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HIV testing, perceived vulnerability and correlates of HIV sexual risk behaviours of Latino and African American young male gang members

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Summary: This study examined HIV testing behaviours, perceived vulnerability to HIV and correlates of sexual risk behaviours of young adult Latino and African American male gang members in Los Angeles, California. Data were collected from 249 gang members aged 18–26 years. The majority (59%) of gang members reported unprotected vaginal intercourse (UVI) in the past 12 months. Only one-third (33.2%) of gang members had ever been tested for HIV. In our multivariate analysis, gang members who reported UVI were more likely to have engaged in the following behaviours: had sex with someone they just met (adjusted odds ratio [AOR] = 4.51), had sex with someone they think or know had a sexually transmitted infection (STI; AOR = 4.67) or had sex while incarcerated (AOR = 8.92). In addition, gang members with a higher perceived vulnerability to HIV were less likely to report UVI in the previous 12 months (AOR = 0.75). These findings offer implications for development of an HIV prevention intervention for young Latino and African American male gang members.

Keywords: sexual risk behaviour, HIV testing, perceived vulnerability to HIV, male gang members, HIV prevention

INTRODUCTION

Young urban street gang members may be particularly vulnerable to HIV infection. Compared with young people not involved in gangs, gang members engage in greater sexual risk behaviours. For example, both male and female gang members report earlier age of sexual debut than their non-gang counterparts and higher rates of sexual activity.^{1,2} In a previous study, researchers found that 26% of gang members compared with 20% of non-gang members reported having had sex at 12 years of age or younger.³ Multiple studies have also demonstrated that gang members are more likely to report sex with multiple partners, sex while under the influence of drugs or alcohol and lower rates of condom use in contrast with non-gang members.^{3–5} In one study, adolescents who reported being in a gang, relative to their peers who had no gang involvement, had higher rates of not using a condom during last sexual intercourse (58% versus 43%), having sex that resulted in a pregnancy in the previous two months (72% versus 28%), having been 'high' on alcohol or drugs during sexual intercourse (61% versus 39%) and having had sex with multiple partners concurrently (69% versus 31%).⁴ These behaviours result in higher rates of unwanted pregnancies and sexually transmitted infections (STIs) among

gang members.³ Little *et al.*³ reported STI prevalence to be five to seven times higher in gang members than non-gang members in the same age group in the general population. In addition to undesired pregnancy and STIs, the sexual risk behaviours of gang members also place them at increased risk of acquiring and transmitting HIV.

Gang members also exhibit higher rates of alcohol and substance use and abuse than non-gang members.^{1,5,6} In a previous study, researchers noted that participants who were gang members had a much higher prevalence, compared with non-gang members, of drinking alcohol three or more times per week (16% versus 3%) and using drugs three or more times per week (20% versus 6%).⁷ In addition, gang members initiate substance use behaviours at an earlier age than their non-gang counterparts.^{1,8–10} Previous research also found that gang members increase their drug use while in a gang and subsequently use more drugs after leaving a gang.^{10–13} They are also more likely to exhibit higher levels of alcohol abuse and to inject illicit drugs.^{8,10,14} In a study of adolescents, those who indicated gang involvement had a higher rate of binge drinking compared with those who had no gang involvement (16% versus 5%).² Gang membership is a major risk factor for substance abuse, which is also linked to increased HIV risk behaviours. Both casual and chronic substance users are more likely to engage in high-risk behaviours, such as unprotected sex or sex with multiple partners, while under the influence of drugs or alcohol.^{15–19}

In this study, we examine HIV testing behaviours, perceived vulnerability to HIV and sexual risk behaviours among young

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Latino and African American male gang members living in Los Angeles, California, the second largest AIDS epicentre in the USA and the gang capital of the country. We also identify risk factors for high-risk sexual behaviour. The present investigation goes beyond previous studies of sexual risk behaviours of gang members by also examining their HIV testing behaviours and perceived vulnerability to HIV. The health belief model,²⁰ which suggests that perceived risk determines subsequent action or behaviour, informed the conceptual framework for this study. HIV testing was included as part of the study due to the lack of any empirical data on HIV testing behaviours and HIV prevalence in gang populations. These findings may help inform the development of an HIV and STI prevention intervention for young Latino and African American male gang members.

