



The Miami, Florida, Young Men's Survey: HIV Prevalence and Risk Behaviors Among Urban Young Men Who Have Sex with Men Who Have Ever Runaway

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ABSTRACT *Youth in urban areas with a history of running away from home often have special needs. Importantly, risk factors for HIV/AIDS might be associated with such a history. We assessed the association between having a history of running away from home and the occurrence of HIV infection and risk behavior among young men who have sex with men (YMSM), aged 15–22 years. A cross-sectional epidemiologic and behavioral survey was conducted between 1995 and 1996 in Miami, Florida, as part of a national Young Men's Survey. Of 488 YMSM, the prevalence of HIV infection among those with a history of running away from home was 10.5% (adjusted odds ratio = 3.4; 95% CI 1.5–7.8). YMSM who had ever run away were more likely to be HIV infected, be out of school, and have ever had vaginal or anal sex with females, been forced to have sex, injected drugs, and used needles for self-tattooing or body piercing. The prevalence of HIV infection and associated risk behaviors among runaways was high, highlighting the ongoing need for prevention and social support services for youth with a history of running away from home.*

KEYWORDS *HIV, Risk factor, Runaway, STD, Young men who have sex with men.*

INTRODUCTION

It is estimated that up to 1.5 million young people run away from or are forced out of their homes annually, and approximately 200,000 each year are homeless and living on the streets nationwide.¹ A study of a nationally representative sample of youth indicated that 7.6% had experienced at least one night of homelessness over a 12-month period.² In 1999, 20 Florida homeless coalitions reported that there were at least 52,537 homeless persons in the state on any given day and that 25% of them were children less than 18 years of age.³ Most of the homeless children were from urban areas.

Youth run away from home for a variety of reasons. Homelessness in Florida has been linked to family disintegration, alcoholism, drug abuse, mental illness, poverty, unemployment, and school failure or lack of education.² Previous national or city-specific studies have indicated that homeless and runaway youth engaged in

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risky sexual and drug use behaviors that placed them at high risk for HIV infection or other sexually transmitted diseases (STD).⁴⁻¹⁵ For instance, a nationally representative study reported that 28% of street youth and 10% of shelter youth engaged in "survival sex" in exchange for shelter, food, drugs, or money to meet subsistence needs.⁵ Another study conducted among a homeless cohort in Miami identified male-to-male sex, drug injection, sex with high-risk partners, and sexual exchange behaviors to be strongly associated with HIV seropositivity.¹⁶

Although numerous reports have assessed HIV prevalence and risk behaviors among runaway youth, to our knowledge, there have been no reports that examine how having a history of running away from home correlates with these characteristics. This study examines how a history of running away from home is associated with the prevalence of HIV infection and sexual and drug-use behaviors, specifically, among young men who have sex with men (YMSM) in Miami.

MATERIALS AND METHODS

Sampling

The Young Men's Survey (YMS) in Miami was part of a national cross-sectional epidemiologic and behavioral survey conducted from 1994 through 1998 in seven metropolitan US cities.¹⁷ The purpose of the survey was to determine the prevalence of HIV, hepatitis B, syphilis infection, and HIV-related risk behaviors among YMSM. Young men who were 15-22 years of age and residents of Miami-Dade or Broward County (the Miami and Fort Lauderdale metropolitan statistical areas, respectively) were eligible to participate. Details of the venue-based sampling design have been discussed elsewhere.¹⁸ Briefly, identification of potential venues frequented by YMSM was extensively researched through interviews with public health professionals, community informants, and focus groups of YMSM. Public venues included, but were not limited to, bars, dance clubs, health clubs, public street locations, and sex establishments. Extensive enumerations of young men attending these venues were then conducted to develop sampling frames of venues and four-hour time periods when a minimum of seven eligible men might be encountered.

