Alcohol consumption patterns, illicit drug use, and sexual risk behavior among MSM and transgender women in San Salvador

STUDY OBJECTIVES

In this brief we examine alcohol consumption and illicit drug use among MSM and TW in San Salvador, El Salvador. The first objective is to provide descriptive information on alcohol consumption patterns and drug use. The second objective is to assess factors associated with the excessive use of alcohol and with illicit drug use. The third objective is to examine the association between alcohol consumption and drug use with sexual risk behavior.

STUDY METHODS

A cross-sectional survey was conducted among 670 MSM and TW in San Salvador who were recruited through respondent driven sampling (RDS) from November 2011 to February 2012. Recruitment chains were initiated by five seeds, purposively selected based on their social standing and wide social networks. Each participant was administered up to three recruitment coupons to distribute to social acquaintances who met study eligibility criteria. This included being 18 years of age or older, having had anal sex with a man or TW in the past 12 months, and having lived, worked or studied in San Salvador for a minimum of three months prior to the interview. This study was approved by the Tulane University Biomedical Institutional Review Board and the National Committee for Ethics and Clinical Investigation in El Salvador. For details about the methods used in this study, including the scales referenced in this brief and item summaries, please see the full report: http://www.measureevaluation.org/publications/tr-13-92

ANALYSIS

The data from the survey was entered into the statistical analysis program, *Respondent Driven Sampling Analysis* Tool 6.01 (RDSAT) (http://www.respondentdrivensampling.org).

Introduction

Alcohol consumption and drug use impairs cognitive functioning and may affect health outcomes, especially in cases of heavy use or abuse (1, 2). Consequences of heavy alcohol use include an increased risk of certain cancers, stroke, and liver disease. Cocaine use causes immediate dangerous physical effects including increased heart rate and high blood pressure. Long-term consequences of cocaine use include anxiety, mood disorders, insomnia and gastrointestinal problems. The combination of alcohol and cocaine use increases the likelihood of death due to an overdose (2). Alcohol consumption and drug use may also increase the risk for acquisition of HIV (1–5), by influencing decision making that leads to increased sexual risk behavior (6, 7).

Studies have shown higher rates of heavy drinking and drug use among men who have sex with men (MSM) compared to heterosexual men (8, 9). Comparison studies for substance use are not available for transgender women (TW), although there is evidence of increased substance use linked with higher levels of sex work among this group (5, 10). For MSM and TW, substance use may serve as a coping mechanism to deal with stigma and related stress (10–12). The importance of bars as a place of social interaction within the gay community may further promote an association between substance use and sexual risk behavior (12). It has also been suggested that the stress of being at risk for HIV may lead to increased sexual risk behavior and substance use as a way to "escape" from the reality of this risk (13).

There is evidence from integrated biological and behavioral surveillance in the Central America region of problematic substance use among MSM and TW. A study conducted in 2008 in El Salvador reports alcohol use in the last 30 days at 53% for participants in San Salvador and 58% in the next largest city of San Miguel. A total of 28% of participants in San Salvador and 30% of participants in San Miguel report drinking five or more drinks on one occasion at least four times in the last 30 days (essentially, binge drinking an average of at least once per week). A total of 8% in San Salvador and 19% in San Miguel report illicit drug use (including marijuana) in the last 30 days. Among the drugs users in this study, cocaine, crack and heroine were the most commonly used drugs (14). A study of HIV risk groups conducted in Managua, Nicaragua in 2010 indicated that a quarter of MSM and TW respondents used drugs in the last 12 months, with the most common drugs being crack and cocaine (15). Conversely, a study of illicit drug users (cocaine, crack, heroin, LSD, or ecstasy) conducted in 2011 in Guatemala City, Guatemala reported 15% of drug users to be gay,

ANALYSIS *continued*

This program facilitated the use of weights to account for the non-random selection of participants in the calculation of frequencies. Statistically significant differences between frequencies were assessed by calculating 95% confidence intervals around point estimates in RDSAT and determining overlap. The data was then transferred to the statistical software package STATA SE version 12.0. Bivariate and multivariate analyses were conducted by weighting the outcome variable based on the multiplicity estimator in RDSAT. A cutoff of $p<0.05$ was used for statistical significance. The predicted probabilities based on logistic regression models are presented in the figures. Captions for each figure note control variables used in each model.

