



Published in final edited form as:

*J Addict Med.* 2021 ; 15(4): 334–340. doi:10.1097/ADM.0000000000000769.

## Disparities in Documented Drug Use Disorders Between Transgender and Cisgender U.S. Veterans Health Administration Patients

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### Abstract

**Objectives:** Transgender people—those whose gender identity differs from their sex assigned at birth—are at risk for health disparities resulting from stressors such as discrimination and violence. Transgender people report more drug use than cisgender people, however it is unclear whether they have higher likelihood of drug use disorders. We examined whether transgender patients have increased likelihood of documented drug use disorders relative to cisgender patients in the national Veterans Health Administration (VA).

**Methods:** Electronic health record data were extracted for VA outpatients from 10/1/09-7/31/17. Transgender status and past-year documentation of drug use disorders (any, opioid, amphetamine, cocaine, cannabis, sedative, hallucinogen) were measured using diagnostic codes. Logistic regression models estimated odds ratios for drug use disorders among transgender compared to

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**Declaration of Competing Interest:** The authors declare no potential conflicts of interest.

Preliminary findings of this study were presented at the AcademyHealth 2020 Annual Research Meeting.

cisgender patients, adjusted for age, race/ethnicity and year. Effect modification by presence of 1 mental health condition was tested using multiplicative interaction.

**Results:** Among 8,872,793 patients, 8,619 (0.1%) were transgender. Transgender patients were more likely than cisgender patients to have any drug use disorder (Adjusted Odds Ratio [aOR] 1.67, 95% confidence interval [CI] 1.53-1.83), amphetamine (aOR 2.22, 95% CI 1.82-2.70), cocaine (aOR 1.59, 95% CI 1.29-1.95), and cannabis (aOR 1.82, 95% CI 1.62-2.05) use disorders. There was no significant interaction by presence of 1 mental health condition.

**Conclusions:** Transgender VA patients may have higher likelihood of certain drug use disorders than cisgender VA patients, particularly amphetamine use disorder. Future research should explore mechanisms underlying disparities and potential barriers to accessing treatment and harm reduction services faced by transgender people.

## Keywords

Transgender; Gender Minority; Drug Use Disorder; Disparities

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## Introduction

Drug use disorders are a major public health concern and are responsible for substantial mortality, medical problems, and reduced quality of life.<sup>1</sup> In 2018, an estimated 8.1 million U.S. residents had at least one drug use disorder.<sup>2</sup> Disparities in drug use disorders have been identified for some populations; for example, sexual minority adults have higher prevalence of drug use disorders compared to heterosexual adults.<sup>3</sup> Transgender people are an understudied population who may also experience disparities in drug use disorders.

Transgender people are those whose gender identity (i.e., one's inherent sense of self as a woman, man, both, or neither) differs from their sex assigned at birth,<sup>4</sup> and the term transgender is often used to refer to a broad range of gender identities, including people with binary (i.e., transgender woman or transgender man) and nonbinary (i.e., not falling exclusively into the binary woman/man categories) gender identities.<sup>5</sup> Though the transgender population includes people with diverse identities and lived experiences, as a group transgender people experience considerable discrimination and stigma related to their gender identity<sup>6</sup> and high rates of social stressors such as violence, economic insecurity, and housing instability.<sup>7</sup> Gender minority stress (i.e., stress resulting from prejudice and stigma directed at those with a minority gender identity) is theorized to lead to increased health risk behaviors and worsened health outcomes for transgender people relative to cisgender people (i.e., those whose gender identity does not differ from their sex assigned at birth).<sup>6</sup> Gender minority stress may increase risk of drug use disorders through multiple theoretical pathways, such as maladaptive coping mechanisms.<sup>7</sup>

