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Sexual orientation and social network size moderate associations between stigma and problematic alcohol use among male sex workers in the US Northeast: an observational study

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Abstract

Background: Stigma is associated with poor health among sexual minority individuals. However, no studies have examined the relationship between stigma and problematic drinking among male sex workers (MSWs). This study examined the relationship between sex work stigma and problematic alcohol use among MSWs.

Methods: Using baseline data from a cohort of 98 MSWs in the US Northeast enrolled between 2015 and 2016, we used logistic regression to examine associations between sex work stigma and hazardous drinking (Alcohol Use Disorders Identification Test (AUDIT) score ≥8) and sex work while drunk, and tested whether sexual orientation (gay vs non-gay identified) and social network size moderated these associations.

Results: Almost half the sample (n = 46; 44%) reported hazardous drinking and 56 MSWs (57%) reported engaging in sex work while drunk. Sex work stigma was associated with

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Conflicts of interest

The authors declare no conflicts of interest.

hazardous drinking (adjusted odds ratio (aOR) 1.2, 95% confidence interval (CI) 1.05–1.36). Sexual orientation marginally moderated this relationship ($P = 0.07$), such that it was only significant among gay-identified MSWs (aOR 1.91, 95% CI 1.11–3.28), not among non-gay MSW. Similarly, sexual orientation moderated the effect of sex work stigma on sex work while drunk ($P = 0.02$), which was only significant among gay-identified MSWs (aOR 1.65, 95% CI 1.05–1.60). Social network size also moderated the effect of sex work stigma on sex work while drunk ($P = 0.02$), which was only significant among MSWs with small networks (aOR 1.26, 95% CI 1.00–1.58), suggesting large networks can be protective.

Conclusions: Gay MSWs may be particularly vulnerable to alcohol-related effects of stigma. Future interventions should consider engaging social networks to curb problematic drinking among MSWs.

Keywords

alcohol-related disorders; men who have sex with men; sex workers; sexual orientation; social support; stigma

Introduction

Cisgender men who exchange sex for money, drugs or goods (i.e. cisgender male sex workers (MSWs)) face increased health and psychosocial risks. A high prevalence of mental health problems, such as alcohol and substance use disorders,[1] facilitates or co-occurs with condomless sex among this population.[2] Excessive alcohol use may lead to several health and social challenges and is a leading cause of morbidity and mortality among adults in the US, particularly among sexual minority individuals and MSWs.[3,4] Alcohol use during sex work encounters may be particularly harmful and has been shown to facilitate condomless sex[5] and expose MSWs to violence from clients and other perpetrators.[6]

The higher burden of mental health issues among MSWs and sexual minority individuals, including problematic alcohol use, is partially attributable to the stigma and discrimination surrounding their sexual practices and identities.[7] Several studies have identified an association between stigma and problematic alcohol use, including having sex while drunk, among cisgender men who have sex with men (MSM) and other sexual minorities.[7,8] Studies with MSWs specifically have shown stigma to be associated with depressive symptoms,[9] and qualitative research indicates that MSWs may use alcohol to cope with negative emotions, including in response to stigma and discrimination.[5,10] However, the literature examining stigma and alcohol use among MSWs is limited, and more studies are needed to elucidate the alcohol-related effects of stigma in this population.

While stigma has deleterious mental health and psychosocial effects, group-level resources, such as social network size and social support, may help individuals cope with the negative impacts of stigma and discrimination on mental health.[7] Social support has protective effects on psychological distress and alcohol use among MSM and sexual minority individuals.[11] Among MSWs, social network density was shown to be associated with lower self-reported problem drinking,[12] and social support may be protective against excessive alcohol use.[13]

However, there is a dearth of research on the role of group-level resources in mitigating harmful mental health effects of stigma among MSWs.

