HIV/STD Risk Reduction Interventions for African American and Latino Adolescent Girls at an Adolescent Medicine Clinic

A Randomized Controlled Trial

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Background: Adolescent girls in the United States and around the world are at a heightened risk for sexually transmitted diseases (STDs), including human immunodeficiency virus (HIV).

Objective: To determine the efficacy of a skill-based HIV/STD risk-reduction intervention in reducing self-reported unprotected sexual intercourse among African American and Latino adolescent girls.

Design: Randomized controlled trial with 3-, 6-, and 12-month follow-ups.

Setting and Participants: Sexually experienced African American and Latino adolescent girls recruited from the adolescent medicine clinic of a children's hospital serving a low-income inner-city community (N=682, mean age, 15.5 years); 88.6% were retained at the 12-month follow-up.

Interventions: Three 250-minute interventions based on cognitive-behavioral theories and elicitation research: an information-based HIV/STD intervention provided information necessary to practice safer sex; a skill-based HIV/STD intervention provided information and taught skills necessary to practice safer sex; or a health-promotion control intervention concerned with health issues unrelated to sexual behavior.

Main Outcome Measures: Primary outcome measure was self-reported frequency of unprotected sexual intercourse; secondary outcomes included the frequency of sexual intercourse while intoxicated, the number of sexual partners, biologically confirmed STDs, and theoretical mediator variables, including the intention to use condoms, beliefs about using condoms, and condom-use knowledge.

Results: No differences between the information intervention and the health control intervention were statistically significant. Skills-intervention participants (mean [SE], 2.27 [0.81]) reported less unprotected sexual intercourse at the 12-month follow-up than did information-intervention participants (mean [SE], 4.04 [0.80]; P=.03), or health control–intervention participants (mean [SE], 5.05 [0.81]; P=.002). At the 12-month follow-up, skills-intervention participants (mean [SE], 0.91 [0.05]) reported fewer sexual partners (P=.04) compared with health control–intervention participants (mean [SE], 1.04 [0.05]) and were less likely to test positive for STD (mean [SE], 10.5% [2.9%]) than were health control–intervention participants (mean [SE], 18.2% [2.8%]; P=.05). No differences in the frequency of unprotected sexual intercourse, the number of partners, or the rate of STD were observed at the 3- or 6-month follow-up between skill-intervention participants and information-intervention or health control–intervention participants.

Conclusion: Skill-based HIV/STD interventions can reduce sexual risk behaviors and STD rate among African American and Latino adolescent girls in clinic settings.

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of STDs even in adolescent medicine clinics where condoms are provided suggests that simply providing access to condoms is insufficient to prompt their correct and consistent use. There is a need for programs that are designed to eliminate the unsafe sexual practices that persist among adolescents who have access to condoms.

To be sure, randomized controlled trials have demonstrated that HIV/STD prevention interventions for adolescents are effective in reducing sexual risk behavior. However, few such trials have been conducted in adolescent medicine clinic settings, and fewer still have considered the relative efficacy of different intervention strategies. For instance, interventions can simply provide information about how to reduce risk or interventions can provide skills training to empower adolescents to protect themselves. Furthermore, although HIV/STD risk-reduction interventions have been successful in reducing self-reported sexual risk behavior, less well documented is whether such interventions also reduce the rate of STDs among adolescents.

The present study tested the effects of HIV/STD risk-reduction interventions on unprotected sexual intercourse and the rate of STDs among African American and Latino female patients in a low-income, inner-city adolescent medicine clinic that provided confidential and free family planning services. We randomly assigned the participants to 1 of 3 interventions based on cognitive behavioral theories and formative research. An information-based HIV/STD intervention provided information needed to reduce sexual risk, but it provided no practice or direct experience with condoms or role-playing. A skill-based HIV/STD intervention provided information and taught skills necessary to practice and negotiate condom use. A health-promotion control intervention concerned health issues unrelated to sexual behavior.