Several analyses of survey data have found higher rates of self-reported drug use among transgender compared to cisgender people;<sup>8-11</sup> however, few studies have examined disparities in diagnosed drug use *disorders* between these populations. The question of whether transgender people have higher rates of drug use disorders is substantially different from whether they have higher rates of drug use; drug use disorders involve changes

to the brain and compulsive, ongoing use of a drug even when experiencing negative consequences, and reflect the most severe end of the spectrum of drug use and are associated with the poorest health outcomes.<sup>12</sup> Pharmacological and/or behavioral and psychosocial treatments are indicated for drug use disorders, and the documentation of drug use disorder diagnoses allows providers to identify patients who may need treatment.<sup>13</sup>

The limited number of existing studies comparing substance use disorders (including alcohol or drugs) between transgender and cisgender patients have not examined drug use disorders specifically, and/or have not adjusted for potential confounding factors (e.g., age and race/ethnicity). A few studies using claims or health record data from large samples of adult patients have found higher prevalence of any substance use disorder diagnosis (alcohol or any drug) among transgender patients.<sup>14-16</sup> The only study to our knowledge examining differences in drug use disorders used health record data from adult patients in 26 U.S. healthcare systems and found transgender patients had higher prevalence of cannabis, cocaine, opioid, and amphetamine use disorders; however, associations were unadjusted.<sup>17</sup>

Further examination of disparities in drug use disorders for transgender patients is needed to better understand whether and to what extent disparities exist for separate drug use disorders, as different disorders present different risks (e.g., drugs that are commonly injected may increase risk of infectious disease transmission; certain drugs such as opioids may increase risk of overdose death) and different treatment options (e.g., there are medications approved to treat opioid use disorder, but not amphetamine use disorder).<sup>13,18</sup> These comparisons should be adjusted for age and race/ethnicity, which may confound observed associations between transgender status and drug use disorders as they are associated with transgender documentation in claims/electronic health record (EHR) data,<sup>14,19</sup> and likelihood of drug use disorders.<sup>20</sup> Additionally, it is unknown whether associations are modified by the presence of non-substance use disorder mental health conditions, which are prevalent among transgender people.<sup>17,19</sup> Risks for developing drug use disorders may differ among patients with mental health conditions compared to those without,<sup>21</sup> therefore the impact of being transgender on likelihood of developing drug use disorders may differ between patients with and without mental health conditions.

The U.S. Veterans Health Administration (VA) is an important setting in which to examine gaps in existing research on disparities in drug use disorders among transgender people. It is the largest integrated healthcare system in the U.S., has a nationwide EHR that allows for broad capture of data in a defined patient population, serves a large number of transgender patients,<sup>22</sup> and is the nation's largest direct provider of substance use treatment.<sup>23</sup> Veterans' lived experiences may differ substantially from those of non-veterans in ways that impact health,<sup>24</sup> though national surveys suggest the prevalence of drug use disorder does not significantly differ between veteran and non-veteran populations.<sup>25-28</sup> Additionally, transgender veterans may have unique experiences impacting risk of drug use disorders, thus it is important to study disparities in drug use disorders across transgender status among veterans.

Therefore, in this study, we examined whether specific drug use disorder diagnoses documented in the EHR were more common among transgender compared to cisgender VA

outpatients, adjusting for potential confounding factors. Additionally, we examined whether associations were modified by the presence of mental health conditions.

## Methods

### Data source and study sample

The present study is a secondary analysis of EHR data obtained for a parent study examining patterns of alcohol use and receipt of alcohol-related care among transgender compared to cisgender VA outpatients. Data were extracted from the VA Corporate Data Warehouse, a national repository of clinical and administrative data. Because the parent study focused on alcohol use, the sample includes all patients with 1 documented Alcohol Use Disorders Identification Test Consumption (AUDIT-C) screen from 10/1/2009-7/31/2017. The AUDIT-C is administered annually for >90% of VA outpatients with support from EHR clinical reminders;<sup>29</sup> therefore, this sample largely reflects the national VA outpatient population. Patients' most recent screen in the dataset was considered the index date for definition of study variables. Study procedures, including waivers of consent and Health Insurance Portability and Accountability Act (HIPAA) authorization, were approved by Institutional Review Boards at VA Puget Sound, the University of Washington, and the University of Pittsburgh.

