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Family network proportion and HIV risk among Black men who have sex with men

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Abstract

Objectives—Black men who have sex with men (BMSM) have the highest rates of HIV in the United States. Despite increased attention to social and sexual networks as a framework for biomedical intervention, the role of family in these networks and their relationship to HIV prevention has received limited attention.

Methods—A network sample (N=380) of BMSM (n=204) and their family members (n=176) was generated through respondent driven sampling of BMSM and elicitation of their personal networks. The proportion of personal networks that were family was calculated and weighted logistic regression was used to assess the relationship between this proportion and unprotected anal intercourse (UAI), sex-drug use (SDU) and group sex (GS); as well as intravention efforts to discourage these risk behaviors among their MSM social networks.

Results—45.3% of respondents listed at least one family member in their close personal network. Greater family network proportion (having 2 or more family members in the close network) was associated with less SDU [adjusted odds ratio (AOR 0.38(0.17–0.87))] and participation in GS (AOR 0.25(0.10–0.67)). For intravention, BMSM with greater family proportion were more likely to discourage GS (AOR 3.83(1.56–9.43) and SDU (AOR 2.18(1.35–3.54)) among their MSM friend network. Moreover, increased male family network proportion was associated with lower HIV-risk and greater intravention than increased female network proportion.

Conclusions—Nearly half of BMSM have a close family member with whom they share personal information. Combination prevention interventions might be made more potent if this often overlooked component of personal networks were incorporated.

Keywords

Black men who have sex with men; family network; HIV intravention; social network

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INTRODUCTION

From 2006–2009, HIV incidence among young BMSM aged 13–29 increased by 48%; with HIV incidence unchanged among young white and Hispanic/Latino MSM.¹ Nationwide, it is estimated that 1 in 16 BMSM will be diagnosed with HIV during their lifetime.² Although the precise mechanisms underlying the disparities in HIV infection among BMSM are unknown, research has suggested that BMSM experience a constellation of risk factors that may increase vulnerability to infection, including higher rates of undiagnosed HIV³, limited prevention interventions to reduce disparities⁴, less knowledge of partner's HIV status⁵, and higher levels of stigma, discrimination and minority stress experiences.⁶

In addition to these factors, a growing body of research has focused on the role of social networks in facilitating HIV transmission among BMSM.^{7–11} To date, much of this research has examined the extent to which risk is distributed and transmitted through the sexual and social networks of BMSM, focusing on factors such as social norms that encourage HIV-related risk taking, the prevalence of drugs and injection drug use practices, sexual partner availability and selection, and the presence and transmission of STIs within densely populated networks.^{10–13} In addition, the degree of social support available within the personal networks of MSM has also emerged as a powerful correlate^{11,12} with BMSM reporting higher levels of support reporting less sexual risk and higher rates of HIV testing.^{14,15}

Understanding the composition of social networks is important, as studies have found that the extent to which one's network is comprised of friends, sexual partners, drug users/buddies, or family members has important implications for HIV-related risk behaviors.^{16,17} For example, among a sample of primarily African American drug using men and women in Baltimore, the number of family members in one's social network was inversely associated with HIV-related drug and sexual risk behaviors,¹⁸ suggesting that the presence of family members in personal networks may operate as a promotive factor. In contrast, a previous study observed no association between the presence of family members in personal networks and drug injection practices.¹⁶

To date, relatively few studies have explored how the presence of family members in personal networks is potentially related to HIV prevention among MSM.^{19–22} Most research examining family influences has focused on negative family influences among young MSM (YMSM), such as family rejection and abuse, or has reflected an assumption that family members are not a positive source of support in the lives of YMSM.^{21,22} Although many YMSM experience family rejection, recent studies also suggest that large numbers have disclosed their sexual orientation to their families and experience non-trivial levels of family support. For example, in a study with Black, Latino and White YMSM aged 16 – 24 in Chicago, high levels of disclosure of sexual orientation to families were observed, with 83% of youth with mothers/step-mothers in their life reporting maternal disclosure and 70% of youth with a father/step-father in their life reporting paternal disclosure.²² Although Black YMSM reported less paternal disclosure and acceptance than White YMSM, there were no racial differences in maternal acceptance after controlling for important demographic confounders.

