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Syndemic factors associated with drinking patterns among Latino men and Latina transgender women who have sex with men in New York City

Omar Martinez[a], **Elwin Wu**[b], **Ethan C. Levine**[c], **Miguel Muñoz-Laboy**[d], **Joseph Spadafino**[e], **Brian Dodge**[f], **Scott D. Rhodes**[g], **Javier López Rios**[h], **Hugo Ovejero**[i], **Eva M. Moya**[j], **Silvia Chavez Baray**[j], **Alex Carballo-Diéguez**[h], and **M. Isabel Fernandez**[k]

[a]Temple University School of Social Work, Philadelphia, PA, USA

[b]School of Social Work at Columbia University, New York, NY, USA

[c]Department College of Liberal Arts at Temple University, Philadelphia, PA, USA

[d]College of Public Health at Temple University, Philadelphia, PA, USA

[e]Bureau of Public Health Statistics, Phoenix, AZ, USA

[f]School of Public Health at Indiana University - Bloomington, Bloomington, IN, USA

[g]Wake Forest School of Medicine, Winston-Salem, NC, USA

[h]HIV Center for Clinical and Behavioral Studies at the New York State Psychiatric Institute and Columbia University, New York, NY, USA

[i]Lutheran Family Health Center, Brooklyn, NY, USA

[j]School of Social Work at the University of Texas at El Paso, El Paso, TX, USA

[k]Department of Public Health at Nova Southeastern University, Fort Lauderdale, FL, USA

Abstract

Alcohol consumption is a significant public health concern among Latino men and Latina transgender women who have sex with men. However, characteristics and behaviors associated with alcohol consumption in this population, particularly in regard to the complex influence of syndemic factors, remain understudied. The purpose of this study was to examine predictors of high-risk alcohol consumption (i.e. binge or heavy drinking). Between January and March of 2014, 176 Latino men and Latina transgender women in New York City completed an interviewer-administered questionnaire. We developed a syndemics scale to reflect the total number of syndemic factors – clinically significant depression, childhood sexual abuse, intimate partner violence, and discrimination – reported by each participant. We also carried out a multinomial logistic regression model predicting binge and heavy drinking. Forty-seven percent of participants reported high-risk alcohol consumption in the past 30 days (21% binge and 26% heavy).

CONTACT Omar Martinez, omar.martinez@temple.edu, Temple University School of Social Work, Ritter Annex, 505, Philadelphia, PA, 19122, USA.

Disclosure statement

All authors declare that they have no conflicts of interest.

Approximately 16% of participants reported no syndemic factors, 27% reported one factor, 39% reported two factors, and 18% reported three or four. In the multinomial logistic regression model, our syndemic factors scale was not significantly associated with binge drinking. However, participants who reported three or four factors were significantly more likely to report heavy drinking. In addition, having multiple sexual partners was associated with an increased risk of binge and heavy drinking; involvement in a same-sex relationship was associated with binge drinking. Further work is needed to develop effective prevention intervention approaches for high-risk alcohol consumption within this population.

Keywords

Syndemic factors; binge drinking; heavy drinking; mental health; intimate partner violence; Latino MSM; Latina transgender women; sexual behaviors

Introduction

Substance use, particularly alcohol consumption, poses a significant public health problem for Latino men in the United States. While Latino men drink less overall than White men, they are more likely to abuse alcohol and to report negative alcohol-related consequences such as legal problems, financial and work-related difficulties, and conflicts with friends and partners (Mulia et al. 2009). Additionally, the causes of risky drinking among Latino men – and consequently, best strategies for designing interventions – may differ from those of other racial/ethnic populations. Many utilize alcohol as a coping mechanism to mitigate the depression and anxiety that are associated with such stressors as acculturation challenges, racial and ethnic discrimination, and economic hardship, among others (Alaniz & Einstein 2002; Hersch et al. 2002; Kim-Godwin & Bechtel 2004; Rachlis et al. 2007; Kissinger et al. 2013; Daniel-Ulloa et al. 2014). Additionally, when Latino men are distinguished by ethnicity, some populations do engage in heavier consumption than White men. Mexican Americans, for example, are particularly likely to report engaging in both forms of risky drinking identified by the Substance Abuse and Mental Health Services Administration (SAMHSA 2015): *binge drinking*, or the consumption of 5 or more alcoholic beverages in a single session, and *heavy episodic drinking*, or engagement in binge drinking on 5 or more days within a 30-day period (Guerrero et al. 2013; Banta et al. 2014; Daniel-Ulloa et al. 2014).

Whereas heterosexual Latino men in the United States must contend with ethnic prejudice and discrimination, and in many cases also with challenges related to acculturation, Latino men who have sex with men (MSM) must further contend with homophobia. The joint effects of ethnic and sexual marginalization may exacerbate health risks, including engagement in risky alcohol consumption (Mizuno et al. 2012). Indeed, high rates of alcohol and other substance use have been documented among Latino MSM (Cochran et al. 2000; Irwain & Morgenstern 2005; Celentano et al. 2006; Bruce et al. 2008; Ramirez-Valles et al. 2008; Martinez et al. 2011; Pollock et al. 2012; Balán et al. 2013).

