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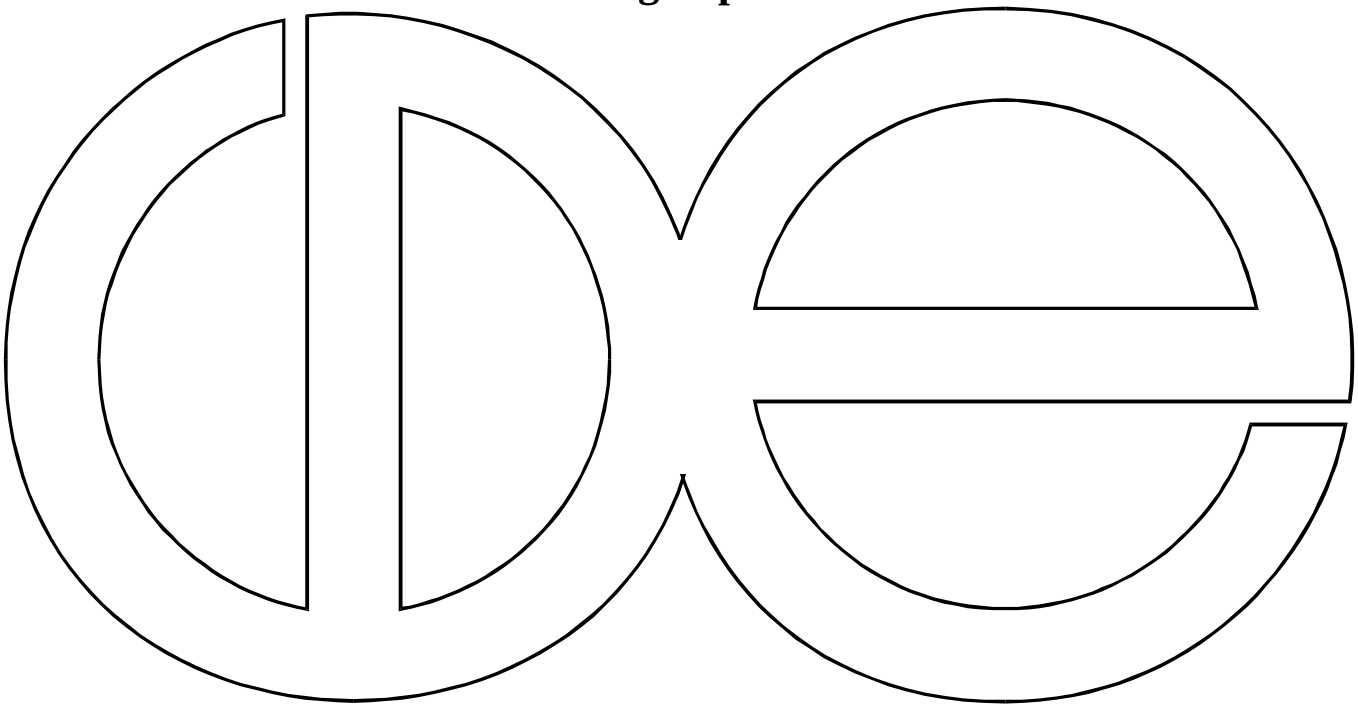

THE IMPACT OF A CULTURALLY APPROPRIATE, STD/AIDS EDUCATION INTERVENTION ON BLACK MALE ADOLESCENTS' SEXUAL AND CONDOM USE BEHAVIOR

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ABSTRACT

A culturally appropriate, theoretically-based videotape was developed in collaboration with local African American producers to promote condom use among 15- to 19-year-old black males seeking treatment at a municipal STD clinic. The videotape's immediate, short- (30 day), and long-term (6 month) impacts were compared to those achieved by (1) a trained, African American health educator who delivered the same messages during a face-to-face session and (2) standard care. Participants (N=562) were randomly assigned. Their self-reports were used to assess the impact on condom use knowledge, self-efficacy, and intentions; sexual and condom use behavior; and perceived risk of an STD infection. At posttest, participants in the two treatment conditions demonstrated greater condom use knowledge; participants in the health educator condition indicated greater condom use self-efficacy and stronger condom use intentions with steady partners. At 6 months, participants in all conditions reported an increase in the number of sexual partners and number of acts of vaginal intercourse (past month); however, they were twice as likely to report consistent condom use with steady partners (18% vs 53%) and with casual partners (26% vs 50%). Perceived risk of an STD infection was unexpectedly lower at the posttest and continued to decline during the study period. Possible reasons for the pattern of findings are discussed and recommendations for future research are offered. (217 words)

THE IMPACT OF A CULTURALLY APPROPRIATE STD/AIDS EDUCATION INTERVENTION ON BLACK MALE ADOLESCENTS' SEXUAL AND CONDOM USE BEHAVIOR

INTRODUCTION

Adolescents are at high risk of contracting sexually transmitted diseases because a large number of adolescents have unprotected sexual intercourse with many partners. A 1995 national survey of 10,904 high school students found that 36% of males and 40% of females had intercourse in the preceding three months. In addition, 21% of males and 14% of females had intercourse with four or more lifetime partners (Centers for Disease Control and Prevention, 1996). Given this level of sexual activity, it is not surprising to find that the rate of gonorrhea among 15- to 19-year-old men in 1991 was 270% greater than the rate among all men and that the rate of gonorrhea among 15- to 19-year-old women was 454% greater than the rate among all women (Centers for Disease Control, 1993a).

African Americans are disproportionately represented among the number of new cases of gonorrhea and syphilis. Although African Americans account for 13% of the population, they represented 79% of the new cases of gonorrhea and 86% of the new cases of syphilis observed in 1995 (Division of STD Prevention, 1996). Thirty-four percent of these new cases of gonorrhea and eleven percent of these new cases of syphilis involved 15-19 year old youth. African Americans are also disproportionately represented among adolescent and young adult AIDS cases. As of July 1, 1997, 35 % of the cases among 13-19 year old and 35% of the cases among 20-24 year old men involved African American males; among females, the percentages are 69 and 55, respectively (Centers for Disease Control and Prevention, 1997).