Although families have been a focal site for HIV/AIDS prevention with heterosexual populations, the potentially protective role of families among BMSM has received little empirical attention.¹⁹ However, recent studies indicate that many BMSM are out to their families, experience some level of family support, and that family support is positively associated with health and well-being. For example, although it is often suggested that BMSM do not disclose their sexual orientation to their families, Mays et al. found high

levels of family knowledge in sample of 1,181 African American sexual minority adults. Specifically, 76% of mothers, 75% of sisters, 68% of brothers, 58.6% of fathers, and 48% of other close relatives were identified as knowing about one's sexual orientation.²³ In a qualitative study with diverse HIV-positive men, family relationships were described as being important and as uniquely different from relationships with friends.¹⁹ Most men maintained close contact with their families, even when they did not live in close proximity to one another.¹⁹ In a separate study with majority White MSM living with HIV, support from family but not friends was significantly correlated with behavioral intentions to reduce HIV-related sexual risk behaviors.²⁴

Finally, more recent studies on the social networks of HIV-positive persons indicate that families play a complex role in the lives of BMSM that warrants additional attention. For instance, although Wohl et al. found that the social networks of Black and Latino women and MSM tend to be predominantly populated by relatives, women reported a significantly greater number of relatives in their personal networks than do MSM.¹⁴ In addition, friend support appeared to be more available and significantly more important for BMSM relative to their peers.¹⁴ In a subsequent study¹², family support was associated with retention in care at the bivariate level but was not significant in multivariate analyses with BMSM. Rather, among BMSM, stressful relationships with network members were positively correlated with retention, leading to a hypothesis that "positive nagging" by network members may play an important role. Taken together, the extant research suggests that family members may play an important role but that additional research is needed to better understand the family networks of BMSM and how such networks may be related to HIV prevention.

As we enter the fourth decade of the HIV/AIDS epidemic, the lack of meaningful research on BMSM family networks represents a critical gap in the nation's ability to prevent HIV among BMSM, especially young BMSM who are being infected with HIV during adolescence and the transition to young adulthood.¹ Although social networks and social support have both emerged as important correlates of HIV-risk and prevention, additional research is needed to characterize the family networks of BMSM and how such networks may be capitalized on to support both existing and novel HIV prevention efforts. The present study sought to address these gaps in the literature. To the best of our knowledge, it is the first study to describe the family networks of BMSM and to examine the association between the proportion of close personal networks that is family and HIV-risk and prevention practices.

METHODS

Setting

Between January and June of 2010, BMSM were recruited in Chicago using respondent-driven sampling (RDS)²⁵. All interviews took place at partnering community-based organizations by BMSM community members trained by the University of Chicago Survey Lab. HIV voluntary counseling and testing was conducted according to standard protocols at each organization. All study procedures were approved by appropriate academic and community institutional review boards. Informed consent was obtained from all respondents and waived for network members listed by respondents.

Study Participants

Eligibility Criteria—Study participants include both study respondents who were interviewed, and the network members about whom they reported. Study respondents were eligible to participate if they 1) self-identified as African American or Black, 2) identified as

male, 3) were age 18 years or older, 4) reported anal intercourse with a man within the past 12 months, and 5) were willing and able to provide informed consent at the time of the study visit. Network members were eligible if they were named by respondents during the interview.

Recruitment—RDS has been widely applied to study hard-to-reach populations such as injecting drug users, sex workers, and MSM.^{26–29} Recent theoretical and empirical work has assessed the strengths and weaknesses of RDS.^{26,30,31} This work has emphasized the importance of careful selection of “seeds” from diverse sources and sufficient iterative rounds of recruitment to penetrate further reaches of the larger social networked population being studied – “recruits”. In order to improve external validity, seeds were selected from four venues either through referral from HIV program personnel (e.g., case manager) or posting of fliers describing the study. In the case of referral, requests for popular or charismatic candidates were made to maximize first wave recruitment.²⁵ Specifically, twenty-one seeds were recruited using these two approaches: 1) Four seeds were recruited from a local Federally Qualified Health Center that provides HIV primary care; 2) Eight seeds were referred from existing group Effective Behavioral Intervention prevention programs³²; 3) Four seeds were recruited through fliers from a substance use treatment program; and 4) Five seeds were recruited through fliers posted at an LGBT care center. Each seed was given four vouchers and asked to refer up to four MSM from their social networks, with each subsequent recruit doing the same. In order to avoid duplicate enrollment, bilateral arm and wrist measurements were conducted on all respondents. All respondents were paid \$50 for participation.