While concerning in and of itself, heavy alcohol consumption among Latino MSM is associated with numerous psychosocial risk factors. Substance use, particularly alcohol, has

been associated with multiple health issues including injury (Steinhorst et al. 2006), HIV infection (Shrier et al. 1997; Varela-Ramirez et al. 2005), and social problems such as intimate partner violence and incarceration (Kim-Godwin & Fox 2009; Valera et al. 2009; Devries et al. 2014). Research with Latino men, including some focused specifically on Latino MSM, has found associations between the heavy use of alcohol and condomless anal intercourse (Dolezal et al. 2000), multiple sex partners (Althoff et al. 2013), and an increased risk of depressive symptoms (Vasquez et al. 2011). Research with transgender women has also found high rates of alcohol consumption, and associations between alcohol use and sexual risk behaviors, though there has been little emphasis on Latina transgender women specifically (Sevelius et al. 2009; Sevelius 2012; Santos et al. 2014). Successful interventions will require a more comprehensive understanding of the factors that influence alcohol consumption. However, many investigations of drinking patterns specifically among Latino MSM, including those cited above, treat alcohol as an independent rather than dependent variable and therefore offer little in the way of recommendations for treatment and prevention for risky drinking in this population.

Syndemics theory offers a promising approach for investigating alcohol consumption within this population. This perspective emphasizes patterns whereby multiple epidemics co-occur (Singer et al. 2006). Moreover, syndemics theory conceptualizes that diseases and social conditions not only co-occur but also interact with one another such that the cumulative impact of experiencing the co-occurring conditions is greater than experiencing its constituent maladies in isolation would be (Singer & Clair 2003; Klein 2011). An understanding of syndemics as comprised of ‘intertwined and mutually enhancing epidemics’ that are informed and maintained by social conditions distinguishes this approach from those that emphasize comorbidity without considering synergistic interactions among biological and social factors (Singer & Clair 2003, p. 429).

Syndemics theory directs us to consider a range of social and medical/biological factors that may affect and interact with drinking patterns. Prior studies with MSM and transgender women who have sex with men indicate that depression, childhood sexual abuse, intimate partner violence, and discrimination (sometimes characterized as stigma or stigmatization) represent syndemic influences on risk behaviors in these populations (Brennan et al. 2012; Halkitis et al. 2012; Santos et al. 2014; Starks et al. 2014). Among these factors, researchers have further documented notably high rates of childhood sexual abuse among Latino MSM (Carballo-Diéguez & Dolezal 1995; Ayala et al. 1999; Dolezal & Carballo-Diéguez 2002); however, the influence of such experiences on drinking patterns remains understudied. The present study extends this literature through a specific focus on Latino MSM, and through our inclusion of drinking patterns as an outcome variable. The works cited above recruited multiracial samples, and assessed syndemic influences on HIV infection and sexual risk behaviors. However, just as alcohol consumption may influence behaviors such as engagement in or abstention from condomless intercourse, consumption may also be influenced by a confluence of additional syndemics. Latino MSM and Latina transgender women may turn to alcohol as a means of coping with concurrent struggles with depression, violence and discrimination, particularly if they lack social support systems (Mizuno et al. 2012; Sevelius 2012; Gilbert et al. 2014; Nuttbrock et al. 2015).

Of course, these syndemic factors are by no means the only influences on drinking patterns. Childhood sexual abuse and situational contexts also play an important role in the health and well-being of Latinos (Viruell-Fuentes & Schulz 2009), and can potentially impact behaviors (Wolitski 2002; Muñoz-Laboy & Dodge 2005; Munoz-Laboy et al. 2009). The prevailing social context in many regions in the United States imposes isolation and vulnerability. It includes hostile attitudes by host communities; lack of LGBT friendly policies and/or policies that would permit documentation or work authorization; and lack of sustainable public health infrastructure and programs that are culturally and linguistically appropriate (Quesada 2011; Worby & Organista 2013). Latinos who face challenges associated with acculturation, such as language barriers and the ongoing difficulties of maintaining transnational ties and identities, may turn to alcohol to cope with such stresses (Blanco et al. 2012; Caetano et al. 2012). Relationship status may further influence the risk of binge and heavy drinking (Fischer & Wiersma 2012; Peacock et al. 2015). Latino MSM couples may participate in or abstain from alcohol consumption together; consequently, relationship status may operate as either a risk or protective factor. High-risk alcohol consumption among Latino MSM should therefore be further explored through the lens of social and situational contexts.

As Latinos become largest growing minority group in the US, and immigrant communities continue to emerge and evolve, more research is needed to understand high-risk alcohol consumption among Latino men and Latina transgender women who have sex with men to help inform intervention programs. Our syndemics-informed approach enables us to consider the cumulative impact of multiple risk factors, while also controlling for other influences on alcohol consumption including acculturation, relationship status, and a range of demographic characteristics. Moreover, given that much of the previous work on alcohol and other substance use among Latino men and Latina transgender women has been conducted with acculturated Latinos, our study extends this literature through its inclusion of recently arrived and/or predominantly Spanish-speaking participants. We hypothesized that a syndemic of psychosocial conditions would be associated with drinking patterns among Latino men and Latina transgender women who have sex with men. More specifically, we expected that syndemic risk factors such as depression, intimate partner violence, and childhood sexual abuse would be associated with an increased likelihood of binge and heavy drinking.