We hypothesized that (1) the skill-based intervention would reduce unprotected sexual intercourse and STD rate compared with the health-promotion control intervention, (2) the information-based intervention would reduce unprotected sexual intercourse and STD rate compared with the health-promotion control intervention, and (3) the skill-based intervention would reduce unprotected sexual intercourse and STD rate compared with the information-based intervention.

METHODS

PARTICIPANTS

The participants were 682 sexually experienced African American (n=463) and Latino (n=219) adolescent girls, 12 to 19 years of age (mean age, 15.5 years) who were family planning patients at the adolescent medicine clinic in a children’s hospital serving a low-income, inner-city community in Philadelphia, Pa. Of the Latinos, 92.7% were Puerto Rican. The participants had volunteered for the “Women’s Health Project” designed to reduce the chances that African American and Latino adolescent girls would develop devastating health problems, including cardiovascular diseases, cancer, and AIDS. They were reimbursed up to $120 for participating: $40 for completing the intervention and the pre-intervention and postintervention questionnaires, $25 for the 3-month follow-up, $25 for the 6-month follow-up, and $30 for the 12-month follow-up.

PROCEDURES

The institutional review boards of Princeton University, Princeton, NJ, and the University of Pennsylvania, St Christopher’s Hospital for Children, and the Family Planning Council, Philadelphia, approved the study. African American and Latino adolescent girls were eligible to participate if they (1) were patients at the adolescent medicine clinic, (2) were sexually experienced, (3) were not pregnant, (4) were 12 to 19 years of age, (5) could read and speak English, and (6) did not plan to move from the area of the clinic. During the adolescents’ biannual STD screening visit, clinicians referred eligible adolescents to the site coordinator who informed them about the study and scheduled interested adolescents to participate.

RANDOMIZATION TO INTERVENTIONS

The study was a randomized controlled trial conducted at the hospital where the adolescents were recruited. Participants were stratified by age, and based on computer-generated random number sequences, they were assigned to 1 of the following 3 interventions: skill-based HIV/STD intervention, information-based intervention, or health-promotion control intervention. One researcher conducted the computer-generated random assignments; others executed the assignments. One week later, mothers of participants who consented to having their mother invited to participate were randomized to 1 of 3 interventions—skill-based HIV/STD intervention, information-based intervention, or health-promotion control intervention—to help them communicate with their daughter about health issues. The mothers’ randomization was independent of the daughters’ randomization. Findings from that aspect of the trial will be the subject of a separate article.

FORMATIVE RESEARCH

Before conducting this trial, we conducted focus groups and elicitation surveys, and we pilot tested both the questionnaire and the interventions with African American and Latino adolescent girls from the study population. The results suggested that it was feasible to develop, and acceptable to use, interventions that would be implemented with both Latino and African American participants.

INTERVENTION METHODS

The interventions were based on cognitive behavioral theories and the formative research we conducted with adolescents from the study population. Designed to be culturally and developmentally appropriate for inner-city African American and Latino adolescent girls, each intervention involved 250 minutes of group discussions, videotapes, games, and experiential exercises implemented in a single session with 2 to 10 participants (mean, 5.3 participants). Many of the activities have been used successfully in previous studies with inner-city African American adolescents.

INFORMATION-BASED HIV/STD RISK-REDUCTION INTERVENTION

The information-based HIV/STD risk-reduction intervention addressed the elevated risk of HIV and STD among inner-city African American and Latino young women, personal vulnerability to HIV and STD, HIV transmission, the diverse messages about sex to which adolescents are exposed, responsibility for sexual risk reduction in romantic relationships, and the importance of using condoms. It also addressed the belief that con-
SKILL-BASED HIV/STD RISK-REDUCTION INTERVENTION

The skill-based HIV/STD risk-reduction intervention addressed beliefs relevant to HIV/STD risk reduction, illustrated correct condom use, and depicted effective condom-use negotiation. It differed from the information intervention in that participants practiced the skills needed to use condoms. It addressed the elevated HIV and STD risk among inner-city African American and Latino young women and personal vulnerability to HIV. It addressed barriers to condom use, including alcohol and drug use and the belief that condoms interfere with enjoyment, and ways to surmount such barriers. Most important, participants handled condoms, practiced correct use of condoms with anatomical models, and engaged in role-playing to increase skill in negotiating the use of condoms.