For the first two objectives, two main outcomes were examined: alcohol consumption and drug use. "Binge drinking" was defined as the consumption of five or more alcoholic beverages on the same occasion. Alcohol consumption was further categorized as: "no or low drinking" for participants who reported no drinking or no binge drinking in the last 30 days, "moderate-frequency binge drinking" for participants who reported binge drinking one to four times in the last 30 days, and "high-frequency binge drinking' for participants who reported binge drinking five or more times in the last 30 days. In regards to drug use, participants were asked if they used cocaine, marijuana, crack, amphetamines, glue or thinner, ecstasy, heroine, or some other drugs in the 30 days prior to the survey. For drug use as an outcome, a variable was constructed to include all forms of illicit drugs except for marijuana. For the third objective several measures of sexual risk were explored. Data are presented on sex work in the last 12 months and consistent condom use in the last six months. Sex work was coded as "yes" if the participant reported exchanging sex for money, food, clothes or a place to sleep during the last 12 months. Consistent condom use was coded as "yes" for sexually active participants who reported "always" using condoms with their last three sex partners in the last six months.

bisexual, or transgendered, and 32% to be gay, bisexual, transgendered and sex workers (16). However, apart from the frequencies presented in these studies, there is scant descriptive information available on the patterns of alcohol consumption and drug use, motivations for substance use, and the potential association of substance use with HIV for MSM and TW in Central American countries. The information presented in this research brief aims to address this gap.

Key Findings

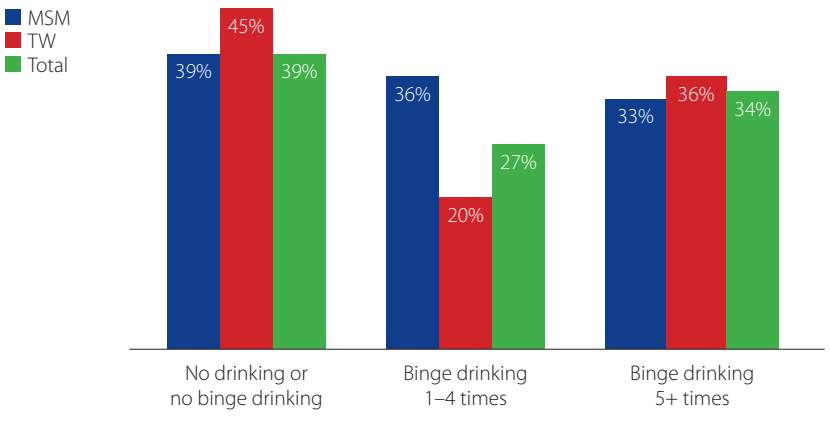
MSM who participated in this study

MSM in the study sample were young, with 69% of participants in the 18–24 year old age group. Most study participants had completed secondary school or had post-secondary education (62%). A substantial number of participants in the study were poor, with 27% reporting no monthly income, and 43% earning less than $250 per month. Forty-nine percent (49%) of participants self-identified their sexual orientation as gay or homosexual and 52% as heterosexual or bisexual. Forty-three percent (43%) reported that they were single, 43% reported being in a relationship with another man or transgender woman (43%), while only 13% reported being in a partnership with a woman at the time of the study.

Alcohol and drug use among MSM and transgender women

Sixty-two percent (62%) of participants consumed an alcoholic beverage during the 30 days prior to the survey. Sixty-one percent (61%) reported binge drinking in the previous 30 days. Figure 1 shows the level of drinking for all participants and by gender identity (MSM and TW). For the total sample, 39% reported no or low drinking, 27% reported moderate-frequency binge drinking, and 36% reported high-frequency binge drinking. A similar pattern was observed for MSM, of whom 39% reported no or low drinking, 28% reported moderate-frequency binge drinking, and 33% reported high-frequency binge drinking. The pattern varied slightly for TW, 45% of whom reported no or low drinking, 20% reported moderate-frequency binge drinking, and 36% reported high-frequency binge drinking. However, the apparent difference in the pattern of drinking for TW compared to MSM was not statistically significant.

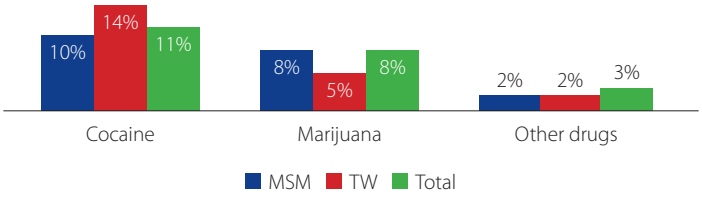
Figure 1—Level of binge drinking in last 30 days among MSM and TW



Percentages are weighted percentages calculated using RDSAT software; n=670.