Although most clients who engage the services of MSWs are men,[14] not all MSWs identify as gay, and studies in the US have shown that many MSWs identify as bisexual or straight.[1,14,15] According to intersectionality theory,[16] oppression and privilege related to different social categories, including sexual orientation and behaviour, shape individuals' experiences with and responses to stigma and discrimination. For example, perceived stigma related to same-sex behaviours may be greater among non-gay MSWs (e. g. bisexual and straight-identified) compared with their gay-identified counterparts,[17] and non-gay MSWs may themselves discriminate against gay MSWs based on sexual orientation.[18] Experiences, perceptions and consequences of stigma related to sex work and sexual behaviours, such as depression, anxiety and alcohol and substance use, may also differ between gay and non-gay MSWs.[19,20]

Furthermore, group-level resources tapped by gay versus non-gay individuals may also differ. For example, gay individuals may rely less on family members and more on non-kin individuals for social support than heterosexual individuals,[21] and the difference in the composition of social networks may contribute to disparities in alcohol use among sexual minorities.[22] However, very few studies have examined the health vulnerabilities and resilience of MSWs through intersectionality lenses. A qualitative study with MSWs in the US showed that stigmas related to multiple social identities or conditions (e.g. sexual orientation, sex work, drug use) may intersect to negatively affect access to healthcare services;[15] however, to the best of our knowledge, no research has studied how sexual orientation affects minority stress processes, group-level resilience and alcohol-related outcomes among MSWs.

In response to gaps in the literature, we examined the relationship between sex work stigma and problematic alcohol use, and individual- and group-level factors that could modify such relationships among MSWs in the US Northeast. We hypothesised that: (1) sex work stigma would be positively associated with hazardous drinking and engaging in sex work while drunk; (2) the relationship between sex work stigma and problematic alcohol use would differ based on sexual orientation; and (3) larger social network size would attenuate the relationship between sex work stigma and problematic alcohol use (Fig. 1).

Methods

Participants and procedures

Between 2014 and 2016, 100 cisgender MSWs were recruited online and through community settings in greater Boston, Massachusetts, and Providence, Rhode Island, to participate in a study on social, sexual and drug networks of MSWs. The study details have been described previously.[23] Individuals were eligible for this study if they met the following criteria: age ≥18 years, assigned male sex at birth, currently identifying as male, engaged in oral or anal sex in exchange for money with three or more men in the past month and English speaking. Participants met with trained interviewers to complete a structured questionnaire and undergo HIV and sexually transmissible infection

(STI) testing. The questionnaire included both computer-assisted sections (i.e. questions about sexual behaviours and sex work stigma) and interviewer-administered sections (i.e. sociodemographics and social network inventory). The present analysis reports on baseline data from all 98 participants who provided information about their social networks.

Written informed consent was obtained from all participants. The Institutional Review Board at Fenway Health (Boston, MA, USA) approved all study procedures.

Measures

Independent variable: sex work stigma—Sex work stigma in the past month was measured using a six-item scale developed in a study with MSWs in Vietnam (Cronbach's $\alpha = 0.76$)[9] and further used in studies with MSWs in the US.[24] The scale includes items assessing enacted, perceived and self-stigma, including 'How often have you been hit, beaten, or sexually assaulted for engaging in sex work?', 'How often have you felt that people would dislike you if they know that you are a sex worker?' and 'How often have people's comments and actions toward sex workers affected your emotional and mental wellbeing?'. Responses were scored on a four-point Likert scale ranging from 0 ('never') to 3 ('many times'), resulting in a sex work stigma score ranging from 0 to 18, with higher scores indicating greater sex work stigma (Cronbach's $\alpha = 0.73$).

Dependent variable: hazardous drinking (Model A)—Alcohol use disorder during the past year was assessed using the validated 10-item Alcohol Use Disorder Identification Test (AUDIT).[25] The AUDIT scale is a screening tool for hazardous drinking that assesses three key components of alcohol use disorders: alcohol intake, dependence and adverse consequences. Sample questions included, 'How many drinks containing alcohol do you have on a typical day when drinking?', 'How often have you needed a drink in the morning to get yourself going after a heavy drinking session?' and 'Have you or someone else been injured as a result of your drinking?'. Total AUDIT score ranging from 0 to 40 were dichotomised so that scores of ≥8 were indicative of hazardous drinking, which has been shown to be a sensitive and specific measure of alcohol use disorder.[25–27]

Dependent variable: sex work while drunk (Model B)—Engagement in sex work while drunk in the past 6 months was assessed with the question, 'How often have you had sex while drunk (alcohol) during your sex work encounters?' Answers on a five-point Likert scale ranging from 'never' to 'all of the time' were dichotomised as 'any sex work while drunk' versus 'no sex work while drunk' in the past 6 months.

