Mental Health and Substance Use Diagnoses and Treatment Disparities by Sexual Orientation and Gender in a Community Health Center Sample

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Abstract

Purpose: This study assessed disparities in screener- and provider-identified mental health and substance use diagnoses and treatment attendance by sexual orientation and gender in an urban community health center focused on sexual and gender minority individuals.

Methods: Using an electronic data query (October 2015 to October 2018), computerized screening results assessing likely depression, anxiety, alcohol use disorder (AUD), and substance use disorder (SUDs); provider diagnoses; and treatment initiation related to mental health and substance use were compared across sexual orientation (heterosexual, gay/lesbian, bisexual, and other) and gender categories (men and women, inclusive of cisgender and transgender individuals; $N = 24,325$).

Results: Bisexual and other-identified individuals were more likely to screen positive for depression and anxiety, followed by gay/lesbian women, compared with heterosexual individuals and gay men ($\chi^2 = 463.22$, $p < 0.001$ and $\chi^2 = 263.36$, $p < 0.001$, respectively). Of those who screened positive for AUDs, women were less likely to be diagnosed by a professional ($\chi^2 = 63.79$, $p < 0.001$) and of those who screened positive for either alcohol or other SUDs, women were less likely to attend one or more substance use-related behavioral health appointments, regardless of sexual orientation (contingency coefficient = 0.14, $p < 0.001$).

Conclusion: This community health center study identified a need for increased mental health services for bisexual and other-identified individuals and increased assessment and initiation of substance use treatment for women, including sexual minority women.

Keywords: community health, gender, mental health, sexual orientation, substance use

Introduction

SEXUAL MINORITY STATUS is consistently associated with high prevalence of mental health and substance use disorders (SUDs), with particular disparities in rates of depression and anxiety.[1–4] Sexual minority individuals are also at greater risk for anxiety disorders than their heterosexual peers.[2,5] These disparities have been confirmed by systematic and meta-analytic reviews across geographic regions.[5,6]

Similarly, rates of problematic alcohol and other substance use are high among sexual minority individuals. Lesbian, gay, and bisexual (LGB) individuals are more likely to have alcohol use disorder (AUD) in the past year compared with their heterosexual counterparts.[1] The prevalence of drug use disorder in the past year is also high among LGB individuals, ranging from 7.1% to 10.3% in men and from 7.9% to 11.3% in women, compared with 4.8% and 2.7% among heterosexual men and women, respectively.[1] Notably, sexual minority women, especially bisexual women, are at greatest risk for alcohol and other SUDs,[7,8] placing their level of alcohol and drug use within the range of use that has been reported by heterosexual men.

These disparities have been conceptualized through the sexual minority stress model.[9] This model suggests that the unique experiences of sexual minority individuals during the developmental period and in adulthood (e.g., experience of prejudice, expectation of interpersonal rejection, internalized homophobia) contribute to mental health and SUD disparities in adulthood. Consistent with this developmental model, mental health conditions, SUDs, and other

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vulnerabilities among sexual minority individuals have been examined within a syndemics framework, which recognizes that these issues often co-occur and are interrelated. Co-occurring syndemic, or interrelated, factors have been linked to multiple sexual minority health disparities for men[10-12] and women.[13-15]

It is also important to acknowledge the effects of gender alone on mental health and substance use. Indeed, mental health disparities by gender are among the best documented findings in the psychiatric literature, as women generally experience more psychological distress and greater mental illness symptom severity compared with men.[16-18] For example, depression and its associated symptoms are approximately two times more prevalent among women than among men.[16,17] Recent data have also revealed that transgender and gender-diverse (TGD) individuals experience significantly greater mental health symptom severity and problematic substance use relative to cisgender individuals.[19,20] Although not the focus of this article, mental health disparities in TGD populations are increasingly evident,[21] and further study at the subgroup level will identify specific groups that are in greatest need of targeted interventions.[22]

Reports on the prevalence of alcohol and other SUDs by gender are less conclusive, as the effects of gender on the prevalence of these disorders are changing over time. Men are more likely than women to use almost all substances, including alcohol, cannabis, tobacco, cocaine, and other stimulants.[23,24] Historically, the literature has documented disproportionately high alcohol use among men,[25,26] with lifetime and annual prevalence rates of AUD at least 1.5–2 times higher than rates among women.[27] However, recent studies have demonstrated that this gender gap may be narrowing.[28]

Less is known about sexual orientation- and gender-based disparities in (1) the documentation of mental health and substance use diagnoses and (2) linkage to appropriate treatment. Given that women are more likely than men to be diagnosed with and treated for depression and anxiety,[17,29-32] providers may be more likely to diagnose sexual minority women than sexual minority men with these disorders regardless of symptom severity. Similarly, men are more likely than women to receive treatment for AUD and be referred to residential treatment for SUDs,[33,34] which may lead to disparities in diagnoses and linkage to care among sexual minority women, who actually have greater or equivalent risk for these disorders relative to heterosexual men.[1,7,8]

