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Self-Instruction to Prevent HIV Infection Among African-American and Hispanic-American Adolescents

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Abstract

This study tested the efficacy of self-instruction intervention to reduce avoidable risks for HIV infection associated with drug use and unsafe sexual activity among African-American and Hispanic adolescents ($N=60$). After completing pretests, adolescent participants in the study were randomly divided into three conditions. Participants in one condition received a self-instructional guide about AIDS and its transmission along with group instruction in using the guide. Adolescents in another condition received the guide without group instruction. Participants in the third condition received neither the guide nor group instruction. Outcome findings indicate that participants in the two self-instruction conditions improved more between pretest and posttest assessments on measures of HIV infection risk compared with adolescents in the control condition.

Behavioral risks associated with human immunodeficiency virus (HIV) infection—intravenous drug use and unsafe sexual practices—are preventable (Centers for Disease Control, 1988a, 1988b; Day, Houston-Hamilton, Deslondes, & Nelson, 1988). Even though much is known about preventing HIV infection, tested interventions do not exist for youth at highest risk for AIDS (Brooks-Gunn, Boyer, & Hein, 1988; DiClemente, Boyer, & Morales, 1988; Flora & Thoresen, 1988). These youths are disproportionately African-American and Hispanic adolescents. In the present study, an intervention to prevent HIV infection was developed specifically for and tested among a sample of these high-risk youths.

African-Americans and Hispanics combined account for 70% of all cases of AIDS among heterosexual men, 70% of all AIDS 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 (Heyward & Curran, 1988; Morgan & Curran, 1986). Hispanic-Americans account for 14% and 22% of all adult and pediatric AIDS cases, respectively. African-Americans and Hispanics represent 51% and 30%, respectively, of all AIDS cases associated with intravenous drug abuse (Mascola et al., 1989).

Interventions to help African-American and Hispanic adolescents prevent HIV infection by reducing their risks for drug use and unsafe sexual activity are justified. Among the most promising interventions are those grounded in learning theory and based on youths' preferred culture- and age-specific styles of learning (Bobo, Snow, Gilchrist, & Schinke, 1985; Schinke, Moncher & Holden, 1989; Schinke et al, in press). One such intervention using self-instruction and cognitive-behavioral principles of problem solving was developed and tested in the present study.

Method

Subjects

Participants were 60 adolescents enrolled in an urban job-training program. The 34 female subjects (56.7%) and 26 male subjects (43.3%) had a mean age of 16.01 years. Primarily, participants were from African-American (36.7%), Hispanic (26.6%), and Caribbean-Black (15%) backgrounds, with the remaining participants from other minority groups (11.7%) and nonminority groups (10%). Youths were invited to participate in the study as an adjunct to job-training program activities. In an initial session, youths learned about study procedures and risks. Then participants and their parents were given passive consent forms. No youths or parents passively declined study participation.

Measurement

Participants completed a pretest battery coded to ensure confidentiality and to enhance the accuracy of self-reports (Murray, O'Connell, Schmid, & Perry, 1987). Pilot-tested and refined with a prior sample of African-American and Hispanic adolescents, the battery contained scales on demographic items, drug use and sexual activity, and HIV infection knowledge, attitudes, and risks. Overall, alpha reliability for the self-report battery was .89. Test-retest reliabilities for the measure from responses to expectedly stable questions over two assessment occasions averaged .97.

Procedure

Before they left the pretest measurement session, participants received an informational sheet on AIDS and its prevention. Participants were then scheduled for a posttest measurement session, 1 month later. Posttest measures employed the same battery used at pretest. Randomly, participants were divided into three conditions: guide plus group instruction, guide only, and control.

Guide plus group instruction—Participants in this condition met with research staff for three 1-hr sessions during the 1-month interval between measurements. During each session, intervention leaders described the rationale and use of the self-instructional guide. Leaders devoted the first half hour of each session to information about AIDS, drug use, and unsafe sexual activity; the second half hour was devoted to describing and explaining five steps to cognitive problem solving.

Guide only—Participants in this condition received the self-instructional guide after completing the pretests. Encouraged to read the guide and to complete its exercises, participants were not otherwise instructed in the guide's use. Participants discussed their experiences with the self-instructional guide after completing posttest measures.

Control—Participants in this condition received no intervention other than the aforementioned AIDS fact sheet.