Prevention is especially important in the case of HIV infection because a vaccine is unavailable, and the virus is transmitted by behaviors that individuals can modify (Institute of Medicine, 1986; Centers for Disease Control, 1988). For sexually active individuals, correct and consistent condom use currently provides the most effective means of reducing their risk of infection (Centers for Disease Control and Prevention, 1993b). Unfortunately, studies suggest that (male) condom use by adolescents is neither widespread nor consistent. Brown, DiClemente, and Park (1992) found that only 29% of sexually active adolescent males and females reported that they used condoms every time they had intercourse; whites were more likely to be consistent users. In the national study of high school students, only 61% of males and 47% of females reported condom use at last intercourse (Centers for Disease Control and Prevention, 1996). Rates of condom use were higher among African American students; 72% of males and 61% of females reported use at last intercourse. Stanton, Li, Black, et al. (1994) found, in a sample of 9- to 15-year-old African American youth, that 62% used a condom the last time they had vaginal intercourse.

These results indicate that there is a need for intervention programs that can increase the frequency of condom use among sexually active African American adolescents, particularly those who have contracted an STD. The present study reports the immediate (same day), short-term (30 day), and long-term (6 month) impacts of a brief educational intervention on the condom use knowledge, attitudes, intentions, and self-efficacy as well as sexual and condom use behavior of black adolescent males seeking treatment at a municipal STD clinic. The intervention differs in several important respects from similar interventions that have been reported (Solomon & DeJong, 1986, 1989; Rhodes & Wolitski, 1989; Cohen et al., 1992; Winett et al., 1992; Healton

& Messeri, 1993; Stevenson & Davis, 1994; O'Donnell et al., 1995; Gillmore et al., 1997). First, the intervention was designed specifically for the target population and with the assistance of local youth from the at-risk population. We spent several months becoming familiar with this population and its concerns. Second, the intervention was based on the Self-Regulation model of illness behavior (Leventhal, Zimmerman, & Gutmann, 1984; Meyer, Leventhal, & Gutmann, 1985), the Health Belief model (Becker, 1974; Janz & Becker, 1984), and Social Learning theory (Bandura, 1977; 1982). Finally, the intervention messages were presented by a custom-made videotape or a trained, African American health educator that used language, showed local settings and portrayed actors in situations that were familiar to members of the target population.

INTERVENTION

FORMATIVE RESEARCH

There is widespread agreement that health interventions should be tailored to the target audience (Solomon & DeJong, 1986; Kelly, 1990; Stevenson & Davis, 1994). Accordingly, we selected our audience, 15- to 19-year-old black males seeking care at a municipal STD clinic, and spent several months engaging in activities intended to increase our understanding of this group. We interviewed public health workers and health care providers who worked at the proposed site; we sponsored an informal group discussion with black teens who served as peer sexuality educators for two local programs; and we conducted one-on-one interviews and focus groups with black male adolescents seeking care at the clinic. With each focus group, we asked about the sexual health concerns and beliefs of local black adolescent males and we listened carefully to what the young people said and how they expressed themselves.

THEORETICAL BACKGROUND

The Self-Regulation model of illness behavior (Leventhal, Zimmerman, & Gutmann, 1984; Meyer, Leventhal, & Gutmann, 1985) provided the basis for our intervention, although we also used the Health Belief model (Becker, 1974; Janz & Becker, 1984) and Social Learning theory (Bandura, 1977; 1982) to define the role of perceived risk and perceived efficacy (see Figure 1).

Figure 1 about here

The Self-Regulation model assumes that individuals are motivated to protect themselves against health risks. Self-regulation is initiated when individuals extract information from their environment and generate "common sense" representations of health threats. In the present context, an individual's common sense representation of gonorrhea may reflect beliefs about its symptoms, cause, consequences, duration, and cure. In addition, the individual may experience anxiety or fear. Common sense representations shape the individual's perceptions of personal risk or vulnerability, and of the threat's severity. In turn, these perceptions and the accompanying emotions lead to the planning of responses intended to cope with the perceived threat.

As a theoretical model for an HIV/AIDS prevention intervention, the Self-Regulation model has a number of useful features. First, the Self-Regulation model does not assume that behavior is strictly determined by rational considerations. In closely related work, Leventhal (1970, 1974, 1982) has argued that emotion and cognition are two independent, but parallel processing systems. More importantly, he has argued that it is more difficult to control emotion-driven thought and behavior by means of persuasive appeals because emotion attaches itself more readily and more permanently to perceptual cognition than to abstract reasoning. Thus, the

production and maintenance of behavior change requires an “emotional hooker” that makes action personally reinforcing and meaningful (Gutmann and Meyer, 1981). Sexual behavior, in particular, may be prompted by emotional needs (Cleary et al., 1986); and thus difficult to change by simply providing individuals with information about the threats and actions that can be taken to reduce risk. Second, the Self-Regulation model provides a construct, common sense representations, that can account in part for the variability in individuals’ understanding and perceptions of risk. In fact, use of this construct demands that the researcher consider how individuals view the problem and the actions needed to solve it (Leventhal, Zimmerman & Gutmann, 1984). Third, the Self-Regulation model focuses as much attention on individuals’ beliefs about their environment and problem as it does on their beliefs about the efficacy of various actions. The way individuals think about certain health threats and illnesses has been shown to affect their likelihood of seeking help and their willingness to continue treatment (Lau, Bernard, & Hartman, 1989).

VIDEOTAPE DEVELOPMENT AND CHARACTERISTICS

We worked with a local team of experienced, African American video producers to develop a videotape that presented messages intended to impact on key variables identified by the Self-Regulation model (specifically, illness representations, perceived risk, motivational factors, and coping). Local, African American, male adolescents participating in a public school program for students at risk for not completing high school scripted (i.e., expressed the intervention messages using language familiar to adolescents), acted in, and filmed the videotape. The use of videotape allowed us to present the intervention messages through dialogue, music, lyrics, images and personal stories. We wanted to use video because we believed that it would be an appealing

format for adolescents. Also, a videotaped intervention, if effective, could be implemented easily at multiple sites.

The intervention was developed in light of two time constraints. We had to limit the length of our contact with study participants so that it did not disrupt normal patient flow. We were also aware that there was a limit to the amount of time we could hold the young man's attention. Expert advice and pilot testing suggested that the intervention should be limited to 15 minutes.