Figure 2 shows illicit drug use for all participants and by gender identity. Cocaine was the most commonly used drug, followed by marijuana, and then all other drugs combined. Eleven percent (11%) of the total sample reported cocaine use, 8% reported marijuana use, and 3% reported other drug use in the last 30 days. The pattern was similar for MSM: 10% reported cocaine use, 8% reported marijuana use, and 2% reported other drug use. For TW, 11% reported cocaine use, 5% reported marijuana use, and 4% reported other drug use. There was not a statistically significant difference in the pattern of drug use between MSM and TW.

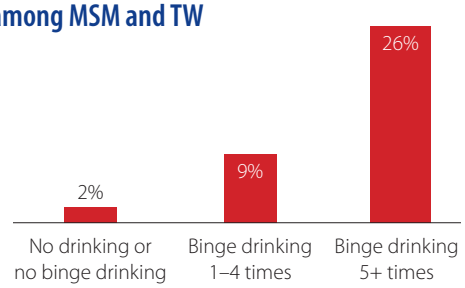
Figure 2—Illicit drug use among MSM and TW in last 30 days



Percentages are weighted percentages calculated using RDSAT software; n=670.

There was substantial overlap in alcohol and drug use in the last 30 days. Figure 3 shows that as the level of alcohol consumption increased the likelihood of reporting drug use (not including marijuana) also increased. Two percent (2%) of participants who reported no or low drinking reported drug use, 9% of participants who reported moderate-frequency binge drinking reported drug use, while 25% of participants who reported high-frequency binge drinking reported drug use. Conversely, 75% of participants who reported drug use also reported high-frequency binge drinking (results not shown in figure). The association between alcohol use and drug use was statistically significant.[1]

Figure 3—Illicit drug use in the last 30 days by level of binge drinking, among MSM and TW



*Percentages are weighted percentages calculated using RDSAT software; *p-value <=0.05, n=670.*

1) Similar results were noted for assessment of alcohol use and cocaine use only: 2% report cocaine among those in the no or low drinking category, 9% in the moderate binge drinking category, and 25% in the high binge drinking category. Differences were statistically significant at p<0.05

Socio-demographic characteristics and alcohol consumption

Factors that might influence the decision to use substances were analyzed in relation to alcohol consumption and drug use. First, socio-demographic characteristics and measures of economic vulnerability were explored. For alcohol consumption, there was no statistically significant difference in the pattern of consumption based on age. Persons who reported moderate binge drinking were more likely to have completed high school or have some tertiary training, while persons with less education were more likely to report high-frequency binge drinking. A marginally statistically significant relationship was observed for income and drinking, such that those with no income were more likely to report low or no drinking compared to those earning an income. A statistically significant relationship was also observed between homelessness and drinking such that persons who reported not having a place to sleep at least one night in the last six months were more likely to report moderate-frequency binge drinking and high-frequency binge drinking compared to no or low drinking.

For drug use, there was no statistically significant relationship based on age, nor homelessness and unstable housing. However, participants with a lower level of education were significantly more likely to report drug use than participants with a high school diploma or some post-secondary tertiary training. Participants earning no monthly income were more likely to use drugs than participants earning more than $250 a month.

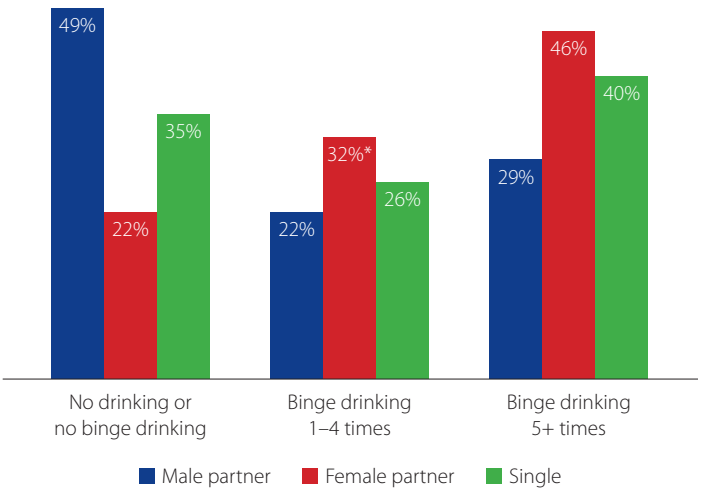
Alcohol use and relationship status

The degree to which someone has accepted their sexual orientation and shared this information with others was also explored as a factor that may influence substance use. We explored this possibility by assessing relationship status (either single, in a relationship with a man or TW, or in a relationship with a woman), level of disclosure of sexual orientation, and level of internalized homonegativity (IH) (feelings of self-hate and shame due to sexual orientation),[2] in relation to alcohol consumption and drug use.