Notably, SUD treatment utilization is low in the general population. In a large study of over 35,000 participants, only 19.8% of those who met the criteria for lifetime AUD were ever treated.[27] Although women report more medical and mental health visits, they are less likely than men to be assessed for AUD by their physicians.[35] As rates of alcohol use and binge drinking among women continue to rise,[28,36] identification and treatment of SUDs are increasingly important, particularly as women experience the consequences of drinking sooner and at lower levels of alcohol exposure than men.[24,37] Assessing and treating SUDs are also highly relevant for sexual minority individuals, especially sexual minority women, who have a greater likelihood of lifetime SUDs and an earlier age of drinking onset than heterosexual women.[38]

Information on sexual orientation-based differences in assessment, diagnosis, and treatment of mood, anxiety, and SUDs is limited; therefore, even settings that cater to sexual minority individuals may face challenges identifying and treating psychiatric disorders in this population.[39] Available data may be vulnerable to sampling bias (e.g., underreporting of sexual minority identities in population samples), and few studies have looked at disparities within clinical samples. Studies that have assessed disparities in mental health service utilization have relied on participant self-report, rather than assessing disparities using diagnoses, and treatment initiation or engagement via medical records.[38,40] However, self-report measures may not adequately capture symptom severity. In one study, self-reported depression on the Beck Depression Inventory-Short Form[41] was not associated with HIV medication adherence, whereas depression severity measured by two clinician-administered scales (the Montgomery–Asberg Depression Rating Scale[42] and the Clinical Global Impression Scale[43]) was strongly associated with adherence,[44] reflecting potential reporting bias associated with self-report methods.[45] Diagnoses documented by clinicians in the medical record may explain additional variance in predicted outcomes and offer unique information that is prognostically relevant but not captured by self-report.[46,47]

Although sexual orientation- and gender-based disparities in prevalence rates of some mental health disorders have been identified, particularly among women, it remains unclear if sexual minority status and gender together influence the degree to which individuals meet the criteria for specific disorders, are appropriately diagnosed, and engage with diagnostically relevant services. As such, the current study had three aims. Our first aim was to compare differences in the prevalence of screening positive for likely depression, anxiety, AUD, and other SUDs by sexual orientation and gender; we hypothesized (1) that women would be more likely to screen positive for depression and anxiety than men, with higher rates among sexual minority women than heterosexual women, and (2) that men, regardless of sexual orientation, and sexual minority women would be most likely to screen positive for AUD and SUDs relative to the other groups.

Our second aim was to assess disparities in the identification of these disorders in the medical record; we hypothesized that (1) the proportion of women diagnosed with depression and anxiety would be greater than the corresponding proportion of men and (2) the percentage of men diagnosed with AUD and SUDs would be greater than the rates among women, even though the likelihood of screening positive for AUD and other SUDs may be higher among sexual minority women. Finally, our third aim was to assess disparities in proportions of behavioral health and substance use treatment attendance; we hypothesized that behavioral health appointment attendance would be higher among women than men, whereas substance use appointment attendance would be higher among men than women.

Methods

Setting

Data were collected from the electronic medical record (EMR) of a community health center in Boston that serves the surrounding community and caters to sexual and gender minority patients. The majority of patients who receive care at the community health center identify as White and are privately insured. Services offered at the health center include

but are not limited to primary care, family medicine, obstetrics and gynecology, hormone therapy and other services for transgender patients, and behavioral health, including substance use treatment.

Providers are encouraged to refer patients to behavioral health and/or substance use services based on their responses to screening measures that assess for different mental health conditions administered before scheduled appointments. Patients may attend behavioral health appointments to address a range of psychological concerns, including depression, anxiety, and trauma, but the EMR does not capture the details of an individual's presenting problem or specific reasons for initiating care. Unlike behavioral health appointments, which are not categorized in the EMR by diagnosis, substance use services are identified as such (i.e., they are not subsumed under the ''behavioral health'' category) in the record. After a provider includes an International Classification of Diseases (ICD)-10 code in a patient's chart, that diagnosis is visible to all other providers within the community health center.

It is important to note that even though the community health center has a focus on serving sexual and gender minority populations, the center serves all patients in the surrounding neighborhood, regardless of sexual orientation or gender. Therefore, although sexual minority patients comprise the majority of the sample, the sample also includes a fairly large percentage of heterosexual individuals (43.9%).