The videotape had seven characteristics that were intended to enhance its impact. First, we took steps to ensure that it was culturally appropriate (Kelly, 1990; Stevenson & Davis, 1994). We conducted interviews and focus groups and then used the knowledge that we had gained to develop intervention messages that would also reflect our understanding of the relevant prevention research literature. In hiring the local African American video producers, we ensured that the video was made by members of the target population; that it used actors, dress, and music salient to the target population; and that it used black vernacular English, common to this population. Second, the videotape was presented by persons with whom the recipient could identify (Solomon & DeJong, 1989). The actors in the video (as well as the health educator and project staff in the clinic) were African American and expressed values and beliefs that are important to African American adolescents. Third, the videotape elicited feelings of belonging and social responsibility (Fisher & Misovich, 1990). The at-risk youth making the video created the message, "We got to keep the brothers alive." Pilot tests of the video indicated that participants responded very positively to this message. Fourth, the videotape addressed the common misperception that African American youth are not at risk for STDs/AIDS

(Airhihenbuwa, DiClemente, Wingood, & Lowe, 1992). Research has shown consistently that persons who perceive themselves at risk are more likely to engage in protective behaviors (McCusick, 1990). The video intervention included the personal stories of three African American youth: two had contracted gonorrhea and one had AIDS. Fifth, the videotape invoked reference group norms supportive of condom use (Fisher & Misovich, 1990). Reference group norms can have a powerful influence on behavior (DiClemente, et al., 1996). Some observers have suggested that African American adolescent peer group norms support unsafe sex (Airhihenbuwa, DiClemente, Wingood, & Lowe, 1992). The video showed African American youth discussing safe sex and condom use as desirable behaviors for themselves and young men like them. Sixth, the videotape included some skills training (Airhihenbuwa, DiClemente, Wingood, & Lowe, 1992; Langer, Zimmerman, & Cabral, 1994). Because an effective intervention should include training in the desired behavior, the video (and health educator condition) included a demonstration of the correct way to put on and take off a condom. (In the health education condition, the demonstration was followed by having the participant rehearse these behaviors with a penis model). Finally the videotape presented information in an authoritative manner (Weisse, Nesselhof-Kendall, Fleck-Kandath, & Baum, 1990). Source expertise is an important aspect of health interventions. The project team included a specialist in adolescent medicine (KKH); and during the production of the video, Robert Hatcher (Hatcher, et al., 1994) met and discussed STD/AIDS prevention with the at-risk youth who scripted, acted in, and filmed the videotape. These steps helped to ensure that the on-camera youth (and the health educator) were informed and could speak authoritatively.

The major disadvantage of videotape is that the message is the same for each viewer. Although we could tailor the video to the general audience, we could not tailor it to the needs of a specific individual. Although the videotape used multiple channels (sight, sound) to deliver the messages and engage the individual's attention, it cannot (as yet) respond to any question the individual may have. Consequently, we presented the intervention in a second format that permitted face-to-face interaction.

HEALTH EDUCATOR INTERVENTION

A trained health educator, a young African American woman, presented the intervention, working one-on-one with the participant. (In addition to her formal training, the health educator received specific training on STDs from clinic staff.) To ensure comparability with the videotape condition, the script for the face-to-face interaction mirrored the videotape's script, and both were 14 minutes in length. However, the health educator was expected to tailor the intervention messages to the adolescent's particular situation (i.e., to asked questions, if necessary, and thus gain the information needed to personalize the risk for participants). The face-to-face format also allowed for rehearsal by the client of the recommended preventive behavior, which was placing and removing a condom from a penis model correctly.

OBJECTIVES OF THE INTERVENTION

The intervention (videotape and health educator) was designed to impact condom use. Our discussions and focus groups, in conjunction with the Self-Regulation model, indicated that we needed to: 1) make the youth aware that they were at risk of STD/HIV infection; 2) provide accurate information about condoms; 3) tell them that condom use would reduce their risk; and 4) demonstrate to them that condoms are relatively easy to use. A secondary target was to make the

youth aware that they could reduce their risk of contracting an STD by changing their sexual behavior (i.e., decrease the number of anonymous and/or casual partners and decrease the number of contacts).

We expected that the intervention would have an immediate impact on condom use knowledge, self-efficacy, and intentions; and participants' perceptions of their risk for infection. Furthermore, we expected that the health educator would have greater impact because she could personalize the information, and the participant could practice condom use and receive immediate feedback. If participants' condom use efforts were successful in the periods between the posttest and 30-day follow-up (and between 30-day and 6-month follow-up), we anticipated that the intervention's immediate impact would be sustained. Specifically, short-term effects (effects observed at the 30-day follow-up) were anticipated for condom use attitudes, self-efficacy, and intentions; and condom use and sexual behavior. The 6-month follow-up provided an opportunity to determine whether effects observed at the posttest and 30-day follow-up were sustained.

METHODS

PARTICIPANTS AND DESIGN

Between September 1992 and October 1993, we recruited 562 males from the population of African American males, ages 15 to 19, seeking care at the only STD treatment facility operated by the health department in Milwaukee, WI. The study used a three-group, randomized, prospective design with a six-month follow-up. Two of the groups were treatment groups; the third group was a control group and received the clinic's standard care and education program. Self-report data were obtained using self-administered questionnaire at pretest, posttest, 30 days, and six months.

PROCEDURE

An African American male research associate approached each eligible male and explained the nature of the project. If the young man agreed to participate, the research associate obtained written informed consent and then used a block randomization procedure to assign the adolescent to the health educator, the video, or the standard care (control) condition. Next, the participant completed the self-administered pretest questionnaire. If the participant had difficulty reading (e.g., the young man had difficulty reading the consent form), the research associate obtained the pretest data via interview. He did so for 18 (3.2%) participants.

After completing the pretest questionnaire, the participant returned to the waiting room where the public health nurse working with the project took him to her office and treated him. The nurse took "standard care" (control) participants to the research associate who administered the posttest questionnaire. She took "health educator" participants assigned to the health educator who then delivered the intervention. Finally, she took "videotape" participants to the health educator who took the teen to another office, turned on the VCR, and left the room while the participant watched the video. After the health educator/videotape participant received the intervention, the health educator took him to the research associate who administered the posttest questionnaire.