Methods

Participants

We employed a cross-sectional study design that began enrollment in January 2014 and ended in March 2014. Recruitment occurred via direct contact and flyer distribution, word of mouth referral, social media networks such as Facebook and Grindr, and community-based organizations. Purposive stratified sampling was used to diversify the sample in terms of country of origin, race/ethnicity, HIV status, HIV/STI testing history, and previous involvement in HIV research. We solicited input from a community advisory board in order to ensure that recruitment materials were accessible and appropriate, and to identify promising recruitment venues. Social media served as an especially powerful tool,

particularly for reaching members of the Latino MSM community considered ‘hard to reach’ (Martinez et al. 2014). Through incorporating such venues as Facebook and Grindr, we were able to recruit a more diverse group of participants, including many who were not actively seeking services or otherwise involved with community-based organizations. Participants were invited to complete a phone or in-person questionnaire that addressed a range of issues including but not limited to alcohol use, mental health, sexual behaviors, relationship status and demographic characteristics. A total of 176 participants completed the questionnaire. As a secondary aim of this study, and in recognition of the fact that Latino men and Latina transgender women who have sex with men comprise an underserved population, we attempted to connect potential and actual study participants with services as appropriate.

All participants were adult Latinos residing in New York City. While the majority of participants were cisgender men (i.e. individuals who were assigned male at birth, identify as men, and do not identify as transgender), it should be noted that some participants identified as transgender or transsexual women. There may also have been transgender or transsexual men in our sample, although no participants disclosed such identities.

Ethics information

The study was approved by the New York State Psychiatric Institute Institutional Review Board. We further obtained a National Institutes of Health Certificate of Confidentiality in accordance with the Public Health Service Act 42 U.S.C. 241(d) to ensure privacy. All participants provided oral informed consent; we were granted a waiver of written consent due to the minimal risk of harm to participants. While we did not provide financial incentives, we collaborated with participants to identify unmet health needs and provide appropriate resources and referrals as part of the screening process.

Measures

Demographic characteristics—Demographic characteristics included age; country of origin; sexual identity; language spoken, written, and read (specifically English vs. Spanish); time in the United States; employment status; education; medical insurance; and recruitment venue. Language proficiency, nation of origin, and time in the United States were all selected as measures of acculturation, given that experiences associated with assimilating into or declining/struggling to assimilate into U.S. culture may affect drinking patterns (Zemore 2007; Caetano et al. 2009).

High-risk alcohol consumption—Our measures for drinking patterns were based on recommendations from the SAMHSA (2015). Participants were asked whether they ever had consumed 5 or more alcoholic beverages in a single occasion; those who answered ‘yes’ were then asked how many times they had done so in the previous 30 days. As in prior research (O’Brien et al. 2008; SAMHSA 2015), high-risk alcohol consumption was operationalized as: binge drinking (5 or more alcoholic drinks on the same occasion on at least 1 day in the past 30 days) or heavy drinking (5 or more alcoholic drinks on the same occasion on each of 5 or more days in the past 30 days). Given the possibility that heavier consumers face distinct issues, these participants were classified as an entirely separate group. In other words, those who reported binge drinking on between 1 and 4 days in the

past 30 days were classified solely as binge drinkers, whereas those who reported binge drinking on at least 5 of the past 30 days were classified solely as heavy drinkers. This divided our sample into three distinct drinking patterns: binge drinking, heavy drinking, and no high-risk consumption.

Clinically significant depressive symptoms—Clinically significant depressive symptoms were measured using the short 10-item Center for Epidemiological Studies Depression (CES-D 10) scale. This scale has been found both valid and reliable for the screening of depressive symptoms among a wide range of populations and groups (Kohout et al. 1993; Cheng & Chan 2008; Wendy et al. 2012), including Latinos (Robison et al. 2002; Rhodes et al. 2010). Cut-off points of 8 and 10 have been used with the CES-D 10 to classify subjects with significant depressive symptoms (Darnall et al. 2005). We used the more conservative cut-off point of 10 because it is equivalent to a cut-off point of 20 for the full-length, 20-item CES-D (Andresen et al. 1994), and is thus more stringent than the commonly used cut-off point of 16 (Pignone et al. 2002; Darnall et al. 2005). In addition, internal consistency of the 10-item CES-D scale was confirmed by a Cronbach's alpha test ($\alpha = 0.86$).

Relationship status—Relationship status was assessed by inquiring whether participants were presently in a relationship with another man. As this study utilized data from a larger project on Latino men in same-sex relationships, we only asked about relationships with men.

Multiple partners—As a further measure of sexual and romantic social networks, we asked participants to report the number of male partners they had had over the previous three months; all who reported 2 or more were coded as having multiple partners.

Intimate Partner Violence (IPV)—Participants were asked about previous experiences of IPV, including incidents of victimization and perpetration. We based our IPV measures on the Revised Conflict Tactics Scale (CTS2; Straus et al. 1996). Importantly, this assessment was limited to physical IPV; participants were asked whether they had been 'hit, slapped, kicked, or otherwise physically hurt' by their partners in the previous year, or whether they had likewise harmed their partners in their previous year. Consistent with prior literature on syndemics (e.g. Santos et al. 2014), we only incorporated reports of victimization into bivariate and multivariate analyses.

