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Skills-Based, Interactive Computer Interventions to Prevent HIV Infection Among African-American and Hispanic Adolescents

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Abstract

The spread of the acquired immunodeficiency virus (AIDS) virus, human immunodeficiency virus (HIV) infection, is increasingly evident. Despite the attention that HIV infection has received, few effective prevention strategies have been developed. The present paper reviews the epidemiology of AIDS among African-American and Hispanic adolescents. From epidemiological data, the authors argue for preventive approaches to reduce the risks of HIV transmission among African-American and Hispanic adolescents. Emphasizing culturally sensitive prevention strategies, the authors describe an intervention for these adolescents that combines skills-based and interactive computer approaches.

Acquired immunodeficiency syndrome (AIDS) is the result of a viral infection from human immunodeficiency virus (HIV). The disease and its spread are shifting away from majority culture homosexual males toward minority culture males and females. Relative to all Americans, African-American and Hispanic-Americans disproportionately experience AIDS and HIV infection.

The present paper considers the prevalence and risks of HIV infection and AIDS among African-Americans and Hispanic-Americans. After discussing the epidemiology of AIDS, the authors discuss the need for strategies to prevent HIV infection among African-American and Hispanic youths, the authors then focus on the development of preventive interventions for these high-risk adolescents. Drawing on prior and ongoing research, the authors describe promising approaches for preventing AIDS among African-American and Hispanic adolescents through skills-based and interactive computer interventions.

AIDS AMONG AFRICAN-AMERICANS AND HISPANIC AMERICANS

Combined, African-Americans and Hispanics account for 70% of all AIDS cases among heterosexual men, 70% of all cases among women, and 75% of all pediatric AIDS cases (Selik, Castro, & Pappaioanou, 1988). Separately, African-Americans represent 26% of all adult AIDS cases and 58% of all pediatric AIDS cases in the United States (Heyward & Curran, 1988; Morgan & Curran, 1988). Hispanic-Americans account for 14% and 22% of all adult and pediatric AIDS cases. To put these figures in perspective, African-Americans and Hispanics are 12% and 6% of the country's population.

African-American women have a cumulative incidence of AIDS 13.1 times the incidence for white women (Centers for Disease Control, 1986). The incidence of AIDS for Hispanic women is 11.1 times the incidence for white women. African-Americans and Hispanic-Americans represent 51% and 30% of all AIDS cases associated with intravenous drug abuse (IVDA) in

the United States. For white children with AIDS, about 31% were born to mothers who used intravenous drugs or whose sex partner injected drugs; comparable rates for African-American and Hispanic children with AIDS are 61% and 76%, respectively (Hopkins, 1987).

New York City, home to more African-American and Hispanic Americans than any other United States city, has one-third of all AIDS cases in the country (Weinberg & Murray, 1987). In New York, 51% of all African-Americans with AIDS and 54% of all Hispanics with AIDS have injected drugs (Bureau of Communicable Disease Control, 1988). The number of IVDA-related AIDS cases in New York City rose 253% in the last 3 years (Drucker, 1986; Frank, Hopkins, & Lipton, 1986; Sullivan, 1987). In a survey of drug treatment facilities, African-American and Hispanic adults were 68% of all patients in New York City and 59% of all patients in Newark (Centers for Disease Control, 1986). Another study of New York City's drug treatment agencies found HIV antibodies in 42% of all African-American patients, 42% of all Hispanic patients, and 14% of nonminority patients (Schoenbaum, Selwyn, & Klein, 1986).

After controlling for needle sharing, other research found that African-American and Hispanic drug users nationwide had higher rates of HIV seroprevalence than nonminority drug users (Chaisson, Moss, Onishi, Osmond, & Carlson, 1987). Partly due to IVDA, the incidence of AIDS for African-American men who are neither homosexual nor bisexual is 12 times the incidence for white men; for Hispanic men the comparably controlled incidence of AIDS is 9.3 times that for whites (Dondero, 1987). What is more, surveys of military recruits and blood donors note more HIV seropositivity among ethnic-racial minority Americans than among majority culture Americans (Ward, Grindon, Feorino, Schable, & Allen, 1986).