Intervention

The self-instructional guide was written in a comic book format that relied heavily on graphics with brief passages of text. Written in rap music verse, the guide informed participants about AIDS risks, myths, and prevention strategies. Rap music is a popular form characterized by improvised and rhymed lyrics. Lyrics were presented by a cartoon character drawn to mirror participants' age and ethnic-racial backgrounds. Throughout the guide, the character described how adolescents can contract AIDS and how they can avoid it through behavior change.

The guide devoted attention to risks associated with intravenous drug use, including needle sharing, sexual contact with partners who inject drugs, and decisions and steps that could lead to intravenous drug use. An example of the guide's instructional tone and textual material is this rhyme that accompanied an unflattering cartoon of a person injecting drugs: "Dopers get it from sharin' the spike.. . .Share needles—share AIDS and take the permanent hike."

After explaining the behavioral risks of AIDS and ways to avoid the risks, the guide introduced participants to a cognitive problem-solving sequence. The sequence used a game format that required youths to make hypothetical decisions about drug use and AIDS risks. The sequence included four steps, the initials of which form the acronym SODA. ("This game is called SODA; but you don't exactly drink it.. . . In order to play it you gotta *think* it!")

The first step in the sequence was *Stop*. In this step, participants learned that they should pause and give themselves time to consider their choices and the consequences of those choices when facing drug use and other risk-taking situations. ("Really stop and *think* what these choices could *really* mean for you, today, tomorrow . . . for *years* to follow.")

The second step, *Options*, reminded participants that problems have many solutions. To graphically show participants how to consider their options, the guide depicted a scale on which various outcomes from decisions were weighed. ("The *best* way to choose your option is to think of a scale that measures how much you gain and how much you would fail.")

For the *Decide* step, the guide showed participants how to choose the best solution from their options. Emphasizing that appropriate responses vary depending on the problem, the guide recommended that participants base their decisions on an assessment of problem situations. The guide told participants to consider especially whether the solution to a problem situation would involve danger, rejection, or risk taking. Participants then noted the decision that was best for them.

In the *Action* step, participants reviewed five types of verbal responses to peer pressure situations: I statements ("I don't use *that* kind of stuff"); Delay statements ("I can't tell you my answer now. Let me get back to you later"); Refusals ("I can't go with you today, so I'll see y'all later on"); Blunt and Blur statements ("You're right, man, I am a drag; but the price of a free high is *more* than I can afford"); and Alternative suggestions ("I don't get high, pal, but you know who does, so check 'em out").

Next, participants were presented with five problem situations and told to record their responses referring to the problem-solving paradigm. The problem situations in the guide were referred to as puzzles. ("Now move on to my puzzles. Let me see how you do. You heard enough from me. I wanna hear from *you*!") For each puzzle, participants were asked to solve the problem situation for a cartoon character.

Problem situations in the puzzles included the following: Should the cartoon character use a borrowed needle to inject drugs; should the character work as a prostitute; should the character talk to her teacher because she is worried about getting AIDS from her drug-using boyfriend; should the character take drugs after listening to an older teenager argue in favor of drug use; and should the character strive to emulate the life-style of a high-status drug dealer? At the end of each problem-solving situation puzzle, participants were reinforced for work just completed and were encouraged to progress to the next problem ("Good answer! Now you've got the hang of it, so keep on goin.' Try the next one on your own").

Results

Pretest Findings

Across conditions, study participants did not differ on measured demographic variables, according to one-way analysis of variance (ANOVA) and chi-square tests (Table 1). Additional one-way ANOVA comparisons at pretest showed that participants were also similar among the three conditions on variables associated with future problem-behavior risk. These variables are represented by age-grade discrepancy and by school truancy, suspensions, and grade failure—the last four entries in Table 1.

Intervention Integrity

To determine whether self-instructional intervention was delivered consistently within conditions and whether it was perceived as equally effective by participants, manipulation checks were performed. Manipulation check data were collected from participants through open-ended and Likert-scaled items on anonymous feedback sheets. Analyses of manipulation check data revealed no within-condition differences on any variables, including how much participants perceived that they learned, $F(4,109) = <1$, and on how much participants enjoyed intervention sessions, $F(4,104) = 1.65$, *ns*.