Childhood sexual abuse (CSA)—Participants were asked whether they had experienced any sexual activity before the age of 17. Those who answered 'yes' were then asked whether any such activity was 'forced' or 'coerced'. All participants who answered 'yes' to this follow-up question were classified as having experienced CSA. It should be noted that this measure is somewhat conservative and may underestimate the prevalence of CSA. Some participants who experienced exclusively nonconsensual sexual contact in childhood might have answered 'no' to our initial question, and thus not have been asked about forcible or coercive experiences.

Discrimination—We asked participants whether they had ever experienced discrimination in any of the following areas: getting hired, or during performance evaluations at work; pursuing housing, including pursuing a lease, credit, loans or a mortgage; in medical care, including HIV/STI testing; while getting services in a store or restaurant, or in a public setting; or from police or courts. Those who answered 'yes' to any of these questions were coded as having experienced discrimination.

Syndemic factors scale—We produced a syndemics scale ranging from 0 to 4, reflecting participants' total reports of each of the following factors: clinically significant depression, childhood sexual abuse, intimate partner violence (victimization only), and discrimination. Due to sample size concerns, we collapsed participants who reported three or four factors into a single category for bivariate and multivariate analyses.

Other characteristics—Participants were also asked about HIV status and the overall quality of their health on a scale ranging from 0 (poor) to 4 (excellent).

Data analysis

Methodologically, syndemics theory guides researchers to consider the cumulative impact of multiple risk factors rather than the impact of each factor in isolation. To that end, we developed a syndemics scale to reflect the total number of syndemic factors – clinically significant depression, childhood sexual abuse, intimate partner violence, and discrimination – reported by each participant. Possible correlates of high-risk alcohol consumption were then examined using bivariate, multinomial logistic regression models that compared participants' likelihood of engaging in either binge or heavy drinking with their likelihood of not reporting any high-risk consumption. All measures described above – sexual identity, age, primary language, ethnic identity, being born in the United States, time spent in the United States, education, employment status, health insurance status, overall quality of health, multiple relationship status, sexual partners, HIV status, sexual activity before age 17, childhood sexual abuse, clinically significant depression, intimate partner violence, (victimization only), discrimination and our syndemics scale – were incorporated into these analyses. We then constructed a multivariate, multinomial logistic regression model to assess the adjusted odds ratios (ORs) of participant reports of binge and heavy episodic drinking. Adjusted ORs are interpreted as the increase/decrease in the odds of reporting the specified levels of high-risk alcohol consumption (binge drinking and heavy drinking) relative to the odds of reporting no high consumption in the past 30 days. The multinomial regression model was constructed such that only predictors that were significant in bivariate analyses (i.e. $p < 0.05$) were included in the final multivariate model, with the exception that we incorporated the syndemics scale and did not include the individual factors comprising the scale. We also examined possible multicollinearity between the significant covariates included in the final model using variation inflation factor (VIF). The test indicated the absence of any such multicollinearity. All analyses were executed using SAS version 9.4.

Results

Summary statistics

Descriptive demographic characteristics of the sample and summary statistics on covariates included in the analysis are provided in Tables 1 and 2. The average age was 33 years, and the majority of participants were between ages 25 and 44. In this sample of Latino men and Latina transgender women, a considerable majority (n = 125, 71%) were born outside of the United States; of these participants, 27% were born in Mexico, and 23% in the Dominican Republic. Of those participants born in the United States (n = 50, 29%), more than half were born in Puerto Rico (n = 29, 58%). Most participants self-identified as gay (n = 148, 85%), and a smaller but substantial number self-identified as bisexual (n = 20, 10%). Four participants self-identified as transgender and/or transsexual, and three as 'other'.

In terms of language preference, more than half of the participants reported speaking, reading and writing only in Spanish (n = 66, 38%) or doing so Spanish better than English (n = 33, 19%). Most of the participants reported being in the United States for more than 12 months (n = 114, 65%); however, a substantial number reported being in the United States for fewer than 12 months (n = 62, 35%). Most participants were employed full time (n = 66, 38%) or part-time (n = 29, 16%). A substantial number reported being unemployed (n = 74, 43%), and a small number of participants (n = 5, 3%) reported being disabled and therefore unable to work. Most participants had at least a high school diploma or GED (n = 53, 30%) and 27% of participants (n = 46) reported having some college. Some participants reported having less than a high school diploma (n = 14, 8%) or no formal education (n = 10, 6%). The majority of the participants reported having medical insurance (n = 104, 59%). In terms of recruitment, most of the participants were recruited through social media. However, some were recruited through community-based organizations and study participant referrals to friends and other couples.