HEALTH-PROMOTION CONTROL INTERVENTION

To control for Hawthorne effects to reduce the likelihood that effects of the HIV/STD interventions could be attributed to non-specific features, including group interaction and special attention, some participants received a health-promotion control intervention designed to be as valuable and enjoyable as the HIV interventions. It covered beliefs and skills relevant to behaviors associated with the risk of heart disease, cancer, and stroke. Specifically, it concerned food selection and preparation, physical activity, breast self-examination, cigarette smoking, and alcohol use.

FACILITATORS AND FACILITATOR TRAINING

The facilitators were 14 African American women (mean age, 38.2 years) who had at least a baccalaureate degree and experience working with inner-city adolescents. Implementation fidelity was emphasized during the 8-hour facilitator training and before each intervention session when the facilitators met with the project coordinator.

DATA COLLECTION AND MEASURES

The adolescents completed confidential self-administered questionnaires preintervention, immediately after the intervention, and at the 3-, 6-, and 12-month follow-ups. Preintervention and follow-up questionnaires assessed sexual behavior, demographic variables, and conceptual mediator variables. The postintervention questionnaire included conceptually mediator variables and evaluations of the interventions. Biological specimens for STD testing were collected at baseline and at the 6- and 12-month follow-ups.

We attempted to increase the validity of self-reported sexual behavior. To reduce potential memory problems, we asked adolescents to report their behaviors over a brief period (ie, 3 months), wrote the dates comprising the period on a chalkboard, and distributed calendars clearly highlighting the period. To reduce the likelihood of demand from giving their responses to the intervention facilitators, proctors blind to the participants’ intervention assignment collected the questionnaire data. The proctors emphasized to participants the importance of responding honestly and assured them that their responses were confidential. Participants signed an agreement pledging to answer the questions honestly, a procedure that has been shown to yield more valid self-reports on sensitive issues.

Primary Outcome Measure

The primary outcome measure was the number of days on which the adolescent reported having unprotected sexual intercourse in the previous 3 months.

Secondary Outcome Measures

The secondary outcome measures included other sexual risk behaviors in the previous 3 months, STD rate, and conceptual mediator variables. Participants reported the number of sexual partners, the number of days on which they had sexual intercourse while high on drugs or alcohol, and the number of days on which they had unprotected sexual intercourse while high on drugs or alcohol in the previous 3 months.

The routine screening procedures in the adolescent medicine clinic included screening all sexually experienced adolescents, including asymptomatic patients, for Neisseria gonorrhoeae, Chlamydia trachomatis, and Trichomonas vaginalis every 6 months by performing a pelvic examination. As patients in the clinic, all the participants would have undergone biannual STD testing by clinicians who were blind to their intervention assignment. Sexually transmitted disease data were obtained by clinical medical record review, and any participants who did not return for their routine biannual STD screen were followed up to arrange for an expedited clinic appointment. The presence of N gonorrhoeae, C trachomatis, or T vaginalis infection was used as the measure of STD presence. Participants who tested positive for STDs were notified and treated according to Centers for Disease Control and Prevention guidelines. Details about STD testing methods are available from us.