Sample and data collection

Study participants were ≥18 years old, identified as male or female (inclusive of self-reported cisgender and transgender identification; 1191 nonbinary individuals were excluded due to insufficient power across all analyses as well as being beyond the scope of the original hypotheses focused on differences in diagnoses and treatment between men and women), and attended a medical visit between October 1, 2015, and October 1, 2018. Medical assistants provided tablet PCs to patients ($N = 29,988$) to collect electronic patient-reported outcome data during routine clinic visits to screen for depression, anxiety, as well as problematic alcohol and other substance use. All patients were asked to complete these measures while waiting for their medical visits to start, but patients could choose to opt-out of the assessments. A total of 28,472 patients answered questions from at least one of the screeners. The primary reason for not completing one or more of these screeners was insufficient time before a patient's appointment.

Analyses for the current study were restricted to patients whose medical records indicated male or female sex, indicated sexual orientation, and who answered questions from at least one of the following self-report screeners ($n = 24,325$): the Patient Health Questionnaire-9 (PHQ-9[48]), an instrument that measures the severity of depression symptoms over the past 2 weeks (e.g., ''Little interest or pleasure in doing things,'' ''Feeling tired, or having little energy''); the Generalized Anxiety Disorder 7-item scale (GAD-7[49]), a screening tool and symptom severity measure of generalized anxiety disorder over the past 2 weeks (e.g., ''Feeling nervous, anxious, or on edge,'' ''Not being able to control or stop worrying''); the Alcohol Use Disorders Identification Test (AUDIT[50]), a measure that screens for unhealthy alcohol use and risk for devel-

oping an AUD (e.g., ''How often do you have a drink containing alcohol'' and ''how many standard drinks containing alcohol do you have on a typical day when drinking?''); or the Drug Abuse Screening Test (DAST[51]), a brief instrument that assesses the degree of drug use severity (e.g., ''Are you always able to stop using drugs when you want to?'' and ''have you neglected your family because of your drug use?''). Although these measures provide information on symptom severity and likely diagnoses, they are not diagnostic.

Screener answers were collected using web-based software[52] developed specifically for patient-based measures. Screener questions were programmed at the University of Washington; responses were securely stored in patients' electronic health records. All study data, including demographics, diagnoses, appointments, and screener answers, were extracted via Structured Query Language (SQL). All patients were informed that the screeners were voluntary and confidential. The Institutional Review Board of Fenway Health approved all study procedures and granted a waiver of informed consent.

Data analysis

Descriptive statistics were used to characterize the sample by eight sexual orientation and gender groups (heterosexual men, heterosexual women, gay men, gay/lesbian women, bisexual men, bisexual women, other men, and other women). EMR options for sexual orientation were heterosexual, gay/lesbian, bisexual, something else, and don't know. We combined the ''something else'' and ''don't know'' response options in the sexual orientation data to create a sexual orientation group that we refer to as ''other''; this group was large enough to support subsequent analyses ($n = 1318$). Gender was based on sex data in patients' charts not sex assigned at birth. Specifically, male and female sex identification in the medical records was used to identify gender categories (men and women, respectively), inclusive of cisgender and transgender identified individuals (i.e., cisgender and transgender females were categorized as women, and cisgender and transgender males were categorized as men). Notably, disaggregating the results by cisgender versus transgender identified individuals across all sexual orientation groups resulted in cell sizes that were too small to yield interpretable results (i.e., cells of <10 individuals).

We report the percentage of each identity group's screeners that met or surpassed cutoff scores indicative of a likely depressive disorder (PHQ-9 ≥ 10),[48] anxiety disorder (GAD-7 ≥ 8),[49] AUD (AUDIT ≥8 for men and ≥6 for women),[50] or another SUD (DAST ≥3),[51] subsequently referred to as those who have ''screened positive.'' In addition, we report the percentage of each identity group that screened positive and had an ICD-10 code in the medical record consistent with the respective screener. Specifically, for those who screened positive on the PHQ-9, we report the percentage that had an ICD-10 code indicating major depressive disorder (single or recurrent episode) or dysthymia in their medical record. For those who screened positive on the GAD-7, we report the percentage with an ICD-10 code indicating generalized anxiety disorder. Given the overlap between trauma symptoms and depression and anxiety, we also report the percentage of patients who had a trauma diagnosis in their medical record. Of those who screened positive on

the AUDIT, we report the percentage with ICD-10 codes indicating an AUD. Finally, for those who screened positive on the DAST, we report the percentage with opioid; sedative, hypnotic, or anxiolytic; cocaine; cannabis; hallucinogen; inhalant; or amphetamine use disorders.

