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Social networks and social support among ball-attending African American men who have sex with men and transgender women are associated with HIV-related outcomes

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Abstract

The House Ball Community (HBC) is an understudied network of African American men who have sex with men and transgender women, who join family-like houses that compete in elaborate balls in cities across the United States. From 2011 to 2012, we surveyed 274 recent attendees of balls in the San Francisco Bay Area, focusing on social networks, social support, and HIV-related behaviours. Participants with a high percentage of alters who were supportive of HIV testing were significantly more likely to have tested in the past six months ($p = .02$), and less likely to have engaged in unprotected anal intercourse (UAI) in the past three months ($p = .003$). Multivariate regression analyses of social network characteristics, and social support, revealed that testing in the past six months was significantly associated with social support for safer sex, instrumental social support, and age. Similarly, UAI in the past three months was significantly associated with social support for safer sex, homophily based on sexual identity and HIV status. HIV-related social support provided through the HBC networks was correlated with recent HIV testing and reduced UAI. Approaches utilising networks within alternative kinship systems, may increase HIV-related social support and improve HIV-related outcomes.

Keywords

Social support networks; African American sexual minorities; HIV testing; sexual risk; youth subcultures

Background

In the United States, African American men who have sex with men (MSM) and transgender (TG) women are two subpopulations with high rates of HIV incidence and prevalence as well as higher rates of morbidity and mortality due to HIV/AIDS (Centers for Disease

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Control and Prevention, 2012; Millett et al., 2012; Prejean et al., 2011). The House Ball Community (HBC) is a nationwide network of underground communities of African American MSM and TG youth who join ‘houses’, family-like structures that are parallel to but distinct from constructed ‘gay families’ of choice (Dickson-Gomez, et al., 2014), and organise elaborate balls (judged competitions between houses in which participants are awarded prizes for displaying mastery of particular performative categories). Members of the HBC are disproportionately impacted by HIV, with prevalence at 17% and 27% in New York and the San Francisco Bay Area, respectively (Arnold and Bailey, in press; Murrill et al., 2008).

Marginalised for being gay or for being transgender by the black community, for being black by society at large, and saddled with a highly stigmatised infectious disease, African American MSM and TG women face stigma in every corner of their lives (Arnold, Rebchook, & Kegeles, 2014). Isolated from typical sources of social support, norms can evolve in the HBC that might facilitate survival in the short term (e.g. to be secretive about HIV status), but that may ultimately function as further barriers to engaging in healthcare, or to coming into contact with traditional interventions. Consequently, many HBC members do not regularly access HIV-related services (Holloway et al., 2012; Phillips, Peterson, Binson, Hidalgo, & Magnus, 2011).

Yet, members of the HBC, many of whom are employed in the AIDS service delivery industry, do engage in HIV prevention activities within their community. In qualitative studies, both houses and balls – the institutional bedrock of the community – have been found to promote HIV prevention with young members of the HBC community (Kubicek, McNeeley, Holloway, Weiss, & Kipke, 2013). Partly this is due to the history the community has with HIV, where a number of prominent or ‘legendary’ house figures have died from AIDS and the epidemic has taken a significant toll. Also, the HBC is one of the few communities in which young gay and bisexual men socialise with and interact with transgender women, and both communities of young MSM and TG women of colour have been disproportionately impacted by HIV. Thus, it is not surprising that house mothers and fathers have been observed to provide essential, yet different, forms of social support related to HIV (Arnold & Bailey, 2009). For example, house mothers may encourage their house members, or ‘children’, to use condoms and get tested, while house fathers may encourage them to gain employment, or go back to school in order to change their material circumstances and ultimately decrease young people’s vulnerability to HIV. In settings such as the San Francisco Bay Area, a site that is increasingly impacted by the global economy, which has driven the cost of living and housing prices to new heights, the HBC provides a safe harbour for already socially marginalised youth. Facing homelessness from being rejected by biological kin due to homophobia or trans-phobia, many young people are not able to secure affordable housing on their own. House fathers and mothers provide literal homes for many, attempting to offer protection from larger trends in the global economy that may further destabilise the lives of sexual minority youth. The HBC has also begun to spread globally and has been observed in urban centres in Europe and Canada, in areas where gay and transgender youth face discrimination.

Scholars have called these forms of intervention ‘intravention’ (Friedman et al., 2004) because they come from within the community, and represent a kind of nurturing when framed as house parents ‘caring’ for house children (Arnold & Bailey, 2009; Bailey, 2011). Furthermore, prevention balls, which are organised around the central concept of HIV prevention and incorporate diverse elements ranging from offering testing, setting performative categories that encourage young people to interact with HIV prevention concepts and share information, providing condoms on tables at the event, and having emcees blast anti-HIV-related stigma messages, also are a form of intravention (Bailey, 2011).

Because the HBC is situated within larger communities of African American MSM and TG women, messages and norms fashioned within the HBC spread outward into the broader community via social networks (Bailey, 2013). Thus, house-based and ball-based forms of HIV prevention intravention are diffused throughout the community, through social networks of young HBC members who are formal members of houses as well as the array of spectators (HBC members who attend balls but do not formally belong to any specific house), curious onlookers, and HIV service providers that attend balls.