Behavioral Risk Factors

Given the high risks of AIDS among African-American and Hispanic adolescents, empirical comparisons of these youth with majority culture adolescents are informative. DiClemente, Boyer, and Morales (1988) found multiple and significant discrepancies in misconceptions about AIDS risks among African-American and Hispanic youth relative to nonminority youth. African-American and Hispanic adolescents were more likely than white adolescents to harbor incorrect information and misconceptions across a range of behavioral risk factors, commonly held myths, and preventive intervention strategies.

An earlier study by DiClemente, Zorn, and Temoshok (1986) examined responses from San Francisco Bay Area adolescents' knowledge, attitudes, and beliefs about AIDS. Obtained from an ethnically diverse sample of 1,326 high-school students aged 14 to 18 years, those responses showed wide variability regarding the causes, prevention, and treatment of AIDS. Illustrative are youths' answers to questions about the transmission of and cure for AIDS. Of all the adolescents surveyed, only 41% knew that kissing was a poor mode of AIDS virus transmission; about one-third correctly knew the etiology of AIDS; and only 25% accurately answered a question about the availability of a vaccine for the treatment of AIDS.

As for their attitudes and beliefs about AIDS, adolescents involved in the DiClemente et al. study largely harbored adaptive perceptions of their risks and the wisdom of preventive intervention strategies. Exceptions to the accuracy of those perceived risks were evidenced by 42% of the respondents who believed that living in the San Francisco Bay area increased their chances of getting AIDS and by 29% of the youths who agreed with the statement, "I've heard enough about AIDS and I don't want to hear any more about it." Finally, DiClemente et al. found that only one in three youths had received instruction about AIDS in their school curriculum.

National Data

Nationally, data on HIV-related knowledge, beliefs, and behavioral risks are available from the high school youths surveyed under the auspices of the Centers for Disease Control (CDC) (1988a). Representing nine states and six urban areas (Chicago, Los Angeles, New Orleans, New York City, San Francisco, and Seattle), the 35,239 adolescents in the sample were aged 13 to 18 years and were ethnically and racially heterogeneous to proportionately reflect the U S population. Findings from the CDC survey showed that high school students were relatively well-informed about risk factors for AIDS and HIV transmission.

Across the states and cities, for example, nearly all adolescent respondents in the CDC study correctly knew that intravenous drug use and sexual intercourse were risk factors for HIV transmission and that shaking hands was not such a risk factor. But, many students were misinformed about many nonrisk factors for the transmission of HIV infection. For instance, fewer than one-half of all youths knew that giving blood was not an HIV transmission risk factor; between 35% and 58% of all youths incorrectly identified use of public toilets as a risk factor.

The most disquieting data from the CDC study concerned the adolescents' reported behaviors associated with HIV-infection risks. Reported for the states of California and Michigan and for the cities of San Francisco and Washington, these findings for adolescents' reported lifetime prevalence of intravenous drug use and sexual intercourse are summarized in Table 1. Although the sample sizes for youths surveyed at each of the four sites varied somewhat—as did the percentage of youths who responded to the voluntary survey—the concinnity of ages represented in each sample allows ready comparisons among the sites. The study did not examine socioeconomic variables.

For female adolescents in the four index areas, between 2.1% and 4.6% reported that they had illicitly injected drugs. The rate for males in the four surveyed areas was between 3.4% and 8.7%. Between 22.1% and 65.6% of surveyed female adolescents reported they had sexual intercourse at least once. The rate for male adolescents was between 37.3% and 90.7%.

Also shown in the Table are demographic profiles for adolescents surveyed in each of the four sites. Ethnic-racial differences in intravenous drug use and sexual intercourse can be inferred by comparing the prevalence of these reported risk factors with demographic profiles of adolescent samples obtained from the surveyed areas. Without implying causal relationships, the data in Table 1 indicate that the lowest rates of intravenous drug use were reported by adolescent females and males surveyed in Michigan.

Of all the youths represented in the table, adolescents in Michigan also comprised the greatest proportion of white youth. Showing the highest rates of reported intravenous drug use were female and male adolescents sampled in Washington, DC. Because these adolescents proportionately comprised the largest sample of African-American youth, ethnic-racial patterns of risk-taking behaviors associated with HIV infection are implied.

Trends in reported sexual intercourse among adolescents sampled in the four index areas similarly portray possible ethnic-racial differences in this HIV-infection risk behavior. Adolescent females and males surveyed in San Francisco showed the lowest reported prevalence of sexual intercourse. Among the four sites, these adolescents also represented the highest proportion of Asian-American youth.