We then report the percentage of those who screened positive for either a depressive or anxiety disorder or an alcohol or other SUD and attended at least one behavioral health or substance use treatment appointment, respectively. To provide some insight on potential differences in the proportions of transgender men and women who screened positive for likely depressive, anxiety, alcohol, and SUDs, we aggregated the sexual orientation groups to create four categories (transgender men, transgender women, cisgender men, and cisgender women) and then assessed differences in proportions screening positive across those categories. We then compared the proportions across identity categories using chi-square statistics and contingency coefficients and assessed which categories were significantly different from one another using a z-test at a Bonferroni-adjusted p-value ($p = 0.002$).

Results

This analysis involved 24,325 individual patients at Fenway Health (see Table 1 for demographics). The largest proportion of the sample identified as gay men ($n = 8652$), followed by heterosexual women ($n = 6014$), heterosexual men ($n = 4663$), gay or lesbian women ($n = 1718$), bisexual women ($n = 1189$), bisexual men ($n = 771$), and a smaller proportion of men and women identified as other (i.e., something else or don't know; $n = 640$ and $n = 678$, respectively).

Across gender categories, the majority identified as cisgender, except for men with other sexual orientations. Most patients identified as White (71.0% of the overall sample; see Table 1 for breakdown by sexual orientation and gender) and reported having private insurance (81.3% of the overall sample; see Table 1 for breakdown by sexual orientation and gender).

With respect to demographic variables, race ($\chi^2 = 872.88$, $p < 0.001$), ethnicity ($\chi^2 = 23.06, p < 0.05$), and insurance type ($\chi^2 = 289.40, p < 0.001$) differed by sexual orientation and gender; however, some cell sizes were small, and so, these results should be interpreted with caution. Notably, the proportions of patients with private insurance were lowest among bisexual men and both men and women with other sexual orientations (Table 1).

In summary, of those who completed the PHQ-9 depression screener ($n = 22,307$), 16.2% ($n = 3621$) screened positive. Of those who completed the GAD-7 anxiety screener ($n = 17,270$), 22.6% ($n = 3899$) screened positive. Of those who completed the AUDIT alcohol screener ($n = 16,392$), 17.8% ($n = 2923$) screened positive. Of those who completed the DAST substance use screener ($n = 16,143$), 4.6% ($n = 741$) screened positive. Across the sample, 7.4% ($n = 1802$) of participants had a depressive diagnosis in their medical records, 17.8% ($n = 4340$) had an anxiety disorder diagnosis, 3.4% ($n = 837$) had a posttraumatic stress disorder (PTSD) diagnosis, 3.7% ($n = 899$) had an AUD diagnosis, and 3.9% ($n = 937$) had another SUD diagnosis. Of the full sample, 19.3% ($n = 4686$) had attended at least one nonsubstance use-related behavioral health appointment and 1.7% ($n = 406$) had attended at least one substance use-related behavioral health appointment.

Depression and anxiety results by sexual orientation and gender categories

Results related to depression and anxiety are presented in Table 2. The proportion of those who screened positive on the PHQ-9 differed significantly across identity categories ($\chi^2 = 463.22$, $p < 0.001$), such that bisexual and other-identified men and women had higher proportions of meeting the cutoff, followed by gay/lesbian women, compared with heterosexual men and women and gay men. Of those who screened positive on the PHQ-9, there was no significant difference in the likelihood of a depressive diagnosis ($\chi^2 = 12.99, p = 0.072$). The proportion of those who screened positive on the GAD-7 differed significantly across identity categories ($\chi^2 = 263.36$, $p < 0.001$) such that bisexual and other-identified men and women, followed by gay/lesbian women, had higher proportions of meeting the cutoff compared with heterosexual men and women or gay men. Of those who screened positive on the GAD-7, there were significant differences in the likelihood of an anxiety diagnosis across categories ($\chi^2 = 16.81$, $p = 0.019$) such that women were more likely to have an anxiety disorder in their records, particularly bisexual and other identified women. However, a z-test at a Bonferroni-adjusted p-value did not identify significant differences across categories.

We identified a significant difference in the proportions with a trauma diagnosis by identity category ($\chi^2 = 151.88$, $p < 0.001$), such that only 1.9% ($n = 88$) of heterosexual men had a trauma diagnosis, compared with 2.6% ($n = 159$) of heterosexual women, 3.6% ($n = 312$) of gay men, 5.2% ($n = 89$) of gay/lesbian women, 4.9% ($n = 38$) of bisexual men, 5.7% ($n = 68$) of bisexual women, 3.3% ($n = 21$) of other-identified men, and 9.1% ($n = 62$) of other-identified women. We then assessed those who screened positive on either the PHQ-9 or GAD-7 scores, and we identified significant differences in proportions across identity categories ($\chi^2 = 340.69$, $p < 0.001$), such that bisexual and other men and women had higher proportions, followed by gay/lesbian women, compared with heterosexual men and women and gay men. Of those who screened positive on either the PHQ-9 or the GAD-7, we identified significant differences in the proportions who attended at least one behavioral health appointment ($\chi^2 = 91.79$, $p < 0.001$), such that all sexual minority categories had higher proportions of attending one or more appointments compared with heterosexual men or women.