Moderator: sexual orientation—Sexual orientation was self-reported as 'heterosexual/straight', 'homosexual/gay', 'bisexual' and 'unsure/don't know'. Similar to previous studies,[18,20,28] we dichotomized sexual orientation categories as gay (reported 'homosexual/gay') versus non-gay (all other responses) based on formative work indicating that some MSWs reported being bisexual due to sexual behaviour (i.e. had sex with men and women) despite their heterosexual identity.

Moderator: social network size—We assessed individuals' social network size and characteristics with a comprehensive inventory of egocentric social, sexual and drug use

networks (i.e. name-generating questions adapted from Latkin *et al.*[29]). Participants then specified their relationships with these individuals (e.g. friends, family members, paying or non-paying sexual partners etc.) and described their sociodemographic characteristics (e.g. age, gender, race or ethnicity; name-interpreting questions). We defined social network size as the total number of non-sexual partners participants had in their social networks, including friends, coworkers, housemates, relatives and professionals (i.e. case managers, healthcare providers). We also assessed the size of the social network according to the relationship to participants: number of kin, non-kin and professionals.

Covariates—We assessed age, race or ethnicity, annual income, educational attainment, relationship status and venue for sex work (street-based sex work only vs online and/or street-based sex work).

Analysis plan

Descriptive statistics (i.e. mean ± s.d. and frequencies) of sociodemographic characteristics, social network size, hazardous drinking and sex work while drunk are reported. We tested our moderation hypothesis running two sets of logistic regression models with hazardous drinking and sex work while drunk as outcomes using a hierarchical approach. First, we regressed hazardous drinking (Model A) and sex work while drunk (Model B) on sex work stigma. Second, we adjusted each of the models with *a priori* determined covariates that were hypothesised to be associated with both predictors and outcomes (i.e. age, race or ethnicity, income, educational attainment and sex work venue). Finally, we tested our hypothesised moderators one at a time, starting with sex work stigma × sexual orientation and then testing sex work stigma × social network size separately. Significant moderation effects of social networks were further examined by breaking down the number of non-sexual partners in participants' social networks according to the type of relationship (i.e. kin, non-kin and professionals). We conducted sensitivity analyses to examine whether categorising sexual orientation into three levels (gay, bisexual and heterosexual) meaningfully changed the moderation analysis.

All models were run in IBM SPSS Statistics version 25 (IBM Corp., Armonk, NY, USA) using PROCESS macro procedures (Model 1).[30] Comparisons in model fit between nested models was evaluated with likelihood ratio tests. Moderation was interpreted in subgroup analysis (between gay and non-gay men for sexual orientation and median-split groups of social network size). Given the low level of missing data (<9%), no data imputation method was used.

Results

Sample characteristics

Sample characteristics have been reported previously[23] and are summarised in Table 1. Briefly, participants' mean age was 33.5 ± 11.5 years (range 19–61 years) and 45% of the sample was White. Forty-seven per cent of the sample identified as bisexual, 37% as gay and 12% as straight. Participants' mean sex work stigma score was 3.6 ± 3.5 (range 0–13). The mean social network size was 5.7 ± 3.8 (range = 0–21), indicating that participants,

on average, had 5.7 non-sexual partners in their social networks. Although overall social network size did not vary between sexual orientation groups, gay men had a lower number of kin in their social networks than non-gay MSWs (1.3 ± 1.3 vs 2.0 ± 1.7 respectively; $P < 0.05$). Almost half the sample (44%) had AUDIT scores indicative of hazardous drinking (8.0 ± 8.0). Engaging in sex work while drunk was also common, being reported by 57% of the sample. Sexual orientation was not associated with sex work stigma, hazardous drinking or sex work while drunk. The characteristics of the sample are described in Table 1.