During each month, between 12 and 16 venues and daytime periods were randomly selected and scheduled on a calendar for sampling events in the upcoming month. The venues in the sampling frames were updated monthly. During sampling events, young men who entered defined areas at each venue were counted and approached for enrollment using systemic sampling. Sexual identity and sexual orientation were not eligibility criteria for enrollment. Those who agreed to participate were escorted to a modified recreational vehicle where a trained interviewer obtained informed consent using pseudonyms, interviewed using a standardized questionnaire, conducted prevention counseling on sexually transmitted diseases, and obtained blood specimens for HIV, hepatitis B, and syphilis testing. Referrals to appropriate social and medical support services were also provided as needed. After the interview and phlebotomy, participants were given a \$40 stipend, an anonymous survey identification number, and an appointment to return in 2 weeks to obtain their laboratory test results.

Individuals who had participated previously were ineligible. Many strategies were employed to avoid duplication in enrollment. To ensure removal of duplicates, if two or more participants were found to have identical dates of birth and race/ethnicity, we performed the Miragen Assay (Miragen, Irvine, CA) on the blood samples.^{19,20}

When antibody profiles matched, only data from the first interview and specimen were analyzed. The YMS protocol was approved by the Centers for Disease Control and Prevention and Florida institutional review boards.

Measures

A standardized questionnaire was administered by trained interviewers. Sociodemographic variables including age, race/ethnicity, current living conditions, education level, and employment status were ascertained. Participants were interviewed about their sexual behaviors, both lifetime and in the past 6 months with males and females; exchange partners (partners with whom sex was exchanged for food, shelter, transportation, drugs, or money); nonsteady partners (such as pickups, one-night stands, or having sex with casual partners one or two times); and/or steady partners (having sex with steadies, regulars, or lovers three or more times). The frequencies of needle/syringe use for both injecting drugs and steroids and for tattooing were also assessed. All participants were asked whether they had ever run away from home or been removed from their parents' or guardians' home. In this article, "runaways" refers to YMSM with a history of running away and "nonrunaways" refers to YMSM without that history.

Blood specimens were tested for HIV antibodies by using an enzyme immunoassay (Sanofi Diagnostics Pasteur, Chaska, MN, USA). Repeatedly reactive specimens were confirmed by the Western blot (Organon Teknika, Durham, NC, USA). Specimens were also tested for hepatitis B surface antigen, hepatitis B surface antibody, and hepatitis B core antibody for current or past infection (DiaSorin, Stillwater, MN and Abbott Laboratories, Abbott Park, IL, USA). Past or current hepatitis B infection was defined as the presence of core (anti-HBc) antibody or hepatitis B surface (HBsAg) antigens. Vaccine-associated immunity was defined as the presence of anti-HBs alone among YMSM who reported having received one or more doses of the hepatitis B vaccine. The rapid plasma reagin test was used for the detection of syphilis infection (Arlington Scientific, INC., Springville, UT, USA). Reactive specimens were confirmed by microhemagglutination assay for *Treponema pallidum*, MHATP/FTA-ABS (Bayer Corporation, Pittsburgh, PA).

Statistical Analysis

Teens and youth who run away clearly face many problems, often find themselves in risky situations, get involved in dangerous crimes, may take drugs or alcohol, and are forced to do things they wouldn't normally do to make money and survive. To better understand sociodemographic characteristics and related risk behaviors among runaways, we hypothesized that compared with nonrunaways, more runaways would report factors potentially associated with prevalence of HIV infection and related risk behaviors. We define as runaway the young men who answered positively the following survey question: Have you ever run away from home, or been removed from your parent's or guardians' home? We define nonrunaway as all other respondents, excluding the ones who refused to answer.

The two-sample *t* test was used to compare the mean age differences (e.g., age at first anal sex) between runaways and nonrunaways. We examined associations between a history of running away and the prevalence of HIV infection and related risk behaviors by using the Cochran-Mantel-Haenszel odds ratios. The Breslow-Day test for homogeneity was used to assess effect modification. Variables associated with runaways in univariate analyses were included for logistic regression. Variables with more than two levels were coded as a group of indicator (dummy) variables.