### Measures

**Primary Independent Variable**—Patients were determined to be *transgender or cisgender* based on presence or absence of International Classification of Disease, 9<sup>th</sup> and 10<sup>th</sup> Revision, Clinical Modification (ICD-9-CM and ICD-10-CM) codes related to being transgender (see Appendix A, Supplemental Materials). Due to the lack of self-identified gender identity data in the VA EHR, this method of identifying transgender patients using EHR data has been validated and used by VA researchers<sup>4,22,30,31</sup> and similar methods have been used with Centers for Medicare & Medicaid Services data, commercial insurance databases and other EHR databases.<sup>14,15,17</sup> Patients with 1 transgender-related code documented from the beginning of available VA EHR data (1/1/1999) through the end of the study period (7/31/2017) were determined to be transgender. Although this method does not directly measure self-reported gender identity, it demonstrated high concordance with patient-reported transgender identity based on clinician text notes identified through structured chart reviews.<sup>31</sup>

**Outcome Variables**—Documented drug use disorder diagnoses were measured as the presence of 1 ICD-9-CM and/or ICD-10-CM diagnostic code for abuse or dependence (excluding codes for in remission; see Appendix A, Supplemental Materials) 0-365 days prior to the AUDIT-C screen. Outcomes included *any drug use disorder* (opioid, amphetamine, cocaine, cannabis, sedative, and/or hallucinogen), *opioid use disorder*, *amphetamine, cocaine use disorder*, *cannabis use disorder*, *sedative use disorder*, and *hallucinogen use disorder*.

**Covariates**—Demographic covariates included age and race/ethnicity, based on observed associations of these factors with both transgender identity<sup>14,19</sup> and drug use disorders.<sup>20</sup>

*Age* (<50, 50-65, >65) and *race/ethnicity* (Black/African-American, Hispanic/Latinx, White, Other, Unknown) were measured based on EHR documentation at the time of the AUDIT-C screen. Additionally, all models were adjusted for *fiscal year of screen* (2010-2017) because both transgender-related and drug use disorder diagnoses have increased in the VA over time,<sup>22,32</sup> which may partially reflect an increase in awareness of and use of these diagnostic codes rather than underlying prevalence.

Patient gender has been found to be associated with both transgender-related diagnoses<sup>19</sup> and drug use disorder diagnoses,<sup>20</sup> however EHR documentation of “sex” in VA administrative data (male, female) has validity issues for transgender patients. During the study period, the national VA EHR contained only one field for sex and no field for gender identity, and some (but not all) transgender patients may have updated the sex field to reflect their gender identity rather than their sex assigned at birth.<sup>33</sup> For this reason, it is not possible to determine whether this field captures sex assigned at birth or self-identified gender identity for transgender patients. We therefore did not adjust for sex, as we could not determine how potential unbalanced misclassification impacted estimated associations. Other factors associated with both transgender identity and drug use disorders, such as social factors (e.g., income, marital status) and clinical characteristics (e.g., physical health conditions), were not adjusted for due to the likelihood that they lie on the causal pathway between prejudice and stigma experienced by transgender people and drug use disorders, and therefore adjusting for them may adjust away the disparities we are interested in examining.<sup>34</sup> For example, discrimination may lead to economic insecurity among transgender people,<sup>7</sup> which may contribute to likelihood of drug use disorders through stress-related pathways.<sup>20,35</sup> Experiencing gender minority stress may also lead to the development of chronic health conditions,<sup>6,36</sup> which may impact likelihood of drug use disorders.<sup>37</sup>

**Effect Modification Variable**—As risks for developing drug use disorders may differ among patients with mental health conditions compared to those without,<sup>21</sup> we hypothesized that associations between transgender status and drug use disorders may differ between patients with and without mental health conditions. *Any mental health condition* was measured as the presence of 1 ICD-9-CM and/or ICD-10-CM diagnostic code for depressive disorders, post-traumatic stress disorder, anxiety disorders, other mood disorders, bipolar disorder, psychosis, and/or schizophrenia (see Appendix A, Supplemental Materials) 0-365 days prior to the AUDIT-C screen.