Survey Instruments

Social Network Assessment—In designing our Men’s Assessment of Social and Risk Networks questionnaire, we followed an established method of gathering network data used in several large national surveys, including the General Social Survey³³, the National Health and Social Life Survey³⁴, and the National Social Life, Health, and Aging Project.³⁵ Some studies assess people’s social and sexual networks by asking about connections with a pre-determined list of different social contacts (e.g., parents, partners, individuals who provide material support). Because so little is known about BMSM’s social lives, we did not make any *a priori* assumptions about the composition of their social networks, as this would have imposed a conceptual framework that dictated the types of contacts that were most important to these men. Instead, we utilized a more open-ended approach³⁶, which let BMSM reveal the characteristics of their personal social networks. This kept the focus on individuals with whom BMSM were most subjectively engaged³⁷, which was appropriate given our goal of identifying the people who are the most likely to be able to exercise some form of influence over BMSM.

We asked a “name generator”³⁸ question during the course of face-to-face interviews to elicit a set of social network members who may influence respondent’s risky behaviors. The name generator was selected to identify network “confidants”³⁹ who have opportunities, through everyday interactions with the respondent, to exercise normative pressure or informal control, provide social support, and to exchange information or advice regarding risky behavior: *“Let’s make a list of your closest associates with whom you may share information about yourself, your physical and mental health, and your social and sexual lifestyles”*. First names or other identifiers such as initials or nicknames were entered into a roster that was recorded for future reference. We then followed up with a series of “name interpreter” questions about each network member’s relationship type and strength of tie. For relationship type, respondents were asked to examine a hand card with 19 relationship categories and to choose one that best described an individual. Family ties included parent,

child/stepchild, sibling, in-law, and other relative. Tie strength, frequency of communication and communication content was measured as in previous national surveys^{33–35} with which our group has been involved. This process was looped over each of the five confidants listed from the initial name generator. Research has shown that five network members is optimal for time and effort to field personal network surveys.⁴⁰

Family Network Proportion—We focused on the confidant sub-network that included family (of origin) in order to measure proportion of a personal network that is family (in sociology, this is also referred to as embeddedness⁴¹). This resulted in a network of family members for each respondent ranging from 0 to 5 family members. The family network included the respondent and his nominated network members who were classified as mother, father, sister, brother, child/step-child, and other female or male relatives. Family network proportion was calculated as the proportion of the confidant network that is family. Family network proportion was further stratified into male and female family network proportion. Because respondents were asked to best characterize each network member with one best descriptor (e.g., friend, parent), the individuals named could not be in multiple network categories.

Sociodemographic, Attitude and Behavior Measures—Age, education, employment, HIV status, unprotected anal intercourse (UAI), preferred sex position (“top, bottom, or versatile”), and whether the respondent has a physician that they go to were items adapted from the Centers for Disease Control and Prevention’s National HIV Behavioral Surveillance Survey, MSM Cycle⁴² and the visit 51 Core Behavioral survey of the MACS (available at <http://statepi.jhsph.edu/macsf/forms.html>). Sex drug use (SDU) was measured as in previous work.^{43,44} Group sex (GS) was measured as “having sex with two or more individuals at the same time”. UAI, GS and SDU were assessed in frequency terms over the past year and were coded for these analyses as present if they were reported as at least monthly. Intra-network within a risk network was adapted from previous work⁴⁵ and included a global assessment of whether respondents discouraged MSM network members from UAI, SDU or GS. Respondents were asked to think of all the men who engage in high-risk behavior (could include straight, gay, and transgender men, etc.) and the interactions the respondent has had with these individuals in the past year. Respondents were asked how many of these men they discouraged from high-risk behaviors (all of them, some of them, none of them). HIV testing and counseling were offered onsite and HIV-infected respondents were referred to appropriate services.

Analysis

Respondent Driven Sampling—In order to generate RDS weights we asked respondents to estimate the number (degree) of MSM in their community who they know well, on a first name basis, and with whom they would likely have contact within the next two weeks. Estimation of this measure of degree was different from the degree calculated from the personal network generator of confidants described previously. Transformations to correct for the non-normal distribution of degree were investigated using the ladder function in Stata. We then generated RDS weights and compared these results to those obtained without the weights and assuming independent observations. These weights were used for all regression analyses.

