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Social network alcohol use is associated with individual-level alcohol use among Black sexually minoritized men and gender-expansive people: Findings from the Neighborhoods and Networks (N2) cohort study

Cho-Hee Shrader^{1,2}, Dustin T. Duncan¹, Anthony Santoro³, Elvin Geng⁴, Henry R. Kranzler^{5,6}, Deborah Hasin¹, Donna Shelley⁷, Bryan Kutner⁸, Scott E. Sherman⁹, Yen-Tyng Chen¹⁰, Mainza Durrell^{11,12}, Rebecca Eavou^{11,12}, Hanson Hillary^{11,12}, William Goedel¹³, John A. Schneider^{11,12}, Justin R. Knox^{14,15}

¹Department of Epidemiology, Mailman School of Public Health, Columbia University, New York, New York, USA

²Edson College of Nursing and Health Innovation, Arizona State University, Phoenix, Arizona, USA

³Department of Psychiatry, Columbia University Irving Medical Center, New York, New York, USA

⁴Division of Infectious Diseases, Department of Medicine, Washington University in St. Louis, St. Louis, Missouri, USA

⁵Department of Psychiatry, Perelman School of Medicine, University of Pennsylvania, Philadelphia, Pennsylvania, USA

⁶Mental Illness Research, Education and Clinical Center, Crescenz Veterans Affairs Medical Center, Philadelphia, Pennsylvania, USA

⁷Department of Public Health Policy and Management, School of Global Public Health, New York University, New York, New York, USA

⁸Psychiatry Research Institute at Montefiore Einstein (PRIME), Department of Psychiatry and Behavioral Sciences, Albert Einstein College of Medicine, Bronx, New York, USA

⁹Department of Population Health, Grossman School of Medicine, New York University, New York, New York, USA

¹⁰Edward J. Bloustein School of Planning and Public Policy, Rutgers University, New Brunswick, New Jersey, USA

¹¹Department of Medicine, University of Chicago, Chicago, Illinois, USA

¹²Department of Public Health Sciences, University of Chicago, Chicago, Illinois, USA

¹³Department of Epidemiology, Brown University, Providence, Rhode Island, USA

Correspondence: Justin R. Knox, Department of Sociomedical Sciences, Mailman School of Public Health, New York, NY, USA. jrk2115@cumc.columbia.edu.

¹⁴Department of Sociomedical Sciences, Mailman School of Public Health, New York, New York, USA

¹⁵New York State Psychiatric Institute, New York, New York, USA

Abstract

Introduction: Black sexually minoritized men and gender-expansive people (SGM), including transgender women, have higher levels of alcohol use and experience greater negative consequences from alcohol consumption than the general population. We investigated the role of multilevel factors contributing to alcohol use among these groups.

Methods: We analyzed data collected from HIV-negative participants in the Neighborhoods and Network (N2) cohort study in Chicago, IL ($N = 138$). Participants completed a social network inventory (November 2018–April 2019) and reported alcohol use (frequency, quantity, and frequency of binge drinking) during a quantitative assessment. We used stepwise negative binomial regression to identify associations with social network and individual-level alcohol use while controlling for sociodemographic variables.

Results: Most participants drank alcohol in the past month (68%), with a mean of 2.5 drinks ($SD = 1.9$) per drinking day. Participants nominated 377 confidants ($M_{\text{nominated}} = 2.7$), of whom 93% were Black and 78% were friends/family. Among the confidants, 30% drank alcohol at least several times per week. Identifying as Latine ($RR = 2.21$; 95% CI: 1.44–3.10), having a higher Generalized Anxiety Disorder-7 score ($RR = 1.03$; 95% CI: 1.00–1.05), living with a problem drinker during one's childhood ($RR = 1.80$; 95% CI: 1.39–2.34), and having a greater proportion of regular drinkers in one's social network ($RR = 1.49$; 95% CI: 1.02–2.17) were positively associated with alcohol use.

