

Research Letter

Intersecting Sex Work and Substance Use Risk Among Sexual and Gender Minoritized Individuals Recruited Online in San Francisco, California: Survey Results

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Abstract

This research letter examines sex work and substance use associations in a sample of sexual and gender minoritized individuals recruited online in San Francisco, California. This study found that a history of sex work was prevalent and that people with a history of sex work were more likely to recently report using controlled substances and experience domestic violence.

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KEYWORDS

sex work; substance use; domestic violence; intimate partner violence; online recruitment; sexual and gender minoritized community health; social media

Introduction

Sexual and gender minoritized (SGM) communities experience victimization because of structural oppression [1]. The confluence of social exclusion, economic hardship, and the internet supports the formation of a sex work economy [2,3]. People in sex work experience health inequities due to their unique occupational health exposures [4]. Yet there is little research on online help-seeking SGM populations [5]. We address this gap and characterize the prevalence of sex work history among SGM individuals seeking help online and their sexual and substance use-related prevention and treatment needs.

Methods

Ethical Considerations

The study was approved by the University of California, San Francisco institutional review board (20-33169). Participants provided informed consent, could opt out anytime, and received

US \$30. Data were deidentified to protect participants' privacy and confidentiality.

Study Design and Recruitment

This is a cross-sectional analysis of 409 people recruited online in San Francisco by using social medial advertisements on Facebook, Instagram, and Grindr in 2022-2024. Advertisements sought out potential participants seeking help for substance use, mental health, and HIV. Once they clicked on the advertisement and were directed to a study interest website, they were contacted by staff to screen for eligibility, informed consent was obtained electronically, and they completed a baseline assessment. Eligibility criteria included aged 18 years or older, seeking help for substance use prevention/treatment or related health topics (eg, HIV, mental health), live in San Francisco, identify as a man who had sex with men or a trans woman, and had smartphone access.

Measures and Analysis

We analyzed the following demographics: age, race/ethnicity, gender identity, sexual orientation, HIV status, housing stability,

and socioeconomic status. Recent substance use was measured by asking how many days in the last 30 days, if any, did they use each of the following substances: tobacco, vaping products, binge drinking (having 5 or more alcoholic beverages at the same time or within a couple of hours of each other for people assigned male sex at birth), marijuana, prescription opioids, nonprescription opioids, other prescription drugs, illicit drugs (crack/cocaine, amphetamine/methamphetamine, hallucinogens, inhalants), and injection drug use [6]. Responses were recoded dichotomously for any recent use (yes/no). We measured participants' history of sex work if they had ever had sex with someone in exchange for money, drugs, or shelter (yes/no) [6]. We assessed participants' risk perception of harm when engaging in condomless sex and sex while using drugs or alcohol. Responses were dichotomized into low risk (no risk, slight risk, unknown risk) and high risk (moderate risk, great risk). Self-efficacy to refuse condomless sex was assessed by participants' agreement with the statement, "I could refuse if someone wanted to have sex without a condom or dental dam" [6]. Responses were dichotomized into agree (strongly agree, agree) and disagree (disagree, strongly disagree). Domestic

violence was measured by asking participants if anyone with whom they had an intimate relationship had emotionally, physically, or sexually abused them in the last 3 months (yes/no) [6]. STATA version 17 was used to create logistic regression models to test associations between history of sex work and recent substance use and sexual risk outcomes, adjusted for age, gender identity, race/ethnicity, socioeconomic status, and housing stability.

Results

Many participants (168/409, 41.08%) reported a history of sex work. The most frequently reported in the last 30 days was illicit drugs (227/409, 55.50%) followed by marijuana (220/409, 53.79%), binge drinking (160/409, 39.12%), and tobacco (155/409, 37.90%). A majority of participants perceived condomless sex (287/409, 70.17%) and sex while using drugs or alcohol (349/409, 85.33%) as high risk and could refuse condomless sex (361/409, 88.26%). Almost 22.98% (94/409) had experienced domestic violence in the last 3 months (Table 1).

Table 1. Sample characteristics, recent substance use, sexual risk perception, and self-efficacy to refuse condomless sex and behaviors among sexual and gender minoritized people recruited online in San Francisco, California, 2022-2024 (N=409).

