HIV-status into account.

The current study examined insured women within a large integrated healthcare system, in which all members have SUD treatment coverage. These findings suggest that while there were differences in substances used and psychiatric comorbidities, these were not enough to account for differences in SUD treatment initiation, which was the lowest overall for black women. The finding that black women are less likely to initiate SUD treatment is consistent with Satre et al.'s (2010) findings among women with provider-assigned SUDs. However, findings are in contrast to findings of a large community-based sample of women which found black women were significantly *more* likely to initiate SUD treatment than were white women, however these differences were no longer significant in models adjusting for involvement in the criminal justice system and socioeconomic status (Cook & Alegria, 2011). The current findings suggest that given equal availability of SUD treatment, black women may be less likely to initiate treatment.

Researchers have previously found that black women with SUD fare worse on measures of health and healthcare access with data showing black women experience poorer health outcomes than women of other racial/ethnic backgrounds likely due to marginalization on the basis of sex, race, and class (Sharpe et al., 2012). These women may be more likely to initiate SUD treatment in community based samples, likely due to higher likelihood of interaction with the criminal justice system and/or lower socioeconomic status (Cook & Alegria, 2011). Our results indicate that black women may be less likely to initiate SUD treatment within an integrated healthcare system. This may be in large part due to socially and historically based mistrust of medical care providers and systems of care which may lead to lower rates of initiation (Armstrong, Ravenell, McMurphy, & Putt, 2007; Whetten et al., 2006). Providers of care within large healthcare systems need to assess and address the extent to which they can enhance effective linkages to these important services regardless of race/ethnicity. It is especially important that future efforts seek to elucidate and provide suggestions for addressing barriers to care given the links between psychiatric disorders, substance use, HIV-transmission, and poor health outcomes for HIV-positive women, and the disproportionate burden of HIV affecting black women as compared to women of other racial/ethnic backgrounds.

Clinical Implications

Clinicians working with women with SUDs should be aware of racial and ethnic differences in SUD diagnoses, patterns of psychiatric comorbidity, and barriers to SUD care, and work in culturally competent ways to increase SUD treatment initiation. Overall, black women

were found to be less likely to initiate treatment suggesting that clinicians, administrators, and other key decision makers within large integrated healthcare systems offering substance abuse services need to be aware of this disparity and seek to examine and address possible barriers to the initiation of treatment among black patients. It is likely that the same challenges that increase women's vulnerability to SUD and HIV and decrease SUD treatment initiation may be more pronounced among minority women. These vulnerabilities include reproductive health, family and childcare responsibilities, intimate partner violence, transportation, possible incarceration, and institutional and societal stigmatization (El-Bassel & Strathdee, 2015; Wechsberg et al., 2015) which need to be addressed among healthcare systems and providers if we are to reduce disparities in treatment initiation. The SUD type should also be considered as additional service linkage may be necessary for minority women who may be at increased odds of abusing specific substances (e.g., cocaine). These factors need to be consistently considered and addressed clinically when referring women to SUD treatment, as they will impact likelihood of initiation. SUD treatment programs should also tailor comprehensive social services to attend to the social and relational needs of minority women (Guerrero, 2013). For example, making SUD treatment programs available during non-traditional hours to accommodate for combined employment and family responsibilities. Medical providers have been increasingly encouraged to assess and patients for SUD treatment. This practice in may be especially important in large integrated health plans as linkage to SUD services may play an especially strong role in increasing access to SUD treatment for minority patients. Finally, comprehensive mental health services must be embedded within the larger HIV primary care and SUD treatment settings in order to address the high-rates of comorbid psychiatric disorders (Walley et al., 2015).