Hazardous drinking (Model A)

Sex work stigma was positively associated with hazardous drinking in unadjusted and adjusted analyses (adjusted odds ratio (aOR) 1.22, 95% confidence interval (CI) 1.06–1.42). The moderation term sex work stigma × sexual orientation was marginally significant ($P = 0.07$; see Table 2). Subgroup analyses revealed that for gay MSWs the odds of hazardous drinking increased twofold for every point increase in sex work stigma (aOR 2.03, 95% CI 1.22–3.37; $P = 0.01$), whereas the association between sex work stigma and hazardous drinking was not significant among non-gay MSWs (aOR 1.12, 95% CI 0.95–1.32; $P = 0.13$; Table 3). In sensitivity analysis, the moderating role of sexual orientation operationalised as three categories (gay, straight and bisexual) was also significant, with the strongest association remaining among gay MSWs (aOR 1.62, 95% CI 1.15–2.28; $P = 0.01$). There was also an association among straight MSWs (aOR 1.47, 95% CI 1.01–2.13; $P = 0.045$), but not bisexual MSWs (aOR 1.05, 95% CI 0.86–1.27; $P = 0.65$).

Social network size did not moderate the association between sex work stigma and hazardous drinking ($P = 0.70$; Table 2). The size of kin, non-kin and professional networks also did not moderate the relationship between sex work stigma and hazardous drinking (data not shown).

Sex work while drunk (Model B)

Overall, sex work stigma was not significantly associated with engaging in sex work while drunk (aOR 1.09, 95% CI 0.95–1.25; see Table 4). Sexual orientation significantly moderated the relationship between sex work stigma and sex work while drunk ($P = 0.02$). As seen in Table 3, the odds of sex work while drunk increased 1.5-fold for each point increase in sex work stigma among gay men (aOR 1.50, 95% CI 1.09–2.05; $P = 0.01$); this relationship was not significant among non-gay individuals (aOR 0.93, 95% CI 0.78–1.12; $P = 0.85$; Table 5). In sensitivity analyses, we found similar results in models considering three categories of sexual orientation: the relationship between sex work stigma and sex work while drunk was only significant among gay MSWs, but not among straight- and bisexual-identifying MSWs (data not shown).

Social network size also moderated the relationship between sex work stigma and sex work while drunk ($P = 0.02$), such that the effect of stigma on sex work while drunk decreased as social network size increased (Table 4). To better interpret effect modification by social network size, we conducted subgroup analyses between individuals with small versus large social networks (median-split). Among individuals with small social networks, the odds of engaging in sex work while drunk increased 26% for each point increase in sex work stigma

(aOR 1.26, 95% CI 1.00–1.58; $P < 0.05$). This association was not significant among those with large social networks (aOR 0.85, 95% CI 0.68–1.07), suggesting a protective role for larger networks (Table 5). Sensitivity analysis considering frequency of engaging in sex work while drunk as the outcome showed similar results (P-value for moderation = 0.01).

Further analyses dividing overall social network size by type of relationship showed that only the number of kin in one's social network moderated the relationship between sex work stigma and sex work while drunk ($P = 0.01$; data not shown). Sex work stigma was associated with higher odds of sex work while drunk only among individuals with a small number of kin in their social network (aOR 1.22, 95% CI 1.02–1.46; $P = 0.03$), not among those with a large number of kin in their network (aOR 0.89, 95% CI 0.72–1.11; $P = 0.31$). The number of non-kin or professionals did not moderate the relationship between sex work stigma and sex work while drunk (data not shown).

Discussion

This study adds to the limited literature examining problematic alcohol use among MSWs, showing high levels of hazardous drinking (44%) and sex work while drunk (57%) among MSWs in the US Northeast. The findings suggest high vulnerability to problematic alcohol use among this population of MSWs compared with estimates of alcohol use disorders among the general male population and gay men in the US.[4] MSWs may engage in alcohol use for a variety of reasons, including to facilitate sexual encounters with clients by lowering MSWs' inhibitions, to enhance sexual pleasure and to cope with negative emotions and distress related to sex work.[5] The present study suggests that alcohol use may also be a coping mechanism to manage stigma and discrimination related to sex work, particularly among gay MSWs.

