Associations With High-Risk Sexual Behavior: A Survey Of Young Men Of Color Attending Urban Youth Centers

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Background: **Sexually transmitted diseases and human immunodeficiency virus (HIV) represent growing health care concerns that affect subgroups of the population in disproportionately high numbers. We researched associations with high-risk sexual behavior in young men of color living in an economically depressed area of a mid-size city. Our results are used to discuss the possibility of more effective interventions.**

Methods: **We analyzed the responses of 95 men (aged 12 to 29 years) to a self-administered questionnaire. We then examined variables hypothesized to be associated with high-risk sexual behavior and used bivariate and multivariate analyses to report associations found for this group.**

Results: **Improved perception of one's general health (odds ratio [OR] 0.95) and believing that peers approved of condoms (OR 0.51) were inversely associated with high-risk sexual behavior, whereas use of illegal drugs (OR 6.0), history of being arrested (OR 3.92), and age older than 18 years (OR 1.4) were directly associated. Knowledge about HIV was not significantly different in men who participated in high-risk sexual behavior and those who did not. Seventy-eight percent of HIV knowledge questions were answered correctly by both groups.**

Conclusions: **Our findings support the need to develop interventions that focus on more than knowledge dissemination. Interventions using modeling and education by peers have the potential to reach at-risk adolescents and young adults more effectively. Such interventions should address broader societal problems, such as health perceptions, drug abuse, and crime. (J Am Board Fam Pract 1994; 7:189-95.)**

High rates of sexually transmitted diseases (STDs) and human immunodeficiency virus (HIV) are serious and persistent health care concerns. Young men of color* as a group are affected in disproportionately high number, but few studies are looking specifically at this population to design more effective interventions.[1-3] Also, the current efforts to reduce STD and HIV transmission still focus largely on dissemination of knowledge, yet a number of recent studies question the success of such programs.[4-6] Thus there is a need to examine other factors associated with high-risk sexual behavior, particularly among young men of color, in order to implement more effective programs.

*Using racial categories in medical research presents profound dilemmas. As discussed in this report, there are alarming inequities between racial groups living in the United States that must be addressed. Yet such research might support stereotypes and promote racism if it is not made clear that race is a marker for risk rather than a risk factor itself. It is our hope that this study will help narrow inequities rather than promote stereotypes. We have used the term *groups of color* to differentiate from non-Hispanic whites. We believe this description to be preferable to *minorities*, as this latter term implies a numerical description.

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Literature Review

The gap in morbidity and mortality between groups of color and whites in the United States has been extensively reported and is reflected in the current STD-HIV epidemic.[2,7-9] During the 1980s the rate of syphilis in the US rose steadily, and by the early 1990s the highest number of cases were reported since the introduction of penicillin. The rates were higher for groups of color in all areas of the country.[10,11] The differences are most pronounced between non-Hispanic whites and African-Americans. In 1991 gonorrhea rates were reported to be 40 times

higher and syphilis rates 62 times higher in African-Americans than in whites.[11] African-Americans accounted for 30 percent of reported acquired immunodeficiency syndrome (AIDS) cases in 1992 while making up 12 percent of the population.[12,13] Most evidence indicates that these gaps are widening.

Efforts to reverse these trends will have to include programs specifically aimed at adolescents and young adults. One quarter of all STDs are reported in adolescents, and evidence suggests that the actual rates are probably much higher.[14,15] HIV seroconversion in adolescents is increasing.[2,16] In addition, it appears that different intervention strategies are needed for this group. Adolescents frequently feel invulnerable, engage in concrete rather than abstract thinking, and rely heavily on peer approval.[17] Disseminating knowledge alone can thus be particularly ineffective in changing behaviors in adolescents and young adults. In fact, several recent studies have shown that there might be no significant association between knowledge and behavior.[4,5] Satisfactory levels of knowledge have been found in various groups where the rate of high-risk behavior is high, including young men,[18] intravenous drug users,[19] and teenagers.[20]

We need to develop better age-specific and culturally sensitive behavioral and social intervention strategies to decrease transmission of STDs in subgroups that are at high risk for acquiring STDs.[21] Unfortunately, there is little behavioral research to help develop interventions for these populations. The investigations that have examined young adults often use captive populations (e.g., adolescents attending school[22] or adolescents attending health care centers[23]) who might not be representative of the true group at risk. Young men at risk might be attending school only sporadically, and their contact with the health care system might be limited. Unlike women, who are encouraged to obtain routine Papanicolaou smears and who generally come in contact with the health care system during pregnancy and well-child checks, asymptomatic young men have few reasons to seek a health care provider.