## Analyses

Patient characteristics were described in the overall sample and among transgender and cisgender patients, respectively. Chi-square tests of independence were used to assess differences in patient characteristics and unadjusted differences in outcomes between transgender and cisgender patients. Logistic regression models were used to estimate adjusted odds ratios (aOR) with 95% confidence intervals of documented drug use disorder diagnoses for transgender patients relative to cisgender patients, adjusted for age, race/ethnicity and fiscal year. Cluster-robust standard errors were estimated, clustered at the facility level to account for correlation of patient data within facilities. We calculated the

adjusted marginal predicted prevalence of outcomes to examine the size of differences between transgender and cisgender patients. Effect modification by the presence of 1 mental health condition was tested using multiplicative interaction in adjusted models. All analyses were conducted using Stata 15 software.<sup>38</sup>

## Results

A total of 8,872,793 outpatients were included in the sample, and 8,619 (0.1%) were identified as transgender. Patient characteristics are presented in Table 1. The sample was majority older (mean age 61 years) and non-Hispanic white (72%), consistent with the national VA patient population. Just under one-third (30%) had a mental health condition diagnosis in the past year. Transgender patients were more likely than cisgender patients to be younger (mean age 52 years vs. 61 years) and to be non-Hispanic white (77% vs. 72%). Having a past-year mental health condition was twice as common among transgender patients (61% vs. 30%).

Overall prevalence and unadjusted comparisons of the prevalence of documented drug use disorders between transgender and cisgender patients are presented in Table 2. In the overall sample, 3.9% had a past-year diagnosis for any drug use disorder, 1.0% for opioid use disorder, 0.3% for amphetamine use disorder, 1.1% for cocaine use disorder, 1.5% for cannabis use disorder, 0.2% for sedative use disorder, and 0.02% for hallucinogen use disorder. In unadjusted comparisons, transgender patients had a higher prevalence of any drug use disorder (7.2% vs. 3.9%) and of all individual drug use disorders; differences were significant for all outcomes except for hallucinogen use disorder.

Results of adjusted logistic regression models are presented in Table 3. Relative to cisgender patients, transgender patients had significantly higher odds of having any documented drug use disorder diagnosis (aOR 1.67, 95% CI 1.53-1.83) and of having amphetamine (aOR 2.22, 95% CI 1.82-2.70), cocaine (aOR 1.59, 95% CI 1.29-1.95), and cannabis (aOR 1.82, 95% CI 1.62-2.05) use disorder diagnoses. There was no significant association for opioid or sedative use disorder diagnoses. Hallucinogen use disorder was not evaluated due to unstable estimates of regression coefficients resulting from small cell counts. The interaction term for transgender status and 1 mental health condition was not significant in any model.

## Discussion

In this national sample of VA outpatients, transgender patients were more likely than cisgender patients to have a documented diagnosis for any drug use disorder after adjustment for potential confounders. When individual diagnoses were examined separately, transgender patients were more likely to have amphetamine, cocaine, and cannabis use disorder diagnoses, but opioid and sedative use disorder did not significantly differ across groups. There was no significant interaction by presence of mental health conditions.