METHODS

Study participants

Latino and African American male gang members living in Los Angeles, California were recruited for the study. Men 18 years or older were recruited by staff from eight community-based organizations (CBOs) geographically dispersed throughout the city that provide outreach or intervention programmes targeted to gang members. Among gang members, there are often strong privacy concerns because membership may involve anti-social, stigmatized or illegal behaviours. As such, we chose to train select staff members from the eight participating CBOs as research assistants (RAs) to implement the study protocol. The RAs, through their outreach activities, were instructed to recruit gang members to participate in the study. These staff, many of whom were former gang members or were living in communities where gangs were located, had direct access to gang members. This proved to be an effective method for gaining access to this hard-to-reach population.

Data collection procedures

All participants provided informed consent prior to their participation in the study. Participants completed a self-administered survey in small groups at the eight participating CBOs. To ensure comprehension of survey items, given the potential for low literacy among this population, RAs read instructions and questions aloud, with participants marking their responses on the survey form. The survey was anonymous and required approximately 35–45 minutes to complete. After completion of the survey, each participant received \$25 compensation and was offered a free optional HIV test. HIV screening was done with 118 participants through a Los Angeles County Department of Health Services' mobile HIV testing unit using the Federal Drug Administration approved OraQuick rapid HIV antibody test (OraSure Technologies, Bethlehem, PA, USA), with results available in approximately 20 minutes. As part of the HIV screening procedure, each participant also received HIV risk reduction counselling.

Measures

Sociodemographics

Sociodemographic variables included age, race/ethnicity, marital status, highest level of education completed,

employment status, number of children, history of incarceration, age joining a gang and number of years belonging to a gang.

HIV testing

Participants indicated whether they had ever been tested for HIV, the results of the test, reasons for being tested, intention to be tested for HIV and knowledge of where to be tested.

Perceived vulnerability to HIV

To measure perceived risk for HIV infection, participants provided their level of agreement (i.e. strongly agree, agree, disagree, strongly disagree) to the following seven statements: 'There is a good chance I will get HIV/AIDS during the next five years'; 'I am at-risk for HIV/AIDS'; 'My friends are at high risk for HIV/AIDS'; 'There is a possibility that I have HIV/AIDS'; 'I may have had sex with someone who was at risk for HIV/AIDS'; 'My sexual activities put me at risk for HIV/AIDS'; and 'I am worried that I might get an HIV infection'. The perceived vulnerability to HIV scale had a range from 0 to 7 and was adapted for this population from existing scales²¹ and demonstrated good internal consistency (Cronbach's $\alpha = 0.86$).

Sexual behaviours

Participants were asked to recall their sexual behaviours during the past 12 months (e.g. vaginal sex, anal sex, number of sex partners, etc.). An additional 13 items were used to assess high sexual risk practices (e.g. sex while incarcerated, sex with someone you think or know had an STI, etc.).

Substance use

Participants were asked to identify substances used in the past 12 months. Participants selected drugs from a list that included: heroin, powder cocaine, methamphetamine, ecstasy and marijuana. For alcohol use, we assessed if participants had engaged in binge drinking (more than 5 drinks per episode).

Unprotected vaginal intercourse

As the outcome of interest, unprotected vaginal intercourse (UVI) was defined as inconsistent condom use among those who engaged in vaginal intercourse in the past 12 months. To assess UVI, participants were first asked, 'In the last 12 months, have you had vaginal sex?' (yes/no). This was followed by, 'In the last 12 months, how often did you use a condom when having vaginal sex?' (always, most of the time, sometimes, rarely, never). Participants who selected a response other than 'always' for condom use were considered inconsistent condom users.

Data analysis

SAS version 9.1 (SAS Institute, Cary, NC, USA) was used for data analyses. Descriptive analyses were used to create a socio-demographic, sexual risk behaviours, substance use behaviours and perceived HIV vulnerability profile of the study population. Correlation analyses were performed across factors to avoid potential collinearity problems. After performing the exploratory bivariate logistic regression analyses, factors identified as significantly associated ($P < 0.05$) with UVI or theoretically thought to contribute to UVI were entered into a multivariate logistic regression model to assess their

independent contribution to predict UVI, while controlling for all other variables included in the model. Model diagnostics were also performed to assess model appropriateness using the Hosmer–Lemeshow goodness-of-fit test.