Recent studies have documented the importance of social networks in driving the HIV epidemic among African American MSM and TG women, as well as the role of social support in promoting regular HIV testing (Hurt et al., 2012; Scott et al., 2014). Several intervention studies, guided by diffusion of innovations theory, have used social networks to identify influential leaders and social groups to accelerate behaviour change (Valente, 2012). Approaches that systematically identify, train, and enlist known social influence leaders to advise members of their own networks in risk reduction constitute effective ways to reach hidden, marginal population segments, such as African American MSM and TG women (Amirkhanian, Kelly, Kabakchieva, McAuliffe, & Vassileva, 2003; Kelly et al., 1997). Social support is related to increased HIV treatment adherence and retention in care, and even social support interventions that take place via online networks have been shown to have impact (Latkin et al., 2013). Thus, it would appear that engaging with African American MSM and TG social networks, such as the extant networks within the HBC, and measuring the forms of social support within these networks and their association with norms and behaviours would be an essential step in promoting HIV prevention within this particular community.

Although previous ethnographic work has demonstrated positive outcomes associated with HIV-related social support provided within HBC social networks, there have been relatively few quantitative studies examining social support networks within the HBC. In fact, only one study has formally measured and assessed social networks within the HBC, which was conducted in Los Angeles. It found that participants were more likely to seek sexual health advice from social support network members than from sexual network members (Holloway, Schrager, Wong, Dunlap, & Kipke, 2014). They also found that HBC members were significantly more likely to get drunk, and use illicit substances with house members and sexual network members than with non-house members and social support network members. In a related paper, based on the same data set, researchers reported that having sexual partners in the social network, multi-ethnicity, and previous STI diagnoses were

associated with sexual risk activities. House membership, however, was protective (Schrager, Latkin, Weiss, Kubicek, & Kipke, 2014).

While general forms of social support and its association with sexual health advice seeking have been studied in HBC-specific samples, data pertaining to HIV-specific forms of social support and associations with sexual risk and HIV testing behaviour have not been gathered from social networks affiliated with the HBC. We set out to examine the social support networks in the San Francisco Bay Area HBC, exploring the relationships of network structures and social support, including provision of HIV-specific forms of social support for regular HIV testing and condom use, to prevalence of sexual risk and testing behaviours.

Methods

From 2011 to 2012, our team collected cross-sectional surveys with $N = 274$ individuals attending balls hosted by the San Francisco Bay Area HBC. Due to a six-month moratorium on balls during the study's time in the field, caused by increased levels of interpersonal violence at balls, the team used convenience sampling. Recruitment took place at balls, house meetings, community-based organisations that catered to HBC youth, local hangout spots for gay youth, gay pride events, and shopping areas and parks in gay neighbourhoods. Participants were recruited and surveys administered by a trained research assistant. Potential participants were approached, given cards describing the study with the research assistant's contact information, and encouraged to call to make an appointment. In some cases, participants were screened immediately and then arranged to take the survey in a nearby location. Eligibility criteria included: being African American identified; gay or bisexual sexual identity, or transgender female identity; age 18–29; having attended a ball in the past two years; being a member of a house or a gay family; and having had sex with a man in the past three months. A total of 318 individuals were screened, of whom 274 (86%) were found to be eligible and were enrolled in the study.

Surveys were administered using Audio-enhanced Computer Assisted Self Interviewing (ACASI), except for the social network sections, which were interviewer administered. Most surveys took place in a private office at the University of California San Francisco or at a local community-based organisation in downtown Oakland. The research assistants collected verbal consent from all participants. Participants received \$25.00 to compensate for their travel costs and time. Surveys lasted approximately 15–45 minutes. All study procedures were reviewed and approved by the Committee on Human Research at the University of California San Francisco.

Measures

Demographics

We asked our participants their age, racial/ethnic identity, level of education, income, employment status, any recent history of homelessness or incarceration, gender identity, and sexual identity. We also asked respondents if they considered themselves to be a member of the HBC; and if so, their role in the community (spectator, house member, house mother/father, or house board member); and if they are in a house, which house.

Sexual risk behaviour

Sexual risk behaviour was operationalised as engaging in UAI with a male sex partner in the past three months.

HIV testing behaviour

We asked participants to report the month and year and the result of their most recent HIV test. Recent HIV testing was defined as testing that occurred within the six months prior to the survey date. Thus, delayed testing is the failure of HIV-negative participants to have tested for HIV within the six months prior to participating in the study.

Social support network name generator

We collected egocentric social network data on the social support networks of our participants. Specifically, we used Burt's General Social Survey (Burt, 1984) name generator to elicit the initials of up to five people who the participant (ego) talks to about 'important personal matters – such as your job, school, money issues, your health, or emotional or relationship problems'. Participants listed initials of up to five people and then were subsequently asked a series of questions about each alter. The first 'alter' is the person the participant consults most frequently, followed by the next most frequently consulted alter, and so on up to five alters, a limit that has been supported in the literature (Merluzzi and Burt, 2013).