Consistent with intersectionality theory,[16] we found differences in how MSWs experienced alcohol-related consequences of stigma related to sex work based on sexual orientation. Previous studies have described the intersection of multiple co-occurring stigmas related to different devaluated identities,[31] such as HIV status, injecting drug use, non-heteronormative sexual behaviours and sexual identity and gender identities.[14,17] The present study expands on this body of work and shows that sexual orientation may also shape perceptions and experiences with stigma related to sex work among MSWs. Unlike previous studies that have described sex work to be 'normative' and less stigmatised in some communities of gay men,[32] in the present study gay MSWs were particularly vulnerable to the negative impact of sex work stigma on problematic alcohol use. Therefore, the findings of this study suggest that gay MSWs may be particularly appropriate targets for alcohol-related and sex work stigma reduction interventions.

This study also showed that large social networks may protect against engaging in sex work while drunk. Involvement with larger social networks may provide opportunities for individuals to experience social environments that are more accepting of their stigmatised conditions, facilitating individuals' reappraisal of their experiences of stigma and discrimination.[7] Social network size is associated with better physical and mental health among sexual and gender minority populations,[33] and interventions to reduce social

isolation and increase social network size may be efficacious in alleviating mental health problems in the general population.[34] This body of work suggests that future interventions to curb excessive alcohol use should also include components to foster social ties among MSWs. Future studies should investigate the potential protective role of social network-based interventions for MSWs on problematic alcohol use and what subpopulations of MSWs (e.g. gay vs non-gay, White vs people of colour) could benefit the most from such interventions.

In addition to overall social network size, the size of financial and emotional support networks[35] and the number of gay-identifying individuals in social networks[8] may also predict depression and sex while drunk respectively among MSM. Other studies have shown that social network density and composition (e.g. number of kin, friends etc.) may also influence social network-related benefits to physical and mental health among sexual minority populations.[36] However, existing studies examining social network characteristics among MSWs[23,24] have focused on HIV-related outcomes, and the influence of social network composition on mental health is less well understood. In the present study, we found that only the number of kin significantly attenuated the association between sex work stigma and sex work while drunk. The protective effect of family support on mental health outcomes among sexual and gender minorities individuals is well documented,[11,37] and the present study suggests that family support may also be beneficial for MSWs. Formative research should explore the specific types of social relationships (i.e. kin, non-kin etc.) and the most crucial emotional or instrumental resources received through these social ties to optimise the effect of social network-based interventions on alcohol-related outcomes.

The present findings should be interpreted in light of the limitations of this study. First, being a cross-sectional study, our ability to infer causality is limited, particularly with regard to the directionality of the relationship between sex work stigma and problematic alcohol use. However, our hypotheses were grounded in a robust body of literature proposing stigma as a predictor, not a consequence, of problematic alcohol use.[7] Second, our sample is geographically restricted to the US Northeast, limiting the generalisability of our findings to MSWs in other geographical and cultural contexts. Third, while recognising the diversity in individuals' sexual identities, we categorised sexual orientation in only two groups (i.e. gay and non-gay MSWs). Our experience working with MSWs indicates that some participants may report being bisexual based on sexual behaviour only (i.e. having sex with men and women) while having a heterosexual identity. Moreover, sensitivity analyses considering three categories of sexual orientation demonstrated similar findings (i.e. that the relationship between sex work stigma and hazardous drinking differs between gay, straight and bisexual MSWs and that gay MSWs may be most vulnerable to such effects). Future qualitative studies should further explore sexual orientation, identity and behaviour among MSWs and how these different constructs may influence experiences and consequences of stigma. Fourth, we did not measure stigma due to gay identification, and therefore our findings do not necessarily indicate the existence of intersecting stigmas. Still, our investigation of differences in stigma experiences and consequences according to sexual orientation, grounded in the intersectionality framework, can provide important indications of subgroups of MSWs in particular need of interventions. Future studies should examine how sexual behaviour, orientation and identity influence experiences and consequences of

sex work stigma and include measures of stigma related to sexual, racial or ethnic and other identities. Fifth, some of our findings are based on marginally significant relationships, indicating that this study may have been underpowered to examine some of our hypotheses. However, similar results in subgroup and sensitivity analyses suggest that the relationships we describe are not spurious. We encourage future studies to test similar theoretically informed hypotheses in larger, geographically diverse samples of MSWs.