Independent predictors that met the entry criteria ($P < .05$) were entered into the model. The final model was selected based on the likelihood ratio and the Hosmer and Lemeshow goodness-of-fit tests.²¹ The final model had a P -value of 0.7983, indicating adequate fit. Furthermore, regression diagnostics of the final model did not detect any evidence of collinearity. Statistical tests were carried out using Epi Info 6.04 (Centers for Disease Control and Prevention, Atlanta, GA) and Statistical Analysis Software, version 8.01 (SAS Institute, Inc., Cary, NC, USA).

RESULTS

Participants

Between August 1995 and December 1996, 182 sampling events were conducted in Miami-Dade and Broward counties. Of the 2,879 men approached during these sampling events, 2,642 (92%) completed a brief eligibility interview, 766 were eligible, and 573 (74.8% of the eligible) enrolled. There were 37 confirmed duplicate enrollees, which were removed from analyses. Of the remaining 536, 2% never had sex with another person, and 7% never had sex with men. Final analyses were limited to 488 young men who had ever had sex with men. Of the 488 YMSM, 163 (33.4%) reported a history of running away from home; 89 (18.2%) reported having run away on more than one occasion.

Sociodemographic Characteristics

Of the 163 runaways, 53.4% were between the ages of 20 and 22 at the time of the interview, and 69.3% were of Hispanic origin (Table 1). Results of univariate analyses indicated that runaways and nonrunaways did not differ according to age group or race/ethnicity. However, runaways were more likely to be out of school, have a high school education or less, and live alone or with friends or lovers. None of the participants was homeless or living in a shelter at the time of the interview.

Sexual and Lifetime Risk Behaviors

Runaways experienced oral sex ($P = .01$) and anal sex ($P < .001$) one year younger (oral sex at the age of 14 and anal sex at the age of 16), compared with nonrunaways (oral sex at the age of 15 and anal sex at the age of 17). However, an age difference was not observed between runaways and nonrunaways who engaged in vaginal or anal sex with females. Analyses with respect to sexual identity indicated that runaway YMSM were less likely to self-identify as homosexual or bisexual. There was no difference among runaways and nonrunaways with regard to age when one first thought of himself as gay, bisexual, or transgender. However, runaways were significantly younger when they first "came out" ($P = .01$). Runaways were more likely to have sex with both males and females and reported a greater number of lifetime male or female partners (Table 1). Analyses also revealed that runaways were more likely to report having a history of forced sexual contact, having been told that they had an STD, having ever used drugs, injected drugs, or used needles for self-tattooing or body piercing compared with nonrunaways.

HIV and STD Infection

The prevalence of HIV infection among runaways was 10.5% (Table 1). The odds of being HIV infected were 3.3 times higher among runaways compared with nonrunaways. Additionally, among the runaways who were infected with HIV, 11 or 65%

TABLE 1. Factors associated with a history of running away from home among young men who have sex with men (YMSM), Miami, Florida, 1995–1996