Conclusion: Black SGM exposed to social network alcohol use during childhood and adulthood reported increased alcohol use. Interventions targeting Black SGM should address social norms around alcohol, intersectional discrimination, and mental health.

Keywords

African Americans; alcohol drinking; sexual and gender minorities; social network analysis

INTRODUCTION

Alcohol use is a prevalent and persistent risk factor for disease and injury, with 4% of global deaths attributable to alcohol (Rehm et al., 2009), and the use of any amount of alcohol can adversely affect health (World Health Organization, 2023). In the United States, alcohol is also the most frequently used and misused substance. Nearly 62 million individuals (44.4% of alcohol users) report current binge drinking (i.e., consuming 5+ drinks and 4+ drinks on the same occasion for cisgender men and women, respectively) and 17.7 million (12.8% of alcohol users) report heavy alcohol use (i.e., drinking 5 or more drinks on the same occasion, 5 or more days in the past 30 days) (Center for Behavioral Health Statistics and Quality et al., 2021). Individuals with intersecting minoritized identities, such as Black sexually minoritized men (SMM), report higher levels of past-month binge drinking than heterosexual men (40%–42% for Black gay men and 29% for Black heterosexual men)

(Schuler et al., 2020). Black SMM also are more likely to engage in heavy episodic drinking (i.e., consuming 60 g or more of alcohol consumed on an occasion in the past month) than Black heterosexual men (Schuler et al., 2020). Less is known about alcohol use among Black gender-expansive people (GEP), including transgender women, warranting additional research in this group (Denson et al., 2017).

Because Black sexually minoritized men and gender-expansive people (SGM) are also more vulnerable to human immunodeficiency virus (HIV) than other subgroups due to structural and other multilevel factors, individual-level behaviors such as alcohol use may exacerbate this subgroup's vulnerability to HIV (Centers for Disease Control and Prevention, 2023). Thus, alcohol use is of heightened concern among Black SMM as it can increase sexual behaviors associated with HIV transmission (Shuper et al., 2010), such as condomless sex (Knox, Reddy, et al., 2019; Knox, Reddy, Lane, Hasin, et al., 2017), likely due to the behavioral disinhibition and pleasurable effects of alcohol use (George & Stoner, 2000; Knox, Reddy, Lane, Lovasi, et al., 2017). Alcohol use may also negatively impact the use of preexposure prophylaxis (PrEP), which can effectively prevent HIV transmission (Oldfield & Edelman, 2021).

Research on the determinants of alcohol use has largely examined factors operating at the individual level (Bronfenbrenner, 1986). For example, individual-level correlates of alcohol use include assigned male sex at birth (Grant et al., 2015), anxiety (Kushner et al., 2000), housing instability (Murphy et al., 2014), individual disadvantage (Mulia et al., 2008), and lower income (Hasin et al., 2007). Marijuana use has also previously been found to be associated with binge drinking; although only 4.9% of nondrinkers reported marijuana use, 21.3% of binge drinkers did so (Esser et al., 2021). Despite individual-level determinants of alcohol use having been well investigated, social network-level determinants associated with alcohol use have not (Knox, Schneider, et al., 2019), although they may help to explain determinants of alcohol use. For example, the theory of homophily posits that individuals are attracted to others who are like them in some respect and individuals may become more similar to their social networks over time (McPherson et al., 2001), including in behaviors, such as drinking patterns. Specifically among Black SGM, the theory of homophily has been used to explain conversations surrounding HIV prevention (Shrader et al., 2024) and may provide a theoretical explanation for alcohol use.