Several variables from the theory of reasoned action, the theory of planned behavior, and social cognitive theory that might mediate the efficacy of our interventions were measured with 5-point Likert scales. These theoretical mediator variables were targeted by the HIV/STD interventions. Three items measured the intention to use condoms (α = .86). Condom use hedonistic beliefs were measured with 7 items concerning the belief that condoms do not interfere with sexual enjoyment (α = .84). One item measured normative beliefs regarding sexual partner’s approval of using condoms. Three items measured condom use technical skills beliefs (participants’ confidence they could use condoms skillfully; α = .65). Two items measured condom use impulse control beliefs (participants’ confidence they could control themselves enough to use condoms; α = .61). Three items measured condom use negotiation beliefs (α = .82). In addition, HIV/STD risk-reduction knowledge was the number correct on 48 true-false items regarding the transmission and consequences of AIDS and STDs, and knowledge specific to condom use was the number correct on 6 true-false items.

Participants also evaluated the interventions. A 5-item scale measured how much participants liked their intervention (α = .87). A 3-item scale measured how much they thought they learned (α = .83). One item measured the extent to which they would recommend it to others.

SOCIAL DESIRABILITY RESPONSE MEASURE

The Marlowe-Crowne Social Desirability Scale assessed the tendency of participants to describe themselves in favorable, socially desirable terms. The scale has been used extensively in studies of adolescents, including inner-city adolescents.
SAMPLE SIZE AND STATISTICAL ANALYSES

With $\alpha = .05$, 2-tailed, a total sample size of 506 participants completing the trial was projected to provide a power of 80% to detect a 0.25-SD difference in self-reported frequency of unprotected sexual intercourse between each of the 2 HIV/STD risk-reduction interventions and the health-promotion control intervention.

$\chi^2$ Tests, analyses of variance, and Poisson regression analyses were performed to identify significant differences among conditions on preintervention measures. The $\chi^2$ and $t$ tests were performed to analyze attrition. Hypotheses regarding primary and secondary outcomes were tested in analyses that used planned contrasts of prespecified hypotheses, controlling for preintervention scores on the criterion, ethnicity (Latino vs black), and a 4-category variable on which 3 categories represented the 3 aforementioned mothers’ conditions (ie, health promotion, information, and skill) and the fourth category represented mothers who did not participate. The first planned contrast compared the information-based intervention with the health-promotion control intervention. The second contrast compared the skill-based intervention with the health-promotion control intervention. The third compared the skill-based intervention and the information-based intervention. The standardized effect size estimate ($d$) is presented for each significant contrast. Analyses on counts of sexual behaviors were performed using Poisson regression. Analyses on conceptual mediator variables used analyses of covariance. Hypotheses regarding STDs and sexual behaviors measured with dichotomous variables were tested in logistic regression analyses. Interactions were tested hierarchically, that is, by controlling for the main effects of all variables involved in the interactions.

RESULTS

PARTICIPANTS

As shown in the Figure, 59.3% of the eligible adolescents (ie, 682 of 1150) participated. Those enrolled were younger than were the eligible nonparticipants (mean age, 15.5 vs 16.1 years, $P<.001$). A greater percentage of the eligible African Americans compared with Latinas enrolled in the study (68.7% vs 46.0%, $P<.001$). Participants eligible nonparticipants did not differ in STD prevalence at baseline ($P = .42$).

At baseline, 87.1% of the respondents reported having sexual intercourse in the previous 3 months. About 52.0% of the respondents had unprotected sexual intercourse in the previous 3 months, 15.8% had sexual intercourse with multiple partners in the previous 3 months, 9.5% had at least 1 child, and 21.6% tested positive for N gonorrhoeae, C trachomatis, or T vaginalis. Few respondents (0.4%) reported having same-gender sexual relationships or using injection drugs (0.6%).

PREINTERVENTION COMPARABILITY OF INTERVENTION CONDITIONS

Table 1 gives the descriptive statistics for preintervention reports of demographic characteristics, sexual behavior, conceptual mediator variables, and STD test results by intervention assignment. Analyses revealed no statistically significant differences among the conditions.