Limitations

This study had limitations which should be considered. First, we limit analyses to only to black, white, and Latina women as we had few women from other racial/ethnic groups in the sample. We were also limited to measurement of SUD services accessed within the Kaiser Permanente healthcare system and did not have data on services (e.g., Alcoholics Anonymous, community-based programs) outside the health plan in which some women may have received care. Further, this study was conducted among insured patients within Kaiser Permanente Northern California and may have limited generalizability to other health systems or populations. Analyses had lower statistical power among HIV-positive women than among HIV-negative women, which may have impacted the comparison of significant results across the two cohorts. While we were able to document SUD treatment initiation, we did not know the reasons for lower SUD treatment initiation among the HIV-positive women or the HIV-negative black women. Future research efforts should elucidate the overall experience of these women and their reasons for not initiating SUD treatment. Overall however, the study has many strengths (e.g., delineating associations between specific type of SUD and rates of SUD treatment initiation among women) and it is of the first to attempt to delineate differences in racial/ethnic status, HIV-status and differences in SUD diagnosis type, comorbid depressive and anxiety disorders, and rates of treatment initiation.

Conclusions

This study found that among women with SUD diagnoses receiving care within a large integrated healthcare system, those who are HIV-positive were less likely to initiate SUD treatment. There were also significant racial/ethnic differences found in the specific SUD and comorbid psychiatric disorder diagnoses. Among the women who were HIV-negative there were also racial/ethnic difference in rates of treatment initiation. Future work should explore specific factors that lower the likelihood of SUD treatment initiation among black women and examine ways to improve linkages between HIV primary care and SUD treatment, and explore ways to provide SUD treatment specifically tailored to racially/ethnically diverse women in large healthcare systems.

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Racial/ethnic differences in substance use disorders, psychiatric diagnoses, and substance use treatment initiation among HIV-positive and HIV-negative women.

Table 1

Variable	Black		White		Latina		P
	n	(%)	n	(%)	n	(%)	
HIV-Positive Women (n=228)							
Substance Use Disorder							
Alcohol	53	(51%)	57	(55%)	9	(43%)	.55
Cannabis	29	(28%)	23	(22%)	3	(14%)	.35
Opiate	16	(15%)	19	(18%)	4	(19%)	.82
Cocaine	32	(31%)	16	(16%)	2	(10%)	.011
Amphetamine	5	(5%)	31	(30%)	4	(19%)	<.001
Psychiatric Disorder							
Depressive	58	(56%)	81	(79%)	13	(62%)	.002
Anxiety	32	(31%)	53	(52%)	8	(38%)	.010
SUD Treatment Initiated*	29	(28%)	37	(36%)	8	(38%)	.39
HIV-Negative Women (n=693)							
Substance Use Disorder							
Alcohol	77	(52%)	281	(64%)	61	(56%)	.016
Cannabis	44	(30%)	68	(16%)	21	(19%)	.001
Opiate	12	(8%)	47	(10.8)	16	(15%)	.25
Cocaine	21	(14%)	15	(3%)	6	(6%)	<.001
Amphetamine	11	(7%)	37	(9%)	19	(17%)	.010
Psychiatric Disorder							
Depressive	66	(45%)	281	(64%)	62	(57%)	<.001
Anxiety	37	(25%)	182	(42%)	36	(33%)	.001
SUD Treatment Initiated*	38	(26%)	187	(43%)	47	(43%)	.001

* SUD treatment had to be initiated within two year period following SUD diagnosis in to be counted.

Multivariable logistic regression models predicting SUD treatment initiation for HIV-positive and HIV-negative women diagnosed with a SUD.

Table 2

Variable	HIV-Positive (n=228)			HIV-Negative (n=693)		
	OR	95% CI	p	OR	95% CI	p
Age (years)	1.02	.98, 1.06	.281	1.00	.98, 1.01	.757
Alcohol Use Disorder	4.35	2.11, 8.98	.000	4.55	2.99, 6.91	.000
Cannabis Use Disorder	2.97	1.36, 6.45	.006	3.19	1.97, 5.16	.000
Opiate Use Disorder	8.03	3.27, 19.70	.000	4.63	2.54, 8.42	.000
Cocaine Use Disorder	1.85	.86, 3.99	.116	1.89	.84, 4.24	.122
Amphetamine Use Disorder	2.30	.96, 5.56	.063	3.78	2.01, 7.11	.000
Depressive Disorder	1.30	.61, 2.78	.492	1.62	1.12, 2.35	.011
Anxiety Disorder	1.69	.85, 3.33	.133	1.37	.95, 1.97	.094
Black*	.82	.40, 1.66	.578	.44	.27, .71	.001

*The reference group for black included all white and Latina women.