Risk Network effect analysis—The primary outcomes of this study were defined in terms of risk- and intra-network-related behaviors: UAI, SDU, GS. We examined these outcomes individually according to the following model.⁴⁶

$$g(E(Y))=\alpha+\beta X+\lambda Z$$

where Y is the outcome measure, X represents one or more variables characterizing the respondent's network, and Z the additional covariates selected because of their importance in previous research: individual sociodemographics (age, education, employment), HIV status, interview site, and MSM network size. Our parameter of interest is β , which describes the association between network characteristics and HIV-risk and intravention practices. Two sets of outcome measures were defined: 1) the likelihood or reported frequency of engaging in UAI, SDU, and GS and 2) the likelihood of discouraging other MSM from engaging in UAI, SDU and GS. The model first examined the relationship of family network proportion and one risk behavior outcome controlling for all covariates. The second examined the relationship between family network proportion and whether a respondent would discourage one risk behavior – a measure of intravention; again controlling for all covariates.

RESULTS

Respondent Driven Sampling

Twenty-one seeds generated the study respondent sample through nine waves of RDS with an average of 5.8 recruits per seed chain (range 0–42) over all waves ($n = 204$ BMSM respondents). Six recruits (3%) were referred and deemed ineligible. With subsequent waves of recruitment, study respondents were younger, more likely to be HIV negative and reported less SDU and GS compared to earlier waves (Table 1). Degree of MSM community members was on average 18.6 (SD 44.9) with a range of 2–500. The data was transformed with 1 divided by the square root of the respondent's network degree, which had the least-significant departure from normality.

Family network proportion

Respondents ($N = 204$) reported 983 confidants, of which 176 were family members (one respondent who identified 5 confidants did not identify the nature of the relationship and was excluded from the family analysis). A total of 92 respondents out of 203 (45.3%) listed at least one family member as a confidant (out of a maximum of five possible), i.e., someone with whom they might share information with about “physical and mental health, and social and sexual lifestyles.” Of the 203 Black MSM respondents, 25.6% reported two or more family member confidants. Table 2 presents the demographic characteristics of respondents and identified confidants, as well as the nature of the relationship between respondents and the family members identified as confidants, which is further broken down for male and female kin. The proportion of respondents who reported sex-drug use, unprotected anal intercourse and group sex in the previous 12 months were 77 (37.8%), 72 (35.8%) and 45 (22.3%) respectively. The type of drugs used by respondents in the last 12 months included: marijuana 122 (60.4%), cocaine/crack 39 (19.3%), psychedelics 30 (14.9%), poppers 20 (9.9%), heroin 9 (4.5%) and methamphetamine 4 (2.0%).

The proportion of confidant network members who were family stratified by age categories and self-reported HIV status is depicted in **Figure 2**. The height of the bars represents the proportion of identified confidants who were family members. The shading within the bars depicts the type of family member and the percentages of each type of family member for a given age group or HIV status. For example, about 15% of the confidants mentioned by 18 and 19 year old respondents ($n = 19$) were family members and among these confidants, 13.3% were mothers, 23.3% were brothers, and 36.7% were other male kin. None of the

respondents in the youngest age group included a father in their list of confidants. In contrast, among 20–24 years olds, 10.1% of confidants named were fathers and other male kin and brothers constituted a sizeable proportion of confidants (25.5%). Among 25–29 year olds, only 5.5% of the confidants named were female (all sisters).

Overall family network proportion was not associated with HIV status or age in adjusted analyses. When family network proportion was stratified by gender into female and male family networks respectively, several findings emerged. In bivariate analysis, HIV positive status was associated with female family network proportion (coef. 0.64; $p = 0.046$). However, there was no association between age or HIV status and female network proportion in multivariate adjusted ordered logistic regression models. With respect to male family network proportion, the age category 20–24 was associated with male family network proportion (coef. 2.47; $p = 0.039$), but not HIV status in separate multivariate ordered logistic regression models.