On an anonymous, open-ended evaluation form completed after posttesting, the majority of participants in the intervention conditions were positive about intervention. Of all the participants, 59.8% stated that they liked everything about intervention. Only 6.1% of participants reported they already knew intervention content. Using open-ended responses, 21.4% of participants expressed a desire to learn more about AIDS and related risk factors.

Outcome Findings

Outcome differences at posttest among the three conditions were analyzed univariately. Univariate tests, rather than multi-variate tests, were performed because the study's small sample sizes and missing responses from participants vitiated the sensitivity of multivariate tests to find among-conditions differences. One-way analysis of covariance (ANCOVA) on posttest scores, using pretest scores as covariates, revealed several differences among the three conditions (Table 2). After intervention, participants reported changes in their perceptions about the value of AIDS education, $F(2, 54) = 4.59$, $p < .014$. Within-condition differences on this variable were found by dependent *t* tests. Those tests showed pretest to posttest change for participants in the self-instruction-only condition, $t(18) = 2.54$, $p < .021$. No changes for participants in the other two conditions were shown by dependent *t* tests.

ANCOVA on pretest to posttest differences indicated that after intervention, study participants changed their responses about the transmission of the AIDS virus through casual contact, $F(2, 53) = 3.38$, $p < .042$. Dependent *t* tests revealed no within-condition differences on this variable. Analyses of participants' responses between pretest to posttest on a scale regarding their fear of AIDS failed to reach significance, $F(2, 55) = 2.04$, $p < .139$, as did changes in participants' responses regarding their approval of casual drug use, $F(2, 55) = 2.05$, $p < .138$.

According to ANCOVA, pretest to posttest scores on a measure of participants' approval of intravenous (IV) drug use were significant among the three conditions, $F(2, 55) = 5.35$, $p < .008$. Within-group *t* tests for changes on this variable indicated that participants who received the self-instructional guide plus small group intervention nonsignificantly decreased their permissiveness toward IV drug use, $t(17) = 1.72$, $p < .102$, whereas participants in the control condition nonsignificantly increased their permissiveness toward IV drug use, $t(22) = 1.70$, $p < .103$.

Responses on scales of participants' willingness to discuss drugs, $F(2, 54) = 2.12, p < .13$, and sex, $F(2, 56) = 2.06, p < .14$, with their families did not differ among conditions between the two measurement occasions. Regarding their willingness to talk with friends about sex, participants' responses changed between pretest and posttest measurements, $F(2, 56) = 5.68, p < .006$. Comparisons within conditions on this variable showed that participants in the self-instruction plus group intervention condition were more likely to talk with friends about sexual matters after intervention than before intervention, $t(17) = 3.06, p < .007$. On scores from a scale of participants' intentions to use condoms as a protection against the transmission of HIV infection, ANCOVA revealed no differences between measurements, $F(2, 56) = 2.1, p < .132$.

Discussion

Experiences and data from this study allow four conclusions about interventions for AIDS prevention among African-American and Hispanic adolescents. First, the study demonstrated how issues of HIV infection, drug use, and unsafe sexual activity are addressed through a self-instructional format aimed at high-risk youth from ethnic-racial minority backgrounds. Second, based on intervention manipulation checks, the study indicated that self-instructional intervention for preventing HIV infection among African-American and Hispanic adolescents is acceptable, replicable, and engaging.

Third, outcome findings from the study modestly suggest that self-instructional intervention can help African-American and Hispanic adolescents reduce their behavioral risks for AIDS and HIV infection. On outcome measures of youths' willingness to talk with friends about sexual matters, participants in the self-instruction plus group intervention condition improved more between pretest and posttest assessments than participants in the self-instruction only condition and participants in the information-only control condition.

Participants in the self-instruction only condition, moreover, improved more from pretest to posttest on their ratings of the value of AIDS education, relative to participants in the other two conditions. Albeit nonsignificant, postintervention differences favored participants in both self-instruction conditions on a measure of intravenous drug approval, when compared with control condition participants.

The study's fourth conclusion concerns the participant sample involved in the research. From demographic and risk assessment data, the sample represented an ideal target population for AIDS prevention efforts. Study participants were at risk for school problems; many had stopped regularly attending school. The study and its interventions appeared to reach and interest African-American and Hispanic youths, who have much to gain from preventive interventions aimed at behavioral correlates of HIV infection.

Among the study's notable limitations were its small sample size, reliance on self-report measures, lack of follow-up assessments, and large variances on outcome measurements. Possibly these large variances accounted for the few significant differences among study conditions.