These results generally align with previous studies in non-VA samples finding higher likelihood of any substance use disorder diagnosis (alcohol or drugs) among transgender compared to cisgender patients using claims/EHR data.<sup>14-17</sup> However, findings from this study differ somewhat from previous findings regarding distinct types of drug use disorders



after adjustment for confounders. A prior study found significantly higher prevalence of opioid use disorder among transgender patients in an unadjusted comparison.<sup>17</sup> Our study found the same association in unadjusted analyses, but not after adjustment, suggesting the association between transgender status and opioid use disorder may be confounded by age and race/ethnicity. Indeed, prior work has shown that the prevalence of opioid use disorder differs substantially by age and race/ethnicity, potentially more so than for other substance use disorders.<sup>39</sup>

These findings suggest that as a group, transgender people may primarily experience higher likelihood of non-opioid drug use disorders compared to cisgender people, particularly amphetamine use disorder which is a growing public health concern. High rates of methamphetamine use and its association with increased HIV risk have been observed among transgender women,<sup>40</sup> and overdose deaths involving amphetamines are on the rise in the general population.<sup>41</sup> Many current substance use prevention and treatment efforts target opioid use disorder, however efforts focused exclusively on opioids may not adequately address disparities in drug use disorders experienced by transgender people. Unlike opioid use disorder, there are currently no approved medications to treat amphetamine, cocaine or cannabis use disorders, though evidence supports more time-intensive behavioral and psychosocial treatments such as cognitive-behavioral therapy and contingency management.<sup>13</sup> Strategies specifically designed to engage transgender patients with non-opioid drug use disorders in evidence-based treatments may be needed.

When interpreting these findings, it is important to consider how lived experiences of transgender veterans may differ from transgender non-veterans in ways that may impact gender minority stress and subsequent risk of drug use disorders. For example, transgender veterans are likely to have experienced military sexual trauma,<sup>42</sup> and exposure to former and current Department of Defense policies barring transgender soldiers from openly serving in the military are unique stressors.<sup>43,44</sup> Additionally, transgender veterans who receive VA healthcare may have different experiences than those who do not, as trauma and discrimination experienced during military service may prevent some transgender veterans from seeking VA care.<sup>45</sup> This study may therefore be limited in generalizability to VA patients, however we observed similar prevalence of drug use disorders among transgender VA patients compared to a prior study of transgender patients in non-VA U.S. healthcare systems.<sup>17</sup>

Although higher prevalence of drug use disorder among transgender relative to cisgender patients has been observed in multiple studies relying on diagnostic codes documented in healthcare records, future studies using other data sources are needed to corroborate these findings. Healthcare utilization and provider biases may play a role in documentation of drug use disorder diagnoses,<sup>46</sup> which may contribute to associations observed in EHR data. Transgender patients (particularly those with transgender-related diagnostic codes) may be more likely than cisgender patients to be seen in healthcare settings where drug use disorders are more frequently diagnosed (e.g., mental health settings). Additionally, providers may be more likely to document diagnoses for stigmatized conditions, such as drug use disorders, for patients with stigmatized identities, such as transgender patients. Studies using standardized diagnostic assessments to compare drug use disorders between

transgender and cisgender people are needed to determine whether associations observed for documented diagnoses accurately reflect differences in underlying disorders.

Assuming higher rates of documented diagnoses observed among transgender patients reflect actual increased prevalence of underlying drug use disorders, findings highlight the importance of ensuring treatment and harm reduction services are accessible to and meet the needs of transgender patients. There is very little research examining whether transgender patients experience disparities in accessing substance use-related services and potential barriers to access. Transgender people face barriers to healthcare generally due to factors such as lack of insurance and experiencing stigma and discrimination,<sup>47</sup> and these barriers likely extend to substance use-related care. A qualitative study documented transgender people's negative experiences with discrimination in substance use treatment and self-help programs,<sup>48</sup> and it has been theorized that the gender-segregated nature of many inpatient treatment facilities may pose access barriers to transgender patients.<sup>49</sup> Research is needed to assess whether transgender people experience disparities in accessing drug treatment and harm reduction services, and if so, what specific barriers exist and what interventions or policies are effective in facilitating receipt of evidence-based, non-stigmatizing substance use-related care. This research should address how diversity of the transgender population with respect to race/ethnicity, socioeconomic status, and other factors may result in differential barriers to access.