Almost half of the sample (47%) reported engaging in high-risk alcohol consumption in the past month, whether binge drinking or heavy drinking (21% and 26% respectively). The level of clinically significant depressive symptoms was also high; 68% of the cohort met the criterion for being clinically significantly depressed. Most participants reported having more than 1 male partner in the past 3 months. Participants further reported a mean of 26.4 acts of anal intercourse in the past 3 months (SD = 36.6), and a mean of 13.3 acts of anal intercourse where a condom was used (SD = 20.8). A majority of participants further reported at least one act of condomless anal intercourse in the past 3 months (n = 97, 55%). Most participants reported having at least one current relationship with another man (n = 118, 67%) and among them, most reported a relationship duration of more than 12 months (n = 71, 60%). A small number of participants reported intimate partner violence as victim (n = 13, 7%) and/or as perpetrator (n = 14, 9%). A substantial number self-reported HIV positive status (n = 60, 34%), and some reported never having been tested (n = 12, 7%). Most of the participants reported having sex before the age of 17 (n = 130, 74%); within this group, a substantial number (n = 39, 30% among those who reported sexual activity, or 22% of the full sample) reported that at least some of their sexual activity before the age of 17 was coercive or forced. A substantial majority reported having good (n = 50, 29%), very

good (n = 35, 20%) or excellent (n = 47, 26%) overall quality of health. Nearly two-thirds had previously experienced discrimination (n = 110, 63%). Approximately 1 in 6 participants reported no syndemic factors (n = 28, 16%), and one quarter reported one factor (n = 46, 27%). Almost 40% reported two factors (n = 67, 39%), and approximately one fifth reported three or four factors (n = 32, 19%).

Bivariate analysis

Table 3 displays the ORs, 95% CIs, and significance levels for bivariate multinomial regressions, regarding the likelihood of reporting binge or heavy drinking relative to the likelihood of reporting no high-risk consumption. Respondents who reported having more than one sexual partner were more likely to screen for heavy drinking than those who reported having one partner or none. Respondents in a relationship with another man were more likely than those who reported being single to screen for binge drinking, but not for heavy drinking. All four syndemic factors (clinically significant depression, childhood sexual abuse, intimate partner violence, discrimination) were associated with an increased likelihood of heavy drinking. Participants who reported three or four syndemic factors were significantly more likely to report heavy drinking than those who reported no such factors. Neither the syndemics scale, nor the individual factors incorporated into this scale, was significantly associated with binge drinking.

Multinomial logistic regression

The results of the multinomial logistic regression analyses are shown in Table 4. Analysis revealed that having multiple partners was associated with both binge and heavy drinking (OR = 2.34, 95% CI [1.01, 5.42], $p < 0.05$ and OR = 4.87, 95% CI [2.03, 11.72], $p < 0.001$, respectively). Having a relationship with another man significantly increased the odds of binge drinking (OR = 4.23, 95% CI [1.56, 11.42], $p < 0.01$) and marginally increased the odds of heavy drinking (OR = 2.15, 95% CI [0.90, 5.15], $p < 0.10$). Our syndemic factors scale was not significantly associated with binge drinking. However, participants who reported three or four factors were significantly more likely than those who reported none to engage in heavy drinking (OR = 10.57, 95% CI [2.32, 48.04], $p < 0.01$).

Discussion

This study sheds new light on the high and perhaps alarming levels of alcohol consumption, clinically significant depressive symptoms, discrimination, and childhood sexual assault among urban, predominantly Spanish-speaking Latino men and Latina transgender women (47%, 68%, 63% and 22% respectively). Each of these factors is known to have a significant public health impact; their collective prevalence in this sample demonstrate a need to conduct further research with and design culturally appropriate interventions for this population.

Our findings further point to the value of a syndemic approach to alcohol use among Latino men and Latina transgender women who have sex with men; rather than considering drinking patterns in isolation, researchers and providers should consider the complex interactions among drinking patterns and other factors such as experiences of discrimination,

sexual and intimate partner violence and depression. Consistent with our predictions, the results of the multinomial regression analyses indicated that the cumulative impact of multiple syndemic factors may increase the odds of high-risk drinking among Latino men and Latina transgender women who have sex with men. Participants who reported three or four factors were significantly more likely than those who reported no such factors to engage in heavy episodic drinking. That being said, our syndemic factors scale was not associated with binge drinking in bivariate or multivariate analyses. The nature of the associations and possible causal links among syndemic factors and drinking patterns should be systematically explored among Latino men and Latina transgender women who have sex with men, specifically in the context of HIV transmission and clinical care for those affected and impacted by the virus.

It is possible that these findings relate to the challenges of operationalizing high-risk drinking. Perhaps heavy drinking, characterized by five or more nights of binge drinking within a 30-day period, indicates the use of alcohol as a coping mechanism. Latino MSM and Latina transgender women who face multiple syndemic factors may turn more frequently to alcohol (and/or other substances) to mitigate these ongoing challenges. Occasional binge drinking, on the other hand, may be inadequate to serve as a coping mechanism in this regard. Individuals who report binge drinking might do so for entertainment, or because they sometimes spend time with friends and partners who also consume alcohol, rather than as a means of escaping ongoing violence, discrimination and depression.