The study's limitations notwithstanding, experiences and findings from the research suggest that self-instruction holds promise as a means for delivering AIDS prevention content and skills to African-American and Hispanic adolescents. Obviating handicaps placed on interventions delivered through schools and by pedagogical means that are unresponsive to disenfranchised youth, self-instructional intervention can respond to the everyday realities and risks faced by youth in a personalized manner (De La Cencela, 1989; DiClemente, 1989).

More work lies ahead for research on HIV infection risks among African-American and Hispanic youth. That work can take several courses. Few data are available on the mechanisms

of risk taking, on the accurate and reliable measurement of HIV infection risks, and on gender and ethnic-racial differences in adolescents' acquisition and application of knowledge and attitudes about HIV infection (Jaffe & Wortman, 1988; Sandberg, Rotheram-Borus, Bradley, & Martin, 1988). Most important, aggressive and innovative efforts to reduce the risks of HIV infection among African-American and Hispanic adolescents deserve further research.

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Table 1

Demographic Risk Characteristics of Participants

Variable	Guide + group (<i>n</i> = 18)			Guide only (<i>n</i> = 19)			Control (<i>n</i> = 23)		
	<i>M</i>	<i>SD</i>	%	<i>M</i>	<i>SD</i>	%	<i>M</i>	<i>SD</i>	%
Age (years)	15.69	1.03		16.03	1.63		16.23	1.61	
Female			56			68			48
African-American			22			58			30
Caribbean Black			11			11			17
Hispanic-American			33			21			26
Other minority			17			5			13
Nonminority			17			5			9
Highest grade (years)	9.06	0.99		9.39	0.92		9.30	1.22	
Truant past year ^a	1.66	1.35		1.28	1.60		1.74	3.31	
School suspensions ^b	0.39	0.61		0.21	0.54		0.18	0.50	
Held back in school ^b	0.33	0.49		0.53	0.77		0.70	0.93	

Note. Guide + group = self-instructionalguide plus group intervention; Guide only =self-instructional guide given after pretesting; Control = no intervention.

^a Number of occasions.

^b Lifetime prevalence, number of occasions.

Table 2

Pretest and Posttest Results for Each Condition

Variable	Guide + group Instruction (n = 18)		Guide only (n = 19)		Control (n = 23)	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
AIDS education valuable ^a						
Pretest	3.11	0.90	3.32	0.82	3.52	0.51
Posttest	3.39	0.61	3.84	0.38	3.52	0.51
AIDS not from casual contact ^a						
Pretest	2.33	1.03	2.72	1.23	3.00	0.82
Posttest	2.28	1.07	3.12	0.79	2.91	0.83
Fear of AIDS ^b						
Pretest	1.22	0.73	1.05	0.23	1.05	0.21
Posttest	1.39	0.79	1.21	0.63	1.00	0.00
Approve casual drug use ^a						
Pretest	1.28	0.57	1.11	0.32	1.26	0.45
Posttest	1.22	0.43	1.06	0.23	1.35	0.49
Approve IV drug use ^a						
Pretest	1.28	0.46	1.06	0.24	1.13	0.34
Posttest	1.06	0.24	1.01	0.22	1.30	0.47
Talk with family about drugs ^c						
Pretest	4.33	1.08	4.11	1.33	4.00	1.38
Posttest	3.67	1.33	4.06	1.11	4.14	1.18
Talk with family about sex ^c						
Pretest	2.61	1.04	2.84	1.12	2.87	0.97
Posttest	2.44	1.10	3.11	1.05	2.87	1.14
Talk with friends about sex ^c						
Pretest	3.61	0.50	3.63	0.50	3.57	0.79
Posttest	3.81	0.71	3.74	0.45	3.48	0.79
Would not use condoms ^a						
Pretest	3.56	0.62	3.79	0.42	3.48	0.51
Posttest	3.39	0.78	3.79	0.42	3.65	0.49

Note. Guide + group = self-instructional guide plus group intervention; Guide only = self-instructional guide given after pretesting; Control = no intervention, IV = intravenous.

^a Four-point scale: 1 (*strongly disagree*), 4 (*strongly agree*).

^b Four-point scale: 1 (*very afraid*), 4 (*not at all afraid*).

^c Four-point scale: 1 (*never*), 4 (*always*).