RESULTS

Two hundred and forty-nine Latino and African American male gang members completed the study survey. As shown in Table 1, the average age of participants was 21 years (standard deviation [SD] = 2.09). The sample was predominately Latino (64.7%), single (83.2%), with less than high school education (54.2%) and unemployed (61.3%). In addition, over one-third (37.0%) of participants reported having children and nearly two-thirds (65.0%) reported a history of incarceration. The mean age for joining a gang was 13 years (SD = 2.65), and over three-quarters of participants (80.3%) had been in a gang six or more years. From the total sample, 84.3% reported engaging in vaginal sex in the past 12 months, with the majority (59.4%) of participants reporting UVI in the past 12 months.

Overall frequencies for risk behaviours and substance use in the past 12 months are also shown in Table 1. Participants reported high rates of participation in a number of risk behaviours in the past 12 months, including drinking alcohol before sex (79.9%), using drugs before sex (71.9%) and having sex with someone they just met (68.7%). In terms of substance use, the highest prevalence was for marijuana use (81.9%) and this was followed by binge drinking (37.4%). Also included in Table 1 is the overall perceived vulnerability to HIV score (3.12), which was in the lower half of the vulnerability scale (range from 0 to 7). In our analysis, we also identified frequency of sex with males. From our sample, only 4.8% ($n = 12$) of participants reported sex with men in the previous 12 months.

In terms of HIV testing behaviour, one-third (33.2%) of the total sample reported being previously tested for HIV. From this group, the largest proportion (45%) of participants indicated that the primary reason for being tested was, 'someone suggested that I get tested'. A majority (78.5%) of participants indicated that they would like to be tested for HIV, and almost three-quarters (73.3%) reported that they knew where to go to be tested. When offered the optional HIV test, about half (47.4%) agreed to be screened for HIV. From this group, 76 were first-time testers and 43 were repeat testers. Among participants tested as part of the study or previously tested ($n = 158$), only one person who had been previously tested was positive for HIV infection (0.6%). In the bivariate analysis to identify associations with sociodemographic characteristics, risk behaviours, substance use, perceived HIV vulnerability and HIV testing, none of the variables were significantly associated with HIV testing.

In the bivariate analysis of sociodemographic variables, only race/ethnicity was significantly associated with UVI (see Table 2). Latino gang members were less likely than African American gang members (odds ratio [OR] = 0.46) to report UVI in the past 12 months. In terms of risk behaviours, engaging in the following behaviours in the past 12 months was significantly associated with UVI: had sex with someone you just met (OR = 2.40), received money or drugs for sex (OR = 3.81), had sex with someone you think or know had an STI (OR = 4.58), was diagnosed with an STI (OR = 2.56), had sex while incarcerated (OR = 9.78) and had sex with someone you think

Table 1 Sociodemographic characteristics, risk behaviours, substance use and perceived vulnerability to HIV among young adult male gang members ($n = 249$)

Characteristic	Frequency	Percentage
Sociodemographics		
Age (years) (mean: 20.9, SD: 2.09)		
18–20	119	49.2
21–26	123	50.8
Race/ethnicity		
Black/African American	88	35.3
Hispanic/Latino	161	64.7
Relationship status		
Married/living together	42	16.8
Single/separated/divorced	207	83.2
Education		
11th grade or less	135	54.2
High school or more	114	45.8
Unemployed	152	61.3
Have children	92	37.0
Ever been incarcerated	160	65.0
Age joining a gang member (mean: 13.1, SD: 2.65)		
Number of years belonging to a gang (mean: 7.89; SD: 2.94)		
1–5	49	19.7
6–9	128	51.4
>10	72	28.9
Vaginal intercourse in the past 12 months	212	84.3
Unprotected vaginal intercourse in the past 12 months ($n = 212$)	126	59.4
Risk behaviours in the past 12 months		
Injected street drugs	21	8.4
Sex with someone who injected drugs	16	6.4
Sex with someone who shared needles	17	6.8
Drank alcohol before sex	199	79.9
Used drugs before sex	179	71.9
Had sex with someone you just met	171	68.7
Had sex with multiple partners	67	26.9
Gave money or drugs for sex	48	19.3
Received money or drugs for sex	37	14.9
Was diagnosed with STI	41	16.5
Sex with someone who had STI	29	11.7
Sex while incarcerated	16	6.4
Sex with someone who was incarcerated	41	16.5
Substance use in the past 12 months		
Heroin	22	8.8
Powder cocaine	49	19.7
Crack cocaine	74	29.7
Methamphetamine	53	21.3
Ecstasy	53	21.3
Marijuana	204	81.9
Binge drinking (> 5 drinks per episode)	93	37.4
Perceived vulnerability to HIV score		
Mean vulnerability score (range = 0–7)	Mean = 3.12	SD: 2.35