Our study builds on previous work that has shown that high-risk alcohol consumption is associated with having multiple partners among Latino gay men (Bruce et al. 2008; Ramirez-Valles et al. 2008), and further presents that this association is also valid for predominantly Spanish-speaking Latino gay men, a neglected population highly vulnerable to HIV acquisition. Our findings also build on the scarce literature regarding associations between high-risk alcohol consumption and relationship status (Koblin et al. 2003), in particular among predominantly Spanish-speaking Latino men in same-sex relationships. Interestingly, in multivariate models, being in a same-sex relationship significantly increased participants' odds of heavy drinking, but only marginally increased their odds of binge drinking. This reinforces the complexity of current literature on relationship status and alcohol consumption among Latino men and Latina transgender women who have sex with men, particularly in regard to the capacity of partnerships to function as either a risk or a protective factor. It may also be that romantic partners are generally likely to drink together, which contributes to an increased likelihood of occasional nights of binge drinking, but that these relationships also serve as a protective factor against riskier levels of consumption.

Relationship status may also impact sexual expectations and behaviors, including decisions regarding consumption before sexual activity. Parsons and colleagues (2004) found that African American and Latino MSM often consume alcohol to lower their inhibitions before sex (see also Mutchler et al. 2014). In this context, Latino men and Latina transgender women in relationships might consume more alcohol due to their tendency to have more frequent sexual encounters. Latino men and Latina transgender women in healthy, sexually affirming relationships might feel fewer inhibitions to begin with, and thus be less likely to

engage in such consumption (i.e. relationship status as a protective factor). Alternatively, Latino men and Latina transgender women in abusive relationships, or who do not feel comfortable engaging sexually with their primary partners, may still turn to alcohol (i.e. relationship status as a risk factor). Relationship agreements, specifically regarding monogamous and polyamorous approaches to partnership, may further impact drinking patterns among men who have sex with men (Parsons et al. 2013). There is a need to further explore how relationship dynamics not only impact alcohol consumption but other behaviors that may affect HIV risk for Latino gay men in same-sex relationships (Beougher et al. 2011). More specifically, further research should explore associations between relationship status, relationship agreements, alcohol and other substance use, and sexual expectations and behaviors.

As mentioned above, one of the secondary aims of our study was to connect sexual and gender minority Latinos in our community to a wide range of available health and social services. Through the phone screening mechanism built into the project, we were able to connect 11 individuals who were HIV-positive to care, treatment, and other resources. One of these individuals had been diagnosed for more than 2 years, but was previously too afraid to seek care because of his immigration status. Through our partnership with agencies in the community and the trust we established with a number of community-based organizations, our study became an important link to care and a reference point for community resources for sexual and gender minority Latinos in need. This speaks to the value of researcher–provider partnerships. In the absence of such partnerships, we could only have hoped to have an indirect impact on such matters, provided that practitioners located and incorporated our published findings. Instead, having established relationships with community organizations and incorporated items regarding unmet needs into our questionnaire, we were able to connect participants with resources quickly and efficiently as part of the research process.

Our findings have further implications for providers who serve Latino MSM and Latina transgender women. Syndemics theory directs providers to screen for multiple risk factors, and to consider their cumulative impact rather than treating such matters as depression and violence in isolation. In other words, agencies and programs that address alcohol use may benefit from incorporating screenings for childhood sexual abuse, intimate partner violence, experiences of discrimination/stigma, and mental health into service provision, as these factors may interact to affect drinking and other substance use patterns. Unfortunately, such comprehensive screenings can be burdensome. Researchers and practitioners often face concerns with survey/intake fatigue. In the present study, we found the shortened 10-item CES-D scale efficient, and confirmed internal consistency within our sample (even if assessing validity, and comparing it with the 20-item version, were beyond the scope of this research). We encourage researchers and providers to identify and evaluate the CES-D 10 and other brief screening measures so that syndemics-informed assessments are feasible.

Limitations

Several limitations should be acknowledged when interpreting the results of this study. First, the cross-sectional design of our survey precludes making any definitive causal claims about the direction of the relationships we observed. A second limitation concerns the SAMHSA

past 30-day binge and heavy drinking measures, as life events may temporarily increase or decrease levels of drinking. A third limitation concerns the study's modest sample size, which affects the statistical power of our analyses. A fourth limitation concerns our data for relationship status. This study drew on data from a project specifically focused on the needs and experiences of Latino MSM in same-sex relationships; consequently, we only had information regarding participants' relationships with men. Further research on alcohol consumption among Latino MSM and Latina transgender women who have sex with men should incorporate a broader approach to relationships. We suggest that researchers and providers who work with this population ask about partnerships with people of all genders, and that they address relationship characteristics and dynamics (Hoff et al. 2012).

A further potential limitation concerns the impact of non-probability sampling. This certainly impacts our capacity to generalize study findings to Latino men and Latina transgender women in other geographic and demographic contexts. However, our diverse recruitment strategies, including an active social media campaign and ongoing evaluation and feedback from our community stakeholders regarding recruitment, enabled us to recruit a diverse sample of Latino men and Latina transgender women in New York City regarding relationship status, HIV status, language preference, nationality, age, and other important demographic characteristics. While we may not have achieved a statistically representative sample, these recruitment strategies ensured that our study was informed by a range of perspectives and experiences, including many individuals within the broader community of LGBT Latinos who are further marginalized by language barriers and challenges related to acculturation, as well as unemployment and other socioeconomic barriers. Our study highlights the potential of using an innovative design that includes culturally and linguistically appropriate recruitment strategies and social medial tools to engage predominantly Spanish-speaking Latino men and Latina transgender women in research studies.