After the participant completed the posttest questionnaire, the research associate gave him 25 condoms, reminded him that he would be contacted for a follow-up survey in 30 days, and thanked him for his participation. One-third of the participants, who were selected at random from each condition and prior to their completing the pretest, were reminded that they would be contacted for a six-month, follow-up questionnaire. In addition to 25 condoms, participants

received a monetary incentive for the completing the pretest and posttest questionnaires, a $10 incentive for completing the 30-day questionnaire, and a $20 incentive for completing the 6-month questionnaires.

INSTRUMENTS

The pretest and posttest questionnaires were designed to assess the intervention's immediate impact on psychosocial variables such as condom use knowledge, attitudes, self-efficacy, and intentions; and perceived risk of contracting an STD within the year. In addition, the pretest obtained data on sexual experience within the preceding 30 days, and past condom use during sexual activity with steady and casual partners; and the posttest obtained data on the estimated frequency of sexual behavior and condom use intentions in the next 30 days with steady and casual partners.

The 30-day and 6-month questionnaires were designed to assess the intervention's short- and long-term impacts on condom use and sexual behavior. The former obtained data on the nature and number of participants' sexual relationships (steady, casual, both) and contacts (vaginal, anal, oral) within the preceding month. In addition, it assessed condom use knowledge, attitudes, self-efficacy, intentions, and behavior (e.g., talking with others about condoms, obtaining condoms, using condoms with steady and casual partners); and perceived risk of contracting an STD within the year. The 6-month questionnaire obtained data on the nature and number of participants' sexual relationships within the preceding six months. Further, it assessed condom use knowledge, attitudes, self-efficacy, intentions, and behavior; and perceived risk of contracting an STD within the year.

Measures

Demographic characteristics. Demographic variables assessed included date of birth, race/ethnicity, educational attainment and aspiration, current living arrangements, current employment, marital status, and the number of children they had (fathered).

Condom Use Knowledge. Six true/false items appearing in several different studies were used. The participant's knowledge score was the number of items answered correctly. Internal consistency was low (alpha=.13) in part because the items reflect facts important to proper condom use more so than they reflect a common attribute. The items were "A condom should not be worn with air bubbles at the tip"; "You don't need to put the condom on until you are ready to come"; "It's okay to use vaseline to lubricate condoms"; "You must unroll the condom completely before you put it on"; "After you come, withdraw your penis while it is still hard and then remove the condom"; and "Condoms which have a spermicide are better protection against STDs and AIDS than other condoms."

Condom Use Attitudes. Eight, 4-point, Likert-type items were used to assess participants' attitudes toward condom use at the posttest, 30-day, and 6-month assessments (alpha=0.53, 0.60, 0.76). Item responses ("strongly disagree" to "strongly agree") were averaged to form a condom use attitude score that ranged from 1 to 4 with larger values indicating more positive attitudes towards condom use. The items were "Planning ahead to have sex would spoil it for me"; "Using a condom is unnatural"; "Condoms are easily torn or punctured"; "You can tell if your partner has an STD"; "If she is on the pill, you don't need to use condoms"; "If my partners want me to use condoms, they should supply them"; "It's too hard to talk to a partner about using condoms"; and "Condoms cost a lot of money."

Condom Use Self-Efficacy. Six, 5-point, Likert-type items were used to assess the extent to which participants perceived that they possessed adequate condom use skills (alpha=.57, .71, .74, .79). Item responses were averaged and scaled to form a score that ranged from -2 ("very sure I couldn't") to +2 ("very sure I could"). The six items were "If you wanted to use a condom every time you had sex with your steady partner, how sure are you that you could?"; "If you wanted to use a condom every time you had sex with your casual partner, how sure are you that you could?"; "If you wanted to use a condom during sex, how sure are you that you could put it on and take it off correctly?"; "If you wanted to tell a new sex partner that you won't have sex without a condom, how sure are you that you could?"; "How sure are you that you would be able to convince one of your friends to take precautions to prevent STDs and AIDS?"; and "How sure are you that you would be able to get condoms if you or a friend needed them?"

Sexual Relationships. Participants were asked, "What would you say about your sexual relationships in the past 30 days?" Responses were used to group participants according to type of partner: steady only, steady and casual partner(s), casual partner(s) only, and not seeing anyone.

Sexual Behavior. At pretest, participants were asked about their sexual history (age at first intercourse, lifetime number of sexual partners, and whether they had had sex with another male, sex with a prostitute in the past year, or sex in exchange for drugs in the past year). They were asked "How often do you usually have sex?" Response were scored on an eight-point scale ranging from 1 ("Only had sex once") to 8 ("Every day"). In addition, participants were asked "How many different partners have you had sex with in the past 30 days?" and "How often did you have sex in the past 30 days?" Response choices for the latter item were scored on an eight-

point scale ranging from 0 (“Did not have sex”) to 7 (“More than once a day”). For the remaining assessments, comparable items were used to assess participants’ sexual behavior (vaginal, oral, anal) in the past 30 days (and next 30 days) for each type of partner with whom they had been sexually active. Typical items were “How often did you have vaginal sex with your steady in the past 30 days?” Response choices were scored on an eight-point scale ranging from 0 (“Did not have vaginal sex”) to 7 (“More than once a day”).

Condom Use Intentions. At the posttest, 30-day, and 6-month follow-up, participants were asked to estimate how often they intended to use condoms during sex (vaginal, oral, and anal) in the next 30 days for each partner type with whom they had been sexually active in the past 30 days. A typical item was “If you have vaginal sex with your steady in the next 30 days, how often will you use condoms?” Response choices was scored on an eight-point scale ranging from 0 (“Will not use condoms”) to 7 (“Whenever I have vaginal sex”).

Condom Use Behaviors. At pretest, participants were asked three yes/no questions: “Have you ever used condoms?”; “Did you use condoms the very first time you had sex?”; and “Did you use condoms the last time you had sex?” They were also asked, “How often do you use condoms the first time you have sex with a new partner?”; “How often do you use condoms with your steady partner?”; and “How often do you use condoms with your other partner(s)?” Response choices were scored on a 7-point scale ranging from 0 (“Never”) to 6 (“All the time”). At the pretest and 6-month follow-up, participants were asked “Why do you use condoms?” Response choices were “Birth control,” “STD/AIDS prevention,” and “Both.” They were also asked “When did you first use condoms?” Response choices were scored on a five-point scale ranging from 1 (“Less than 1 month ago”) to 5 (“More than 2 years ago”). At the posttest, 30-day, and 6-month follow-up, we

used the condom intention items (with sentence tense changed) to asked participants about their condom use in the past 30 days for each type of partner with whom they had sex.