Additionally, alcohol use and peer binge drinking are social norms (DiGuseppi et al., 2018), with higher proportions of network members who report drinking being associated with specific drinking behaviors (Janulis et al., 2015; Rosenquist et al., 2010). Of particular interest among social norms are descriptive norms: *actual behaviors* that occur within individuals' networks, which should be considered along with injunctive norms, *behaviors assumed to be accepted* by an individual's network members (Kincaid, 2004). These two types of norms are also relevant to family members and operate across the lifespan to influence an individual's alcohol use (Lau et al., 1990). Most research on social networks and alcohol use has been conducted among predominantly White and heterosexual populations, oftentimes in college or university settings (Knox, Schneider, et al., 2019). Although harms associated with alcohol use have been shown to be worse among racially minoritized groups (Trinh et al., 2017), few studies have investigated

social network influences on hazardous alcohol consumption considering the intersecting minoritized attributes of race and sexual orientation (Knox, Schneider, et al., 2019). We examined alcohol use among Black SGM, investigating whether individual, social network (Bronfenbrenner, 1986; Davis et al., 2016) (i.e., childhood exposure to alcohol consumption; social network alcohol use), and community-level factors are associated with alcohol use among Black SGM.

MATERIALS AND METHODS

Sample

Data from HIV-negative Black SGM were collected from the Chicago, Illinois, site of the Neighborhoods and Networks (N2) Cohort Study, a prospective longitudinal study of Black SGM (Duncan et al., 2019). We used data from two waves of the N2 study (collected January 2018–December 2019) to identify associations of Wave 1 social network alcohol use with the outcome of Wave-2 alcohol use (obtained at 6-month follow-up visits). Participants were included if they (a) identified as Black or African American, (b) were 16–35 years old, (c) were assigned male at birth, (d) resided in the Chicago Metropolitan Statistical Area (MSA), (e) had at least one sexual encounter with a cisgender man or transgender woman in the past year, (f) were willing to wear a global positioning system (GPS) device, and (g) stated an intention to remain in the Chicago MSA during the course of the study (approximately 2 years). Participants were recruited from a community research space/center using peer-referral sampling. In a private room at the study site, trained interviewers obtained written informed consent from all participants and administered a 1–2-hour-long questionnaire at each wave of data collection. Further study information and details are provided elsewhere (Duncan et al., 2019).

Ethical review

Institutional review boards at Columbia University and the University of Chicago reviewed and approved the study. Participants received \$150 for their time at each wave of data collection.

Individual-level sociodemographic and community violence measures (Wave 1)

All participants identified as Black and tested negative for HIV at the Wave 1 baseline. At that time, participants provided demographic information: age (in years), gender (cisgender man or transgender), sexual identity (gay/homosexual/lesbian, bisexual, straight/heterosexual, or other sexual identity), relationship status (single or not single), Latine ethnicity (Latine or not), and education level (high school degree or not). To assess exposure to community violence in the past 6 months, we used the 16-item *My Exposure to Violence Survey*, which assesses experiences of violence among residents of Chicago, Illinois (Sternthal et al., 2010). For the initial 16-item survey, Cronbach's alpha was 0.89, indicating high internal reliability (Tavakol & Dennick, 2011). We assessed exposure to community violence as a binary covariate, with any one experience of community violence indicating exposure.

Social network inventory on confidant sociodemographic and background information (Wave 1)

At Wave 1, participants were asked about their closest social network member (i.e., confidant) using the prompt, “Who is the person you most talk to about things that are important to you?” Participants were then prompted to name up to four additional people for a total of five egocentric social network alters (i.e., confidants). Because we used peer-referral sampling, we assessed potential dependencies within the data. Then, for each participant we calculated the local bridging or network constraint, based on the peer-referral chain that we used for study recruitment (Burt, 2004). We used the constraint value based on the peer-referral chain to minimize multicollinearity in the model from using the egocentric networks (used to calculate social network alcohol use). Another purpose of including constraint was to identify associations of the structure of the network more so than to interpret the value itself. Individuals with lower constraint have networks in which fewer people know each other allowing them to have more opportunities to be influential in a network while individuals with higher constraint have more interconnected networks and are less influential. Thus, lower values of constraint suggest that individuals have less social reinforcement of drinking within their networks based on the peer-referral chains, because these individuals are theoretically exposed to a wider and more diverse range of behaviors and attitudes surrounding alcohol use. However, higher constraint values suggest that most of an individual’s network members (based on the peer-referral chains) know each other and there is higher social reinforcement of drinking behaviors. We collected data regarding confidants’ age (years), race/ethnicity (Non-Latine Black, Non-Latine White, Non-Latine Multiracial, Non-Latine Native American, Non-Latine Asian, or Latine), education (high school degree or not), arrest/incarceration history, relationship type, communication frequency, and emotional closeness.