Finally, as is essentially unavoidable when attempting to predict substance use and other ongoing behaviors, our study may have been limited by the omission of relevant variables. We based our survey design and data analysis on prior literature regarding the factors that affect alcohol use, particularly among Latino men and Latina transgender women, but may still have neglected to incorporate some predictors.

Conclusions

Despite these limitations, the results of the study provide additional relevant and up-to-date evidence linking high-risk alcohol consumption with having multiple sexual partners, being in a relationship, and reporting multiple syndemic risk factors. In addition, our study highlights the importance of serving Latino men and Latina transgender women and their needs, while considering the diversity of the community regarding coerced and forced sexual experiences, relationship status, depressive symptoms, and cumulative syndemic factors. Future research should further examine the role of syndemic factors on health outcomes, including but not necessarily limited to high-risk alcohol consumption. Additionally, given the high levels of forced and coerced sexual activity before the age of 17 and the potential negative impact of intimate partner violence on health outcomes, interventions designed to

prevent and reduce harmful alcohol consumption should incorporate empowerment tools, including social support and self-efficacy to cope with these potentially traumatic experiences. Furthermore, given the fact that being in a relationship was associated with high-risk alcohol consumption, future wellness programs for couples and couple-based HIV prevention interventions should incorporate mediators and couple-focused activities, such as sexual communication skills, sexual decision-making power for couples, social support for risk reduction, and social and self-regulatory skills to cope with high-risk alcohol consumption; along with other related health concerns pertinent to same-sex couples, including risky sexual behaviors, intimate partner violence, and forced or coercive sexual experiences. Assessments of such couple-based interventions might incorporate dyadic analyses, pairing data from participants who report being in relationships.

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Table 1

Descriptive demographic characteristics (n = 176, unless otherwise specified).

Characteristics	M ± SD or n (%)
Age (years)	33.37 (9.10)
18–24	34 (19)
25–34	67 (38)
35–44	49 (28)
45–54	22 (13)
55 or older	4 (2)
Born in the United States (n = 175)	50 (29)
Country of origin	
Mexico	34 (18)
Central American	28 (15)
Belize	1 (0.5)
El Salvador	11 (6)
Honduras	11 (6)
Guatemala	3 (1.5)
Panama	1 (0.5)
Costa Rica	1 (0.5)
South America	37 (21.5)
Ecuador	14 (9)
Brazil	2 (1)
Colombia	14 (9)
Peru	4 (2)
Venezuela	3 (1.5)
Caribbean	77 (44.5)
Cuba	5 (3.5)
Puerto Rico	28 (15)
Dominican Republic	29 (16)
Other	15 (10)
Sexual identity (n = 175)	
Gay	148 (85)
Bisexual	20 (10)
Transgender or transexual	4 (2)
Other	3 (2)
Language spoken, written and read	
Only Spanish	66 (38)
Spanish better than English	33 (19)
Both equally	50 (28)
English better than Spanish	10 (6)
Only English	17 (9)
Time in the United States	

Characteristics	*M* ± SD or *n* (%)
Less than 12 months	62 (35)
More than 12 months	114 (65)
Employment status	
Employed full-time	66 (38)
Employed part-time	29 (16)
Unemployed	76 (43)
Disabled	5 (3)
Education (175)	
No formal education	10 (6)
Less than a high school diploma	14 (8)
High school diploma or GED	53 (30)
Some college	46 (27)
Two-year college degree	13 (7)
Four-year college degree	32 (18)
Graduate or professional degree	7 (4)
Medical insurance	
No	72 (41)
Yes	104 (59)
Recruitment venue (*n* = 172)	
Community-based organization	17 (10)
Hispanic AIDS Forum	7 (42)
Betances	3 (17)
BOOM! Health	2 (12)
Latino Commission on AIDS	3 (17)
LGBT Center	2 (12)
Social media	97 (56)
Facebook	48 (49)
Grindr	44 (45)
Jack'd	4 (4)
Scruff	1 (2)
Friend or couple referral	39 (23)
Friend	24 (14)
Couple referral	15 (9)
Other	19 (11)

Table 2

Summary statistics on other covariates included in the analysis (n = 176, unless otherwise specified).

Covariates	M ± SD or n (%)
High-risk alcohol consumption	
None	93 (53)
Binge	36 (21)
Heavy	47 (26)
Depressive symptoms	
None	56 (32)
Clinically significant depressive symptoms	120 (68)
Number of sexual partners in the past 3 months (n = 174)	7.59 (19.33)
No sexual partner	12 (7)
1 partner	70 (40)
More than 1 partner	92 (53)
Relationship status (n = 175)	
Reported having a relationship with another man	118 (67)
Single/not being in a relationship with another man	57 (33)
Intimate partner violence	
Reported at least one incident of victimization	13 (7)
Reported at least one incident of perpetration	14 (9)
Did not report intimate partner violence	149 (84)
Self-reported HIV status (n = 175)	
Positive	60 (34)
Negative	103 (59)
Never been tested	12 (7)
Sexual activity before the age of 17 (n = 175)	
Yes	130 (74)
No	45 (26)
Childhood sexual abuse	
Yes	39 (22)
No	137 (78)
Discrimination	
Yes	110 (63)
No	66 (38)
Overall quality of health (n = 175)	
Poor	15 (9)
Fair	28 (16)
Good	50 (29)
Very good	35 (20)
Excellent	47 (26)
Number of syndemic factors (n = 173)	
0	28 (16)

Covariates	*M* ± SD or *n* (%)
1	46 (27)
2	67 (39)
3	28 (16)
4	4 (2)

Table 3

Bivariate associations of risk factors for binge and heavy drinking, relative to no high-risk drinking, in the past 30 days (n = 176, unless otherwise specified).