Perceived Risk. Participants were asked, "How likely are you to get an STD within the next year?" Response choices were scored on a four-point scale ranging from 1 ("Not likely at all") to 4 ("Very Likely"). Kowalewski, Henson, & Longshore (1997) identify several problems in past research on perceived risk. Our measure and design meet most of the desiderata they identify.

STATISTICAL ANALYSES

To assess the intervention's immediate impact on condom use knowledge, self-efficacy, and perceived risk, we performed an analysis of covariance (ANCOVA) with the pretest- posttest difference or change score as the dependent variable. An ANCOVA on change scores is equivalent to an ANCOVA on posttest scores (Huitema, 1980, p 128); however, the former is useful in that the predicted score is a change score, not a residualized change score. Condition (health educator, HE, videotape, VT, and control, CT) and pretest score were the explanatory variables. Bonferroni-adjusted t-tests were used to assess the pairwise mean differences among conditions. Where noted, we also performed a one-way analysis of variance (ANOVA) on change scores.

To assess the intervention's short- and long-term impact on condom use attitudes, self-efficacy, and intentions as well as sexual behavior and reported condom use, we used a random effects model with a main effect for condition, a main effect for time (e.g., pretest, immediate posttest, 30-day, and 6-month), and a condition x time interaction. The random effects model allowed us to use all available data (i.e., did not require complete data from all participants). Separate analyses were conducted for each variable. Bonferroni-adjusted z-tests

were used to assess the pairwise mean differences associated with the main effects; they were also used to conduct simple effects tests and single degree-of-freedom contrasts. All analyses were initially performed on a PC running the DOS version of SYSTAT (Wilkinson, 1990); calculation of Cronbach's alpha and random effects modeling was performed using STATA v5.0 (Stata Corp, 1997).

RESULTS

BASELINE CHARACTERISTICS

The mean age was 18.3 years (sd=1.2); fifty percent of the participants were between the ages of 17.5 and 19.2. Table 1 describes additional demographic characteristics. Twenty-eight percent were one or more years below their expected grade level (based on age). Ten percent of the participants' mothers had less than 10 years of schooling; 33.4% had

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Table 1 about here

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completed high school; 37.4% had some college, a college degree, or post-collegiate education; and 18.7% did not know how much education their mother had. The educational attainment reported for fathers was comparable to that reported for mothers.

Almost all of the participants were single. On average, each participants lived with 3.4 (sd=1.9) other individuals. Most lived with one or both parents. Twenty-nine participants lived with their partner and two of the five married men lived with their spouse.

The mean age at first intercourse was 12.9 years (sd=2.3, range = 3-19). One-quarter of the participants were sexually active by age 12; half were sexually active by age 13; and

three-fourths were sexually active by age 14. The mean number of lifetime sexual partners was 24.2 (sd=31.8, range = 1-300); and the mean number of casual or "one-time" sex partners was 8.6 (sd=14.8, range = 4-150). On average, participants acquired 4.9 (sd=10.1) new partners each year that they were sexually active.

In the thirty days prior to the baseline, participants had sex with an average of 2.7 (sd=3.4, range = 0-45) new partners. Vaginal intercourse was much more prevalent than oral or anal intercourse. The modal frequency for vaginal intercourse in the past month was 2-3 times a week. In contrast, 80% reported that they did not have oral sex and 91% reported that they did not engage in insertive anal intercourse during that period. Ninety-seven percent reported that they did not engage in receptive anal intercourse; 2.5% had receptive anal sex once or a few times; and 0.5% had receptive anal sex once a week or 4-6 times a week.

The principal risk factor for HIV infection among participants was unprotected intercourse with a female partner. In the year prior to the baseline, 11.2% reported that they had sex with someone they knew or thought was a prostitute, and 5.3% reported that they had sex with someone in exchange for drugs. (Five percent reported cocaine use in the past year.) In the month prior to the baseline, one male indicated that he had sex with another male and four males indicated that they had sex with males and females. No participant reported injection drug use (since 1978) or sexual contact with an injection drug user.

Finally, 95.9% of the participants reported that they had (ever) used condoms. However, only 29.2% had used condoms at first intercourse, and only 32.4% had used condoms at last intercourse. Thirty-six percent reported that they used condoms the first time they had sex with a new partner. When asked to recall the first time they used condoms, 51.4% reported that first use

occurred more than 24 months before the baseline, 15.5% reported that first use occurred 12 to 24 months before the baseline, and 30.6% reported that first use occurred within 12 months of the baseline. Seventy-two percent of participants reported that they used condoms for birth control and disease prevention; 20.8% used condoms for disease prevention; and 4.3% used condoms for birth control.

At baseline, the participants assigned to the videotape, health educator, and control conditions did not differ significantly on any of the demographic, sexual history, sexual behavior, or condom use measures.

IMMEDIATE IMPACT

Condom Knowledge. As can be seen in Table 2, participants answered correctly 4 of the six items at baseline and at posttest. The overall mean gain in condom use knowledge was

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Table 2 about here

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statistically significant, $t(547)= 8.34$, $p<.001$. An analysis of covariance indicated that the mean gain score varied with condition, $F(2,544)= 37.85$, $p<.001$. The mean gain was .87 (sd=1.2) among HE participants, .29 (sd=1.1) among VT participants, and .07 (sd=1.0) among CT participants. Bonferroni-adjusted t-tests indicated that the HE condition had a greater impact on knowledge than did the VT condition ($p<.001$) or control condition ($p=.003$); and that the VT condition had a greater impact on knowledge than did the CT condition ($p<.001$).