Social network inventory on alcohol use information (Wave 1)

To calculate alcohol use within confidant networks, participants were asked to indicate how often confidants drank alcohol, including wine or beer (i.e., never, less than once a year, once a year, a couple of times a year, once a month, once every 2 weeks, once a week, several times a week, and/or every day). As a proxy for network-level alcohol use influence, we calculated the proportion of confidants within each participant’s network who drank alcohol several times a week or more (vs. those who drank less than several times a week).

Individual-level background, mental health, and marijuana use information (Wave 2)

At Wave 2, participants provided information regarding their employment status and housing instability in the past year. We measured depression using a 10-item modified version of the Center for Epidemiological Studies Depression Scale (CES-D), which is reliable and valid (Grzywacz et al., 2006; Radloff, 1977). Because the typical cutoff of ≥ 16 is used for the 20-item CES-D, we used a cutoff score of ≥ 8 ($\alpha = 0.86$ for the present study) to indicate the presence of depressive symptoms in the 10-item version, as done previously (Timmins et al., 2022). We measured anxiety using the General Anxiety Disorder-7 item measure (GAD-7), ($\alpha = 0.90$ for the present study) (Spitzer et al., 2006). Scores were summed and those ≥ 8 , the standard cutoff, were considered to indicate probable anxiety (Spitzer et al.,

2006). Participants also provided information regarding living with a household member during childhood and adolescence who had problematic alcohol use (i.e., “Before you were 18 years old, did you live with anyone who was a problem drinker or alcoholic?”). Finally, participants indicated past-month heavy marijuana use (i.e., past-month use on 20 days or more).

Individual-level alcohol use (Wave 2)

We assessed individual-level alcohol use in the past 30 days at Wave 2 based on an adapted version of the AUDIT-C (Bush et al., 1998). We derived the measures from three items: frequency of alcohol use, quantity of drinks consumed on an average drinking day, and frequency of binge drinking (≥ 5 drinks in a single day). We adjusted our response items based on the National Survey on Drug Use and Health (NDSUH) (Substance Abuse and Mental Health Services Administration, 2016), which allowed us to measure current (i.e., past month) alcohol use instead of past year alcohol use, which is measured by the AUDIT-C. This improved participant recall. Given the absence of a validated clinical cut point for this measure, we calculated a single index of alcohol use in the past 30 days by summing responses (range: 0–12). This approach aligns with our prior analyses using this dataset (Moline et al., 2024) and research on alcohol use among Black SMM and transgender women in South Africa (Knox, Reddy, Lane, Hasin, et al., 2017). Cronbach’s alpha for the alcohol use index was 0.79 (Tavakol & Dennick, 2011).

Analysis

We conducted descriptive statistics, including proportions, means and standard deviations, and counts. To identify associations between multilevel determinants and alcohol use, we conducted a stepwise multivariable negative binomial regression (Hilbe, 2011; R Core Team, 2023). We used a stepwise model because we have a large number of potential covariates, most of which are sociodemographic control variables, and although we hypothesized that social network characteristics were associated with alcohol use, we did not specify which social network characteristics (Harrell, 2012). We included covariates as one block, with only those that were statistically significant included in the final model. We also sought to simplify the model and improve interpretability and model performance by removing irrelevant variables, which reduced overfitting and mitigated multicollinearity. We considered using the Poisson regression because of the left skewedness of our data but, due to an unequal mean and variance, opted for the negative binomial regression (Hilbe, 2011). We also considered a zero-altered model but decided that the negative binomial model fit better than the zero-altered model, as there is no compelling evidence for a separate zero-generating process, and the negative binomial model is easier to interpret (Wagner et al., 2015). For the initial model, we included the sociodemographic variables of age, income, Latine identity, sexual identity, gender, relationship status, education, employment status, and housing instability; individual-level variables of marijuana use, CES-D score, GAD-7 score; the community-level variable of experience of community violence; and the social network variables of childhood exposure to harmful drinking, network-level drinking, and constraint as independent variables into the final model that were regressed onto the outcome of alcohol use (continuous index). We used the *MASS* package in the R environment for multivariable analyses (R Core Team, 2023; Ripley et al., 2013).