The greatest prevalence of sexual intercourse reported by females and males across the four sites occurred in the sample from Washington, DC. As noted, this sample of youths contained proportionately the largest percentage of African-American adolescents in any of the four

surveyed sites. Because the youths' reported lifetime prevalence rates of intravenous drug use and sexual intercourse were relatively similar for females and males within each surveyed site, the suggested trends in rates across sites are apparently due more to regional and ethnic-racial differences than to gender differences in the occurrence of the two measured behavioral risks for HIV infection.

Another survey measured knowledge about AIDS in a racially mixed sample of Americans (Seltzer & Smith, 1988). Besides comparing African-Americans and white Americans, the investigators juxtaposed subgroups of African-Americans. Seltzer and Smith concluded:

Our findings indicate that there are racial differences in knowledge and attitudes about the disease, with blacks being somewhat more misinformed about its modes of transmission, more fearful of contracting it, and more likely to indicate that AIDS affected their personal lifestyles but also more likely to report high-risk (multiple sex partners) heterosexual behavior. (p. 35)

These findings confirm other reports to imply that within subgroups of Americans from ethnic-racial minority backgrounds, HIV-infection risks differ by other sociodemographic and lifestyle patterns (cf. Centers for Disease Control, 1988b; Mascola et al., 1989).

Adolescents who have run away from home are at an extremely high risk for behaviors associated with HIV infection. A study by Yates, MacKenzie, Pennbridge, and Cohen (1988), for example, compared adolescents who had run away from home with a comparable sample of youths who lived at home. The Yates et al. study showed that compared with nonrunaway youths, runaway youths had a significantly higher incidence of such activities as drug use, early and frequent sexual activity, homosexuality, bisexuality, and engaging in sexual activities in exchange for money and for personal survival.

METHODOLOGICAL ISSUES

To lay an empirical foundation for methodologies focused on developing AIDS prevention programs for adolescents, Sandberg, Rotherman-Borus, Bradley, and Martin (1988) carried out a methodological study on four areas of research. These four areas, related to behavioral risk factors of substance use and sexual activity, were: a) the development of questions about AIDS that are not ambiguous or potentially misleading, b) the inconsistency of adolescents' perceptions of and skills for preventing AIDS, c) biases and underreporting in gathering data on substance abuse, and d) the feasibility of gathering sexual information about AIDS from adolescents through personal interviews.

The youth sample studied by Sandberg et al. was comprised of 25 adolescents who had run away from home and 12 adolescents living at home and enrolled in high school. Study subjects were primarily African-American and Hispanic; they had a mean age of about 15.5 years, and they were evenly distributed by gender. The investigators reported that knowledge of AIDS was moderately high. Yet, the adolescents showed variability in their responses to questions about AIDS definitions, prevention strategies, means of transmission, and high-risk groups.

Regarding response consistency, Sandberg et al. learned from their sample that youths provided different answers about their ability to implement AIDS risk-reduction procedures, depending on the assessment context. For example, youths were relatively confident about their risk reduction abilities when they responded within questionnaire formats. When they were asked to role-play their responses in such situations as negotiating condom use with a partner, youths were less confident, skilled, and successful.

The presence and control of biased reports of substance abuse among adolescents was another methodological area examined by Sandberg et al. Because substance use is a major behavioral

risk factor in the transmission of AIDS among African-American and Hispanic youth, the collection of accurate and reliable data on adolescents' alcohol and drug use is of clear importance to investigators and clinicians. In their sample, for instance, Sandberg et al. found that one-fifth of their adolescent subjects reported using drugs or reported a combination of drug use and sexual activity.

Based on salient epidemiological data, the researchers indicated that the 20% use rate in all likelihood underreported the adolescents' use of drugs and alcohol. This supposed discrepancy between adolescents' reported and actual substance use caused the researchers to suggest methods for gathering unbiased data on adolescents' substance use and abuse. Among the most promising methods advanced by Sandberg et al. is the randomized response technique.

The randomized response technique presents the subject with an equal and random choice of responding to one question from a concurrently posed pair of items. Because the subject, but not the experimenter, knows which question the youth is answering, confidentiality is preserved and accurate information is allegedly obtained. Investigators can subsequently determine the statistical probability that adolescents responded to a question with a known incidence or to a question about substance abuse.