Condom Use Self-Efficacy. At baseline, participants were “somewhat” to “very sure” that they could enact the targeted behaviors (m=1.5, sd=0.5, see Table 2). The overall mean change

(m=.13, sd=.45) was significantly different from zero, t(543)= 6.68, p<.001. Further, an ANCOVA indicated that the mean change varied with condition, F(2,541)= 3.39, p=.034. It was .18 (sd=.46) among HE participants, .14 (sd=.49) among VT participants, and .07 (sd=.40) among CT participants. Bonferroni-adjusted t-tests indicated that the gain in self-efficacy experienced by HE participants was significantly greater than that experienced by CT participants (p=.024). No other mean differences were statistically significant.

Condom Use Intentions. To assess the intervention's immediate impact on condom use intentions, we compared the pretest report of condom use (in the past 30 days) with the posttest report of intended condom use (in the next 30 days). A separate analysis was performed for "steady" partner data and for "casual" partner data. Ninety-two percent (n=516) provided partner data; 40.5% of these participants indicated that they had a steady partner, 36.2% indicated that they had both a steady partner and casual partners, and 23.2% indicated that they only had casual partners.

At baseline, participants reported that they had used condoms with their steady partner more than a "few times," but "less than half of the time" (see Table 2). At the posttest, participants in all conditions reported that they intended to use condoms more frequently with their steady partner than they had in the past 30 days; in fact, 58.1% reported that they intended to use condoms "all the time." A one-way ANOVA (with the difference between "past" and intended condom use as the dependent variable) indicated that the intervention had an immediate impact on condom use intentions with steady partners, F(2,381)= 3.97, p=.02. Bonferroni-adjusted t-tests indicated that, relative to their baseline reports, HE participants

intended to use condoms more than CT participants. No other pairwise differences were statistically significant.

The participants who had sex with one or more casual partners reported that they had used condoms between "less than half" and "half of the time" (see Table 2). At the posttest, participants in all conditions reported that they intended to use condoms more; in fact, 77.3% indicated that they intended to use condoms "all the time." A one-way ANOVA indicated that the intervention did not have a differential impact on condom use intentions with casual partners, $F(2,250)= 0.18$, $p=.84$. However, the overall mean change was significantly different from zero, $t(252)=13.14$, $p<.001$, suggesting that the clinic experience served to heighten participants' resolve to use condoms more frequently.

Perceived Risk. At baseline, 39.1% of participants thought that it was "very likely" or "somewhat likely" that they would get an STD within the next year; at the posttest, 30.6% held this belief. An ANCOVA indicated that the mean change was the same for each condition, $F(2,545) = 1.41$, $p=.24$; Student's t-test indicated that the overall mean change ($m=-0.19$, $sd=0.44$) was significantly different from zero, $t(545)=-4.77$, $p<.001$. Following the intervention and medical treatment, 28.8% of the participants perceived that they were at less risk of infection, 12.8% perceived that they were at greater risk, and 55.5% perceived the same level of risk. The overall decrement in perceived risk was contrary to our expectations.

This decrement could reflect the knowledge participants gained about the nature of and treatment for STDs. That is, some participants may have perceived less risk at the posttest because the facts presented during the intervention (or during treatment) convinced them that their initial risk perception was based on erroneous information. Although we could not assess

this hypothesis directly, we did look at the relationship between the change in condom use knowledge and the change in perceived risk. The participants who perceived that they were at less risk at the posttest did manifest a gain in condom use knowledge (mean change=.54, sd=1.2). However, a one-way ANOVA indicated that this gain was not significantly larger than that observed for the participants who perceived that they were at greater risk or at the same level of risk.

Alternatively, the decrement in perceived risk could reflect a change in condom use self-efficacy and/or condom use intentions. That is, the participants who perceived that they were at less risk at the posttest may have had stronger condom use self-efficacy or stronger condom use intentions than, for example, the participants who perceived that they were at the same or more risk. To assess the first hypothesis, we examined the relationship between changes in self-efficacy and changes in perceived risk. To assess the second hypothesis, we examined the relationship between the intention to use condoms (during vaginal intercourse in the next 30 days) and perceived risk. One-way ANOVAs indicated that the observed changes in self-efficacy and in intention did not vary systematically with changes in risk perception.

SHORT- AND LONG-TERM IMPACT

Condom Attitudes. To assess the change in condom use attitudes, we used a random effects model and analyzed the available condom attitude scores (N=1,297) from the posttest, 30-day, and 6-month assessments. The model included main effects for condition and time, and the condition x time interaction. Condom attitude cell means are shown in Table 2.

The random effects model accounted for 13% of the overall (i.e., within and between) variability in condom use attitude scores. The condition main effect was statistically significant,

X2(2)= 6.90, p=.03. Bonferroni-adjusted z-tests indicated that HE participants had more positive condom use attitudes than did CT participants (p=.033). The remaining two pairwise mean differences were not statistically significant. The time main effect was statistically significant, X2(2)=191.8, p<.001. Bonferroni-adjusted z-tests indicated that condom use attitudes at posttest were more positive than those at the 30-day follow-up (p<.05); posttest condom use attitudes were also more positive than those at the 6-month follow-up (p<.05). The two follow-up means were not significantly different. Finally, the condition x time interaction was statistically significant, X2(4)= 12.8, p=.012. Bonferroni-adjusted z-tests indicated that posttest condom use attitudes reported by HE participants were more positive than those of CT participants. No other posttest (or 6-month follow-up) mean difference was statistically significant.

Condom Use Self-Efficacy. To assess the change in self-efficacy over the entire study period, observations (N=1851) from the four assessments were analyzed with a random effects model. Cell means are provided in Table 2. The random effects model accounted for 17% of the overall variability in self-efficacy scores. The condition main effect was not statistically significant, X2(2)= 0.35, p=.84. However, the time main effect was significant, X2(3)= 426.6, p<.001. Bonferroni-adjusted z-tests indicated that the baseline mean was significantly less than the posttest mean (p<.05), and that both the baseline and posttest means were significantly greater than the 30-day and 6-month means (all p's <.05). Finally, the condition x time interaction was not significant, X2(6)= 8.7, p=.19.

The random effects model indicated that the mean gain in self-efficacy reported by HE participants was not statistically larger than that reported by CT participants, z=1.44, p=.15.