Alter characteristics

We asked each participant to provide details about each alter they named as part of their social support network. We collected data on the nature of the relationship (intimate partner, friend, biological family member, gay family member, house member), mutual substance use/sexual risk taking with the respondent, and social support *accessible or provided* to the respondent.

Social support measures

We adapted social support items from Darbes' HIV-specific social support measure, developed and used with gay couples (Darbes & Lewis, 2005), for use with social network alters. Specifically, respondents were asked if each alter was supportive of having safer sex (yes/no), and if so, whether that alter was supportive or very supportive. They were also asked if each alter encouraged the respondent to get an HIV test (yes/no). We used the multidimensional scale of perceived social support to collect data on instrumental and emotional forms of social support (Zimet, Dahlem, Zimet, & Farley, 1988). Instrumental support was measured by asking if each alter was 'someone who would loan you \$40.00?', 'someone you could stay with for a few nights?', or 'someone you can depend on to help you in an emergency, even if they had to go out of their way?' Similarly, emotional support was measured by asking if each alter was 'someone you can talk to about things that matter to you?', 'someone who lets you know they respect who you are?', or 'someone who accepts you as you are, both your good and bad points?' All six items required yes/no responses. 'Yes' responses were summed to create scores ranging from 0 to 3.

Network structure measures

We used E-Net (Borgatti, 2006) to generate the social network structural variables, looking at network size and the extent to which the individuals in one's network are connected to one another. *Density* is a measure of the extent to which the alters in the participant's social support network are connected to one another (i.e. know each other as reported by the participant). For the purposes of analysis, cases where participants reported only one alter were assigned a density score of zero. *Homophily* is the principle that contact between similar people occurs at a higher rate than among dissimilar people (McPherson, Smith-Lovin, & Cook, 2001), thus leading to increased network ties between those similar along certain dimensions. A common measure of homophily is the E-I index (Krackhardt & Stern, 1988) which measures the tendency for individuals to form ties to similar others. In our study, we based E-I index on race, gender, and sexual identity. An E-I index score of -1 suggests only being tied to similar others (complete homophily), while a score of 1 indicates only being tied to different others (complete heterophily).

Analysis

Using SPSS V22, we ran simple logistic regressions to assess the bivariate relationships between each of the two binary outcomes (UAI and delayed testing) and demographic characteristics (age, HIV serostatus, role in the HBC), social support network structure and alter characteristics (the number of social alters discussed, the density of that network, race/ethnicity-based homophily, gender identity-based homophily, sexual identity-based homophily), and forms of social support (percent of alters that encouraged HIV testing, percent of alters that were very supportive of safer sex, instrumental social support, and emotional social support). In cases where a continuous correlate did not exhibit a linear relationship with an outcome, a categorical version was created choosing categories that best reflected the relationship between that correlate and that outcome based on the empirical data. For example, the instrumental and emotional social support measures were dichotomised as maximally supportive vs. less than maximally supportive. Remaining continuous correlates were also assessed for proper scale, and in the case of the two percent-of-alter social support measures, both were re-scaled such that the unit of change in the correlate is 10 percentage points. Instrumental social support and emotional self-support were intended to be assessed as separate correlates. However, the two scales exhibited marked multicollinearity vis-à-vis UAI, so for analyses involving UAI a single, overall social support variable was employed instead. Finally, multivariate logistic regression models were developed by entering the three groups of variables hierarchically (social support first, network and alter characteristics next, and respondent characteristics last) and using backward elimination within each group to retain only statistically significant ($p < .05$) correlates. This approach was taken due to the exploratory nature of the study.

Results

Sample

About half of our sample of 274 ball attendees are between 27 and 29 years of age (see Table 1). Over 90% have a high school diploma, but less than 5% have a college degree. Just over half are unemployed or irregularly employed, and just under half earned less than

\$1000 in the prior month. Approximately 18% of our sample were homeless in the past year. Still, our sample was older, better educated, and had higher incomes than samples of other HBC populations, perhaps reflecting the geographical location of our study in the Bay Area, an expensive area to live in. We found that 52% of the sample had tested for HIV in the past six months, and 27% reported that they were HIV positive. Among those living with HIV, the average length of time since learning they were HIV positive was 55 months (four years seven months); while the median was 43 months (three years seven months). Approximately 8% of the participants were recently diagnosed, having tested positive in the past year. For those living with HIV, 73% reported that half or less than half of their friends knew they were HIV positive, and 40% stated that it was 'very important' to keep their status a secret.

Approximately 80% of our sample considered themselves to be 'members' of the HBC. We sampled members from 11 houses in the Bay Area, with the Houses of Khan, Mizrahi, Revlon, and Valentino being the most represented. The number of social network alters ranged from 0 to 30, but the sample mean is 2.45 and only 3% reported more alters than the five specifically asked about. Examining the social support networks of our participants, we found that only 16% of the social support alters (up to five people they named in their social support network) were members of the same house as the participant, indicating that our participants do not rely heavily on intra-house networks.