2) For details about internalized homonegativity and its correlates please see the research brief "Internalized Homonegativity and Its Health-Related Consequences for MSM in El Salvador," available at the following URL: http://www.cpc.unc.edu/measure/publications/fs-14-96.

Figure 4 shows the level of binge drinking by the relationship status of the participant. Having a male partner demonstrates a protective effect for alcohol consumption, while having a female partner and being single increased the probability of binge drinking, especially high-frequency binge drinking. The probability of being in the no or low drinking category was higher for participants with a male partner, compared to those with a female partner or participants who were single (49% compared to 22% and 35%, respectively). Moderate-frequency binge drinking was more likely than no or low drinking among participants with a female partner and participants who were single compared to participants partnered with a man (32% and 26%, respectively, compared to 22%). The probability of high-frequency binge drinking compared to no or low drinking was also higher for both participants with a female partner and single participants compared to those with a male partner (46% and 40%, respectively, compared to 29%). These patterns of alcohol consumption by relationship status were statistically significant.

Figure 4—Level of binge drinking in last 30 days by relationship status, among MSM and TW

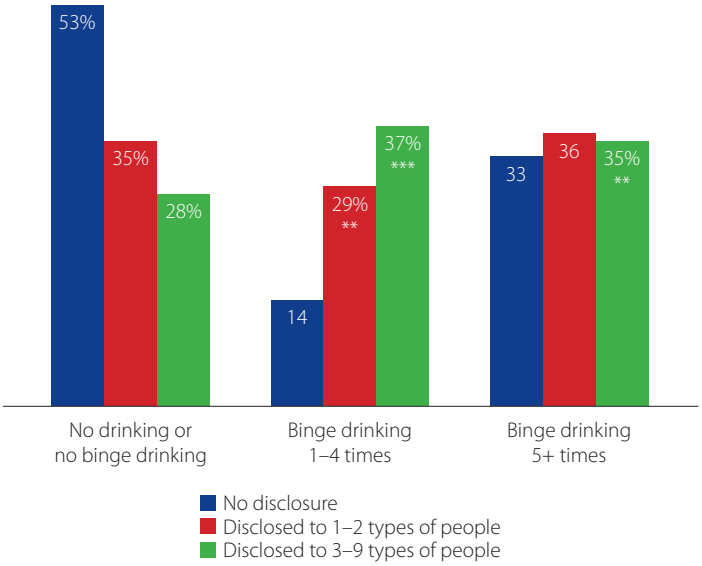


*Percentages presented are converted from the predicted probabilities calculated using a multinomial logistic regression (base category=no or low drinking). The model controlled for age, education, income, gender identity, sexual orientation, network size, social support, and disclosure of sexual orientation. *p-value <=0.05; **p-value<=0.01; n=656.*

Alcohol use and sexual orientation disclosure

Figure 5 shows the level of binge drinking by the number of different types of people to whom the participant had disclosed that s/he forms sexual relationships with men or TW (parents, siblings, friends, coworkers, health providers, etc.). The probability of no or low drinking was highest for participants who had not disclosed their sexual orientation to anyone (53%). The probability of no or low binge drinking decreased as the number of types of people to whom participants disclosed increased. Thirty-five percent (35%) who disclosed to 1–2 types of people and 28% of those who disclosed to 3–9 types of people were in this low-risk category. The probability of moderate-frequency binge drinking was higher for participants who had disclosed their sexual orientation to 1–2 and 3–9 types of people compared to no one (29% and 37% respectively, compared to 14%). Finally, the probability of high-frequency binge drinking was higher for participants who had disclosed to 3–9 types of people compared to no one (35% compared to 33%). These patterns of alcohol consumption by disclosure status were statistically significant. The apparent increased probability of high binge drinking for persons who had disclosed to 1–2 types of people compared to no one (36% compared to 33%) was not statistically significant.