ATTENTION

As shown in the Figure, there was little attrition. About 97.6% of the adolescents attended at least 1 follow-up: 94.3% attended the 3-month follow-up, 92.8% attended the 6-month, and 88.6% attended the 12-month follow-ups. The intervention conditions did not differ significantly in the percentage of adolescent participants who attended at least 1 follow-up, 2 follow-ups, or all 3 follow-ups.

Considering preintervention STD prevalence, sexual behavior, conceptual variables, evaluations of the interventions, and demographic variables, there were only 4 significant differences between returnees (ie, adolescents who attended a follow-up) and nonreturnees (ie, adolescents who failed to attend a follow-up). Nonreturnees reported more frequent intercourse while intoxicated (mean, 3.44 vs 0.40, $P<.001$) and more unprotected sexual intercourse while intoxicated than did returnees (mean, 0.94 vs 0.24, $P<.001$). Latinos compared with African Americans were less likely to return (95.9% vs 98.5%, $P = .04$). Adolescents who did not live with their mother were less likely to return than were those who lived with their mother (93.9% vs 98.7%, $P = .001$).

About 87.8% returned for the 6-month STD examination and 82.3% returned for the 12-month STD examination. The interventions did not differ significantly in the percentage of adolescents who returned for STD examinations.

UNPROTECTED SEXUAL INTERCOURSE

As given in Table 2, although the interventions did not differ significantly at the 3- or 6-month follow-up, the participants who received the skill-based intervention reported less frequent unprotected sexual intercourse at the 12-month follow-up than did those who received the health-promotion control intervention ($d = 0.28; P = .002$) or the information-based intervention ($d = 0.19; P = .033$).
OTHER SEXUAL RISK BEHAVIORS

The skill-based intervention also had significant effects on other sexual risk behaviors. At the 12-month follow-up, the adolescents who received the skill-based intervention reported fewer sexual partners than did the adolescents who received the health-promotion control intervention ($d=0.17; P=.04$). Those who received the skill-based intervention were also less likely to report having multiple partners than were their counterparts who received the health-promotion control intervention ($d=0.25; P=.002$). No differences in the reported number of sexual partners were observed at the 3- or 6-month follow-up. The skills-based intervention caused a significantly greater increase in condom use knowledge ($d=0.28; P=.01$) and impulse control beliefs ($d=0.29; P=.001$) compared with the information-based intervention ($d=0.18; P=.03$) and technical skill beliefs ($d=0.16; P=.15$) at the 6-month follow-up. There were no significant differences between the information-based intervention and the other 2 interventions at either of the follow-ups where STD data were collected.

CONCEPTUAL MEDIATOR VARIABLES

The HIV/STD risk-reduction interventions also had significant effects on the conceptual mediator variables. As given in Table 3, adolescents who received the skill-based intervention scored higher in postintervention HIV/STD knowledge ($d=0.62; P<.001$), condom use knowledge ($d=0.59; P<.001$), intentions ($d=0.21; P=.008$), hedonistic beliefs ($d=0.28; P<.001$), sexual partner approval ($d=0.20; P=.009$), technical skills beliefs ($d=0.20; P=.01$), and impulse control beliefs ($d=0.19; P=.02$) than did those who received the health-promotion control intervention. In addition, the skill-based intervention caused significantly greater increases in condom use knowledge than did the information-based intervention ($d=0.30; P<.001$). No other differences on conceptual mediator variables between the skill- and information-based interventions were statistically significant.