We ran bivariate and multivariate regression models with sociodemographic factors, measures of social network structure (size, density, and homophily), and the provision of social support (HIV-related, instrumental, and emotional), examining associations with our outcomes of interest, namely UAI and HIV testing in the past six months. For our model examining UAI, we included the 268 participants with at least one social alter (see Table 2). Just over half (53%) of the sample reported UAI with a male sex partner in the past three months. The model for recent testing, however, included only those participants who reported being HIV negative (HIV-positive participants were excluded regardless of diagnosis date), further limiting our sample to $N=193$ (see Table 3). Just under half (47%) of those respondents reported their last HIV test was more than six months prior to completing the survey.

The impact of social support on UAI and recent HIV testing

HIV-related social support was associated with both outcomes. In bivariate analyses for UAI, those who had a high percentage of alters who were supportive of HIV testing were significantly less likely to have engaged in UAI in the past three months. Similarly, those who had a high percentage of alters who were very supportive of safer sex were also significantly less likely to have engaged in UAI in the past three months at the bivariate level. In the multivariate regression analyses examining the full model, social support for safer sex was still significantly associated with UAI in the past three months. As expected, the odds of UAI decrease as support for safe sex increases, showing that participants with less supportive networks were more likely to engage in UAI. In contrast, support for HIV testing was no longer significantly associated in the full model. Neither emotional nor instrumental social support within the network was associated with the outcome in either set of analyses, contrary to what we expected.

In the bivariate models examining correlates of recent HIV testing, consistent with expectations, social support for testing and for safer sex within the social support network were associated with a higher likelihood that participants had tested within the past six months. Surprisingly, emotional social support was not significantly associated with recent HIV testing, and instrumental support was actually associated with increased odds of delayed HIV testing. Multivariate regression analyses revealed that social support for safer sex, instrumental social support, and age were all significantly associated with HIV testing in the past six months. Specifically, greater instrumental social support was still significantly associated with delayed testing, where participants who have access to the maximum amount of instrumental social support from all of their alters were more than twice as likely to delay testing. However, participants reporting high percentages of alters who provided social support for safer sex were significantly less likely to delay (or more likely to have tested in the past six months), which was in the expected direction.

Social network structure and UAI and HIV testing

Our results indicated that network size and density of the social support network were not significantly associated with either UAI or HIV testing. This was surprising since density has been associated with better health outcomes. Our findings may be due to the fact that many of the networks were relatively small, and we had a number of participants who reported only one social support alter. Nonetheless, the composition of the network did matter, and our data indicated that participants with more diverse networks on our measure of sexual identity were more likely to engage in UAI. Thus, participants who had more non-gay-identified alters were more likely to engage in sexual risk, a finding that emerged in both bivariate and multivariate analyses. For sexual risk taking, the more similar alters were to the participants on sexual identity (homophilous), the less likely they were to have engaged in UAI in the past three months. For HIV testing, none of the social network structure measures, including size, density, or homophily, was found to be significantly associated with delayed testing in either bivariate or multivariate models.

Respondent characteristics and UAI and delayed HIV testing

We explored the effects of three different types of respondent characteristics including their role in the HBC (house member vs. spectator vs. non-HBC member). We suspected that house members may be exposed to HIV prevention messages more frequently than non-members. However, contrary to our expectations, role in the HBC was not significantly associated with either of our outcomes. Age and HIV status did emerge as significant factors in the analyses. In bivariate and multivariate analyses for our UAI outcome, we found that HIV-positive respondents are significantly more likely to report UAI in the past three months than HIV-negative respondents. While this is expected, with nearly 27% of our sample reporting a positive HIV status, this is a finding that deserves attention. Examining the results of our analyses on delayed HIV testing, we found that older participants were significantly more likely to have not tested for HIV in the past six months.

Discussion

Research on the influence of social networks on health behaviour suggests that it is important to examine the social support networks of young people at risk for HIV. The HBC is an extant, culturally appropriate mechanism with the potential to reach young African American MSM and TG women who are at risk for HIV. Yet, there has been little research conducted with HBC, particularly in the San Francisco Bay Area, and we know little about the relative influence of social support network members on behaviours that are most relevant to HIV prevention, namely UAI and delayed HIV testing. We find that social support network members provide a great deal of social support. Encouragingly, in instances where young people had social support alters who all uniformly provided safer sex- or HIV testing-related support, we saw significantly better outcomes in the form of reduced prevalence of UAI in the past three months among all participants and reduced prevalence of delayed HIV testing (greater than six months since their last test) among HIV-negative participants. Taken together, the provision of HIV-related social support by alters in the social support network mattered for behaviours that represent the backbone of HIV prevention efforts for youth in this community. This suggests that targeting the alters within the social support networks and encouraging young people to give one another HIV-specific forms of social support could be a promising avenue for prevention and future research. Furthermore, intervention approaches that reach all of the alters within the social support networks to activate HIV-specific forms of social support may be more effective than only reaching a proportion of the alters. Other social network researchers have arrived at similar conclusions (Valente, 2012), showing that network-based approaches to mobilisation can reduce social barriers to testing and treatment.