The fourth methodological area examined by Sandberg et al. concerned the use of personal interviews to gather information about youths' sexual behavior. Drawing upon data from their samples of runaway and high school student adolescents, the investigators present evidence that supports the use of such interviews for assessing the risk of HIV infection and AIDS transmission via sexual activity. The investigators, for example, learned that none of the adolescents questioned about sexual behavior found the interview unsettling. All the adolescents were willing to repeat the interview; 75% found the interview personally helpful, and 83% believed that the interview would help other youth.

Guidelines from Sandberg et al. and others about these four methodological areas provide a foundation for innovative research to document risk-taking patterns, correlates, and opportunities for prevention regarding the two avoidable behaviors associated with AIDS among adolescents (Saltzman, Stoddard, McCusker, Moon, & Mayer, 1987). The principally African-American and Hispanic sample studied by Sandberg et al. add to the salience of the reported data and ideas for investigations with adolescents at greatest risk for contracting and spreading HIV infection through life-style behaviors.

Preventive Interventions

The two behavioral risks associated with HIV infection are intravenous drug use and unsafe sexual practices. Both of these risks can also be minimized by changing one's behavior. Yet there are no interventions to help African-American and Hispanic adolescents avoid high-risk behaviors and thereby reduce their likelihood of HIV infection. Indeed, much work to date has pointed to the difficulties of launching such prevention strategies and the futility of attempting facile approaches. Illustrative is the promotion of condom use.

Together with other strategies for AIDS prevention, increasing the use of condoms among sexually active youths is an additional avenue to intervention. But condoms are underutilized among young people and adults as a preventive strategy for AIDS risk reduction (Becker, & Joseph, 1988; Valdiserri, Lyter, Leviton, Callahan, Kingsley, & Rinaldo, 1988). With particular salience to adolescents, frequently cited reasons for condom nonuse include perceptions about impaired pleasure, misconceptions about risk of infection, unavailability at time of intercourse, and the countervailing influences of alcohol and drug use that compete with sexual judgments (Feldblum & Fortney, 1988).

Theory based, culturally sound, and empirically tested interventions are needed to prevent AIDS among African-American and Hispanic-American youth. In the service of developing and promulgating those interventions, the following section describes two approaches that have potential for preventing HIV infection among African-American and Hispanic adolescents: skills-based interventions and interactive microcomputer-based interventions. Each approach has theoretical and empirical support for its application as a behavior change method for adolescents.

Combined, the two approaches represent the leading edge of interventions to effectively help at-risk youth lower their chances of acquiring and spreading the AIDS virus. The combined intervention strategy advocated here also holds promise for moving African-American and Hispanic adolescents toward positive goals in such domains as education, career, and interpersonal relationships.

Skills-Based Preventive Interventions

Derived from social-learning theory, skills-based preventive interventions help adolescents avoid problems and promote their health through a complementary repertoire of cognitive and behavioral techniques. These techniques include problem solving, personal coping, and interpersonal communication skills. By applying their learned skills, adolescents can better manage themselves and others in high-risk situations.

Skills interventions increasingly emphasize mental and physical health and life-style promoting strategies. Through health promoting strategies, youths learn social and personal competence and to advance their lives educationally, vocationally, and socially while they avoid problems. Cognitive-behavioral interventions, for example, help adolescents apply problem solving, self-appraisal, nonverbal and verbal communication, and social skills to avoid problems and to promote their lives in positive ways (cf. Schinke & Gilchrist, 1984; Schinke & Gilchrist, 1985).

A growing body of research documents the efficacy of skills interventions to prevent the onset of substance abuse problems among adolescents, including cigarette smoking, alcohol use (Orlandi, 1986), and drug use (Schinke, Orlandi, Botvin, Moncher, & Schinke, in press-b). Suggesting the application of skills interventions to problems outside of the substance use area, other studies have reported such interventions can be used to postpone adolescent sexual activity and prevent unplanned adolescent pregnancy (Schinke & Gilchrist, 1984).