SD = standard deviation; STI = sexually transmitted infections

or know was incarcerated (OR = 2.33). Reported substance and alcohol use was not significantly associated with UVI. A lower perceived vulnerability to HIV was associated with UVI (OR = 0.86).

Included in the multiple logistic regression model were all variables found in the bivariate analysis to be significantly associated with UVI or theoretically thought to contribute to UVI. The model was developed to identify variables independently associated with UVI in the past 12 months, while controlling for all other variables. In the final model, Latino gang members (adjusted odds ratio [AOR] = 0.43) and gang members with less than a high school education (AOR = 0.44) were less likely to report UVI in the past 12 months (see Table 2). With regard to sexual risk behaviours, gang members who reported they had sex with someone they just

Table 2 Associations of sociodemographic characteristics, risk behaviours, substance use and perceived vulnerability to HIV with unprotected vaginal intercourse (UVI) among sexually active young adult male gang members (n = 212)

Characteristics	Percent UVI (n = 126)	Bivariate analyses			Multivariate analyses		
		Crude odds ratios	95% CI		Adjusted odds ratios	95% CI	
			Upper	Lower		Upper	Lower
Sociodemographics							
Age (years)							
18–20	46.7	1.00	–	–	1.00	–	–
21–26	53.2	1.25	0.72	2.18	0.96	0.45	2.03
Ethnicity							
Black/African American	41.3	1.00	–	–	1.00	–	–
Hispanic/Latino	58.7	0.46*	0.25	0.84	0.43*	0.21	0.91
Relationship status							
Married/living together	19.8	1.00	–	–	1.00	–	–
Single/separated/divorced	80.2	1.17	0.58	2.38	2.18	0.79	6.02
Education							
11th grade or less	49.2	0.60	0.35	1.05	0.44*	0.22	0.89
High school or more	50.8	1.00	–	–	1.00	–	–
Unemployed	61.9	1.12	0.64	1.95	1.26	0.62	2.58
Have children	39.7	0.77	0.44	1.37	1.37	0.56	3.36
Ever been incarcerated	67.2	0.90	0.50	1.60	0.98	0.48	1.97
Mean number of years belonging to a gang	8.1	1.06	0.96	1.16	1.07	0.94	1.21
Risk behaviours in the past 12 months							
Injected street drugs	8.7	0.93	0.36	2.42	–	–	–
Sex with someone who injected drugs	8.7	1.96	0.60	6.37	–	–	–
Sex with someone who shared needles	9.5	1.71	0.58	5.03	–	–	–
Drank alcohol before sex	85.7	1.17	0.55	2.49	–	–	–
Used drugs before sex	79.4	1.13	0.69	2.53	–	–	–
Had sex with someone you just met	78.6	2.40*	1.31	4.40	4.51*	2.02	10.08
Had sex with multiple partners	31.8	1.35	0.73	2.50	–	–	–
Gave money or drugs for sex	24.6	1.68	0.83	3.38	–	–	–
Received money or drugs for sex	22.2	3.81*	1.50	9.65	1.80	0.53	6.15
Sex with someone who had STI	18.3	4.58*	1.52	13.76	4.67*	1.33	16.45
Was diagnosed with STI	23.0	2.56*	1.14	5.72	1.20	0.37	3.90
Sex while incarcerated	10.3	9.78*	1.26	76.20	8.92*	1.01	79.25
Sex with someone who was incarcerated	21.4	2.33*	1.04	5.25	1.80	0.61	5.32
Substance use in the past 12 months							
Heroin	9.5	1.40	0.51	3.90	–	–	–
Powder cocaine	23.0	1.13	0.58	2.20	–	–	–
Crack cocaine	30.2	1.00	0.55	1.81	–	–	–
Methamphetamine	23.8	0.97	0.51	1.84	–	–	–
Ecstasy	23.0	0.99	0.52	1.89	–	–	–
Marijuana	82.5	0.92	0.44	1.92	–	–	–
Binge drinking (>5 drinks per episode)	38.9	1.07	0.61	1.89	–	–	–
Perceived vulnerability to HIV score					–	–	–
Mean vulnerability score (range = 0–7)	2.7	0.86*	0.76	0.97	0.75*	0.64	0.88