Family Network Proportion and Respondent Behavior

There were significant relationships between family network proportion and respondent HIV prevention behavior (Table 3). In particular, greater family proportion (having 2 or more family members in the close network) was associated with less SDU [adjusted odds ratio (AOR 0.38 (0.17–0.87))] and less participation in GS (AOR 0.25 (0.10–0.67)). With respect to intravention (discouraging a risk behavior), those with greater family network proportion were more likely to discourage GS (AOR 3.83 (1.56–9.43) and SDU (AOR 2.18 (1.35–3.54)) among other MSM who engage in risky sex or use drugs. While moderate levels of female family network proportion (female kin making up 20–40% of confidant network) was associated with a lower odds of sex-drug use (AOR .29 (0.12–0.71)), it had no relationship with UAI, group sex, or intravention. On the other hand, increased male family network proportion was associated with more risk protection and discouraging others from engaging in SDU and GS. Additionally, respondents with greater family proportion were more likely to assume the “bottom” position (AOR 1.83, 1.07–3.14) in sex encounters with other men and were more likely to have a regular primary care physician (AOR 4.48, 1.09–18.49).

DISCUSSION

To date, relatively little research has attempted to characterize the family networks of BMSM and to explore the potential relationships between the presence of family members in close personal networks and HIV-related risk and health promoting behaviors. In the present study, we observed a number of interesting findings. First, we found that a substantial proportion of our sample (45.3%), reported having at least one family member as part of their *close* personal network. This suggests that families may represent an untapped site for additional prevention and intervention research with BMSM. Additionally, male family networks, and not female family networks, were present in all family networks and emerged as particularly salient for young BMSM. This finding was surprising, given previous research suggesting female family members, in particular mothers and sisters, are more knowledgeable and accepting of BMSM's sexual orientation than are male family members such as fathers.²³ In general, fathers have tended to be understudied in the research literature on HIV prevention. Most family-based research has focused on female family members, especially mothers. To date, only one father-based intervention to prevent HIV among Black adolescents has been developed and evaluated,⁴⁷ and this focused on heterosexual youth. Although it is possible that the role of male family networks in our study is a unique artifact of our sample, additional research is needed to better understand the role of fathers, as well as brothers and other male relatives and how they could be further engaged in HIV-prevention and treatment for BMSM.

Recent research has observed that social networks can protect against a range of health risk behaviors and health conditions,^{48,49} including HIV.^{11,12,14} In addition, research with sexual minority populations has found that high levels of family support and acceptance are negatively associated with reduced sexual risk taking.^{50,51} We observed a similar pattern of results in our sample, with the presence of family network proportion being negatively associated with the odds of engaging in HIV-related risk behaviors among BMSM. In addition, we found that a higher family network proportion in the close networks of BMSM was positively associated with the odds of discouraging HIV-risk among fellow MSM. Although a number of HIV-prevention interventions have utilized peer groups with BMSM,^{52,53} we know of no family network interventions for BMSM. In addition, we know of no interventions that have attempted to integrate existing family networks with other peer networks, a novel approach that has the potential to further strengthen the social networks of BMSM.

In addition, a better understanding of BMSM family networks is important for several reasons. First, relatively little is known about family dynamics among BMSM. Existing research examining the role of family acceptance on the health of sexual minority populations has focused primarily on youth and on White and Latino groups.⁵¹ While many BMSM do encounter family rejection, many also experience family support and additional research on the family networks of BMSM would make important contributions to the literature. Among a sample of urban HIV-positive BMSM, the majority of men reported that they had disclosed their HIV status to some or most/all of their family members.¹⁵ Even among men who had not disclosed their status, almost all participants indicated that family was important to them and offered support that was qualitatively different from the types of support offered from friends and sexual partners.¹⁸

The integration of social network theories with psychosocial theories underscoring the importance of family networks in HIV prevention offers great promise to efficacious prevention interventions that are being tested in social settings (the real world). In these scenarios, family networks of BMSM offer a naturally occurring mechanism through which to support the uptake of a range of HIV-prevention interventions. Treatment as prevention⁵⁴, for example, might be strengthened if family networks are involved, in the intravention process. Many of the younger BMSM continue to live with their families of origin, an existing organic support that could further limit the cost of an HIV care system in the process of incorporating potent biomedical intervention.

As with any study, our findings must be interpreted within the context of study limitations. Our data are cross-sectional and thus do not permit causal attributions. In addition, the cross-sectional nature of our data does not allow us to assess how family networks of BMSM changes over time, and how such changes are potentially related to HIV risk and intravention. Prospective research in this area is needed and could help researchers to identify potentially important changes in network composition over time. Although our approach to characterizing the social networks of BMSM enabled us to avoid the imposition of *a priori* frameworks of family networks, we did not directly interview named confidants. Future research should seek to interview network confidants, as this will provide additional information on how to work with families to prevent HIV among BMSM. Despite these limitations, the present study has important applied implications for future research with BMSM. A network approach to family-based research with BMSM acknowledges that many BMSM have supportive family networks and can lay the foundation for research that addresses a serious gap in our current efforts to deliver culturally relevant interventions to many BMSM.