Our study was undertaken to study factors associated with high-risk sexual behavior in adolescents and young men of color. We chose our sample to be representative of the true group at risk. We hope this exploratory report will prompt further research to guide the development of appropriate interventions to reduce transmission of HIV and STDs.

Methods

Using the literature as a guide, we developed a model that described factors thought to be associated with high-risk sexual behavior (Figure 1). We tested the validity of these associations in our study group using a self-administered questionnaire.

Subjects

The study population comprised a sample of 95 men of color,* aged between 12 and 29 years, attending urban youth centers located in Rochester, NY. Ninety-two percent of respondents described themselves as African-American. The age and racial distribution in our study reflected the age and racial distribution of the general population of those attending the centers. The centers

*Categorization by race is complicated by nonstandardized definitions. We have chosen to use categorization by self-report, providing five categories: African-American, Hispanic, Asian, white, and other.

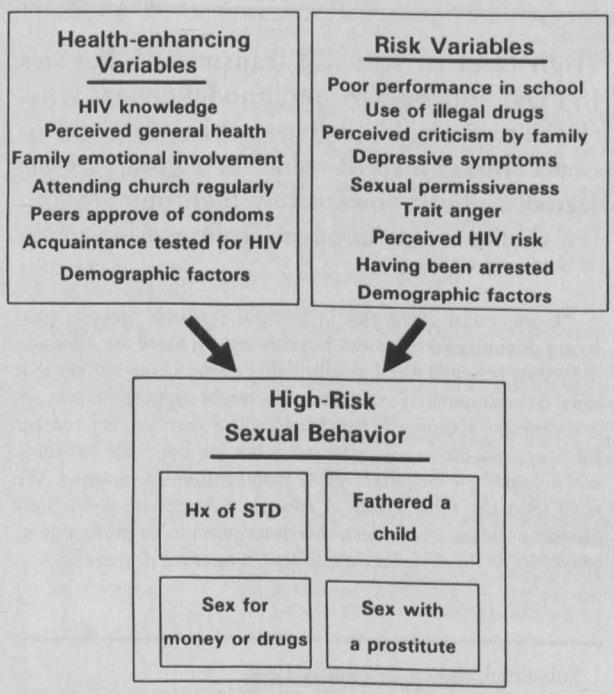

Figure 1. Hypothesized risk- and health-enhancing variables to explain high-risk sexual behavior. HIV = human immunodeficiency virus, Hx = history, STD = sexually transmitted disease

were commonly used by a subgroup of young men who were thought to be at particularly high risk of exposure to STDs and HIV. The centers provided an opportunity for athletic and social activities and for potential health interventions. The centers served areas characterized by high unemployment, depressed household income, below-average rates of home ownership, and poor health indicators, including syphilis rates 14 times the national average and gonorrhea rates more than 10 times the national average.[24] Whereas the older individuals might not fit into some definitions that define adolescents by age criteria, they shared many of the same life-cycle issues of the group as a whole. The community workers in the centers reported that the interactions and peer modeling occurring between the adolescents and young adults appeared substantial; thus we did not limit the sample by age. Apart from sex, no specific inclusion or exclusion criteria were used. Informed consent was obtained, and the questionnaires were self-administered in an anonymous fashion. A community worker who supervised the activities in the centers and who the young men trusted explained the purpose of the questionnaire and urged participation. All men in the centers on the evenings that the questionnaires were distributed heard an explanation by the community worker, but participation was voluntary. The community worker was available to assure that scaled questions were properly understood. The questionnaire took respondents an average of 13 minutes to complete. It was pretested for language clarity using a small focus group of young men attending a local community health center.