We were surprised to see that instrumental social support was significantly related to delayed HIV testing for HIV-negative people in our sample. It is possible that participants who perceive they are able to access high levels of the types of instrumental support assessed in this study, which represented relatively basic needs (e.g. loans of \$40.00), may actually be the most vulnerable segment of our sample. Recent work has highlighted that, although perceived social support is only modestly correlated with social support actually received (Haber, Cohen, Lucas, & Baltes, 2007), it is more strongly correlated with social support received *when needed* (Melrose, Brown, & Wood, 2015). Thus, there is a good possibility that many participants reporting high levels of perceived instrumental support had actually received that support at some point when they needed it. Participants who, out of necessity, availed themselves of \$40 or a place to stay from their social support alters may be experiencing a level of chaos in their lives that makes it difficult to access testing on a regular basis. Consistent with this idea, a recent study found that experiencing a greater number of life stressors, such as homelessness, was associated with delayed HIV testing among a sample of men who have sex with men (Nelson et al., 2014). Coping with chronic daily stressors and hassles may decrease motivation or ability to get tested every six months.

Interestingly, our findings indicate that the social network structures do not appear to have a significant association with HIV-related outcomes. Neither size nor density of the network was associated with either UAI or delayed testing. Perhaps this was somewhat expected given that a majority of our participants reported only one or two social support network

alters, thus making the size of the networks themselves rather small and revealing a number of isolates in the HBC.

We did see that homophily, particularly on sexual identity, was significantly related to sexual risk taking. Participants who named social support alters who were NOT like them on sexual identity were more likely to engage in UAI. It is possible that given the youthful demographics of this sexual minority community, where youth are still becoming socialised into negotiating sexual behaviours, it is protective to have social support alters who shared a similar sexual identity to help peers navigate their sexual relationships and encounters. Affiliating with similarly identified peers may promote and support the development of healthy sexual identities among sexual minorities which, in turn, has been found to be related to lower rates of risky sexual behaviour (Fisher, 2011; Hampton et al., 2012; White & Stephenson, 2013). Indeed, affinities to similar others in social networks has been shown to be important in creating niches within the larger social space (McPherson et al., 2001).

Given the demographics of the sample and the ongoing emphasis on the importance of HIV testing for African American MSM, it was disheartening to see that older participants were more likely to have delayed testing in the past six months since they would have been most exposed to public health messages and campaigns around the importance of testing every six months. It is possible that the older participants in our sample perhaps have experienced fatigue around regular testing, or did not perceive themselves to be at risk for HIV due to being in more stable relationships.

Limitations

This was a cross-sectional survey, so we can only report associations and cannot make claims for causality. Also, we had to collect our data using a convenience sample, since it was not possible for us to systematically select cases using probability-based procedures. Therefore, data from our sample should not be construed as accurate statistical estimates for the entire San Francisco Bay Area HBC population, although we believe that our findings are relevant to most members of the community. Our sample did include people at all levels of participation in the HBC community including members of all the major houses in the San Francisco Bay Area. We had originally planned to conduct a venue-based sample, inviting every fourth individual leaving a ball to participate in the survey, but found that it was impossible due to a particularly turbulent period within the HBC where a number of balls ended in violence. We also included people who had attended balls in past two years but who did not necessarily 'identify' as members of the HBC. Also, many participants listed only one individual in their social support networks. Given the lack of opportunity for structure in these individual's support networks, it was deemed most prudent to create a dichotomous categorical variable of density, which was not ideal but has been used in other HIV-related studies (Gyarmathy et al., 2010).

Conclusions

Our findings indicate that HIV-related social support provided through the social support network is correlated with recent HIV testing and reduced UAI. Building an intervention

that infuses these social support networks within the HBC with activities to increase HIV-related social support should improve testing and care outcomes while also reducing risk behaviour. In addition, more studies that identify other community mechanisms that are linked to resiliency within communities of African American MSM and TG women could be quite promising for building models for HIV prevention and care.