Alcohol and other substance use results by sexual orientation and gender categories

Results related to substance use are presented in Table 3. The proportion of those who screened positive on the AUDIT differed significantly across identity categories ($\chi^2 = 65.02$, $p < 0.001$), with bisexual women having the highest proportion (24.7%; $n = 213$). Of those who screened positive on the AUDIT, we identified a significant difference in the proportion with an AUD diagnosis, such that women had lower proportions of diagnoses compared with men across sexual orientation categories ($\chi^2 = 63.79, p < 0.001$). The proportion of those who screened positive on the DAST differed significantly across identity categories ($\chi^2 = 161.52$, $p < 0.001$), such that higher proportions of men (including heterosexual, gay, bisexual, and other) and bisexual women screened

TABLE 1. DEMOGRAPHICS BY SEXUAL ORIENTATION AND GENDER CATEGORIES INCLUSIVE OF CISGENDER AND TRANSGENDER INDIVIDUALS

N=24,325	Heterosexual men, N=4663 (19.2%)	Heterosexual women, N=6014 (24.7%)	Gay men, N=8652 (35.6%)	Gay/lesbian women, N=1718 (7.1%)	Bisexual men, N=771 (3.2%)	Bisexual women, N=1189 (4.9%)	Other men, N=640 (2.6%)	Other women, N=678 (2.8%)
Age, mean±SD	31.5±11.42	29.3±11.31	37.5±13.02	32.4±11.60	32.8±12.95	27.4±9.01	33.2±13.86	29.2±10.14
Gender, n (%)								
Cisgender	4298 (94.4)	5794 (97.8)	8270 (98.1)	1417 (84.9)	579 (78.1)	919 (78.4)	292 (49.7)	409 (63.3)
Transgender[a]	257 (5.6)	129 (2.2)	158 (1.9)	252 (15.1)	162 (21.9)	253 (21.6)	295 (50.3)	237 (36.7)
Race, n (%)								
Native American, Pacific Islander, or other	146 (3.3)	211 (3.7)	234 (2.9)	48 (2.9)	32 (4.4)	21 (1.9)	19 (3.1)	28 (4.3)
Asian or Asian American	558 (12.8)	932 (16.4)	456 (5.6)	59 (3.6)	33 (4.5)	50 (4.4)	43 (7.1)	46 (7.1)
Black or African American	385 (8.8)	436 (7.7)	423 (5.2)	120 (7.3)	88 (12.1)	70 (6.2)	41 (6.8)	44 (6.8)
Multiracial	175 (4.0)	260 (4.6)	429 (5.3)	95 (5.8)	63 (8.7)	85 (7.5)	29 (4.8)	42 (6.5)
White	3109 (71.1)	3841 (67.6)	6584 (81.0)	1316 (80.3)	551 (70.3)	906 (80.0)	473 (78.2)	491 (75.4)
Ethnicity, n (%)								
Latinx	228 (23.2)	259 (20.5)	539 (19.7)	79 (18.2)	44 (23.3)	39 (14.9)	38 (20.5)	15 (9.7)
Type of insurance, n (%)								
Private	3812 (81.7)	5042 (83.9)	7119 (82.3)	1357 (79.0)	554 (71.9)	949 (79.8)	453 (70.8)	490 (72.3)
Self-pay	167 (3.6)	216 (3.6)	247 (2.9)	69 (4.0)	31 (4.0)	53 (4.5)	27 (4.2)	28 (4.1)
Medicaid	445 (9.5)	451 (7.5)	682 (7.9)	175 (10.2)	110 (14.3)	124 (10.4)	100 (15.6)	99 (14.6)
Medicare	161 (3.5)	189 (3.1)	500 (5.8)	95 (5.5)	62 (8.0)	47 (4.0)	52 (8.1)	48 (7.1)
Other public or grants	78 (1.7)	115 (1.9)	104 (1.2)	22 (1.3)	14 (1.8)	16 (1.3)	8 (1.3)	13 (1.9)

[a]Transgender identity was determined by a question in the medical record indicating a patient self-identified as transgender.
SD, standard deviation.