Conclusion

To the best of our knowledge, this is the first published study to show a positive relationship between minority stress processes, such as sex work stigma, and problematic alcohol use among MSWs. In a sample in which the prevalence of hazardous drinking and sex work while drunk was high overall, gay MSWs were especially vulnerable to the effects of sex work stigma on problematic alcohol use. Thus, gay MSWs, who may face intersecting stigmas related to sexual orientation and selling sex, may be a subpopulation of MSWs in greater need of interventions to mitigate the consequences of stigma. Identifying groups of MSWs at higher risk for psychosocial problems is of importance because it allows for optimising resources by using targeted interventions. In that regard, social network-based interventions may be particularly promising. Thus far, research on group-based interventions for sex workers has largely focused on HIV and STI prevention needs, and few studies have aimed to address other health needs in this population (e.g. mental health and alcohol-related problems). Mental health issues, alcohol and substance use problems and HIV and STI are intimately related (i.e. syndemics) and therefore multicomponent interventions addressing multiple psychosocial factors are likely to be more effective. We encourage future interventions designed for MSWs to broaden their scope and include efforts to address mental health issues, and problematic alcohol use in particular, among this vulnerable population.

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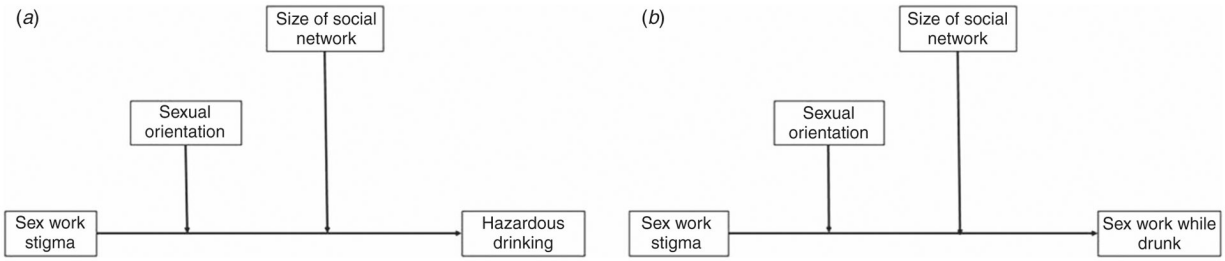

Fig. 1.

Hypothesised relationships between sex work stigma, sexual orientation, the size of the social network and (*a*) hazardous drinking (Model A) and (*b*) sex work while drunk (Model B).

Table 1.

Characteristics of the sample of male sex workers (MSWs) from the US Northeast (n = 98)

Mean (±s.d.) age (years)	33.5 ± 13.5
Race or ethnicity	
White	38 (39)
Black	32 (33)
Latino/Hispanic	19 (19)
Multiracial	4 (4)
American Indian or Alaska Native	3 (3)
Asian	1 (1)
Other	1 (1)
Education attainment	
High school, GED or less	59 (60)
Some college or higher	39 (40)
Annual household income (US$)	
≤17 999	54 (57)
>18 000	40 (43)
Venue for sex work	
Offline venues only	51 (53)
Online venues only	31 (32)
Offline and online venues	15 (15)
Relationship status	
Single	67 (69)
Relationship with a man	17 (18)
Relationship with a woman	13 (13)
Sexual orientation	
Gay	36 (37)
Non-gay	62 (63)
Mean (±s.d.) total social network size (n)	5.7 ± 3.8
Kin	1.7 ± 1.6
Non-kin	3.6 ± 3.5
Mean (±s.d.) AUDIT score	8.0 ± 7.9
Hazardous drinking	43 (44)
Sex work while drunk in the past six months	
Never	42 (43)
Once or a few times	21 (21)
Some of the time	16 (16)
Most of the time	14 (14)
All the time	5 (5)

Unless indicated otherwise, data are presented as n (%). AUDIT, Alcohol Use Disorders Identification Test; GED, General Educational Development (certificate of high school equivalency)

Table 2.