RESULTS

Data were available for a total of 147 Black SGM, with 9 participants excluded due to missing data (8 for missing social network data; 1 for incomplete sociodemographic data), resulting in an analytic sample of 138 participants with complete data (response rate = 93.8%). Participant demographics are presented in Table 1. Participants' mean age was 25 years (SD = 3.81 years), and the majority reported identifying as cisgender men (87%), identifying as non-Latine (92%), having high school education (86%) and living in stable housing (78%). Most identified as gay/homosexual/bisexual/queer (93%), not being in a relationship (67%), and employed in the past week (59%). Most participants did not screen positive for depression on the CES-D (75%) or anxiety on the GAD-7 (86%). Participants had a mean alcohol use index score of 2.67 (SD = 2.41). Most reported alcohol use in the past month (68%), with a mean of 2.5 drinks (SD = 1.9) per drinking day.

Information about confidants

Participants nominated a total of 377 confidants, for a mean of 2.7 confidants (min = 1, max = 5). The mean social network constraint value was 0.71 (SD = 0.32). Confidants were, on average, 30 years old, and the majority were non-Latine Black (87%), high school educated (55%), and not previously arrested/incarcerated (76%). Participants indicated that the majority of confidants were friends or family members (76%), with whom they spoke once a week or more often (93%) and were very close (82%). Participants reported that 11% of confidants were also sexual partners. Participants reported that 28% (SD = 33%) of their confidants drank alcohol at least several times per week or more. Table 2 presents descriptive information about social network confidants.

In multivariable analyses, age (rate ratio [RR] = 1.04; 95% CI: 1.01–1.08; $p = 0.012$), having a Latine ethnic identity (RR = 2.12; 95% CI: 1.44–3.10; $p < 0.001$), GAD-7 score (RR = 1.03; 95% CI: 1.00–1.05; $p = 0.020$), living with a problem drinker before age 18 (RR = 1.80; 95% CI: 1.39–2.34; $p < 0.001$), and proportion of confidants who drink at least several times per week (RR = 1.49; 95% CI: 1.02–2.17; $p = 0.037$) were positively and independently associated with the level of alcohol use. Table 3 presents the final stepwise negative binomial regression model and all incidence-rate ratios.

DISCUSSION

In one of the first studies to explore social network determinants of alcohol use among a community-based sample of Black SGM, we identified several factors influencing alcohol use. We found that having a Latine identity, higher anxiety symptomology, childhood exposure to a household member with excessive alcohol consumption, and a higher proportion of social network contacts who drink at least several times a week were all independently and positively associated with higher levels of alcohol use. These findings highlight the complex interplay between individual behaviors and social network influences, underscoring the need for targeted interventions that address both personal and social factors in reducing alcohol use among Black SGM populations.