Figure 5—Level of binge drinking in last 30 days by sexual orientation disclosure, among MSM and TW



*Percentages presented are converted from the predicted probabilities calculated using a multinomial logistic regression (base category=no or low drinking). The model controlled for age, education, income, gender identity, sexual orientation, network size, relationship status, and social support; *p-value<=0.05; **p-value<=0.01 ***p-value<=.001; n=656.*

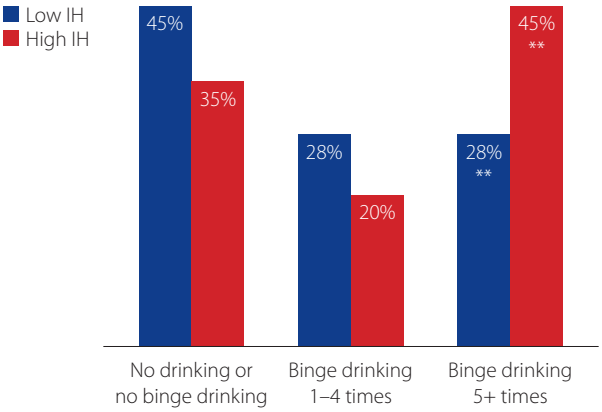
Alcohol use and internalized homonegativity (IH)

Figure 6 shows the level of binge drinking among MSM by level of IH.[3] The level of drinking increased as IH increased. MSM with low IH were less likely to report high-frequency binge drinking compared to

3) Analysis of IH is restricted to MSM only, since participants who identified as TW were not administered this module of the survey.

no or low drinking (28% compared to 45%), while MSM with a high level of IH were more likely to report high-frequency binge drinking compared to no or low drinking (45% compared to 35%). These differences were statistically significant. However, the contrast between moderate-frequency binge drinking and no or low drinking was not statistically significant across levels of IH (28% compared to 45% for low IH, and 20% compared to 35% for high IH).

Figure 6—Level of binge drinking in last 30 days by level of internalized homonegativity, among MSM



*Percentages presented are converted from the predicted probabilities calculated using a multinomial logistic regression (base category=no or low drinking). The model controlled for age, education, income, gender identity, sexual orientation, relationship status, MSM/TW social network size, social support, and disclosure of sexual orientation. **p-value <=0.01; n=468 (restricted to MSM participants).*

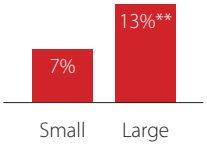
These same factors (relationship status, disclosure, IH) were also examined as potential correlates of drug use. In the bivariate analysis, there appeared to be increased likelihood for drug use among participants with a female partner compared to a male partner, but this association did not remain statistically significant when controlling for other important factors. There was no association between disclosure of sexual orientation to different types of people and drug use. There was also a marginally significant bivariate relationship between higher IH and greater likelihood of drug use that did not remain statistically significant when controlling for other important factors.

Drug use and engagement in the MSM and TW community

It has been suggested that while greater engagement with the MSM and TW community may be a protective factor for some health outcomes, it may actually increase the likelihood of substance use (17–19). The reason for this could be because the spaces that provide a platform for socializing with other MSM and TW persons may also increase exposure and access to substances (for example, bars, clubs and other entertainment venues).

To explore this hypothesis, we examined the size of participants' MSM/TW social network as a potential factor related to alcohol consumption and drug use. Participants were asked about the size of their MSM/TW social network using a series of questions that restricted inclusion in the social network to MSM and TW who were 18 years of age or older, who had lived or worked in San Salvador during the previous three months, who had seen the participant in the last two weeks, and whose name the participant knew and who knew the participant's name.[4] For all participants, the median number of MSM and TW in their social network was 10 (range 1–350).[5] Participants with a social network size of 10 or more MSM and TW were more likely to have used drugs in the last 30 days, and this difference was statistically significantly (Figure 7).

Figure 7—Illicit drug use in last 30 days by network size, among MSM and TW



*Percentages presented are converted from the predicted probabilities calculated using a logistic regression model that controlled for age, education, income, gender identity, sexual orientation, sex work in the last 12 months, social support, and disclosure of sexual orientation. **p-value<=0.01; n=660.*

Thirteen percent (13%) of participants with an MSM/TW social network size of 10 or more reported drug use, while 7% of participants with an MSM/TW social network size less than 10 did so. No association between network size and alcohol consumption was observed.