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References

- Amirkhanian YA, Kelly JA, Kabakchieva E, McAuliffe TL, Vassileva S. Evaluation of a social network HIV prevention intervention program for young men who have sex with men in Russia and Bulgaria. *AIDS Education and Prevention*. 2003; 15(3):205–220. DOI: 10.1521/aeap.15.4.205.23832 [PubMed: 12866833]
- Arnold EA, Bailey MM. Constructing home and family: How the ballroom community supports African American GLBTQ youth in the face of HIV/AIDS. *Journal of Gay and Lesbian Social Services*. 2009; 21(2–3):171–188. DOI: 10.1080/10538720902772006 [PubMed: 23136464]
- Arnold, EA., Bailey, MM. HIV within the House Ball Community and the promise of community-based social structures for intervention and support. In: Wilton, L., editor. *Understanding HIV prevention for HIV positive gay men: Innovative approaches in addressing the AIDS epidemic*. New York: Springer; (in press)
- Arnold EA, Rebchook GM, Kegeles SK. “Triply cursed”: Racism, homophobia, and HIV-related stigma are barriers to regular HIV testing, treatment adherence, and disclosure among young Black gay men. *Culture, Health & Sexuality*. 2014; 16(6):710–22. DOI: 10.1080/13691058.2014.905706
- Bailey MM. Gender/racial realness: Theorizing the gender system in ballroom culture. *Feminist Studies*. 2011; 37(2):365–384.
- Bailey, MM. *Butch queens up in pumps: Gender, performance, and ballroom culture in Detroit*. Ann Arbor: University of Michigan Press; 2013.
- Borgatti, SP. *E-net software for the analysis of ego-network data*. Needham, MA: Analytic Technologies; 2006.
- Burt RS. Network items and the general social survey. *Social Networks*. 1984; 6:293–339. DOI: 10.1016/0378-8733(84)90007-8
- Centers for Disease Control and Prevention. *STD surveillance report 2011*. Atlanta, GA: Centers for Disease Control; 2012.
- Darbes LA, Lewis MA. HIV-specific social support predicts less sexual risk behavior in gay male couples. *Health Psychology*. 2005; 24(6):617–622. DOI: 10.1037/0278-6133.24.6.617 [PubMed: 16287408]
- Dickson-Gomez J, Owczarzak J, St Lawrence J, Sitzler C, Quinn K, Pearson B, ... Amirkhanian YA. Beyond the ball: Implications for HIV risk and prevention among the constructed families of African American men who have sex with men. *AIDS and Behavior*. 2014; 18(11):2156–2168. DOI: 10.1007/s10461-014-0836-6 [PubMed: 24980248]
- Fisher CM. Adapting the information-motivation-behavioral skills model: Predicting HIV-related sexual risk among sexual minority youth. *Health Education and Behavior*. 2011; 39(3):290–302. DOI: 10.1177/1090198111406537 [PubMed: 21693648]

- Friedman SR, Maslow C, Bolyard M, Sandoval M, Mateau-Gelabert P, Neaigus A. Urging others to be healthy: "Intravention" by injection drug users as a community prevention goal. *AIDS Education and Prevention*. 2004; 16(3):250–263. DOI: 10.1521/aeap.16.3.250.35439 [PubMed: 15237054]
- Gyarmathy VA, Li N, Tobin KE, Hoffman IF, Sokolov N, Levchenko J, ... Latkin CA. Injecting equipment sharing in Russian drug injecting dyads. *AIDS and Behavior*. 2010; 14(1):141–151. DOI: 10.1007/s10461-008-9518-6 [PubMed: 19214731]
- Haber MG, Cohen JL, Lucas T, Baltes BB. The relationship between self-reported received and perceive social support: A meta-analytic review. *American Journal of Community Psychology*. 2007; 39:133–144. DOI: 10.1007/s10464-007-9100-9 [PubMed: 17308966]
- Hampton MC, Halkitis PN, Storholm ED, Kupprat SA, Siconolfi DE, Jones D, ... McCree DH. Sexual risk taking in relation to sexual identification, age, and education in a diverse sample of African American men who have sex with men (MSM) in New York City. *AIDS and Behavior*. 2012; 17(3):931–938. DOI: 10.1007/s10461-012-0139-8
- Holloway IW, Schrager SM, Wong CF, Dunlap SL, Kipke MD. Network correlates of sexual health advice seeking and substance use among members of the Los Angeles House and Ball communities. *Health Education Research*. 2014; 29(2):306–318. DOI: 10.1093/her/cyt152 [PubMed: 24452228]
- Holloway IW, Traube DE, Kubicek K, Supan J, Weiss G, Kipke MD. HIV prevention service utilization in the Los Angeles House and Ball communities: Past experiences and recommendations for the future. *AIDS Education and Prevention*. 2012; 24(5):431–444. DOI: 10.1521/aeap.2012.24.5.431 [PubMed: 23016504]
- Hurt CB, Beagle S, Leone PA, Sugarbaker A, Pike E, Kuruc J, ... Hightow-Weidman LB. Investigating a sexual network of black men who have sex with men: Implications for transmission and prevention of HIV infection in the United States. *JAIDS Journal of Acquired Immune Deficiency Syndromes*. 2012; 61(4):515–521. DOI: 10.1097/QAI.0b013e31827076a4 [PubMed: 22972020]
- Kelly JA, Murphy DA, Sikkema KJ, McAuliffe TL, Roffman RA, Solomon JJ, ... Kalichman SC. Randomised, controlled, community-level HIV-prevention intervention for sexual-risk behaviour among homosexual men in US cities. *The Lancet*. 1997; 350(9090):1500–1505. DOI: 10.1016/S0140-6736(97)07439-4
- Krackhardt D, Stern RN. Informal networks and organizational crises: An experimental simulation. *Social Psychology Quarterly*. 1988; 51(2):123–140. DOI: 10.2307/2786835
- Kubicek K, McNeeley M, Holloway IW, Weiss G, Kipke MD. "It's like our own little world": Resilience as a factor in participating in the Ballroom community subculture. *AIDS and Behavior*. 2013; 17(4):1524–1539. DOI: 10.1007/s10461-012-0205-2 [PubMed: 22618891]
- Latkin CA, Davey-Rothwell MA, Knowlton AR, Alexander KA, Williams CT, Boodram B. Social network approaches to recruitment, HIV prevention, medical care, and medication adherence. *JAIDS Journal of Acquired Immune Deficiency Syndromes*. 2013; 63(Suppl 1):S54–S58. DOI: 10.1097/QAI.0b013e3182928e2a [PubMed: 23673888]
- McPherson M, Smith-Lovin L, Cook JM. Birds of a feather: Homophily in social networks. *Annual Review of Sociology*. 2001; 27:415–444. 0360-0572/01/0811-0415.
- Melrose KL, Brown GDA, Wood AM. When is received social support related to perceived support and well-being? When it is needed. *Personality and Individual Differences*. 2015; 77:97–105. DOI: 10.1016/j.paid.2014.12.047
- Merluzzi J, Burt RS. How many names are enough? Identifying network effects with the least set of listed contacts. *Social Networks*. 2013; 35(3):331–337. DOI: 10.1016/j.socnet.2013.03.004
- Millett GA, Peterson JL, Flores SA, Hart TA, Jeffries WLT, Wilson PA, ... Remis RS. Comparisons of disparities and risks of HIV infection in black and other men who have sex with men in Canada, UK, and USA: A meta-analysis. *The Lancet*. 2012; 380(9839):341–348. DOI: 10.1016/S0140-6736(12)60899-X
- Murrill CS, Liu KL, Guilin V, Colon ER, Dean L, Buckley LA, ... Torian LV. HIV prevalence and associated risk behaviors in New York City's house ball community. *American Journal of Public Health*. 2008; 98(6):1074–1080. DOI: 10.2105/AJPH.2006.108936 [PubMed: 18445806]