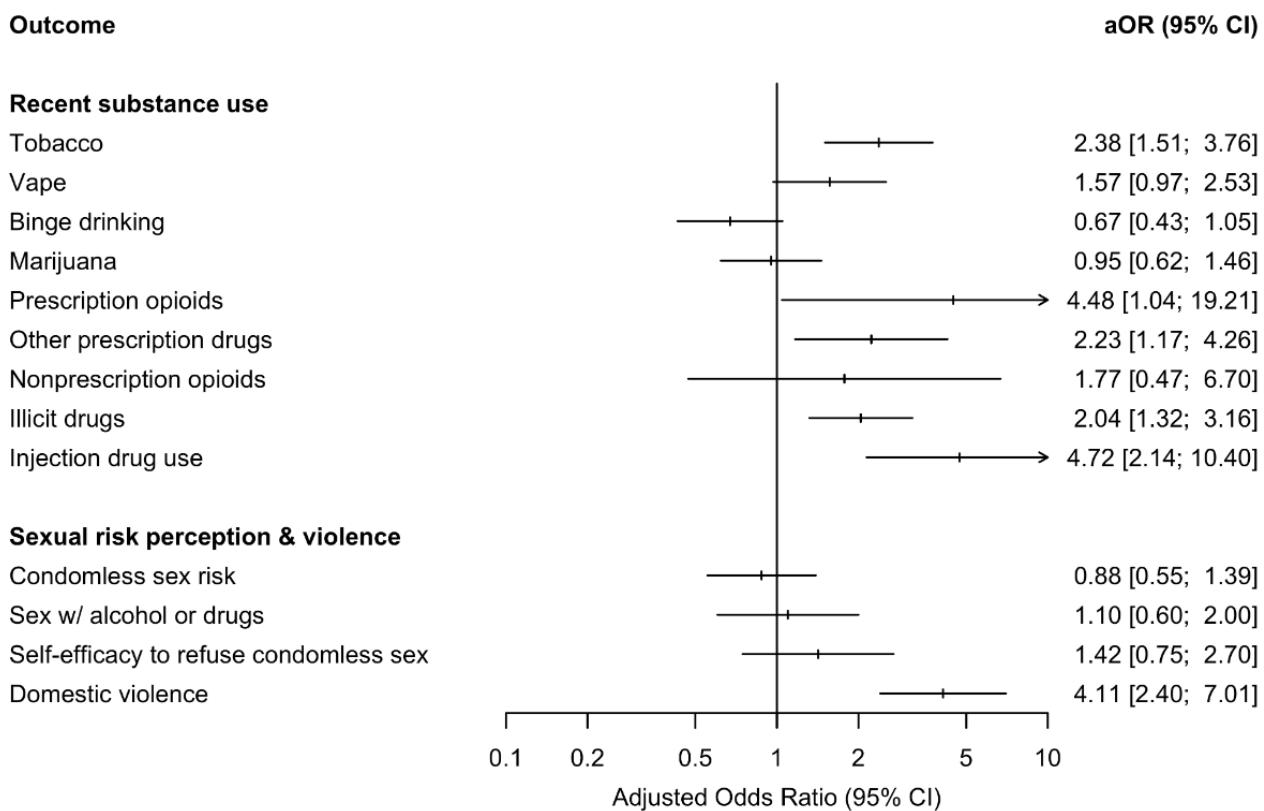
	Overall (N=409), n (%)	Sex work status		
		Yes (n=168), n (%)	No (n=241), n (%)	
Demographics				
Age (y)				
18-29	103 (25.18)	31 (18.45)	72 (29.88)	
30-39	112 (27.38)	54 (32.14)	58 (24.07)	
40-49	77 (18.83)	34 (20.24)	43 (17.84)	
50+	117 (28.61)	49 (29.17)	68 (28.22)	
Race/ethnicity				
White	169 (41.32)	71 (42.26)	98 (40.66)	
Latino/a/x/e	113 (27.63)	51 (30.36)	62 (25.73)	
Asian, Pacific Islander, and Native Hawaiian	50 (12.22)	13 (7.74)	37 (15.35)	
Black	38 (9.29)	16 (9.52)	22 (9.13)	
More than one or other	39 (9.54)	17 (10.12)	22 (9.13)	
Gender identity				
Cisgender man	327 (79.95)	123 (73.21)	204 (84.65)	
Transgender woman or gender expansive	82 (20.05)	45 (26.79)	37 (15.35)	
Sexual orientation				
Bisexual	47 (11.49)	22 (13.10)	25 (10.37)	
Gay/lesbian	282 (68.95)	105 (62.50)	177 (73.44)	
Other	48 (11.74)	22 (13.10)	26 (10.79)	
Straight/heterosexual	32 (7.82)	19 (11.31)	13 (5.39)	
HIV status				
Not a person with HIV	278 (67.97)	96 (57.14)	182 (75.52)	
Person with HIV	131 (32.03)	72 (42.86)	59 (24.48)	
Housing stability				
Stable	337 (82.40)	123 (73.21)	214 (88.80)	
Unstable	72 (17.60)	45 (26.79)	27 (11.20)	
Socioeconomic status				
Above federal poverty line	338 (82.64)	124 (73.81)	214 (88.80)	
Below federal poverty line	71 (17.36)	44 (26.19)	27 (11.20)	
Recent substance use (last 30 days)				
Used tobacco				
No	254 (62.10)	81 (48.21)	173 (71.78)	
Yes	155 (37.90)	87 (51.79)	68 (28.22)	
Used vaping products				
No	288 (70.42)	109 (64.88)	179 (74.27)	
Yes	121 (29.58)	59 (35.12)	62 (25.73)	
Binge drinking				
No	249 (60.88)	116 (69.05)	133 (55.19)	
Yes	160 (39.12)	52 (30.95)	108 (44.81)	
Used marijuana				