Further research is also needed to understand the underlying mechanisms contributing to increased prevalence of drug use disorders among transgender people. Studies suggest that positive factors such as social acceptance, receiving gender-affirming medical care (e.g., hormone therapy or surgery), and policies defending the rights of transgender people are protective against certain mental health conditions.<sup>30,50</sup> Research is needed to determine whether these factors impact disparities in drug use disorders for transgender people, and to understand how different identities may intersect with gender identity to impact risk of drug use disorders (e.g., transgender people of color may have different risk than white transgender people).

There are several limitations to this study. While use of secondary EHR data enabled analysis of a much larger sample of transgender patients than is possible with primary data collection, it also introduced measurement limitations. Our method of identifying transgender patients did not directly measure self-reported gender identity, as this was not available in the national VA EHR. It is likely that some transgender patients do not have transgender-related diagnostic codes documented in their record resulting in some misclassification of transgender patients as cisgender,<sup>31</sup> which may have biased associations toward the null. Further, we did not adjust for sex due to our inability to determine whether the "sex" EHR field measured sex assigned at birth or gender identity for transgender patients; because gender is associated with prevalence of drug use disorders,<sup>20</sup> and is also associated with age and race/ethnicity among VA patients,<sup>51,52</sup> not accounting for variation between cisgender men and cisgender women and between transgender men and transgender women may have resulted in some confounding of estimated associations. To enable more precise assessment of disparities for transgender people in patient populations including differences across subgroups of gender minorities (e.g., transgender women,



transgender men, nonbinary people), and to allow for adjustment for gender when it may be a confounder, EHRs should systematically collect self-reported gender identity separately from birth sex, a practice currently being implemented nationally in the VA.<sup>33</sup> Additionally, EHR-documented drug use disorder diagnoses may under-measure actual prevalence. Finally, external validity of these findings outside of VA outpatients may be limited. As discussed above, transgender veterans who receive VA healthcare may have different lived experiences than transgender non-veterans and transgender veterans who do not use VA healthcare. More broadly, the VA patient population has higher proportions of patients who are older, men, and white compared to the general population, though proportions of VA patients who are younger, women, and people of color have risen consistently over the past several years.<sup>51-53</sup> Further, while prevalence of drug use disorder is similar between veteran and non-veteran populations,<sup>25-28</sup> veterans may have unique risk factors contributing to drug use disorders. Additionally, although >90% of VA outpatients receive alcohol screening,<sup>29</sup> VA patients who were not screened and thus not included in the sample may differ from those who were.

## Conclusions

Transgender VA patients may be more likely to have any drug use disorder than cisgender VA patients, and may experience disparities specifically for amphetamine, cocaine, and cannabis use disorders. Strategies to engage transgender patients with non-opioid drug use disorders in evidence-based behavioral and psychosocial treatments may be needed. Research is needed to identify and address potential barriers to accessing drug use disorder treatment and harm reduction services that may be faced by transgender people, as well as to understand the mechanisms underlying higher prevalence of drug use disorders among transgender people.

## Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

## Acknowledgements

This work reflects secondary analyses of data from a study supported by the National Institute on Alcohol Abuse and Alcoholism (R21 AA025973). Ms. Frost is supported by a predoctoral training award from the Veterans Affairs (VA) Puget Sound Research and Development Service. Dr. Glass is supported by a career development award from NIAAA (K01 AA023859). This work was supported in part with resources and the use of facilities at the VA Puget Sound Health Care System in Seattle, WA. The funders had no role in the design and conduct of the study; collection, management, analysis, and interpretation of the data; preparation, review, or approval of the manuscript; or decision to submit the manuscript for publication. The opinions expressed in this work are the authors' and do not necessarily reflect those of the institutions, funders, the Department of Veterans Affairs, or the United States Government.