Creation of the Dependent Variable

Because we could find no adequate scale in the literature that measured high-risk sexual behavior, we developed our own scale for this study. Respondents were asked about involvement in sexual intercourse (heterosexual and homosexual), number of partners during the last year, condom use, peer perception of condoms, history of sexually transmitted diseases, history of sexual intercourse with prostitutes, sex for money or drugs, and number of children fathered. Varimax factor analysis using a one-factor solution was used to chose four items with factor loadings of >0.5 (Table 1). Respondents were classified at high risk if they had a positive answer to one of these four items: history of STD, sexual intercourse with a prostitute, sex for money or drugs, or fathering 1 or more children. Thirty-six percent of respondents were classified at high risk, and 64 percent were classified at low risk by this scale. Of the sexually active respondents, 51 percent were classified at high risk.

Table 1. Creation of High-Risk Sexual Behavior Scale: Results of Factor Analysis.

Reported Behaviors	No. (%)*	Factor 1
History of sexually transmitted diseases†	16 (24)	0.7793†
Being a father†	19 (29)	0.6726†
Sex for money or drugs†	7 (11)	0.6585†
Sex with a prostitute†	5 (8)	0.6290†
Multiple partners in the last year	43 (65)	0.2831
Have had a condom break	24 (36)	0.0917
Have never used a condom	5 (7)	0.0043
Have reused a condom	1 (1)	−0.2027
Homosexual encounter	3 (4)	0.1035

*Missing responses excluded in calculating percentage.
†Items used in high-risk behavior scale as factor loading >0.5.

Measurement of Independent Variables

When possible, we used published scales that had been validated elsewhere. Overall rating of current health in general was assessed using the five-item General Health Perception Subscale of the Medical Outcomes Study Short Form General Health Survey.[25] Knowledge regarding HIV was tested using seven questions recently used in a study by Epstein.[26] Trait anger, or how often a person feels tension, annoyance, irritation, or rage over time, was measured by the 10-item short form of the State-Trait Anger Scale of Spielberger, et al.[27] We used the 14-item Family Emotional Involvement and Criticism Scale[28] to assess respondents' perceptions of their family members' emotional involvement and criticism of them.

To maximize compliance, efforts were made to keep the questionnaire brief. Longer scales were shortened by examining published items and choosing items that loaded the highest on the scale and were in a language that the focus group readily understood. Depressive symptomatology was measured by four items chosen from the

20-item Center for Epidemiologic Studies Depressed Mood Scale.[29] Sexual permissiveness, or how much the decision to engage in sexual intercourse is based on the strength of the relationship, was measured by six items chosen from the Sexual Attitudes Scale of Hendrick, et al.[30] Respondents were also asked about their perceived risk of acquiring AIDS, their religious faith, use of illegal drugs, difficulties in school, difficulties with the law, and whether they knew someone with AIDS.

Demographic Data

Information on age and race was obtained. Respondents were asked the number of other household members and to describe the occupations and education levels of their mothers and fathers.

Statistical Analysis

Data were analyzed using the statistical program BMDP-SOLO for personal computers.[31] First, we examined the bivariate relations of the independent variables to high-risk sexual behavior using chi-square tests and 2-tailed t-tests. Multivariate relations were examined using stepwise logistic linear regression. Variables were included in the multivariate analysis if they were significantly associated in the bivariate analysis or if the literature suggested a strong association to high-risk sexual behavior.

Results

Ninety-eight percent of all questions were answered, but only 85 percent of the demographic items pertaining to the living situation and employment of parents were completed.

Ninety-two percent of respondents were African-American. The remainder described themselves as Hispanic, Asian, or other. The mean age of participants was 18.7 years (range 12 to 29 years). As noted in the Methods section that deals with the creation of a high-risk sexual behavior scale, 36 percent of all respondents were classified at high risk, and 64 percent were classified at low risk. Of the sexually active respondents, 51 percent were classified at high risk.