STI = sexually transmitted infections; CI = confidence intervals

Multivariate analyses adjusted for age, race/ethnicity, relationship status, education, employment, having children, incarceration history and number of years in a gang

*P < 0.05

met (AOR = 4.51), had sex with someone they think or know had an STI (AOR = 4.67), had sex while incarcerated (AOR = 8.92) were more likely to report UVI in the previous 12 months. In terms of perceived vulnerability to HIV, participants who reported a higher perceived vulnerability (AOR = 0.75) were less likely to report UVI in the prior 12 months.

DISCUSSION

The findings from this study suggest that young male Latino and African American urban street gang members are at high risk of acquiring and transmitting HIV as indicated by their reported sexual risk behaviours and perceived vulnerability to HIV infection. Our findings are consistent with previous investigations demonstrating that gang-affiliated young people are engaging in high-risk sexual and substance use behaviours that place them at increased risk for STIs, unwanted

pregnancies and HIV infection.^{1,2,4,22} While empirical evidence exists on the HIV risk behaviours of gang members, no rigorously evaluated HIV prevention programme has been developed for this vulnerable and marginalized population. Our findings offer implications for development of an HIV prevention intervention targeting young minority male gang members.

We found that only one-third (33.2%) of sexually active young Latino and African American male gang members had previously received voluntary HIV testing. The lack of HIV testing was relatively uniformly distributed across the sample and no variables were associated with HIV testing behaviour. The rate of HIV testing observed in this population is significantly lower than that observed in other at-risk young urban minority populations, where HIV testing rates ranged from 55% to 76%.^{23–26} The small proportion of gang members reporting 'ever' being tested for HIV indicates a need for targeted efforts to promote HIV testing among high-risk young male gang

members. Currently, the Centers for Disease Control and Prevention recommends HIV screening of people at high risk for HIV infection at least once a year.²⁷ To help increase HIV testing among at-risk young people, previous research suggested providing increased access to rapid testing, which can provide results in as little as 20 minutes.²⁸ Among our study participants, we identified a strong desire to be tested for HIV and significant knowledge of where to be tested, a finding similar to what has been observed among non-gang young urban minority men.²⁵ Our finding suggests a strong willingness among gang members to be screened for HIV, which would also provide an opportunity to counsel them regarding their risk for HIV infection, STIs and viral hepatitis.

In order to encourage HIV testing among gang members, it will be important to develop appropriate methods for promoting HIV screening among this marginalized population. We noted in our findings that almost half of the gang members who had been previously tested indicated that the primary reason for seeking a test was that someone had suggested that they be tested. Further research is necessary to identify exactly who these people are that can influence Latino and African American gang members to participate in HIV screening. A previous study of young urban African American men found that having a doctor who recommended HIV testing was the strongest predictor of having been tested.²⁵ Another study found that peer recruitment and the use of rapid testing was successful in increasing HIV testing in a minority community.²⁹ Both approaches may be useful in promoting HIV testing among young Latino and African American gang members.