Characteristic (N = 488)*	Runaways (%)†	Nonrunaways (%)‡	Odds ratio (95% CI)‡
Age group			
15–19	76 (46.6)	136 (41.8)	1
20–22	87 (53.4)	189 (58.2)	0.8 (0.6, 1.2)
Race/ethnicity			
White	28 (17.2)	59 (18.2)	1
Black	15 (9.2)	63 (19.4)	0.5 (0.2, 1.0)
Hispanic	113 (69.3)	183 (56.3)	1.3 (0.8, 2.2)
Asian/Asian American/ Pacific Islander	2 (1.2)	6 (1.8)	0.7 (0.1, 4.3)
Mixed or other	5 (3.1)	14 (4.3)	0.8 (0.3, 2.3)
Currently in school			
Yes	54 (33.1)	187 (57.5)	1
No	109 (66.9)	138 (42.5)	2.7 (1.8, 4.1)
Education			
Some college/technical/ vocational/ college	41 (25.2)	122 (37.5)	1
High school or less	122 (74.8)	203 (62.5)	1.8 (1.2, 2.7)
Living arrangement			
With parents/guardians/relatives	77 (47.2)	190 (58.5)	1
Alone/with friends/lover/other	86 (52.8)	135 (41.5)	1.6 (1.1, 2.3)
Employment			
Yes	95 (58.3)	210 (64.6)	1
No	68 (41.7)	115 (35.4)	1.3 (0.9, 2.0)
Sexual orientation			
Heterosexual	9 (5.6)	5 (1.5)	1
Homosexual	79 (48.8)	192 (59.1)	0.2 (0.1, 0.7)
Bisexual	66 (40.7)	127 (39.1)	0.3 (0.1, 0.9)
Transgender	8 (4.9)	1 (0.3)	4.4 (0.4, 236.0)
Sex partners			
Males and females	119 (73.0)	194 (59.7)	1
Males only	44 (27.0)	131 (40.3)	0.6 (0.4, 0.8)
Anal sex with males—ever			
No	15 (9.2)	49 (15.1)	1
Yes	148 (90.8)	276 (84.9)	1.8 (1.0, 3.2)
Vaginal or anal sex with female—ever			
No	49 (30.1)	183 (56.3)	1
Yes	114 (69.9)	142 (43.7)	1.8 (1.2, 2.7)
Number of male partners, lifetime			
1–4	50 (30.7)	136 (41.8)	1
5–19	61 (37.4)	132 (40.6)	1.3 (0.8, 2.0)
>19	52 (31.9)	57 (17.5)	2.5 (1.5, 4.2)
Number of female partners, lifetime			
0	44 (27.0)	130 (40.0)	1
1–4	67 (41.1)	136 (41.8)	1.5 (0.9, 2.3)
>4	52 (31.9)	59 (18.2)	2.6 (1.5, 4.2)

TABLE 1. Continued

Characteristic (N = 488)*	Runaways (%)†	Nonrunaways (%)‡	Odds ratio (95% CI)‡
Ever forced to have sex			
No	92 (56.4)	231 (71.1)	1
Yes	71 (43.6)	94 (28.9)	1.9 (1.3, 2.8)
Ever been told to have an STD			
No	142 (87.1)	305 (93.8)	1
Yes	21 (19.2)	20 (6.2)	2.3 (1.2, 4.3)
Ever used party drugs§			
No	43 (26.4)	176 (54.2)	1
Yes	120 (73.6)	149 (45.8)	3.3 (2.1, 5.1)
Ever used crack cocaine or heroin			
No	69 (42.3)	208 (64.0)	1
Yes	94 (57.7)	117 (36.0)	2.4 (1.6, 3.6)
Ever injected drugs			
No	143 (87.7)	322 (99.1)	1
Yes	20 (12.3)	3 (0.9)	15.0 (4.1, 64.5)
Ever self-piercing or self-tattooing			
No	97 (59.5)	247 (76.2)	1
Yes	66 (40.5)	77 (23.8)	2.2 (1.5, 3.3)
HIV			
Negative	145 (89.5)	314 (96.6)	1
Positive	17 (10.5)	11 (3.4)	3.3 (1.5, 7.3)
Hepatitis B			
Negative	144 (90.0)	296 (91.1)	1
Positive	16 (10.0)	29 (8.9)	1.1 (0.6, 2.1)
Hepatitis B immunization			
No	128 (78.5)	258 (79.4)	1
Yes	35 (21.5)	67 (20.6)	1.1 (0.6, 1.7)
Syphilis			
Negative	159 (98.8)	319 (99.7)	1
Positive	2 (1.2)	1 (0.3)	4.0 (0.28, 112.6)

*May not sum up to 488 because of "refused" category.

†Runaways indicate YMSM who reported a history of running away.

‡Fisher's exact confidence limits if at least one expected cell is less than 5.

§Included amphetamines, cocaine, lysergic acid diethylamide (LSD), methylenedioxymethamphetamine (ecstasy), and nitrites.

did not perceive themselves to be at risk of infection compared with 5 or 45% of nonrunaways. Among runaways, the prevalence of markers for hepatitis B virus was 10%, and only 5.6% had evidence of hepatitis B immunization. The odds of hepatitis B infection and syphilis were similar between runaways and nonrunaways.