Skills-based interventions have rich potential for efforts to prevent HIV infection and AIDS. The application of skills interventions to the prevention of HIV infection among adolescents, in fact, can profitably start with straightforward translations of substance abuse prevention methods and pregnancy prevention methods. Those translations would simply recognize the two well-documented modes of transmission for the HIV virus: intravenous drug use and unprotected sexual activity (Brooks-Gunn, Boyer, & Hein, 1988; Flora & Thoresen, 1988). Despite the potential and promise of skills interventions for reducing the risks of HIV infection among adolescents, no preventive intervention will affect the youths' behavior, unless that intervention can reach and attract the young women and young men who stand to benefit from problem prevention and health promotion skills.

Thus, preventive interventions will effectively prevent the spread of AIDS only to the extent that they are delivered through means that will reach, interest, and affect African-American and Hispanic adolescents (Day, Houston-Hamilton, Deslondes, & Nelson, 1988; Rotheram-Borus, 1987). Of all the available strategies, few hold more promise for satisfying these multiple demands than microcomputer-based, interactive interventions.

Microcomputer-Based Preventive Interventions

Microcomputers are an attractive and portable vehicle for AIDS prevention interventions. Because they are interactive, computer-based interventions can invite and hold the adolescents' interest. Via custom software, adolescents can elicit information on areas of greatest concern. Branching and similar customizing techniques that are possible with computer-driven interventions can further personalize youths' learning by permitting flexibility and involvement (cf. Gustafson, Bosworth, Chewning, Hawkins, & Van Koningsveld, 1987). Moreover, microcomputer-based interventions with state-of-the-art audio and visual features will obviate the need for the highly developed reading skills required by most written and didactic materials (Ledbetter & Johnson, 1988).

Computer formats can give youths confidential access to objective information. Confidentiality is essential if young people are to relate HIV-infection risks to their own behaviors concerning drug use and sexual activity. Objective information is crucial if young people are to learn about the HIV infection risks arising from illegal and value-laden behaviors. The objectivity afforded by computer formats will reduce the likelihood of biased information that can mar prevention efforts.

Interacting with computer software may not only equip African-American and Hispanic adolescents with a repertoire of skills around AIDS prevention, but also may instill in young people the confidence to apply that learning. Indeed, research suggests that computer-directed instruction is particularly beneficial for adolescents from lower socioeconomic and disadvantaged backgrounds (Mervarech & Rich, 1985; Saracho, 1983). The interactive computer medium may similarly heighten African-American and Hispanic youths' self-efficacy by letting them control their progress, rate of learning, and substantive content. Presently, the authors are engaged in developmental research to explore the processes of applying skills and computer-based interventions to the prevention of HIV infection among African-American and Hispanic adolescents.

WORK IN PROGRESS

Located in New York City, the authors' research is focused on African-American and Hispanic youth who have run away from home, who are not in school, or who are likely to quit school. The authors would reach these youth through collaborating nonprofit community agencies that serve disadvantaged, high-risk youth, shelters, summer job training programs, and drop-in centers where youth receive free breakfast, lunch, job training, and recruitment. For example, youths would be invited to participate in the study as an adjunct to a summer job training program.

Software programming for these youths must respond to their cultural and age preferences, living situations, and everyday realities respective to HIV-infection risks and information needs. Thus, our computer intervention addresses HIV facts, ethnic awareness, problem solving, coping, and communication skills. With one lesson per diskette, the subjects would work individually on a Macintosh Plus with a Hypercard and Mouse. The diskette would be programmed in C language with branching and subroutines to meet specific needs.

Factual content for preventing HIV infection among adolescents attends to salient facts about AIDS, HIV infection, behavioral risks, and risk avoidance strategies (cf. Haffner, 1988). Our curriculum includes facts on health and life-style aspects of the disease's transmission. We are programming interactive software content to focus on drug use and unsafe sexual activities.

Ethnic and racially specific content can be programmed into each software lesson. This content can recognize African-American and Hispanic-Americans' achievements through excerpts

from culture- and age-relevant literature, poetry, and inspirational sayings inserted into the software. Software content can also give youths opportunities to note, critique, and respond to everyday examples of African-American and Hispanic ethnic pride. Intervention can further seek to strengthen African-American and Hispanic youths' self-images, lending a positive tone to HIV infection prevention content.

Content on problem solving to help African- and Hispanic-American adolescents avoid AIDS risks can follow five steps. Adapted from existing interventions, these steps are Stop, Options, Decide, Act, and Self-praise (Schinke & Gilchrist, 1984). Adolescents can interact with videodisc material to follow exercises of increasing complexity to learn each problem solving step. Subjects apply each of the five steps by assessing how a computer-generated character deals with a problem. Subjects choose problems and solve them from a preset list for a computer-generated character to solve.