Substance use as a factor contributing to sexual risk behavior

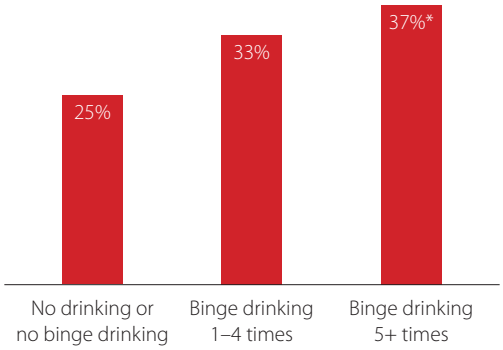
Alcohol consumption and drug use was assessed in relation to sexual risk behavior to understand the potential link between substance use and increased vulnerability to STI/HIV among MSM and TW. Substance use was associated with an increased risk for sex work and less condom use among sex workers. Thirty-four percent (34%) of the total sample reported sex work in the last 12 months. Figure 8 shows the

4) Questions to estimate social network size were the standard questions asked during RDS studies to weight data.

5) Excluding participants who report sex work in the previous 12 months (which might inflate their network size), the median number of MSM and TW in their social network was 8 (range 2–125). Analysis restricted to participants who did not report sex work in the previous 12 months yielded the same associations in relation to alcohol and drug use as presented for the total sample.

relationship between past-year sex work and alcohol consumption. As the level of drinking increased, the probability of reporting past-year sex work also increased. The report of past-year sex work was 25% for participants in the no or low drinking category, 33% in the moderate-frequency binge drinking category, and 37% in the high-frequency binge drinking category. The probability of reporting past-year sex work was statistically significantly higher among high-frequency binge drinkers compared to those in the no or low drinking category.

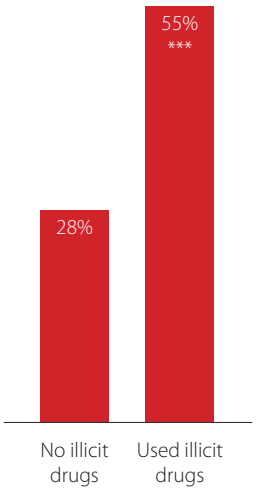
Figure 8—Sex work by level of binge drinking in last 30 days, among MSM and TW



*Percentages presented are converted from the predicted probabilities calculated using a logistic regression model that controlled for age, education, income, gender identity, and sexual orientation. *p-value <=0.05; n=667.*

Figure 9 shows past-year sex work by illicit drug use. The probability of reporting past-year sex work was statistically significantly higher among participants who reported using drugs in the past 30 days compared to those who did not use drugs (55% compared to 28%).

Figure 9—Sex work by illicit drug use in last 30 days, among MSM and TW

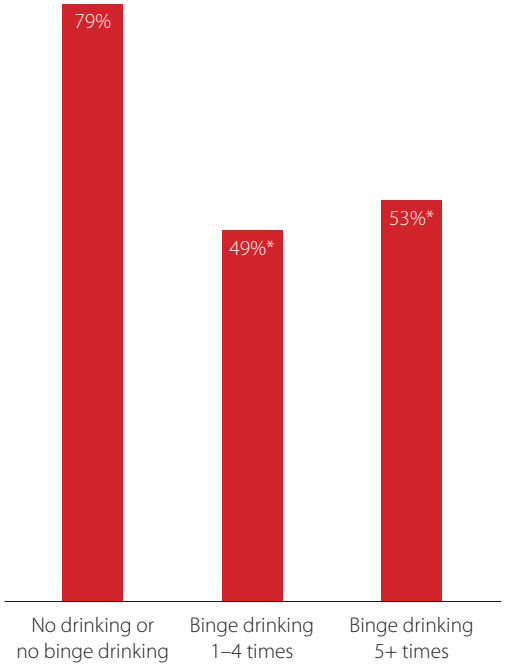


*Percentages presented are converted from the predicted probabilities calculated using a logistic regression model that controlled for age, education, income, gender identity, and sexual orientation. ***p-value <=0.001; n=667.*

Condom use was also examined in relation to substance use. Consistent condom use was defined as "always" using a condom with the last three sex partners in the last six months.[6] This was assessed for the total population combined, and then separately for participants who reported past-year sex work. For the total population, there was a trend demonstrating less consistent condom use with higher levels of alcohol consumption and drug use, but the associations did not remain statistically significant after controlling for socio-demographic variables. However, consistent condom use differed by level of substance use for participants who reported past-year sex work.

Figure 10 shows consistent condom use by alcohol consumption for participants who reported past-year sex work.