This finding was not consistent with the finding based on the ANCOVA. Although both models estimated the same mean difference (0.11), the standard error used as the denominator in the ANCOVA's t-test (.0426) was much smaller than the denominator used in the random effects' z-test (.0753). The fact that the two standard errors differed was not unexpected as the random effects analysis included data from the two follow-up assessments. To resolve the discrepancy, we performed two additional analyses using data from the participants (N=175) who were randomly selected for the 6-month follow-up. For the first analysis, we used a random effects model (N=739). For the second analysis, we performed a repeated measures analysis of variance. Both analyses suggested that the self-efficacy gain reported by HE participants was not significantly different from that reported by CT participants.

Sexual Relationships. At the posttest and follow-up assessments, the percentage indicating that they had a steady partner were 37%, 41%, and 44% respectively; the percentage indicating that they had a steady and one or more casual partners were 33%, 28%, and 21%; and the percentage indicating one or more casual partners were 21%, 29%, and 32%. For the corresponding assessments, data were missing for 8%, 2%, and 3.2% of participants.

Number of Partners. To determine if participants had sex with fewer partners following the intervention, we used a random effects model to analyze the baseline, 30-day, and 6-month responses (N=1,273) to the item asking about the number of sexual partners in the past thirty days. The cell means are shown in Table 3.

Table 3 about here

In contrast to other analyses, the random effects model accounted for very little of the overall variability (1.2%). The condition main effect was not statistically significant, X2(2)= 0.37, p=.83. However, the time main effect was significant, X(2)= 8.93, p=.012. Bonferroni-adjusted z-tests indicated that the baseline mean was smaller than the 30-day mean. No other pairwise mean difference was statistically significant. Finally, the condition x time interaction was not significant, X(4)= 7.22, p=.12.

Number of Acts. To determine if youth had sex less frequently after participating in the intervention, we used a random effects model to analyze the baseline, 30-day, and 6-month responses to the item asking, "How often did you have vaginal sex with your steady (other partner(s)) in the past 30 days?" Separate analyses were performed for the steady partner data (N=1,073) and the casual partner data (N=984).

The cell means associated with condition and assessment (time) were remarkably consistent for the steady partner data (see Table 3). Consequently, the random effects model accounted for a modest proportion of the overall variability in the responses (10.0%). The condition main effect was not statistically significant, X2(2)= 1.63, p=.44. However, the time main effect was significant, X(2)= 129.8, p=<.001. Bonferroni-adjusted z-tests indicated that the baseline mean was smaller than the 30-day mean and the 6-month mean (all p's <.05). The two follow-up means were not significantly different. The condition x time interaction was not significant, X(4)= 1.40, p=.84.

The means for the casual partner data were also remarkably consistent (see Table 3). The random effects model accounted for 7.5% of the overall variability. The condition main effect was not statistically significant, X2(2)= 0.34, p=.84; the time main effect was significant, X(2)=

81.9, p=<.001. Bonferroni-adjusted z-tests indicated that the baseline mean was smaller than the 30-day mean and the 6-month mean (all p's <.05). The two follow-up means were not significantly different. Finally, the condition x time interaction was not significant, X(4)= 2.54, p=.64.

Condom Use Intentions. To assess the intervention's impact on condom use intentions, we looked at participants' baseline reports of condom use in the past 30 days, and their posttest and follow-up reports of how often they intended to use condoms in the next 30 days. Specifically, all available observations were analyzed with a random effects regression model that included a main effect for condition, a main effect for time (pretest, posttest, 30-day, 6-month), and a condition x time interaction. Separate analyses were conducted on the steady partner data (N=1,409) and the casual partner data (N=1,136).

The model for the steady partner data accounted for 29% of the overall variability in condom use intentions. The condition main effect was not statistically significant, X2(2)= 0.77, p=.68. The time main effect was significant, X2(3)= 635.6, p<.001. (The reader is reminded that the first measure was reported use and that the three remaining measures were intended condom use.) Bonferroni-adjusted z-tests indicated that the baseline mean was significantly less than the posttest and follow-up means (all p's<.05). None of the remaining pairwise mean differences were statistically significant. Finally, the condition x time interaction was not significant, X2(6)= 6.98, p=.32. In short, at baseline, participants reported that they had used condoms with their steady partner "less than half of the time"; following participation, they reported that they intended to use condoms "more than half of the time" with their steady partner.

The model for the casual partner data accounted for 18% of the overall variability in condom use intentions. The condition main effect was not statistically significant, $X2(2)= 4.16$, $p=.12$. The time main effect was significant, $X2(3)= 256.3$, $p<.001$. Bonferroni- adjusted z-tests indicated that the baseline mean was less than the posttest, 30-day, and 6-month means (all p's<.05), and that the posttest mean was greater than the 30-day mean ($p<.05$). No other pairwise mean difference was statistically significant. Further, the condition x time interaction was not statistically significant, $X2(6)= 1.8$, $p=.94$. As with the steady partner data, reports of participants' intended condom use with casual partners exceeded the use reported at baseline.

Although many participants did not intend to use condoms consistently (as recommended by the HE and VT interventions), a significant proportion did report that they were going to use condoms whenever they had sex. At posttest, 57.8% indicated that they intended to use condoms consistently with their steady partner; at the follow-up assessments, this percentage increased to 67.9% and then dropped to 63.6%. Among participants with one or more casual partners, the respective percentages were 70.0%, 52.0%, and 59.0%.

Condom Use Behaviors. Change in condom use behavior over the study period was assessed with a random effects model that included a main effect for condition, a main effect for time (pretest, 30-day, 6-month), and a condition x time interaction. Separate analyses were conducted on the steady partner data (N=1,022) and the casual partner data (N=861).

The model for the steady partner data accounted for 25% of the overall variability in reported condom use. The means are shown in Table 3. The condition main effect was not statistically significant, $X2(2)= 0.63$, $p=.73$. The time main effect was statistically significant, $X2(2)= 352.8$, $p<.001$. Bonferroni-adjusted z-tests indicated that the baseline mean was

significantly less than both of the follow-up means (all p's<.05). The 30-day and 6-month follow-up means were not significantly different. Neither was the condition x time interaction, X2(4)= 1.02, p=.91. At baseline, participants in all conditions reported that they had used condoms with their steady partner "less than half of the time" during the preceding month; following participation, they reported that they used condoms "more than half of the time" with their steady partner.