Information-based intervention participants scored higher in HIV/STD knowledge ($d=0.72; P<.001$), condom use knowledge ($d=0.30; P<.001$), intentions ($d=0.29; P<.001$), hedonistic beliefs ($d=0.31; P<.001$), technical skills beliefs ($d=0.15; P=.049$), and impulse con-
EVALUATIONS OF THE INTERVENTIONS

Participants gave high ratings of how much they liked their intervention, how much they learned, and the extent to which they would recommend it to others (means for all 3 intervention groups were >4.5 on 5-point scales). Information-based intervention participants (mean [SE], 4.67 [0.04]) gave higher liking ratings than did the health-promotion control intervention participants (mean [SE], 4.46 [0.04]; P<.001) or the skill-based intervention participants (mean [SE], 4.35 [0.04];

### Table 2. Self-reported Sexual Behavior in the Previous 3 Months and Clinically Documented STD Rate by Intervention Condition and at Baseline* and Follow-up Data-Collection Periods

<table>
<thead>
<tr>
<th>Data-Collection Period</th>
<th>Unadjusted Mean (SE)</th>
<th>Adjusted Mean (SE)</th>
<th>P Value for Contrasts†</th>
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<tr>
<td></td>
<td>Health-Promotion Control</td>
<td>Information-Based Intervention</td>
<td>Skills-Based Intervention</td>
</tr>
<tr>
<td></td>
<td>No. of Days of Sex Without Condom Use in the Past 3 mo</td>
<td>No. of Days of Sex While High on Drugs or Alcohol in the Past 3 mo</td>
<td>Percentage Reporting Multiple Partners‡ in the Past 3 mo</td>
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<td>Health-Promotion Control</td>
<td>Information-Based Intervention</td>
<td>Skills-Based Intervention</td>
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<td>17.2 (2.7)</td>
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<td>3 mo</td>
<td>14.9 (2.6)</td>
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<td>16.8 (2.7)</td>
<td>11.9 (2.2)</td>
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<tr>
<td>6 mo</td>
<td>15.1 (2.5)</td>
<td>13.2 (2.4)</td>
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<td>12 mo</td>
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<td>0.10 (0.03)</td>
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<td>23.6 (3.5)</td>
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<tr>
<td>12 mo</td>
<td>17.4 (3.0)</td>
<td>16.0 (3.0)</td>
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</table>

Abbreviations: HIV, human immunodeficiency virus; NA, not applicable; STD, sexually transmitted disease.

*Baseline statistics are based on the respondents who participated in the particular follow-up. Sexual behavior counts were analyzed using log link by specifying Poisson distribution in the generalized linear model. Multiple partners and STD rate were analyzed using logit link by specifying binomial distribution in the generalized linear model. The basic model for intervention effects at each follow-up includes baseline corresponding variables, intervention condition, ethnicity (African American vs Latina), and a 4-category variable representing the 3 mothers’ intervention conditions and mothers who did not participate.

†P values are from Wald ² tests.

‡Having any of the positive test results for gonorrhea, chlamydia, or trichomons.

§Having any of the positive test results for gonorrhea, chlamydia, or trichomons.

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The results of this study suggest that behavioral interventions, particularly those that focus on skills training, may be helpful in reducing unprotected intercourse and STD rate among adolescent girls. This is particularly important for African American and Latino adolescents, whose rate of STDs is considerably higher than the rate among other adolescents. The skills intervention also reduced self-reports of multiple of sexual partners at the 12-month follow-up compared with the health-promotion control intervention. Both unprotected intercourse and multiple sexual partners are important risk factors for STD.

SOCIAL DESIRABILITY RESPONSE BIAS

Hierarchical multiple regression analyses revealed that social desirability scores did not interact with intervention condition to influence sexual behavior at any of the follow-ups. Analyses on the subsample of adolescents in the 2 HIV/STD interventions also revealed that social desirability scores were unrelated to self-reported sexual behavior at the follow-ups.