Figure 10—Consistent condom use by level of binge drinking in the last 30 days, among MSM and TW who report sex work in the last 12 months



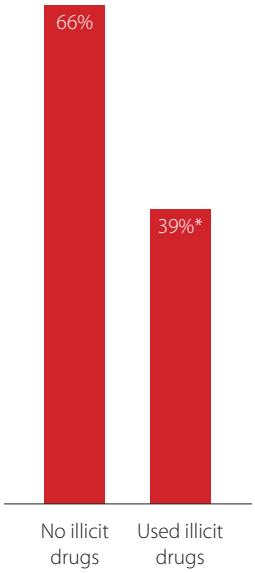
*Percentages presented are converted from the predicted probabilities calculated using a logistic regression model that controlled for age, education, income, gender identity, sexual orientation, HIV knowledge, having a risk sex partner, and perceived risk for HIV. The model was restricted to participants reporting past-year sex work. *p-value <=0.05; n=246.*

6) Consistent condom use with non-regular partners only was also assessed, defined as "always" using a condom with partners other than a regular partner for the last three partners in the last six months. Similar results were found when specifying consistent condom use with non-regular sex partners.

The probability of reporting consistent condom use decreased as the level of drinking increased. The probability of reporting consistent condom use was 79% among sex workers in the no or low drinking category, 49% in the moderate-frequency binge drinking category, and 53% in the high binge drinking category. The differences between the report of consistent condom use between the moderate-frequency and high-frequency binge drinking categories, compared to the no or low drinking category, were statistically significant.

Figure 11 shows consistent condom use among participants who reported past-year sex work by drug use. Among sex workers who did not use drugs in the last 30 days, 66% reported consistent condom use, while only 39% who used drugs did so. This difference was statistically significant.

Figure 11—Consistent condom use by illicit drug use in the last 30 days among MSM and TW who report sex work in the last 12 months



*Percentages presented are converted from the predicted probabilities calculated using a logistic regression model that controlled for age, education, income, gender identity, sexual orientation, HIV knowledge, having a risk sex partner, and perceived risk for HIV. The model was restricted to participants reporting past-year sex work. *p-value<=0.05; n=246.*

Other sexual risk behavior variables that were assessed but were not associated with substance use include having sexually concurrent partnerships in the last six months, having multiple sexual partners in the last six months, having a high-risk sexual partner, and having bought sex in the last 12 months. Age discordance (report of a partner 10+ years older than the participant in the last six months) was more likely among participants who used drugs, but this association did not remain statistically significant when controlling for other important factors. Similarly, the number of lifetime sex partners increased as alcohol consumption increased, but this association did not remain statistically significant when controlling for other important factors.

Summary

Alcohol consumption was common for MSM and TW in this study and in excess of what has been observed for the general population in El Salvador (20). Given the age of participants, and norms for alcohol consumption in El Salvador, especially among men, some level of alcohol consumption likely mirrors social behavior related to alcohol use in the general population. However, the percent who report binge drinking in a 30-day period is substantially higher compared to estimates for the general population (61% in this study of MSM and TW, compared to 16% of men and 5% of women in the general population (20)). Relationship stability was a protective factor for alcohol use. Participants reporting a stable male partner were less likely to report alcohol consumption. This is consistent with research from other settings (21). The association between frequency of binge drinking and measures of distress and disclosure related to one's sexual orientation support the hypothesis that alcohol consumption may be used as a coping mechanism by MSM and TW rather than only for recreational purposes. Drug use, however, did not follow this same pattern. Increased drug use was related to participant's social network size, indicating that greater connection to the MSM and TW community may be harmful in terms of drug. While there are many potential positive aspects to connection to the MSM and TW community, the data from this study indicate that having too large of a network may represent other risks for drug use. This should be explored further, and may be related to being on the "party scene" and thereby knowing more MSM and TW (12, 18, 19). Overall, participants who have come to terms with their sexual orientation, and have a stable male partner, may be less likely to frequently attend entertainment venues where alcohol and drug use is more common, and where they are more likely to meet other MSM and TW, increasing their network size. The health risks associated with alcohol consumption and drug use include sex work, and among sex workers, a lower level of consistent condom use. This finding indicates that it is critically important to address STI/HIV risk at the intersection of sex work, alcohol use, and drug use for MSM and TW.