Associations between Independent Variables and High-Risk Behavior

Tables 2 through 4 present the associations of the bivariate analysis. The three variables that were significantly and directly associated with reported high-risk sexual behavior were use of illegal drugs ($P=0.0005$), a history of being arrested ($P=0.01$), and knowing someone who has been tested for HIV ($P=0.01$) (Table 2). The two variables that were significantly and inversely associated with reported high-risk sexual behavior were perception of general health ($P=0.003$) (Table 3) and peer approval of condom use ($P=0.04$) (Table 2). Of the significant associations with demographic data, age was directly associated with reported high-risk sexual behavior ($P=0.001$), whereas living with one's mother was inversely associated with reported high-risk sexual behavior ($P=0.01$) (Table 4).

We found no significant difference in knowledge about HIV between the high-risk and the low-risk groups. The respondents overall demon-

Table 2. Dichotomous Independent Variables by Risk Categories.

"Yes" Responses	High Risk No. (%)*	Low Risk No. (%)*	χ^2	*P* Value
Use illegal drugs†	28 (80)	19 (31)	22.30	0.0005
Have been arrested†	21 (60)	22 (37)	5.51	0.01
Peers approve of condoms†	18 (51)	45 (75)	4.24	0.04
Know someone who has been tested for human immunodeficiency virus (HIV)†	23 (65)	26 (43)	5.94	0.01
Perceive themselves to "have no chance at all" of acquiring HIV	13 (37)	23 (38)	0.02	0.89
Attend church more than once a month	9 (25)	23 (38)	1.23	0.26
High-school dropout or not planning to graduate	8 (22)	18 (30)	0.34	0.55

*Missing responses excluded when calculating percentages.
†Items achieved significance at $P<0.05$.

Table 3. Mean Scores (and 95 percent confidence interval) on Scales by Risk Categories.

Variable	High Risk	Low Risk	t-test	*P*
Perceived general health*	75.03 (69.83–80.24)	85.2 (81.05–89.15)	3.02	0.003
Perceived mental health	83.33 (76.66–90.0)	89.67 (85.30–94.04)	1.66	0.09
AIDS knowledge	77.73 (68.78–86.68)	78.92 (72.42–85.42)	0.22	0.83
Perceived criticism	2.55 (2.28–2.81)	2.41 (2.22–2.60)	−0.84	0.40
Emotional involvement	2.64 (2.35–2.93)	2.61 (2.44–2.78)	−0.21	0.83
Sexual permissiveness	2.74 (2.41–3.07)	2.79 (2.58–3.0)	0.27	0.78
Trait anger	2.09 (1.91–2.27)	2.05 (1.89–2.2)	−0.32	0.75

*Items achieved significance at $P<0.05$.
AIDS = acquired immunodeficiency syndrome.

strated a good degree of knowledge about HIV, answering 78 percent of the questions correctly. The question most frequently answered incorrectly (66 percent) was whether everyone with HIV feels sick. When asked to apply knowledge about HIV to themselves, the respondents did less well. Forty percent who reported sex with multiple partners and 37 percent who reported a history of STD reported that they had "no chance at all" of acquiring AIDS.

Stepwise logistic regression found report of illegal drug use, report of being arrested, perception of general health, peer approval of condom use, and age of respondents to be significant independent contributors to high-risk sexual behavior (Table 5). Knowing someone who had been tested for HIV and living with one's mother did not contribute independently.

Discussion

Limitations

The primary limitation of this study was the size of the sample. Also the selection of the sample was not random. It is possible that the men who agreed to participate in the survey were more motivated and more conforming to social norms than the general population of young men attending the urban youth centers. The age range of our study population was broader than some academic definitions of adolescence, thus comparison with other studies using adolescents might be more difficult. We thought it important, however, not to choose an artificial age cutoff, because by report the men attending the centers socialized and interacted as a relatively homogeneous group. An analysis of our data by age categories helps support this decision. While losing statistical significance because of a smaller study sample, the trends in associations between high-risk sexual behavior and other variables for men younger than 18 years old were similar to that of the group as a whole. A fourth limitation of our study was the inherent weakness of a survey tool. We used self-reported measures rather than observational measures, such as school or medical records. Furthermore, published scales[25-30] and

Table 4. Demographic Characteristics by Risk Categories.