Strikingly, we observed a high proportion of alcohol use in the past month in our sample—the nationally representative survey 2021 National Survey on Drug Use and Health (NSDUH) estimated that only 42% of Black Americans reported alcohol use in the past month (Substance Use and Mental Health Service Administration & U.S. Department of Health and Human Services, 2023) and 59% of lesbian, gay, or bisexual adults reported alcohol use in the past month (Substance Use and Mental Health Service Administration & U.S. Department of Health and Human Services, 2023). However, 68% of our sample of Black SGM reported past-month alcohol use. This is problematic as any amount of alcohol use can adversely affect health (World Health Organization, 2023). It is important to reduce alcohol use overall to benefit both individual and public health. However, most people who could benefit from alcohol interventions do not receive them, including Black SGM (Hasin et al., 2007; Knox, Hasin, et al., 2019; Kranzler & Soyka, 2018). Black SGM may experience other barriers to receiving care, such as at the structural level, to reducing alcohol consumption to a more moderate level (English et al., 2021). For example, English et al. (2021) found that structural racism and anti-Lesbian, gay, bisexual, transgender, and queer+ (LGBTQ) policies were not only associated with heavy drinking but also with anxiety and perceived burdensomeness. Furthermore, elevated levels of alcohol use among Black SGM are concerning given the potential association between alcohol use and poor HIV outcomes (English et al., 2021; Knox, Reddy, Lane, Lovasi, et al., 2017; Oldfield & Edelman, 2021; Scott-Sheldon et al., 2016; Williams et al., 2016).

We found that participants with social networks, both in childhood and currently, with higher levels of drinking also reported increased past-month drinking. This aligns with previous research among Black SGM in South Africa (Knox, Reddy, Lane, Lovasi, et al., 2017) and US college students (Meisel et al., 2021). Similar to previous research, this study assessed the descriptive norms of alcohol use, the actual alcohol use behaviors within an individual's social network. Previous and present findings suggest the applicability of the social network theory of homophily and/or the social contagion theory to explaining harmful drinking among Black SGM (Christakis & Fowler, 2013; McPherson et al., 2001). According to the social network theory of homophily, individuals are attracted to others who are similar to them in some aspect, such as race, ethnicity, or even drinking behavior (McPherson et al., 2001). Although our data do not address whether homophily is present in this sample, we would speculate that Black SGM are choosing network members who are similar to them in drinking and/or are becoming more similar to their social network members over time, during which drinking behaviors increase and become more normative (Christakis & Fowler, 2013; Phua, 2011; Rosenquist et al., 2010). Social forces, including racism, heterosexism, and transphobia, may also constrain the social context (i.e., neighborhoods and networks) in which Black SGM have activity spaces. Additionally, Black SGM who observed a household member engaging in excessive alcohol consumption could view this behavior as a social norm and engage in it later in life. Alternatively, Black SGM could potentially still be exposed to that household member and drinking behavior as some Black SGM may still reside in the same household or community. Because many of our participants identified confidants as family members and sexual partners, there may be particular promise in family or couples-based therapy that includes harmful drinking reduction interventions.

We also found that Black SGM who identified as Latine reported higher levels of alcohol use relative to those who did not identify as Latine. We used race and ethnicity as a proxy for experiences of race, ethnicity, or national origin discrimination; thus, we may not be capturing discrimination-related alcohol use but rather cultural norms (or both). However, if we are capturing intersecting discrimination, our findings support the Intersectionality Framework, which posits that experiences of racism, homophobia, and transphobia, can intersect to create a new type of discrimination (Bowleg, 2013; Crenshaw, 2017; Duncan et al., 2020; English et al., 2021). Recent research has suggested that individuals with intersecting minoritized identities, such as those who may identify as both a racially/ethnically and sexually or gender minoritized identity may experience higher alcohol use or other substance use (Souleymanov et al., 2020) relative to those with fewer intersecting minoritized identities (Keyes et al., 2011; Schuler et al., 2020).

Racial discrimination may trigger a stress response that diminishes inhibitory control, potentially increasing harmful behaviors like alcohol use (Richman & Lattanner, 2014; Williams et al., 2003). Our findings also suggest that anxiety is associated with alcohol use, supporting further exploration of this potential indirect pathway. A qualitative study which found that Latine gay men reported alcohol use to cope with anxiety after disclosure of their sexual minority status to family members (Gerena, 2023) supports this stress-induced alcohol response as well. Although the Intersectionality Framework can describe experiences of discrimination and stress, additional qualitative research can elucidate motivations and context for drinking, which may include cultural drinking norms. Efforts to support drinking reduction among Black SGM should consider the unique experiences, including discrimination, and norms of Black and Black Latine SGM. As our study found an association between anxiety and alcohol use, additional research on this intersection is warranted to identify the causal mechanism. For example, does alcohol use alleviate anxiety, or is anxiety a response to alcohol use? As a interventions may also be tailored to address the multilevel reasons for elevated levels of Black SGM alcohol use.