COMMENT

Analyses testing whether the efficacy of the interventions was different with African Americans and Latinos revealed no significant differences on the STD rates, sexual risk behavior, or evaluations of the interventions. However, the skill-based intervention was significantly more effective with Latinos than with African Americans in increasing condom negotiation beliefs (P = .02) and technical skill beliefs (P = .02) compared with the health-promotion control intervention, and with condom negotiation beliefs (P = .05) compared with the information-based intervention. In addition, the information-based intervention was more effective with Latinos than with African Americans in increasing hedonistic beliefs (P = .007) compared with the health-promotion control intervention, and in increasing HIV/STD knowledge (P = .02) compared with the skill-based intervention.
Several randomized controlled trials have demonstrated that behavioral interventions can reduce adolescents’ sexual risk behavior. However, an important feature of the present trial was the use of biologically confirmed measures of STD rate. Although other trials have shown that interventions can reduce the STD rate among adults, this is one of the first randomized controlled trials of an intervention for adolescents to report reductions in biologically confirmed STD rates. Thus, this study shows that HIV/STD interventions for adolescents can, indeed, influence a health outcome, not only self-reported behavior.

Many writers have raised concern about the potentially adverse influence of alcohol and drug use in increasing sexual risk behavior. This concern is not allayed by data from the 6 Centers for Disease Control and Prevention’s Youth Risk Behavior surveys during 1991-2001 documenting increases over time in adolescents’ reports of alcohol and drug use in conjunction with sexual intercourse. Despite the concern, no previous trials have demonstrated intervention-induced reductions in alcohol and drug use during sex. In the present study, the skill-based intervention, compared with the health-promotion control intervention, significantly reduced the reported use of alcohol and drugs during sexual activity. This raises the hope that skill-based interventions can influence sexual behavior under high-risk circumstances characterized by cues that prompt failure to use condoms.

Although other sexual risk reduction studies have contrasted skills interventions with information interventions, this study differs from many of those in an important respect. Both the skill-based intervention and the information-based intervention covered not just facts about HIV but also attitudes and beliefs regarding using condoms. The critical between-intervention difference was that the skill-based intervention focused on skills, whereas the information-based intervention did not. Thus, the present study provides some of the strongest evidence that enhancing skills should be a critical goal for interventions designed to reduce risk sexual behavior. The present results may mean that although it is necessary for interventions to cover factual information and relevant beliefs and attitudes, such a limited focus is insufficient. Interventions must also develop skills. Methods for enhancing condom use skills include handling condoms, practicing putting condoms on anatomical models, and role-playing realistic situations that involve pressure to have unprotected intercourse. The implementation of such activities with adolescents may be controversial in certain settings, yet, the present results suggest that they hold the promise of reductions in sexual risk behavior.

In the present study, the effects of the intervention were significant primarily at 12-month follow-up, not at the shorter-term follow-ups. Such a delayed effect has been observed in other prevention trials. One possible explanation for why the magnitude of intervention effects might increase at later follow-ups is that people have difficulty introducing safer-sex practices into existing relationships. As they become involved with new partners over time, they are able to implement those practices; hence, intervention effects on behavior are larger at longer-term follow-up.

An important issue for HIV/STD prevention research is the extent to which the same intervention can be effective with people who differ in key characteristics, including ethnicity. We know that interventions are apt to be more effective if they are tailored to the population. The trouble is sometimes it is impossible to separate people by ethnicity and provide them tailored interventions. Under such circumstances, can an intervention be effective? The present findings suggest that, at least with regard to inner-city African Americans and Latino (ie, Puerto Rican) adolescent girls, the answer may be yes. Despite the fact that some of the intervention activities had been originally designed for African Americans and African American facilitators implemented the activities, the interventions were not less effective in reducing sexual risk behavior or STD rates with Latinos than with African Americans, and Latinos and African Americans gave equally positive evaluations of the interventions. Accordingly, it cannot be assumed that an intervention developed for one ethnic group will be ineffective with another group.