"Yes" Responses	High Risk No. (%)*	Low Risk No. (%)*	χ^2	P
Age (> 18 years old)†	24 (60)	17 (28)	16.24	0.001
Living with mother†	20 (57)	50 (83)	6.03	0.01
Father employed outside home	14 (43)	29 (55)	0.96	0.33
Mother employed outside home	16 (59)	23 (52)	0.33	0.56
Father with high-school diploma	12 (40)	24 (43)	0.00	0.99
Mother with high-school diploma	8 (72)	6 (75)	0.06	0.79

*Missing responses excluded in calculating percentage.
†Items achieve significance at $P<0.05$.

Table 5. Results of Stepwise Linear Regression: Variables Found to Contribute Significantly in Multivariate Analysis.

	Odds Ratio	95% CI
Age >18 years	7.3	1.91, 27.96
Report use of illegal drugs	6.0	1.56, 23.30
Report being arrested	3.92	1.04, 14.80
Perceived general health	0.95	0.92, 0.98
Peer approval of condom use	0.51	0.27, 0.98

CI=confidence interval.

data that confirm the reliability of self-reported behaviors[32] come mostly from populations with cultural and social experiences that are different from those of our study group. We are reassured that reported rates of high-risk sexual behavior are similar to rates in similar populations published elsewhere[7,16] and that the mean of our study group on most scales fell within the published means.[25-30]

Implications

Given these limitations, this study was exploratory, and the results should be generalized with caution. We think, however, that our findings suggest some important approaches to STD and HIV intervention for young men in high-risk core populations where these diseases occur widely.

As have the results of other studies,[1,23,33] our results suggest that individuals who participate in high-risk sexual behavior also engage in other high-risk behaviors, such as using illegal drugs. It is likely that effective HIV-STD interventions will need to target these subgroups. Furthermore, interventions that seek to modify high-risk sexual behavior might need to address complex societal problems, such as drug addiction and crime. The strong inverse correlation between improved perception of general health and high-risk sexual behavior also has potentially large implications. It is plausible that improved access to health care would markedly reduce high-risk sexual behavior by providing an improved sense of well-being and optimism. It is unlikely, however, that such complex interventions will yield major results in the short term.

The high scores these young men had in abstract knowledge about HIV and their inability to apply this knowledge to themselves might indicate an area in which more short-term progress can be made. Although the lack of difference in abstract knowledge between the high-risk group and the low-risk group could be due to limited statistical power, it is a finding that is consistent across several studies.[4,5,18-20] We might have reached a saturation point in disseminating information. It is striking that respondents with a history of STD answer correctly that it is possible to acquire HIV by having sex without a condom yet report that they are "at absolutely no risk for acquiring HIV." Future intervention should thus continue to educate but focus less on disseminating information and do more to help individuals apply that information to themselves. Our finding that peer approval of condom use is associated with less high-risk behavior suggests that peers might be particularly effective in helping adolescents and young adults modify their behavior. Finally, our data indicate that high-risk sexual behavior increases with age; thus, any program should begin targeting adolescents at a young age, before these behavior patterns are established.

It seems clear that to implement such strategies, we must explore new nontraditional approaches. Communication among persons in academic public health, primary care medicine, and community organizations should be encouraged to help find high-risk subgroups and implement culturally sensitive interventions. How to find and reach these subgroups effectively should have high priority for research. Interventions might be more effective if implemented in nontraditional sites, such as playgrounds and youth centers. If peers are in fact an important part in effective interventions, it will be crucial to study how to recruit and employ appropriate peers effectively. "Southwest Area Commits to Health" in Rochester, NY, is a community-based project that could provide a model solution for the development and implementation of such nontraditional approaches. The project employs at-risk African-American men to work as health educators in their own community, works cooperatively with neighborhood community groups, and also collaborates in academic research projects. Other strategies to reach high-risk subgroups should also be rigorously studied. Commercial marketing techniques, such as mass media advertising, have been used successfully by companies to distribute everything from footwear to soft drinks.

Similar techniques might well help influence such behavior as condom use. We hope that larger, more long-term studies will address these and other approaches.

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