Recommendations

Focus on cross-over programming to address substance use among sex workers: In this and other studies (12, 14, 16) there is a strong relationship between substance use (both binge drinking and drug use) and the report of sex work. Data from this study also indicate that as alcohol consumption and drug use increase, the likelihood of consistent condom use decreases among sex workers. This is alarming as male sex workers are one of most vulnerable groups for HIV, and may also be central to the structure of networks that facilitate epidemic levels of infection (22, 23). Persons who sell sex face the same motivations for substance use as noted for other MSM and TW. In addition, MSM and TW who sell sex may also use substances as a way to numb the experience of sex work, and because there is increased occupational exposure to substance use at the venues where sex exchange occurs (24). Given these influences, it may be difficult to eliminate alcohol use altogether. Another approach would be to focus intervention programs on preventing binge drinking. Interventions that address some of the challenges of sex work (for example, working through the night, anxiety as a result of police harassment or sexual assault) may also help reduce binge drinking and substance use among sex workers. Supporting alternative means of income generation, and assisting MSM and TW sex workers in gaining economic stability (for example, through assistance setting up bank accounts) is also important.[7] More ethnographic work describing the use of substances among MSM and TW sex workers and motivations is needed to design appropriate substance use interventions for this population.

Promote interventions to eliminate stigma experienced by MSM and TW and related stress: There are several indications from the findings in this study that stigma related to sexual orientation and gender identity increase binge drinking. Binge drinking increased as the number of types of people to whom one disclosed increased. In some cases it would be expected that increased disclosure would have the opposite association with binge drinking. For example, persons more comfortable with their sexual orientation may be more likely to disclose and less likely to binge drink due to stigma-related stress. However, other research studies have shown that the reaction received from others when disclosing is more important than the number of people to whom one has disclosed (18, 25). In one study, experiencing positive reactions to disclosure was shown to cancel out the effect of receiving negative reactions to disclosure on excessive alcohol use (18). Taken together, the findings from this and other studies indicate the importance of positive reactions to disclosure from friends, family and other allies. This form of support system is important to mitigate internal stigma, captured in this study as internalized homonegativity (IH). As this form of stigma increased, substance use also increased. An additional approach to reducing IH is through cognitive-behavioral therapy (CBT), a form of counseling where clients are guided in ways to reduce negative thought patterns related to a problem (in this case IH and substance use). Changes in the way persons think about problems is then linked to changes in behavior. CBT has also been shown to reduce substance use in MSM populations (26).

Encourage positive social interactions within the MSM and TW community: Measures of connection to the MSM and TW community demonstrated both positive and negative effects in this study. On the one hand, being in a stable partnership with another MSM or TW was protective against binge drinking. This may be because persons in a stable partnership are more comfortable with their sexual orientation, and may be less likely to frequent bars and other entertainment venues for the purpose of meeting a romantic or sexual partner. Drinking may be more likely at these venues. On the other hand, report of a larger social network (10+ other MSM and TW) increased the risk of illicit drug use. This is consistent with findings from other studies that demonstrate an increased likelihood of substance use with increased connectivity to the MSM and TW community (17, 18). However, a limitation of the measure of "connectivity" in this study that should be considered is that it captures only the quantity of social ties, rather than characteristics of those ties that might assist in our understanding of how and why these relationships influence substance use behavior. Better understanding of the positive and negative aspects of relationships, and the culture within the MSM and TW community could also inform interventions for substance use. For example, in the "Proyecto SOL"

7) For more information on correlates of sex work and possible interventions see the related brief titled, "The Social Determinants of Health for MSM and Transgender Women in San Salvador," available are URL: http://www.measureevaluation.org/publications/fs-14-108b

intervention developed for Hispanic MSM in the United States, reflection on differing social contexts, social and sexual relationships, and their association to substance use and sexual risk behavior is incorporated as part of a behavior change strategy for individuals (17). A similar approach would be to focus on the potential positive aspects of community engagement for example, activities that focus on community advocacy, sports clubs, or professional advancement in lieu of bar or party environments. An emphasis on social responsibility could also be beneficial, for example through HIV prevention volunteer activities. Both positive community engagement and social responsibility have been shown to decrease the likelihood of substance use and sexual risk behavior for MSM in the US (27).

Conduct qualitative research on binge drinking and drug use among MSM and TW: The findings of the present study warrant further investigation into the motivations for binge drinking and drug use among MSM and TW in El Salvador in an open-ended format. This would allow a deeper understanding into the issues raised in the current study, which is limited by the quantitative nature of the data. Event histories that chronicle the specific circumstances under which binge drinking and drug use occurs would help differentiate between individual and contextual motivations for substance use. Similarly, retrospective life histories would assist in our understanding of events that trigger initiation of alcohol and drug use, and promote use over the evolution of development trajectories. This would allow for a more nuanced understanding of cause-and-effect in relation to substance use and sexual risk than a cross-sectional investigation. This type of research would be particularly useful in understanding the relationship between disclosure, connection to the MSM and TW community, and substance use.

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