	Overall (N=409), n (%)	Sex work status	
		Yes (n=168), n (%)	No (n=241), n (%)
No	189 (46.21)	77 (45.83)	112 (46.47)
Yes	220 (53.79)	91 (54.17)	129 (53.53)
Used prescription opioid drugs			
No	398 (97.31)	160 (95.24)	238 (98.76)
Yes	11 (2.69)	8 (4.76)	3 (1.24)
Used nonprescription opioid drugs			
No	396 (96.82)	159 (94.64)	237 (98.34)
Yes	13 (3.18)	9 (5.36)	4 (1.66)
Used other prescription drugs			
No	361 (88.26)	141 (83.93)	220 (91.29)
Yes	48 (11.74)	27 (16.07)	21 (8.71)
Used illicit drugs			
No	182 (44.50)	56 (33.33)	126 (52.28)
Yes	227 (55.50)	112 (66.67)	115 (47.72)
Injected drugs			
No	366 (89.49)	135 (80.36)	231 (95.85)
Yes	43 (10.51)	33 (19.64)	10 (4.15)
Sexual risk perception, efficacy and behaviors			
Condomless sex			
High risk	287 (70.17)	122 (72.62)	165 (68.46)
Low risk	122 (29.83)	46 (27.38)	76 (31.54)
Sex while using drugs or alcohol			
High risk	349 (85.33)	142 (84.52)	207 (85.89)
Low risk	60 (14.67)	26 (15.48)	34 (14.11)
Self-efficacy to refuse condomless sex			
Disagree	48 (11.74)	25 (14.88)	23 (9.54)
Agree	361 (88.26)	143 (8.12)	218 (90.46)
Domestic violence (past 3 months)			
No	315 (77.02)	102 (60.71)	213 (88.38)
Yes	94 (22.98)	66 (39.29)	28 (11.62)

Adjusting for potential confounders, people with a history of sex work (Figure 1) were more likely to report using tobacco (adjusted odds ratio [aOR] 2.38, 95% CI 1.51-3.76), prescription opioid drugs (aOR 4.48, 95% CI 1.04-19.21), other prescription drugs (aOR 2.23, 95% CI 1.17-4.26), illicit drugs (aOR 2.04, 95% CI 1.32-3.16), and have injected drugs (aOR 4.72, 95%

CI 2.14-10.40) compared to people with no sex work history. People with a history of sex work had 4.11 times the odds of experiencing domestic violence recently compared to counterparts with no sex work history (95% CI 2.40-7.01). No statistically significant association was observed between history of sex work and self-efficacy to refuse condomless sex.

Figure 1. Associations between history of sex work and recent substance use and between sexual risk perception and violence among sexual and gender minoritized people recruited online in San Francisco, California, 2022-2024 (N=409). aOR: adjusted odds ratio.



Discussion

We found that SGM participants with a history of sex work were more likely to report recent use of controlled substances. Although no statistically significant associations exist between history of sex work and sexual risk perception level and self-efficacy to refuse condom use, our findings indicate that domestic violence may be heightened for SGM people with a history of sex work. SGM populations report similar or greater rates of domestic or intimate partner violence compared to their non-SGM counterparts [7], and intimate partner violence is a common experience among people who engage in sex work [8]. Relationship dynamics among SGM partnerships can vary in composition with relationship to sexual and gender roles, power, and how violence is enacted and experienced. A recent systematic literature review found that bidirectional violence

was the most common among SGM intimate partners compared to non-SGM partners [9]. The interplay between substance use, violence, and trauma are complex and must be explored in future [10]. This study has limited generalizability because of its design and possible sampling bias toward people seeking help online who may be experiencing heightened risk. Despite this, these findings reinforce the need for substance use prevention efforts to serve people with a history of sex work and address domestic violence as a unique violence exposure. Although stigma remains a significant barrier for people engaged in sex work and those using substances, addressing domestic violence may offer a whole-person alternative to intervene on the material impacts of violence and substance use behaviors that may be both enabling and coping mechanisms of violence. Public health interventions that cross-train substance use providers about domestic violence and sex work literacy, and conversely, are needed to better facilitate screening, referral, and treatment.