Limitations

We used convenience sampling, which may have introduced bias into our study. This study's findings may have been influenced by social desirability bias, which could lead participants to under-report their level of drinking or information bias. Our analyses are restricted to HIV-negative participants as we did not collect alcohol use data among people living with HIV. Furthermore, we only collected social network information for up to five confidant members, which may not fully capture the social networks- a future sociocentric network study could assess alcohol use more thoroughly. Average numbers of social network members, however, were similar to other US samples, including those in the general social survey (Burt, 1984). In addition, participants provided information on the drinking frequency of their social network members, which they may have estimated incorrectly as being more similar to their own (consensus bias). Although people tend to incorrectly estimate behaviors, such as binge drinking, among people they are not very close to, they accurately perceive the drinking of the network members they are close to (Kenney et al., 2017) and because the majority of our sample's confidants are people they are close to, we believe that this bias was minimal. We also note important differences between Black SGM.

However, because only 16% of our sample identified as transgender women or another gender-expansive identity, we were not able to conduct stratified analyses among these two groups and instead analyzed across these groups in order to be maximally inclusive. We conducted a sensitivity analysis, stratifying the analysis by gender (i.e., cisgender sexually minoritized men and GEP) and found similar results across stratified analyses (Table S1). Our findings can further be explored in studies with a larger sample size. We also did not collect a baseline measure of alcohol use. Despite using some variables drawn from Wave 1 and most variables drawn from Wave 2 of the parent study, our analytical model structure is cross-sectional. Additionally, the study design of Wave 1 was modeled in a cross-sectional fashion; thus, this analysis is a cross-sectional study. Finally, due to a small overall sample, we were unable to include covariates in the model to adjust for a more robust set of sociodemographic variables, suggesting the potential for residual confounding. However, the homogeneity of the sample (all participants identified as Black, between ages 17 and 34 years and from a well-defined geographic area) and the absence of significant relationships between sociodemographic variables and outcomes in bivariate analyses (Table S2) provide support against this being an important limitation. Nonetheless, a longitudinal mediation or moderation model could better explore the relationship between covariates.

CONCLUSION

To our knowledge, this is the first study that has explored the impacts of social network alcohol use on an individual's alcohol use among Black SGM in the US. We found that multifaceted factors, including having previous and current exposure to alcohol use in an individual's social network, having higher anxiety symptomology, and identifying as Black Latine, were associated with increased levels of alcohol use. Thus, this analysis can inform future hypothesis-driven research. Furthermore, this research needs to consider the contexts in which SGM use substances, including alcohol, their motivations for alcohol use, and the potential impacts of alcohol use. To be effective, initiatives aimed at reducing drinking among Black SGM must account for influences operating at the network level.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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CONFLICT OF INTEREST STATEMENT

Dr. Kranzler is a member of advisory boards for Dicerna Pharmaceuticals, Sophrosyne Pharmaceuticals, Enthion Pharmaceuticals, and Clearmind Medicine; a consultant to Sobrera Pharmaceuticals; the recipient of research funding and medication supplies for an investigator-initiated study from Alkermes; a member of the American Society of Clinical Psychopharmacology's Alcohol Clinical Trials Initiative, which was supported in the last three years by Alkermes, Dicerna, Ethypharm, Lundbeck, Mitsubishi, Otsuka, and Pear Therapeutics; and a holder of

U.S. patent 10,900,082 titled: “Genotype-guided dosing of opioid agonists,” issued 26 January 2021. Dr. Hasin received funds for an unrelated project from Syneos Health. All other authors report no conflicts of interest.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

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TABLE 1

Sociodemographic, background, and network-level information of HIV-negative Black SGM, the N2 Cohort Study, $n = 138$.