Each lesson will ask youths to make hypothetical decisions about AIDS risks. For example, subjects will hypothetically decide whether or not to use a condom or to share needles. Utilizing the computer they will consider problem situations, generate alternative solutions and assess the consequences of their decisions.

Presented in age- and culture-specific contexts, software can also provide African-American and Hispanic adolescents with skills for coping with stresses that could trigger risk-taking behavior respective to HIV infection. To increase the realism of coping-skills practice situations, intervention software gathers individual data from each adolescent. Data gathering will determine the youths' preferences about a variety of healthy and unhealthy choices. Subsequently, youths interactively practice coping skills relative to their preferences.

Computer-generated characters model various types of coping skills in risk-taking situations similar to those each youth previously identified. Subsequently, youths role play with a computer character in various situations, appropriately applying their coping skills. Feedback and praise accompany youths' trials of their coping skills.

Finally, computer intervention software teaches adolescents techniques of effective interpersonal communication to prevent HIV infection. Computer instruction for communication training starts with characters who interact around HIV infection issues. Next, youths assume the role of different characters in HIV infection situations. From a list of options, youths select the type of response most fitting for a character. Interacting with the computer, youths answer questions concerning the type of the communication, the effectiveness of the communication, and ways to improve the communication to reduce the risk of HIV infection. After youths respond to these questions, the software gives feedback, praise, and suggestions for improvement.

DISCUSSION

In the United States and elsewhere, AIDS and HIV infection are attracting an increasing amount of scientific and lay interest. That interest has focused on biomedical aspects of AIDS, with relatively little attention given to interventions for preventing HIV infection. Particularly underresearched are preventive interventions aimed at behavioral risks associated with HIV infection among minority group Americans. In order to advance the science of AIDS prevention, this paper described a promising intervention approach delivered interactively via microcomputers.

For microcomputer-based interventions to help African-American and Hispanic adolescents avoid HIV infection, two barriers must be overcome. First, adolescents must have access to computer hardware. Largely due to economic maldistributions, personal access to this

hardware is more the exception than the rule. Still, cost-cutting trends, aggressive marketing, and contributions of equipment bode well for rising numbers of computers among African-American and Hispanic youth (Becker, 1984; Ingersoll & Smith, 1984).

Second, African-American and Hispanic adolescents need responsive microcomputer software. The economic imperatives of software development dictate that production must meet market demands. Thus, most software is geared toward middle- and upper-income Americans. Instructional software seldom taps the life experience and everyday realities of ethnic-racial minority, lower-income, and disadvantaged Americans. Not unlike other developments in the microcomputer industry, responsive software for African-American and Hispanic youth will lag far behind the available hardware.

Within the potential and limits of preventive intervention efforts, a great deal of work remains before proven strategies are available for high-risk African-American and Hispanic adolescents. The present paper has attempted to outline promising directions for some of that work. Though not offering a panacea to the problems and risks of AIDS and HIV infection, interactive computer approaches that apply skills-based intervention methods hold considerable possibilities for attracting and helping African- and Hispanic-American adolescents.

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Table 1
Intravenous Drug Use (Drugs) and Sexual Intercourse (Sex) Rates for Female (F) and Male (M)

Site ^a	Ethnic-Racial Characteristics ^b				Risk Factors ^c			
	African-American	Hispanic-American	White	Asian American	Drugs		Sex	
					F	M	F	M
California (7,013; 16.3 years)	7	20	59	9	2.6	5.7	48.1	64.3
Michigan (991; 16.1 years)	19	3	75	1	2.1	3.4	56.6	60.9
San Francisco (802; 15.4 years)	13	14	12	56	2.4	5.1	22.1	37.3
Washington DC (1,275; 16.0 years)	90	3	3	3	4.6	8.7	65.6	90.7

Note. From "HIV-related beliefs, knowledge, and behaviors among high school students" Centers for Disease Control, 1988, Morbidity and Mortality Weekly Report, 37, pp. 719–720. Not copyrighted.

^aFor each site, the sample size and mean age are in parentheses.
^bPercentages of subjects from each group.
^cPercentages of subjects who reported ever using intravenous drugs or ever having sexual intercourse.