Associations between sex work stigma and hazardous drinking, unadjusted (Model 1), adjusted (Model 2) and with interactions for sexual orientation (Model 3) and social network size (Model 4)

	Model 1	Model 2	Model 3[A]	Models 4[B]
Sex work stigma	1.2 (1.05–1.36) *	1.22 (1.06–1.42) *	1.14 (0.96–1.34)	1.26 (0.99–1.60)
Sexual identity	–	0.68 (0.23–2.00)	0.18 (0.03–1.14)	–
Social network size	–	0.91 (0.77–1.06)	–	0.94 (0.77–1.14)
Sex work stigma × sexual identity	–	–	1.41 (0.97–2.04) †	–
Sex work stigma × social network size	–	–	–	0.99 (0.96–1.03)

Data are given as the odds ratio (OR) with 95% confidence intervals (CIs) in parentheses (Model 1) or as adjusted ORs with 95% CIs in parentheses (Models 2–4). Adjusted models include age, race (White vs non-White), annual income, educational attainment (high school education or less vs higher), venue for sex work (offline venues only vs online venues).

† $P < 0.1$ (for probing interaction terms);

* $P < 0.01$

[A] Likelihood ratio test of adding two-way interaction: χ^2 (df = 1) = 3.80, $P = 0.05$.

[B] Likelihood ratio test of adding two-way interaction: χ^2 (df = 1) = 0.14, $P = 0.71$.

Table 3.

Logistic regression modelling of the effect of sex work stigma and on hazardous drinking between sexual orientation groups

	Hazardous drinking (*n* = 90)	
	Gay MSW	**Non-gay MSW**
Sex work stigma	2.03 (1.32–3.37) **	1.12 (0.95–1.32)

Adjusted models include age, race (White vs non-White), annual income, educational attainment (high school education or less vs higher), venue for sex work (offline venues only vs online venues). Data are given as adjusted odds ratios with 95% confidence intervals in parentheses.

** $P < 0.01$.

MSW, male sex worker

Table 4.

Associations between sex work stigma and sex work while drunk, unadjusted (Model 1), adjusted (Model 2) and with interactions for sexual orientation (Model 3) and social network size (Model 4)

	Model 1	Model 2	Model 3[A]	Model 4[B]
Sex work stigma	1.08 (0.96–1.22)	1.09 (0.95–1.25)	0.99 (0.84–1.16)	1.40 (1.07–1.81) *
Sexual identity	–	0.78 (0.28–2.19)	0.31 (0.03–0.85) *	–
Social network size	–	0.95 (0.84–1.09)	–	1.08 (0.92–1.26)
Sex work stigma × sexual identity	–	–	1.52 (1.07–2.17) *	–
Sex work stigma × social network size	–	–	–	0.96 (0.92–0.99) *

Data are given as the odds ratio (OR) with 95% confidence intervals (CIs) in parentheses (Model 1) or as adjusted ORs with 95% CIs in parentheses (Models 2–4). Adjusted models include age, race (White vs non-White), annual income, educational attainment (high school education or less vs higher), venue for sex work (offline venues only vs online venues).

* $P < 0.05$

[A] Likelihood ratio test of adding two-way interaction: χ^2 (df = 1) = 6.37, $P = 0.01$.

[B] Likelihood ratio test of adding two-way interaction: χ^2 (df = 1) = 6.65, $P = 0.01$.

Table 5.

Logistic regression modelling of the effect of sex work stigma on sex work while drunk between sexual orientation groups and social network size

	Sex work while drunk (n = 98)			
	Gay MSW	**Non-gay MSW**	**Small social networks**	**Large social networks**
Sex work stigma	1.65 (1.05–2.60) *	0.93 (0.78–1.12)	1.25 (1.04–1.50) *	0.85 (0.68–1.07)

Adjusted models include age, race (White vs non-White), annual income, educational attainment (high school education or less vs higher), venue for sex work (offline venues only vs online venues). Data are given as adjusted odds ratios with 95% confidence intervals in parentheses.

* $P < 0.05$.

MSW, male sex worker; small social networks, below-median social network size; large social networks, above-median social network size