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TABLE 2. Depression and Anxiety Results by Sexual Orientation and Gender Categories Inclusive of Cisgender and Transgender Individuals

| | Depression | | Anxiety | | Screened positive on either PHQ-9 or GAD-7* | Attended ≥1 behavioral health appointment/screened positive on either PHQ-9 or GAD-7* |
	Screened positive on PHQ-9*	Diagnosed/ screened positive on PHQ-9	Screened positive on GAD-7*	Diagnosed/screened positive on GAD-7*		
Heterosexual men, N=4663, n (%)	623 (14.0)[a]	119 (19.1)[a]	554 (18.7)[a]	239 (43.1)[a]	871 (28.1)[a]	302 (34.7)[a]
Heterosexual women, N=6014, n (%)	795 (13.7)[a]	148 (18.6)[a]	873 (20.5)[a]	401 (45.9)[a]	1224 (27.9)[a]	398 (32.5)[a]
Gay men, N=8652, n (%)	982 (13.4)[a]	196 (20.0)[a]	1267 (20.4)[a]	510 (40.3)[a]	1703 (29.4)[a]	756 (44.4)[b]
Gay/lesbian women, N=1718, n (%)	349 (21.0)[b]	89 (25.5)[a]	345 (25.7)[a]	158 (45.8)[a]	489 (35.0)[b]	219 (44.8)[b]
Bisexual men, N=771, n (%)	173 (25.4)[c]	42 (24.3)[a]	179 (31.0)[b,c]	73 (40.8)[a]	252 (44.4)[c]	119 (47.2)[b]
Bisexual women N=1189, n (%)	341 (29.6)[c]	74 (21.7)[a]	338 (36.8)[c]	166 (49.1)[a]	476 (48.7)[c]	223 (46.8)[b]
Other men, N=640, n (%)	161 (27.7)[c]	24 (14.9)[a]	156 (32.5)[c]	60 (38.5)[a]	219 (44.9)[c]	106 (48.4)[b]
Other women, N=678, n (%)	197 (30.6)[c]	42 (21.3)[a]	187 (35.0)[c]	91 (48.7)[a]	265 (46.8)[c]	139 (52.5)[b]

The superscripts [a,b,c] group the proportions in each column that do not differ significantly from one another, respectively (i.e., cells with [a] superscripts, whereas cells with [a] superscripts do differ from cells with [b] superscripts), as per a z-test at a Bonferroni-adjusted p-value.
*Chi-square/contingency coefficient (if cells <5) is significant.
GAD-7, Generalized Anxiety Disorder 7-item scale; PHQ-9, Patient Health Questionnaire-9.

TABLE 3. Alcohol and Other Substance Use Results by Sexual Orientation and Gender Categories Inclusive of Cisgender and Transgender Individuals

| | Alcohol | | Other substance use | | Screened positive on either AUDIT or DAST* | Attended ≥1 substance use appointment/screened positive on either AUDIT or DAST* |
	Screened positive on AUDIT*	Diagnosed/ screened positive on AUDIT*	Screened positive on DAST*	Diagnosed/ screened positive on DAST		
Heterosexual men, N=4663, n (%)	505 (18.2)[a,b]	101 (20.0)[a]	171 (6.3)[a,b]	58 (33.9)[a]	603 (22.0)[a]	41 (6.8)[a,b]
Heterosexual women, N=6014, n (%)	756 (19.2)[b]	60 (7.9)[b]	62 (1.6)[c]	25 (40.3)[a]	791 (20.3)[a]	20 (2.5)[c]
Gay men, N=8652, n (%)	1045 (17.4)[a,b]	195 (18.7)[a]	354 (6.0)[a,b]	147 (41.5)[a]	1280 (21.7)[a]	137 (10.7)[b]
Gay/lesbian women, N=1718, n (%)	191 (14.9)[a,c]	17 (8.9)[b,c]	26 (2.0)[c]	9 (34.6)[a]	207 (16.3)[b]	7 (3.4)[a,c]
Bisexual men, N=771, n (%)	84 (14.8)[a,b,c]	19 (22.6)[a,c]	44 (7.9)[b]	19 (43.2)[a]	113 (20.2)[a,b,c]	11 (9.7)[a,b]
Bisexual women, N=1189, n (%)	213 (24.7)[d]	30 (14.1)[a,b,c]	46 (5.4)[a,b]	18 (39.1)[a]	234 (27.3)[c]	10 (4.3)[a,b,c]
Other men, N=640, n (%)	45 (9.8)[c]	12 (26.7)[a]	23 (5.1)[a,b]	11 (47.8)[a]	61 (13.5)[b]	8 (13.1)[a,b]
Other women, N=678, n (%)	84 (16.4)[a,b,c]	15 (17.9)[a,b,c]	15 (3.0)[a,c]	7 (46.7)[a]	91 (17.9)[a,b]	3 (3.3)[a,b,c]

The superscripts [a,b,c,d] group the proportions in each column that do not differ significantly from one another, respectively (i.e., cells with [a] superscripts, whereas cells with [a] superscripts do differ from cells with [b] superscripts), as per a z-test at a Bonferroni-adjusted p-value.
*Chi-square/contingency coefficient (if cells <5) is significant.
AUDIT, Alcohol Use Disorders Identification Test; DAST, Drug Abuse Screening Test.

positive compared with heterosexual, gay/lesbian, and other-identified women. Of those who screened positive on the DAST, there was no significant difference in the proportion with an SUD diagnosis ($\chi^2 = 4.34$, $p = 0.740$).