In our study, gang members who reported a lower perceived vulnerability to HIV infection were more likely to report engaging in UVI. Two reasons are offered as possible explanations for this lower perceived risk for HIV infection. One reason might be the ongoing and pervasive view that HIV is primarily a 'gay disease', particularly in Los Angeles, where, in fact, among Latino and African American men it is men who have sex with men (MSM) that comprise the majority of new and existing HIV and AIDS cases.³⁰ In our study, among gang members without any history of MSM behaviour and who agreed with the statement, 'I don't have to worry about HIV/AIDS because I'm not gay', 69% reported UVI compared with only 46% for gang members with a history of MSM behaviour who also agreed with the statement (data not previously shown). These primarily heterosexual young men may not consider themselves at risk for HIV since the majority of them are not engaging in sex with men; we noted earlier that only 4.8% of gang members reported sex with men in the previous 12 months. A second reason may be related to advances in HIV treatment that extend life-expectancy and can improve the quality of life of persons living with HIV/AIDS. The perception that HIV is less of a threat due to the availability of HIV treatment has been well documented.³¹ In our study, among gang members who reported engaging in UVI, 35% agreed with the statement, 'With medication, people with HIV/AIDS can still live long and healthy lives', compared with only 24% of gang members who were not engaging in UVI (data not previously shown). The reported attitudes of gang members regarding HIV may provide insight into how they perceive their risk for HIV infection. More importantly, the findings suggest that a contradiction exists between their perceived and actual vulnerability to HIV infection that may facilitate engaging in high-risk behaviours and should be addressed through risk reduction counselling. Any HIV prevention

intervention targeting young male gang members must help them to recognize their own personal vulnerability to HIV infection, particularly in light of their high levels of substance use, high rates of incarceration and high-risk sexual behaviours.

Among gang members, a number of risky sexual behaviours were independently associated with UVI (i.e. had sex with someone you just met, had sex with someone you think or know had an STI and had sex while incarcerated). These findings not only highlight the level of risk behaviours of minority male gang members, but also indicate a strong need for prevention efforts to help gang members reduce risk behaviours. However, development of an HIV intervention for this population must consider the powerful influence that gang membership has on the lives of young, low-income, racial/ethnic minority men. A major challenge in attempting to change behaviours of gang members is that the gang culture itself is often associated with and may promote and reward many of these high-risk sexual behaviours. In addition, these behaviours may be reinforced through peer norms within a gang's social and sexual network. For example, in terms of sexual relationships, previous research has documented the sexual abuse and exploitation of female gang members by male gang members.^{2,3} Wingood *et al.*² suggest that 'the circumscribed ways in which male and female gang members engage in sexual relationships may only serve to enhance the transmission of HIV and other STIs' (p. 4). By understanding and viewing gangs as social and sexual networks with specific behaviours and norms, prevention researchers may be better equipped to design interventions to minimize and possibly change high risk behaviours.

Limitations of this study are worth noting. First, the study relied on self-reported data from a survey conducted in a group setting, which may have limited honest responses to sensitive questions on sexual and substance use behaviours. As a result, these findings may have underreported the level of high-risk behaviours of male gang members (e.g. sex while incarcerated, sex with men, etc.). Second, the study is a cross-sectional design which precludes determining causal relationships for the variables of interest. Third, this sample was a non-probability sample of gang members in Los Angeles, and therefore may not be generalizable to other gang populations in different regions of the country.

Several challenges exist in developing an HIV prevention intervention for young minority male urban gang members. For gang members living in low-income communities with few opportunities, the need to address risk behaviours for HIV, STIs or hepatitis may rank as a low priority in their lives. Our findings indicate that gang members are faced with multiple problems, such as high levels of unemployment, incarceration and young fatherhood that may be more important in their day-to-day lives. As such, addressing the sexual risk behaviours of gang members may need to involve integrating HIV prevention activities into programmes that help address their more salient and immediate problems, such as unemployment, limited employment skills, incarceration, parenting, and gang stigma. Within such a programme, it may be more effective to target sexual risk reduction intervention activities to segments of the gang population that are most at-risk; for example, these findings suggest targeting interventions specifically to African American gang members, those who have graduated from high school, and those who exhibit specific high-risk sexual behaviours identified in this study. Given limited public funding, it may even prove more cost-effective to incorporate HIV prevention activities into existing gang intervention

programmes as opposed to attempting to create a standalone HIV prevention programme for this population. In addition, it may also prove useful for community-based health-care providers to screen young people for gang affiliation in geographic areas with known concentrations of gangs in order to provide sexual risk counselling and annual HIV testing to high-risk gang members and their sexual partners.

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