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Figure 1.

1a, 1b. Family network proportion by age category and HIV status (n=176).

The graphs depict family network proportion defined as the proportion of close network members (maximum of 5) who are identified as family of origin by respondents (n=204). Within each age or HIV status strata, and for a given proportion value, percentages equal 100.

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Table 1

Selected sample characteristics in successive RDS waves

Wave	Cumulative sample size	Average Age	% HIV+	% engaging in UAI	% using sex drugs	% engaging in group sex
1 (seeds)	21	38.9	64.7	55.1	59.3	39.2
2	51	36.3	62.9	44.2	47.2	36.0
3	88	35.3	50.6	47.7	47.0	32.8
4	129	34.9	49.0	49.0	42.2	30.1
5	154	34.6	48.9	46.1	42.7	29.1
6	170	34.6	48.4	45.9	40.0	27.6
7	183	34.4	46.6	45.1	38.6	26.4
8	193	34.2	47.4	45.8	39.1	26.6
9	204	33.8	47.1	47.9	37.0	26.1

Table 2

Characteristics of study respondents and their family networks (n=380).

	Respondent (n=204)	Family* (n = 176)	Male Family (n=88)	Female Family (n=84)
	N (%)	N (%)	N (%)	N (%)
<i>Participant Characteristics</i>				
Age				
<20	19 (9.3)	20 (11.9)	14 (15.9)	5 (6.6)
20–24	55 (25.6)	43 (25.6)	31 (35.2)	11 (14.5)
25–29	37 (18.1)	20 (11.9)	13 (14.8)	6 (7.9)
30–40	28 (13.7)	36 (21.4)	13 (14.8)	22 (29.0)
40–50	43 (21.1)	28 (16.7)	13 (14.8)	15 (19.7)
50+	22 (10.8)	21 (12.5)	4 (4.5)	17 (22.4)
Race				
White	0 (0)	3 (1.7)	2 (2.3)	1 (1.2)
Black	204 (100)	164 (93.2)	81 (92.1)	79 (94.1)
Hispanic	0 (0)	3 (1.7)	1 (1.1)	2 (2.4)
Other	0 (0)	4 (2.3)	4 (4.5)	2 (2.4)
Gender				
Male	204 (100)	88 (50)	88 (100)	-
Female	0 (0)	84 (47.7)	-	84 (100)
Trans	0 (0)	4 (2.3)	-	-
Education				
Less than high school	26 (12.8)	-	-	-
High school	75 (36.8)	-	-	-
Some College	89 (43.6)	-	-	-
College	14 (6.9)	-	-	-
Employed	81 (39.7)	-	-	-
HIV Status				
HIV+	88 (44.4)	12 (9.2)	9 (15.8)	3 (4.29)
HIV–	110 (55.6)	119 (90.8)	48 (84.2)	67 (95.7)
<i>Tie Characteristic</i>				
Relationship type				
Mother	-	21 (12.1)	-	21 (25.0)
Father	-	10 (5.8)	10 (11.4)	-
Child/Stepchild	-	9 (5.8)	6 (6.8)	3 (3.6)
Sister	-	32 (18.4)	-	32 (38.1)
Brother	-	42 (24.1)	42 (47.7)	-
Other male relative	-	30 (17.1)	29 (32.9)	-
Other female relative	-	28 (15.9)	-	28 (33.3)
Speak with every day				
Yes	-	88 (50.3)	37 (42.5)	48 (58.5)