We identified significant differences in the proportion of those who screened positive on either the AUDIT or DAST across identity categories ($\chi^2 = 60.73$, $p < 0.001$), such that bisexual women had the highest proportion. We also identified significant differences in the proportion who attended at least one substance use-related behavioral health appointment (contingency coefficient = 0.14, $p < 0.001$), such that sexual minority and heterosexual women whose AUDIT or DAST scores indicated a likely SUD were less likely to have attended at least one substance use-related appointment compared with men across sexual orientation categories.

Transgender versus cisgender comparisons

Although the small number of transgender individuals precluded detailed analyses of provider-documented diagnoses and appointment attendance across all of the sexual orientation categories, we analyzed the relative proportions of transgender men, transgender women, cisgender men, and cisgender women who screened positive for likely depression, anxiety, AUD, and other SUDs based on their PHQ-9, GAD-7, AUDIT, and DAST scores. Significant differences by gender in the proportions of patients screening positive for depression ($\chi^2 = 394.77$, $p < 0.001$), anxiety ($\chi^2 = 166.67$, $p < 0.001$), problematic alcohol use ($\chi^2 = 67.27$, $p < 0.001$), and other SUDs ($\chi^2 = 192.01$, $p < 0.001$) were observed.

Post hoc z-tests at a Bonferroni-adjusted p-value revealed that transgender women had the highest proportion of positive screens on the PHQ-9 (34.1%), followed by transgender men (28.4%). Transgender men and women were significantly more likely to screen positive for a likely anxiety disorder (33.4% and 34.7%, respectively) than both cisgender men and women. Cisgender men and women were most likely to screen positive for a likely AUD based on their AUDIT scores (17.7% and 18.7%, respectively), followed by transgender women (13.4%) and transgender men (7.8%). Finally, transgender women and cisgender men had the highest proportions of positive screens on the DAST (5.7% and 6.4%, respectively), followed by transgender men (2.9%) and cisgender women (1.8%).

Discussion

In this sample of individuals accessing medical care in an urban community health center focused on sexual and gender minority populations, our findings detected more nuanced disparities between specific sexual orientations and gender identities than have been previously identified. Although sexual minority individuals have historically been investigated in aggregate[53–55] (with more recent studies of LGB youth examining mental health disparities by subgroup),[56,57] our results convey important subgroup differences in rates of mental health and SUDs, likelihood of provider-identified diagnoses, and likelihood of attending treatment.

Although existing literature indicates that sexual minority individuals are more likely to experience depression and anxiety compared with heterosexual individuals,[1–5] we identified differences between sexual orientations and genders. Specifically, bisexual men and women, those who identified

as other sexual orientations, and gay/lesbian women were more likely to screen positive for depression and anxiety than gay men, heterosexual men, and heterosexual women. These findings are consistent with emerging research indicating that individuals who do not identify as monosexual (exclusively heterosexual or gay) experience more depressive symptoms than those who identify as monosexual.[58] However, these results provide a more nuanced perspective from previous findings indicating that women are more likely to receive a mood disorder diagnosis,[59] and are at greater risk for anxiety disorders.[18]

Notably, of those who screened positive for depression or anxiety, significant differences were not identified in the proportion of patients who received diagnoses by identity categories, indicating that providers diagnosed similar proportions of patients across identity categories. Furthermore, of those who screened positive for either depression or anxiety, more sexual minority than heterosexual patients attended at least one behavioral health appointment, likely due to the focus on sexual and gender minority health care at Fenway Health.

Consistent with existing literature,[7] our results indicate that bisexual women had the highest proportion of positive AUD screens. Further, women, regardless of sexual orientation who screened positive for AUD were less likely to be diagnosed with AUD compared with men, consistent with evidence indicating that men are more likely to be treated for AUD.[33] These results are also consistent with a recent meta-analysis of national surveys, which found significant increases in the prevalence of alcohol use and binge drinking episodes from 2000 to 2016 among women, but not men.[28] Inconsistent with existing literature indicating that sexual minority individuals are affected disproportionately by alcohol and other SUDs,[1,60] the proportion of gay men screening positive for or being diagnosed with AUD or other SUDs did not differ significantly from gay, heterosexual men.