Factors Associated with a History of Running Away from Home

Sociodemographic variables and lifetime behaviors significant in univariate analyses were entered into logistic regression models. In multivariate analyses, while controlling for all other variables, runaways were more likely to be HIV infected, report not being in school, have had vaginal or anal sex with females, have ever been

TABLE 2. Adjusted odd ratios reported for variables that remained in the final logistic regression model young men who have sex with men (YMSM), Miami, Florida, 1995–1996

Characteristic (N = 488)*	Adjusted odds ratio (95% CI)†
Currently in school	
Yes	1
No	2.1 (1.4, 3.2)
Vaginal or anal sex with females—ever	
No	1
Yes	1.6 (1.0, 2.5)
Ever forced to have sex	
No	1
Yes	1.7 (1.1, 2.6)
Ever injected drugs	
No	1
Yes	9.8 (2.8, 34.6)
Ever self-piercing or self-tattooing	
No	1
Yes	2.0 (1.3, 3.0)
HIV	
Negative	1
Positive	3.4 (1.5, 7.8)

*May not sum up to 488 because of “refused” category.

†Fisher’s exact confidence limits if at least one expected cell is less than 5.

forced to have sexual contact, have ever injected drugs, and report a history of using needles for self-tattooing or body piercing (Table 2).

Sexual Behaviors in the Past 6 Months

Sexual activity with exchange partners, nonsteady partners, and steady partners was ascertained for the past 6 months (Table 3). Runaways were more likely to report having anal sex with any male partners; in particular, they were more likely to have insertive anal sex. With respect to having sex with any females, runaways were more likely to report having vaginal or anal sex. Additionally, they were also more likely to have unprotected vaginal or anal sex with any females.

DISCUSSION

In this study, the HIV prevalence among urban runaways was 10.5%, approximately three times higher than that of nonrunaways. Compared to the data from the multisite study of YMSM in seven cities, which found a 9% positivity rate, HIV prevalence was high among runaways in our study.¹⁷ We did not see a significant association between a history of running away and the prevalence of STDs, and there were two runaways with syphilis compared with only one nonrunaway. Recent studies have documented an increase in STDs, such as gonorrhea and syphilis among MSM.^{22–24} High prevalence of hepatitis B infection, documented in our study, has also been identified in a cohort of HIV-infected youth.²⁵ This is of particular concern because it has been recognized that the presence of other STDs increases the risk of transmitting or acquiring HIV.²⁶ These findings emphasize the

TABLE 3. Sexual behaviors during the past 6 months and the history of running away from home among young men who have sex with men (YMSM), Miami, Florida, 1995–1996

Characteristic (N = 488)*	Runaways (%)†	Nonrunaways (%)‡	Odds ratio (95% CI)§
Anal sex with any males			
No	33 (20.2)	97 (29.8)	1
Yes	130 (79.8)	228 (70.2)	1.7 (1.1, 2.6)
Insertive anal sex with any males			
No	52 (31.9)	138 (42.5)	1
Yes	111 (68.1)	187 (57.5)	1.6 (1.1, 2.3)
Receptive anal sex with any males			
No	77 (47.2)	153 (47.1)	1
Yes	86 (52.8)	172 (52.9)	1.0 (0.7, 1.4)
Insertive anal sex with any males			
None or protected	115 (70.6)	231 (71.1)	71.1
Unprotected	48 (29.4)	94 (28.9)	1.0 (0.7, 1.6)
Receptive anal sex with any males			
None or protected	113 (69.3)	235 (72.3)	1
Unprotected	50 (30.7)	90 (27.7)	1.2 (0.8, 1.7)
Vaginal sex with any females			
No	119 (73.0)	283 (87.1)	1
Yes	44 (27.0)	42 (12.9)	2.5 (1.6, 4.0)
Anal sex with any females			
No	146 (89.6)	318 (97.8)	1
Yes	17 (10.4)	7 (2.2)	5.3 (2.1, 13.0)
Vaginal sex with females			
None or protected	136 (83.4)	302 (92.9)	1
Unprotected	27 (16.6)	23 (7.1)	2.6 (1.4, 4.7)
Anal sex with females			
None or protected	155 (95.1)	321 (98.8)	1
Unprotected	8 (4.9)	4 (1.2)	4.1 (1.1, 19.0)
Sex with HIV-infected or AIDS person			
No/Don't know	141 (90.4)	282 (95.3)	1
Yes	15 (9.6)	14 (4.7)	2.1 (1.0, 4.6)

*May not sum up to 488 because of "refused" category.