	Respondent (n=204)	Family* (n = 176)	Male Family (n=88)	Female Family (n=84)
	N (%)	N (%)	N (%)	N (%)
No	-	87 (49.7)	50 (57.5)	34 (41.5)
Importance of advice				
Very important	-	124 (71.3)	49 (55.7)	71 (86.6)
Somewhat important	-	42 (24.1)	31 (35.2)	11 (13.4)
Not important	-	8 (4.6)	8 (9.09)	0 (0)
How often talk about sex life				
A lot	-	43 (24.4)	22 (25.0)	21 (25.0)
Sometimes	-	42 (23.9)	23 (26.1)	19 (22.6)
Rarely	-	38 (21.6)	19 (21.6)	16 (19.1)
Never	-	53 (30.1)	24 (27.3)	28 (33.3)
How often talk about drug use				
A lot	-	47 (27.8)	25 (30.1)	20 (24.4)
Sometimes	-	19 (11.2)	10 (12.1)	9 (11.0)
Rarely	-	14 (8.3)	4 (4.8)	10 (12.2)
Never	-	89 (52.7)	44 (53.0)	43 (52.4)
Importance of advice about sex or drug use				
Very important	-	89 (51.5)	38 (43.2)	48 (59.3)
Somewhat important	-	60 (34.7)	33 (37.5)	26 (32.1)
Not important	-	24 (13.9)	17 (19.3)	7 (8.6)
Network member disapproves of unprotected sex				
Very likely	-	134 (78.4)	59 (70.2)	71 (85.5)
Somewhat likely	-	17 (9.9)	11 (13.1)	6 (7.2)
Not likely	-	20 (11.7)	14 (16.7)	6 (7.2)
Network member disapproves of drugs with sex				
Very likely	-	115 (69.3)	48 (60.8)	63 (75.9)
Somewhat likely	-	20 (12.1)	15 (19.0)	5 (6.02)
Not likely	-	31 (18.7)	16 (20.3)	15 (18.1)

* Family network totals may not add up to 176 due to missing data. 92 respondents out of 203 (45.3%) listed at least one family member as a confidant.

Table 3
Black men who have sex with men (BMSM) family network proportion, risk practices and network intravenous activity (n=204).

		Risk Practices				Social network intravenous			
		N (%)	UAI	Sex-drug use	Group Sex	Discourages UAI	Discourages sex-drug use	Discourages group sex	
<i>Network Proportion*</i>			AOR (95% CI)	AOR (95% CI)	AOR (95% CI)	AOR (95% CI)	AOR (95% CI)	AOR (95% CI)	
Family Network (%)									
0%		111 (54.7)	ref	ref	ref	ref	ref	ref	
20–39%		40 (19.7)	1.48 (0.67–3.27)	0.51 (0.24–1.05) [‡]	0.51 (0.14–1.84)	1.05 (0.34–3.20)	0.89 (0.42–1.90)	2.12 (0.88–5.11) [‡]	
40%		52 (25.6)	0.68 (0.34–1.36)	0.38 (0.17–0.87) [‡]	0.25 (0.10–0.67) [‡]	1.66 (0.55–4.99)	2.18 (1.35–3.54) [§]	3.83 (1.56–9.43) [§]	
Female Family Network									
0%		143 (70.4)	ref	ref	ref	ref	ref	ref	
20–39%		42 (20.7)	0.73 (0.32–1.68)	0.29 (0.12–0.71) [§]	0.55 (0.14–2.15)	1.04 (0.26–4.08)	1.09 (0.50–2.39)	1.65 (0.76–3.57)	
40%		18 (8.9)	1.79 (0.63–5.02)	1.04 (0.35–3.02)	0.69 (0.11–4.27)	2.85 (0.30–26.6)	1.01 (0.55–1.86)	2.27 (0.79–6.57)	
Male Family Network									
0%		150 (73.9)	ref	ref	ref	ref	ref	ref	
20–39%		33 (16.3)	1.26 (0.52–3.03)	0.55 (0.25–1.22)	0.53 (0.14–2.02)	1.07 (0.34–3.39)	1.37 (0.74–2.55)	1.33 (0.57–3.09)	
40%		20 (9.9)	0.37 (0.11–1.21) [‡]	0.26 (0.06–1.22) [‡]	//	1.54 (0.39–6.10)	2.98 (1.17–7.61) [‡]	3.37 (0.95–11.9) [‡]	

* Family network proportion is the proportion of close network members who are family. This is further stratified into male and female family network proportion; that is the proportion of close network members who are male and female respectively. Numbers may not add up to 176 because of missing data. 92 respondents out of 203 (45.3%) listed at least one family member as a confidant. All models are weighted and control for age, education, employment status, HIV status, personal network size and site of participant recruitment.

[‡] p<0.1

[‡] p<0.05

[§] p<0.01

// model does not converge