Relatedly, and consistent with existing literature,[7,8] men (inclusive of heterosexual, gay, bisexual, and other men) and bisexual women had higher proportions of positive screens for other SUDs compared with other identity categories. However, among those who screened positive, there were no differences in the proportion who received a diagnosis across categories. Of those who screened positive for alcohol or other SUDs, both sexual minority and heterosexual women were significantly less likely than all men to have attended substance use treatment. This is consistent with existing literature indicating that while women are more likely to attend medical and mental health appointments, they are less likely to be assessed or treated for alcohol and other SUDs.[33,34]

Furthermore, although the analyses investigating differences between transgender and cisgender individuals were preliminary, our results were both consistent and inconsistent with existing literature.[19,20] Specifically, transgender women were most likely to screen positive for depression and both transgender men and women were more likely to screen positive for anxiety disorders compared with cisgender individuals, consistent with existing literature.[20] However, transgender individuals were less likely to screen positive for AUD compared with cisgender individuals. Transgender women were more likely than all but cisgender men to screen positive for other SUDs. Additional investigation is needed to better understand differences between sexual orientation among transgender versus cisgender individuals in relation to mental health and substance use disparities.

Limitations

Although this study offers nuanced insights into mental health and substance use treatment disparities by sexual orientation and gender, there are several limitations. First, this cross-sectional analysis used existing EMR data, which had limited variables (e.g., no PTSD screener) and limited response options (e.g., three gender options [male, female, nonbinary], five sexual orientation options [heterosexual, lesbian or gay, bisexual, something else, don't know]). The EMR does not include space for patients who selected ''something else,'' for example, to document their sexual orientations. Relatedly, diagnoses extracted from participants' charts only included provider-identified ICD-10 codes, which may have missed indications of diagnoses that were documented elsewhere (e.g., problem lists, provider notes, or medications prescribed to treat specific conditions). In addition, the behavioral health records did not capture external referrals, potentially resulting in an underestimate of engagement with psychological services, as some patients may have seen mental health providers at other clinics.

Although this community health center sample was fairly demographically homogeneous, being predominantly non-Latinx White and privately insured, the eight identity categories were not equal in sample size and differed somewhat in demographic makeup. For example, smaller proportions of bisexual men and other men and women had private insurance relative to the other groups. It is possible that socioeconomic status may be contributing to the documented disparities, although these groups did not have particularly poor outcomes relative to heterosexual and gay/lesbian men and women and bisexual women.

In addition, given the relatively small proportion of individuals who identified as transgender, we were unable to meaningfully disaggregate the results within the sexual orientation categories by cisgender versus transgender-identified individuals. Because this community health center is focused on sexual and gender minority individuals, it is possible that cisgender heterosexual individuals who seek care at this facility may be qualitatively different than cisgender heterosexual individuals who receive services at other health care facilities. Finally, Fenway Health focuses on providing care for sexual and gender minority populations, limiting the generalizability of the findings beyond similar community health settings. However, if a setting such as Fenway Health experiences these disparities in relation to mental health and substance use diagnoses and treatment among women, particularly bisexual women, these disparities likely exist and perhaps are even more pronounced in other health centers.

Conclusion

In this sample from a community health center focused on sexual and gender minority populations, we identified disparities that were both consistent and inconsistent with broader national samples. Specifically, the proportions of gay men who met the screening criteria for depression and anxiety were similar to those of heterosexual men and heterosexual women compared with bisexual and other-identified men and women, with gay/lesbian women falling between, indicating differences in mental health disparities across sexual minority identities. Furthermore, we identified gender-based disparities in the likelihood of obtaining an AUD diagnosis and initiation of substance use treatment, indicating a need for focused substance use treatment options for women, including sexual minority women.

Together, this study demonstrates the importance of examining mental health and substance use disparities by sexual minority identities separately and by gender to better understand and address unmet clinical needs. These analyses will inform future studies that can more thoroughly identify the mechanisms driving these disparities. To build a more holistic understanding of these disparities, future work should assess differential barriers to treatment access by sexual orientation and gender as well as investigate disparities across additional intersecting identities (e.g., race, ethnicity, cisgender vs. transgender identity).

Authors' Contributions

A.W.B. led the development of the study design with input from J.P., K.H.M., and C.O. D.K. and C.G. completed the medical record data abstraction and offered feedback to A.W.B., A.M.S., and N.K. in data analysis and interpretation. A.W.B., A.M.S., and N.K. drafted the article, and D.K., C.G., J.P., K.H.M., and C.O. lent specific content expertise to provide critical feedback on revising the work. All authors reviewed and approved the final version of this article.

Disclaimer

The content of this work is solely the responsibility of the authors and does not necessarily represent the official views of the NIH. The NIH had no role in study design, data collection and analysis, decision to publish, or preparation of the article.

Author Disclosure Statement

No competing financial interests exist.

Funding Information

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