Characteristics and other covariates	Binge OR (95% CI)	Heavy OR (95% CI)
Sexual identity (n = 175)		
Bisexual vs. Gay	0.42 (0.09, 2.02)	1.29 (0.46, 3.59)
Other vs. Gay	0.58 (0.06, 5.42)	1.01 (0.18, 5.78)
Age	1.01 (0.97, 1.06)	0.99 (0.95, 1.03)
Language		
Predominantly Spanish vs. English	0.90 (0.42, 1.96)	0.82 (0.41, 1.66)
Ethnic identity		
Latino vs. Other	0.63 (0.13, 2.09)	0.99 (0.28, 3.47)
Caribbean vs. Mexican	1.12 (0.36, 3.54)	1.43 (0.54, 3.76)
Central and South American vs. Mexican	1.63 (0.55, 4.79)	0.78 (0.28, 2.17)
Born in the United States (n = 175)	1.25 (0.53, 2.91)	1.33 (0.62, 2.87)
Time in the United States		
More than 12 months vs. Less than 12 months	1.25 (0.55, 2.86)	0.87 (0.43, 1.83)
Education (n = 175)		
High school or GED vs. No education	0.78 (0.23, 2.63)	2.20 (0.62, 7.82)
Higher education vs. No education	0.96 (0.33, 2.84)	1.78 (0.53, 5.97)
Unemployed	1.11 (0.49, 2.49)	1.48 (0.73, 3.01)
Medical Insurance	1.58 (0.71, 3.53)	1.16 (0.57, 2.37)
Overall quality of health (n = 175)		
Fair vs. poor	0.69 (−0.95, 2.33)	−0.22 (−1.69, 1.24)
Good vs. poor	−0.26 (−1.83, 1.30)	−0.62 (−1.92, 0.69)
Very good vs. poor	−1.14 (−2.88, 0.60)	−1.43 (−2.87, 0.01)
Excellent vs. poor	−0.33 (−1.91, 1.25)	−0.65 (−1.97, 0.66)
Multiple sexual partners in the past 3 months (n = 174)	1.97 (0.90, 4.32)	3.98 (1.82, 8.70) **
Relationship status (n = 175)		
Being in a relationship with another man vs. Single	3.68 (1.40, 9.70) **	2.15 (0.99, 4.66)
Intimate partner violence (as victim)	0.86 (0.09, 8.52)	7.10 (1.82, 27.70) **
HIV-positive	1.18 (0.52, 2.65)	0.98 (0.46, 2.08)
Clinically significant depressive symptoms	0.89 (0.40, 1.98)	3.79 (1.45, 9.89) **
Any sexual activity before the age of 17 (n = 175)	1.18 (0.49, 2.85)	1.46 (0.63, 3.35)
Discrimination	2.04 (0.90, 4.62)	2.94 (1.34, 6.47) **
Coercive or forced sexual activity before the age of 17	1.16 (0.43, 3.11)	2.48 (1.11, 5.58) *
Syndemic factors (n = 173)		
1 vs. 0	0.98 (0.30, 3.21)	1.75 (0.41, 7.43)
2 vs. 0	1.58 (0.53, 4.69)	2.98 (0.77, 11.55)
3 or 4 vs. 0	1.41 (0.32, 6.26)	13.37 (3.13, 57.18) ***

OR: odds ratio; CI: confidence interval.

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***$p < 0.001$,

**$p < 0.01$,

*$p < 0.05$.

Table 4

Significant predictors of binge and heavy episodic drinking, relative to no high-risk drinking – multinomial logistic regression (n = 173).

	Binge drinking OR (95% CI)	Heavy drinking OR (95% CI)
Number of syndemic factors[§] (ref. group: 0 factors)		
One	0.85 (0.25, 2.92)	1.30 (0.29, 5.83)
Two	1.28 (0.40, 4.05)	2.00 (0.49, 8.21)
Three or four	1.13 (0.24, 5.29)	10.57 (2.32, 48.04) **
Multiple sexual partners in the past 3 months	2.34 (1.01, 5.42) *	4.87 (2.03, 11.72) ***
Relationship status (partnered with another man)	4.23 (1.56, 11.42) **	2.15 (0.90, 5.15) †

OR: odds ratio; CI: confidence interval.

§ Factors include clinically significant depression, childhood sexual abuse, intimate partner violence (as victim only) and discrimination.

*** $p < 0.001$,

** $p < 0.01$,

* $p < 0.05$,

† $p < 0.10$.