The limitations of the present study should be considered. The self-report measures are a limitation. The participants were African American and Latino, chiefly Puerto Rican, adolescent girls; hence, we do not know whether similar findings would be obtained with adolescent boys or with adolescents from other Latino backgrounds. It is possible that the participants in the HIV/STD interventions, compared with the controls, were less likely to return for STD testing because they felt more ashamed for having unprotected intercourse despite receiving an intervention. However, we believe this is an unlikely explanation for our STD findings. The participants were patients attending family planning services in an adolescent medicine clinic that was their primary family-planning provider. The clinic offered a 24-hour on-call system with confidential and free services. The clinicians who performed the STD examinations were blind to the participants’ intervention. Moreover, the return rates for STD testing were high and did not vary by intervention assignment.

The present study also includes particular strengths. It was a randomized controlled trial. It used a single-session intervention, which ensured that all participants attended the entire intervention. Attrition was low, and it did not differ by condition. Both self-report and biologically confirmed outcomes were collected. The significant effects of the interventions cannot be explained as a simple result of special attention the participants in the HIV/STD interventions received because the HIV/STD and control interventions were matched in length and involved similar kinds of activities. Moreover, participants’ evaluations of their experiences were similar across the interventions.

CONCLUSIONS

The findings from this study are consistent with a growing body of evidence that interventions that are based on a solid theoretical framework and formative research
with members of the study population and that provide practice in risk-reduction skills are effective in reducing HIV/STD risk behavior and STD rates. A notable feature of the present results was that they were produced by a single-session intervention of only 250 minutes. This suggests that it is possible to effect significant long-term changes in sexual behavior among adolescent girls—over 12 months in the present study—without great expenditure of time and effort. Future research must explore the generalizability of the present results. Methodologically rigorous studies hold considerable promise in the development of effective, evidence-based strategies for reducing sexual risk behavior—and the adverse consequences of such behavior.

Since this article has been accepted for publication, we have become aware of another randomized controlled trial of an HIV prevention intervention for adolescent girls. The results of both trials support the view that theory-based interventions can reduce self-reported sexual risk behavior, theoretical mediators of such behavior, and biologically confirmed STDs. Unlike the present trial, which focused on both African American and Latino adolescent girls, the other trial focused exclusively on African American girls.

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REFERENCES


Randomized Trial of Treatment of Amblyopia in Children Aged 7 to 17 Years

Pediatric Eye Disease Investigator Group

Objective: To evaluate the effectiveness of treatment of amblyopia in children aged 7 to 17 years.

Methods: At 49 clinical sites, 507 patients with amblyopic eye visual acuity ranging from 20/40 to 20/400 were provided with optimal optical correction and then randomized to a treatment group (2-6 hours per day of prescribed patching combined with near visual activities for all patients plus atropine sulfate for children aged 7 to 12 years) or an optical correction group (optical correction alone). Patients whose amblyopic eye acuity improved 10 or more letters (≥ 2 lines) by 24 weeks were considered responders.

Results: In the 7- to 12-year-olds (n = 404), 53% of the treatment group were responders compared with 25% of the optical correction group (P = .001). In the 13- to 17-year-olds (n = 103), the responder rates were 25% and 23%, respectively, overall (adjusted P = .22) but 47% and 20%, respectively, among patients not previously treated with patching and/or atropine for amblyopia (adjusted P = .03). Most patients, including responders, were left with a residual visual acuity deficit.

Conclusions: Amblyopia improves with optical correction alone in about one fourth of patients aged 7 to 17 years, although most patients who are initially treated with optical correction alone will require additional treatment for amblyopia. For patients aged 7 to 12 years, prescribing 2 to 6 hours per day of patching with near visual activities and atropine can improve visual acuity even if the amblyopia has been previously treated. For patients 13 to 17 years, prescribing patching 2 to 6 hours per day with near visual activities may improve visual acuity when amblyopia has not been previously treated but appears to be of little benefit if amblyopia was previously treated with patching. We do not yet know whether visual acuity improvement will be sustained once treatment is discontinued; therefore, conclusions regarding the long-term benefit of treatment and the development of treatment recommendations for amblyopia in children 7 years and older await the results of a follow-up study we are conducting on the patients who responded to treatment. (2005;123:1-11)

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