†Runaways indicate YMSM who reported a history of running away.

‡Nonrunaways indicate YMSM who did not report a history of running away.

§Fisher's exact confidence limits if at least one expected cell is less than 5.

importance of incorporating STD prevention and treatment into existing HIV prevention programs.^{26–29} Ideally, these programs should be adapted and incorporated into existing prevention services targeted toward youth. These services should include prevention counseling and testing for HIV and other STDs and vaccination for hepatitis B.

Our study illustrated that runaways were less likely to self-identify as homosexual or bisexual. However, runaways were more likely to have sex with both men and women compared with nonrunaways. Framing counseling and prevention messages based on stated sexual orientation alone might not be effective. Prevention efforts that specifically diminish high-risk sexual behaviors, regardless

of sexual identity, may be more effective. In addition, MSM of color may be less likely to self-identify as gay or bisexual.^{30,31} The multisite study of YMSM indicated that the prevalence of HIV infection was highest among closeted black MSM compared with all other racial groups.³² Consequently, these runaways, regardless of their perceived sexual orientation, engaged in risky behaviors such as having sex with both men and women and could serve as a bridge for HIV and STD transmission.

Multivariate analysis indicated that runaways were almost two times as likely to have a history of sexual abuse. Sexual abuse has been linked not only to homelessness but also to increased promiscuity and HIV risk-taking behaviors.^{33,34} Youth who run away from home often engage in risky behaviors that place them at high risk for HIV infection. However, in our study, we found that over half (65%) of the runaways who tested positive for HIV did not perceive themselves to be at risk of infection. Various risk behaviors were seen among runaways; they were more likely to have had multiple male or female partners, use noninjection and injection drugs, or use needles for self-tattooing or body piercing. A study of male and female runaways from New York City indicated that the use of noninjection drugs was associated with an increased number of sexual partners and decreased condom use, thereby placing youth at increased risk for HIV infection.¹⁰ These findings highlight the need for drug prevention and treatment and psychosocial services that specifically target youth.

Findings in this report are subject to at least three limitations. First, this is a venue-based survey of YMSM in Miami. Therefore, our findings are not generalizable to all street and homeless youth in a given area. Nevertheless, our data represent a minimum estimate of association between risky sexual and drug use behaviors and a history of running away from home. Second, because high-risk behaviors and illegal drug practices were self-reported, validity of responses could be affected by under-reporting or over-reporting. Third, participants were asked at the time of the study whether they had a history of running away from home or had been removed from their parents' or guardians' home. The nature of cross-sectional surveys prevents us from making temporal inferences on the causation between the history of running away from home and HIV risk behaviors.

CONCLUSIONS

Overall, this study demonstrated the high prevalence of HIV infection and risk behaviors among YMSM who had a history of running away. Despite a decline in the prevalence of HIV infection among men who have sex with men (MSM) since the mid-80s, the HIV epidemic among MSM continues, especially among black and Hispanic MSM.³⁵⁻³⁷ Recent studies have identified the resurgence of STDs and HIV among MSM.^{38,39} Unfortunately, with the advance of new therapies, there is a sense of complacency among some MSM that the HIV/AIDS epidemic will soon be coming to an end.⁴⁰ Our study illustrated that runaways continue to engage in risky behaviors such as male-to-male sex that place them at high risk for HIV infection. Gay-sensitive HIV instruction appears to be innovative and beneficial among gay, lesbian, and bisexual adolescents who attend schools.⁴¹ It may be advantageous to adapt a similar approach for out-of-school settings. Our findings emphasize the urgent need for prevention programs that target not only street youth and those living in homeless shelters but also high-risk youth with a history of running away from home, regardless of their HIV status.

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