	Overall ($N = 138$)
Sociodemographic and background information	
Age, mean (SD)	24.9 (3.81)
Latine identity	11 (8.0%)
Gender	
Cisgender man	116 (84.1%)
Transgender woman or nonbinary identity	22 (15.9%)
Sexual identity	
Lesbian, gay, or homosexual	77 (55.8%)
Straight or heterosexual	9 (6.5%)
Bisexual	52 (37.7%)
Income below \$20,000	95 (68.8%)
Single relationship status	92 (66.7%)
High school education or more	119 (86.2%)
Employed full-time ^a	81 (58.7%)
Stably housed ^a	108 (78.3%)
Experienced community violence	103 (74.6%)
CES-D score, mean (SD) ^a	16.6 (5.56)
GAD-7 score, mean (SD) ^a	11.6 (5.06)
Substance use information	
Heavy marijuana use (20 days+/month) ^a	60 (43.5%)
Alcohol use index ^a	2.67 (2.41)
Network-level information	
Childhood or adolescent exposure to harmful drinking	39 (28.3%)
Proportion of confidant network that drinks several times a week, mean (SD) ^a	0.282 (0.332)
Social network constraint, mean (SD)	0.712 (0.316)

^aData are from Wave 2.

TABLE 2

Characterizing network-level data about confidant network members $n = 377$, collected among HIV-negative SGM in the N2 Cohort Study, $n = 138$.

Overall (N = 377)	
Age	
Mean (SD)	30.4 (11.5)
Race/Ethnicity	
Non-Latine Black or African American	328 (87.0%)
Latine	19 (5.0%)
Non-Latine Multiracial	16 (4.2%)
Non-Latine White	8 (2.1%)
Non-Latine Asian	5 (1.3%)
Non-Latine Native American	1 (0.3%)
High school diploma	
Don't know	14 (3.7%)
High school diploma	206 (54.6%)
No high school diploma	157 (41.6%)
Arrested or incarcerated	88 (23.3%)
Relationship	
Best Friend	121 (32.1%)
Family	124 (32.9%)
Friend	48 (12.7%)
Current partner/spouse	36 (9.6%)
Former Sex partner/spouse	7 (1.9%)
Another relationship type	6 (1.6%)
Confidant also sexual partner	42 (11.1%)
Communication frequency	
Several times a day	88 (23.3%)
Every day	131 (34.7%)
Several times a week	100 (26.5%)
Once a week	32 (8.5%)
Once every 2 weeks	11 (2.9%)
Once a month or less	15 (4.1%)
Closeness	
Not very close	3 (0.8%)
Somewhat close	65 (17.2%)
Very close	309 (82.0%)
Drinking frequency	
Don't know	7 (1.9%)

Overall (N = 377)	
Several times a week or more	113 (30.0%)
At least monthly	139 (36.9%)
Yearly	55 (14.6%)
Never	62 (16.4%)

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TABLE 3
Associations with the level of alcohol use among HIV-negative SGM in the N2 Cohort Study, $n = 138^a$.

Characteristics	RR	95% CI	p-Value
(Intercept)	0.39	0.14–1.06	0.061
Individual-level characteristics			
Age	1.04	1.01–1.08	0.012
Latine identity	2.12	1.44–3.10	<0.001
Income is below \$20,000	0.81	0.62–1.07	0.125
GAD-7 score	1.03	1.00–1.05	0.020
Network-level characteristics			
Lived with anyone who was a problem drinker/alcoholic before age 18 years	1.80	1.39–2.34	<0.001
Proportion of confidant network that drinks several times a week or more	1.49	1.02–2.17	0.037
Social network constraint	1.40	0.94–2.09	0.099
R^2 Nagelkerke	0.488		

Abbreviations: CI, confidence interval; RR, rate ratio.

^aOriginal model included the following variables: age, income, Latine identity, sexual identity, gender, relationship status, education, employment status, housing instability, CES-D score, GAD-7 score, experience of community violence, childhood exposure to harmful drinking, network-level drinking, and constraint.