- Nelson KM, Thiede H, Jenkins RA, Carey JW, Hutcheson R, Golden MR. Personal and contextual factors related to delayed HIV diagnosis among men who have sex with men. *AIDS Education and Prevention*. 2014; 26(2):122–133. DOI: 10.1521/aeap.2014.26.2.122 [PubMed: 24694326]
- Phillips G II, Peterson J, Binson D, Hidalgo J, Magnus M. House/ball culture and adolescent African American transgender persons and men who have sex with men: A synthesis of the literature. *AIDS Care*. 2011; 23(4):515–520. DOI: 10.1080/09540121.2010.516334 [PubMed: 21271403]
- Prejean J, Song R, Hernandez A, Ziebell R, Green T, Walker F. ... HIV Incidence Surveillance Group. Estimated HIV incidence in the United States, 2006–2009. *PLOS One*. 2011; 6(8):e17502.doi: 10.1371/journal.pone.0017502 [PubMed: 21826193]
- Schrager SM, Latkin CA, Weiss G, Kubicek K, Kipke MD. High-risk sexual activity in the House and Ball community: Influence of social networks. *American Journal of Public Health*. 2014; 104(2): 326–331. DOI: 10.2105/AJPH.2013.301543 [PubMed: 24328654]
- Scott HM, Pollack L, Rebchook GM, Huebner DM, Peterson J, Kegeles SM. Peer social support is associated with recent HIV testing among young black men who have sex with men. *AIDS and Behavior*. 2014; 18(5):913–920. DOI: 10.1007/s10461-013-0608-8 [PubMed: 24065436]
- Valente, T. *Social networks and health*. Oxford: Oxford University Press; 2012.
- White D, Stephenson R. Identity formation, outness, and sexual risk among gay and bisexual men. *American Journal of Men's Health*. 2013; 8(2):98–109. 1557988313489133.
- Zimet GD, Dahlem NW, Zimet SG, Farley GK. The multidimensional scale of perceived social support. *Journal of Personality Assessment*. 1988; 52(1):30–41.

Table 1Demographic characteristics of the San Francisco Bay Area ball community sample ($N = 274$).

Variable	Category	% (N)
Age ^a	18–20	7.0 (19)
	21–23	18.7 (51)
	24–26	24.5 (67)
	27–29	49.8 (136)
Gender	Male	90.8 (248)
	Transgender female	9.1 (24)
Race/ethnicity	African American only	84.3 (231)
	African American mixed	15.7 (43)
Sexual identity	Same gender loving	16.4 (45)
	Gay/homosexual	55.1 (151)
	Bisexual	16.4 (45)
	Straight/heterosexual	0.7 (2)
Education	Other	11.4 (31)
	Less than high school diploma	7.7 (21)
	High school diploma	45.3 (124)
	Technical/vocational school	8.0 (22)
	Some college	34.7 (95)
Working status in past three months	College degree	4.4 (12)
	Employed full-time	21.7 (59)
	Employed part-time	27.2 (74)
	Employed sometimes	21.7 (59)
Income last month	Unemployed	29.4 (80)
	Under \$250	8.4 (23)
	\$250–\$499	10.2 (28)
	\$500–\$999	29.2 (80)
	\$1000–\$1999	34.7 (95)
Self-reported HIV status	\$2000 or more	17.5 (48)
	HIV negative	72.7 (197)
	HIV positive	27.3 (74)
Homeless in past year	Yes	17.9 (49)
	No	82.1 (224)
Incarcerated in the past three months	Yes	5.5 (15)
	No	94.5 (259)
Ballroom community affiliation ^b	House member – child	27.0 (74)
	House member – mother/father	0.4 (1)
	House board member	1.8 (5)
	Spectator	50.0 (137)
	Not a member of the ballroom community	20.8 (57)
Number of support alters ^c	0	2.2 (6)