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**Table 1.**

Characteristics of transgender and cisgender outpatients in the national Veterans Health Administration  
10/1/2009-7/31/2017

	Transgender (N=8,619)		Cisgender (N=8,864,174)		Chi-Square	p-value	Total (N=8,872,793)	
	N	(%)	N	(%)			N	(%)
Age (mean, SD, t-test)	51.7	(16.5)	61.2	(17.7)	--	<0.001	61.2	(17.7)
Age categories					2.1e+03	<0.001		
<50	3,539	(41.1)	2,219,110	(25.0)			2,222,649	(25.1)
50-65	3,102	(36.0)	2,491,771	(28.1)			2,494,873	(28.1)
>65	1,978	(23.0)	4,153,293	(46.9)			4,155,271	(46.8)
Race/ethnicity					278.3	<0.001		
Black/African American	919	(10.7)	1,491,965	(16.8)			1,492,884	(16.8)
Hispanic/Latinx	429	(5.0)	510,902	(5.8)			511,331	(5.8)
White	6,630	(76.9)	6,338,799	(71.5)			6,345,429	(71.5)
Other	331	(3.8)	250,783	(2.8)			251,114	(2.8)
Unknown	310	(3.6)	271,725	(3.1)			272,035	(3.1)
Any past-year mental health condition	5,280	(61.3)	2,637,544	(29.8)	4.1e+03	<0.001	2,642,824	(29.8)

**Table 2.**

Unadjusted comparisons of the prevalence of drug use disorder diagnoses between transgender and cisgender outpatients in the national Veterans Health Administration 10/1/2009-7/31/2017

Outcome	Transgender (N=8,619)		Cisgender (N=8,864,174)		Chi-Square	p-value	Total (N=8,872,793)	
	N	(%)	N	(%)			N	(%)
Any drug use disorder	622	(7.2)	342,789	(3.9)	259.6	<0.001	343,411	(3.9)
Opioid use disorder	125	(1.5)	88,082	(1.0)	18.2	<0.001	88,207	(1.0)
Amphetamine use disorder	91	(1.1)	27,057	(0.3)	159.0	<0.001	27,148	(0.3)
Cocaine use disorder	125	(1.5)	94,265	(1.1)	12.2	<0.001	94,390	(1.1)
Cannabis use disorder	292	(3.4)	132,641	(1.5)	208.8	<0.001	132,933	(1.5)
Sedative use disorder	29	(0.3)	15,468	(0.2)	13.0	<0.001	15,497	(0.2)
Hallucinogen use disorder	3	(0.03)	1,349	(0.02)	2.2	0.141	1,352	(0.02)

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**Table 3.**

Results of adjusted<sup>a</sup> regression models<sup>b</sup> comparing drug use disorder diagnoses<sup>c</sup> between transgender and cisgender outpatients in the national Veterans Health Administration 10/1/2009-7/31/2017 (N=8,872,793)

	Transgender (N=8,619)		Cisgender (N=8,864,174)		Odds for Transgender Relative to Cisgender		
	%	(95% CI)	%	(95% CI)	aOR	(95% CI)	p-value
Any drug use disorder	6.2	(5.6-6.8)	3.9	(3.7-4.1)	1.67	(1.53-1.83)	<0.001
Opioid use disorder	1.1	(0.9-1.3)	1.0	(0.9-1.1)	1.09	(0.90-1.33)	0.384
Amphetamine use disorder	0.7	(0.5-0.8)	0.3	(0.3-0.4)	2.22	(1.82-2.70)	<0.001
Cocaine use disorder	1.7	(1.3-2.0)	1.1	(1.0-1.2)	1.59	(1.29-1.95)	<0.001
Cannabis use disorder	2.7	(2.4-3.0)	1.5	(1.4-1.6)	1.82	(1.62-2.05)	<0.001
Sedative use disorder	0.2	(0.2-0.3)	0.2	(0.2-0.2)	1.41	(0.98-2.01)	0.063

aOR, adjusted odds ratio

<sup>a</sup>Adjusted for fiscal year, age, and race/ethnicity.

<sup>b</sup>Logistic models with robust standard errors clustered on facility.

<sup>c</sup>Hallucinogen use disorder was not evaluated in regression models due to small cell counts resulting in unstable estimates.