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Data Availability

The datasets generated or analyzed during this study are not publicly available as they contain details that could be used to identify participants but are available from the corresponding author on reasonable request.

Conflicts of Interest

None declared.

References

1. Hoskin RA. "Femininity? it's the aesthetic of subordination": examining femmephobia, the gender binary, and experiences of oppression among sexual and gender minorities. *Arch Sex Behav*. Oct 2020;49(7):2319-2339. [doi: [10.1007/s10508-020-01641-x](https://doi.org/10.1007/s10508-020-01641-x)] [Medline: [32198553](#)]
2. Aggarwal NK, Consavage KE, Dhanuka I, Clement KW, Bouey JH. Health and health care access barriers among transgender women engaged in sex work: a synthesis of U.S.-based studies published 2005-2019. *LGBT Health*. Jan 2021;8(1):11-25. [doi: [10.1089/lgbt.2019.0243](https://doi.org/10.1089/lgbt.2019.0243)] [Medline: [33297834](#)]
3. Jackson KJ, Santos G. Advertising patterns of internet-based male sex workers who have sex with men (MSMSW): the association between LGBTQIA+ events and advertising for work during the 2022 pride season. *Am J Mens Health*. 2023;17(5):15579883231205984. [FREE Full text] [doi: [10.1177/15579883231205984](https://doi.org/10.1177/15579883231205984)] [Medline: [37822094](#)]
4. Bernier T, Shah A, Ross LE, Logie CH, Seto E. The use of information and communication technologies by sex workers to manage occupational health and safety: scoping review. *J Med Internet Res*. Jun 24, 2021;23(6):e26085. [FREE Full text] [doi: [10.2196/26085](https://doi.org/10.2196/26085)] [Medline: [34185001](#)]
5. McDermott E. Asking for help online: lesbian, gay, bisexual and trans youth, self-harm and articulating the 'failed' self. *Health (London)*. Nov 2015;19(6):561-577. [doi: [10.1177/1363459314557967](https://doi.org/10.1177/1363459314557967)] [Medline: [25413341](#)]
6. SAMHSA. National Survey on Drug Use and Health: Summary of Methodological Studies, 1971-2014. Rockville, MD: Substance Use and Mental Health Services Administration; Nov 2014.
7. Kurbatfinski S, Letourneau N, Marshall S, McBride D, Novick J, Griggs K, et al. Myths and misconceptions of intimate partner violence among sexual and gender minorities: a qualitative exploration. *Front Sociol*. 2024;9:1466984. [FREE Full text] [doi: [10.3389/fsoc.2024.1466984](https://doi.org/10.3389/fsoc.2024.1466984)] [Medline: [39758189](#)]
8. Zemlak JL, Alexander KA, Wilson D, Singer R, Williams JS, Sherman SG. Sex workers' experiences of screening for intimate partner violence. *J Obstet Gynecol Neonatal Nurs*. Jul 2024;53(4):397-405. [doi: [10.1016/j.jogn.2024.02.005](https://doi.org/10.1016/j.jogn.2024.02.005)] [Medline: [38490264](#)]
9. Machado A, Sousa C, Cunha O. Bidirectional violence in intimate relationships: a systematic review. *Trauma Violence Abuse*. Apr 2024;25(2):1680-1694. [doi: [10.1177/15248380231193440](https://doi.org/10.1177/15248380231193440)] [Medline: [37594220](#)]
10. Morton S, Curran M, Barry O'Gorman M. Adverse childhood experiences, domestic violence and substance misuse: an action research study on routine enquiry and practice responses. *Front Psychiatry*. 2022;13:892849. [FREE Full text] [doi: [10.3389/fpsyg.2022.892849](https://doi.org/10.3389/fpsyg.2022.892849)] [Medline: [35903635](#)]

Abbreviations

aOR: adjusted odds ratio

SGM: sexual and gender minoritized

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