Variable	Category	% (N)
	1	36.9 (101)
	2	36.1 (99)
	3	13.9 (38)
	4	3.6 (10)
	5 or more	6.9 (19)

^aMean age = 25.58, SD = 2.93, range = 18–29.

^b11 houses identified; 64 of 80 house members from four houses; mean length of house membership = 2.86 years, SD = 2.85, range = 1 month to 13 years.

^cPeople with whom you ‘discussed important personal matters such as your job, school, money issues, your health, or emotional or relationship problems’ in the past three months; nine cases reported more than five alters; mean number of social alters = 2.45, SD = 3.50, range = 0–30.

Table 2

Bivariate and multivariate correlates of unprotected anal intercourse among respondents with one or more social alters (N = 268).

Variable		N	Bivariate	Multivariate ^a
			OR (95% CI)	OR (95% CI)
<i>Social support</i>				
% alters encourage testing ^b		263	0.91 (0.85–0.96) **	
% alters support safer sex ^a		265	0.93 (0.87–0.99) *	0.93 (0.87–0.99) *
Social support	Maximum	177	1.00	
	Less than maximum	90	1.26 (0.75–2.13)	
<i>Network structure</i>				
Degree (# social alters)		268	1.09 (0.87–1.35)	
Density	Maximum (0.50)	134	0.99 (0.59–1.65)	
	Less than maximum	22	1.99 (0.75–5.27)	
	Minimum (0)	112	1.00	
Race/ethnicity homophily	All same as ego	163	1.00	
	Not all the same	104	1.11 (0.67–1.84)	
Gender homophily	All same as ego	135	1.00	
	Not all the same	130	1.38 (0.84–2.25)	
Sexual identity homophily		266	1.38 (1.02–1.86) *	1.38 (1.01–1.87) *
<i>Respondent characteristics</i>				
Age		267	1.09 (0.99–1.18)	
HIV serostatus	HIV negative	193	1.00	1.00
	HIV positive	73	1.88 (1.07–3.31) *	1.91 (1.07–3.41) *
Role in BR community	House member	78	1.01 (0.50–2.04)	
	Spectator	134	1.38 (0.73–2.62)	
	Non-member	56	1.00	

* $p < .05$.

** $p < .01$.

^a $N = 253$; Hosmer–Lemeshow goodness-of-fit test $p = .615$.

^b OR reflects change in odds of outcome per each 10 percentage point increase in correlate.

Table 3

Bivariate and multivariate correlates of delayed HIV testing among HIV-negative respondents with one or more social alters ($N=193$).

Variable			N	Bivariate	Multivariate ^a
				OR (95% CI)	OR (95% CI)
<i>Social support</i>					
% alters encourage testing	0–25%		23	0.52 (0.17–1.58)	
	33–67%		31	1.00	
	75–100%		135	0.35 (0.15–0.80) *	
% alters support safer sex ^a			192	0.91 (0.84–0.98) *	0.89 (0.82–0.97) **
Instrumental social support	Maximum		129	2.03 (1.09–3.80) *	2.21 (1.11–4.40) *
	Less than maximum		63	1.00	1.00
Emotional social support	Maximum		178	0.75 (0.26–2.17)	
	Less than maximum		15	1.00	
<i>Network structure</i>					
Degree (# support alters)			193	0.96 (0.75–1.24)	
Density	Maximum (0.50)		95	1.34 (0.76–2.37)	
	Less than maximum		98	1.00	
Race/ethnicity homophily	All same as ego		119	0.47 (0.21–1.04)	
	Mixed		34	1.00	
	None same as ego		39	0.44 (0.17–1.14)	
Gender homophily	All same as ego		98	1.00	
	Mixed		61	0.75 (0.39–1.43)	
	None same as ego		32	1.04 (0.47–2.32)	
Sexual identity homophily	All same as ego		46	1.00	
	Mixed		54	1.42 (0.63–3.19)	
	None same as ego		91	1.62 (0.78–3.38)	
<i>Respondent characteristics</i>					
Age			192	1.13 (1.02–1.24) *	1.11 (1.00–1.23) *
Role in BR community	House member		59	1.53 (0.66–3.55)	
	Spectator		97	1.61 (0.74–3.50)	
	Non-member		37	1.00	

* $p < .05$.

** $p < .01$.

^a $N=187$; Hosmer–Lemeshow goodness-of-fit test $p = .985$.

^b OR reflects change in odds of outcome per each 10 percentage point increase in correlate.