The model for the casual partner data accounted for 18% of the overall variability in condom use intentions. The means are given in Table 3. The condition main effect was not statistically significant, X2(2)= 4.55, p=.103. The time main effect was significant, X2(2)= 60.8, p<.001. Bonferroni-adjusted z-tests indicated that the baseline mean was significantly less than the 30-day and 6-month means (all p's<.05). The two follow-up means were not statistically significant. Neither was the condition x time interaction, X2(4)= 1.2, p=.88. Like participants with steady partners, the participants with casual partners reported greater condom use at the follow-up assessments than they did at the baseline assessment.

As with the condom use intention data, the pattern of means masked the fact that a large proportion of the participants reported that they had used condoms whenever they had sex. At posttest, 18.3% indicated that they had used condoms every time they had sex with their steady partner; at the follow-up assessments, this percentage increased to 53.2% and then dropped to 50.8%. Among participants with one or more casual partners, 26.0% reported that they used condoms consistently; at the follow-up assessments, this percentage increased to 39.9% and then to 49.5%.

Perceived Risk. The pretest-posttest analysis suggested that study participants perceived themselves at the posttest to be at less risk for another STD infection within the coming year. To assess the change in perceived risk over the entire study period, all available observations (N=1849) were analyzed with a random effects regression model that included a main effect for condition, a main effect for time (pretest, posttest, 30-day, 6-month), and a condition x time interaction. The model performed poorly, accounting for 6.3% of the overall variability in perceived risk. The means are shown in Table 2.

The condition main effect was not statistically significant, $X2(2)= 4.10$, $p=.13$. The time main effect was significant, $X2(3)= 147.8$, $p<.001$. Bonferroni-adjusted z-tests indicated that the baseline mean was significantly greater than the posttest mean ($p<.05$), and that both the baseline and posttest means were significantly greater than the 30-day and 6-month means (all p's $<.05$). At 6 months, participants tended to perceive more risk than they did at the 30 day assessment ($p=.09$). The condition x time interaction was not significant, $X2(6)= 4.48$ $p=.61$. At baseline, participants thought that it was "not very likely" that they would contract an infection; by the 30-day assessment, they perceived themselves to be at even less risk; and by the 6-month assessments, there was a tendency for participants to perceive themselves to be at an increasing level of risk.

DISCUSSION

We used a randomized, longitudinal study design to assess the relative effectiveness of a 14-minute, educational intervention designed to increase condom use among African American adolescent males seeking care at an STD clinic. The intervention was based on well-researched models of behavior change; and it was developed for black, adolescent males and with the close

cooperation of clinic staff, a local, African American video production team, and local, at-risk, African American adolescents.

We hypothesized that the intervention delivered by the health educator would be more effective than the videotape version. First, the health educator could answer the participant's questions and, thus, tailor the intervention messages to the individual's circumstances. Tailoring messages enhances the likelihood that the participant will attend to, comprehend, retain, and act on the messages. Second, and more importantly, each participant was asked to use a penis model and practice the steps associated with putting on and removing a condom correctly; and each participant received feedback from the health educator as he practiced with the penis model. (The videotape condition allowed for cognitive rehearsal.)

The intervention had an immediate positive impact on condom use knowledge, condom use self-efficacy, and condom use intentions with one's steady partner. Specifically, participants in the health educator condition exhibited greater condom use knowledge than did participants in the videotape condition; in turn, the latter exhibited greater condom use knowledge than did participants in the control (standard care) condition. The impacts on condom use knowledge were noteworthy in that participants correctly answered four of the six items on average at baseline. Participants in the health educator condition also showed greater gains in condom use self-efficacy than did control participants. This effect may be due to the fact that the former were able to practice condom placement and discuss condom use with an African American female (albeit within the constraints of a 14-minute intervention). Participants in the videotape and control conditions were not afforded either opportunity. Finally, the intervention had an immediate positive impact on the condom use intentions (within the next 30 days). Health

educator participants intended to use condoms more often with their steady partners than did control participants. The intervention did not have a differential impact on condom use intentions with one's casual partners.

In a review of AIDS risk-reduction interventions targeting adolescents, Kim, et al. (1997) report that successful programs are more likely to be theory based, incorporate cultural issues, address developmental issues, and teach coping skills. Our intervention had these characteristics, and it effected three important outcomes.

The intervention was designed to make participants aware that their sexual behavior placed them at risk of contracting sexually transmitted diseases. However, contrary to what we expected, perceived risk scores declined from pretest to immediate posttest for participants in all conditions. (Subsequent risk perceptions indicated an additional decrement from the posttest level.) Kowalewski, Henson and Longshore (1997) suggest that inconsistent results of studies of risk reflect problems in measurement and design; however, our measure and design meet the desiderata they identify. This immediate decrement was not explained by an increase in condom use knowledge, although the possibility remains that the perception of less risk was due to the concrete, accurate information that the intervention provided about STDs, knowledge that was not assessed by the six-item condom knowledge scale. The decrement was also not explained by a change in condom use self-efficacy or condom use intentions.

It is possible that the immediate decrement in perceived risk was due to a reduction in the participant's feelings of vulnerability -- the very feelings that we thought would work in favor of the intervention's goal. Specifically, at baseline, participants may have been experiencing a heightened sense of arousal because they knew or thought that they had an infection. Even if they

knew what infection they had contracted, they could not be sure that medical treatment would be straightforward or that they had not suffered any lasting effects. Thus, they would be experiencing uncertainty when they completed the baseline. In contrast, when they completed the posttest, they would have learned if they had an infection and the nature of their infection, and they would have received treatment. They would be "better" and feeling less vulnerable and less uncertain than they were feeling at baseline. Feeling better, they may have perceived themselves at less risk for a subsequent infection.

The subsequent decrement in risk perception may reflect participants' misunderstanding of the risks associated with low-risk behaviors (Wiley, 1989). At the follow-up assessments, participants reported that they had engaged in sexual behavior that put them at risk of STD infection "a few times." As Wiley (1989) noted, most individuals correctly perceive that the risk of infection based on their behavior is small. Moreover, because they tolerate small risks, most individuals will see no advantage to modifying established patterns of behavior, particularly when those patterns frequently result in favorable outcomes. However, tolerance of small risks and the maintenance of old habits by individuals can result in an epidemic like HIV/AIDS.

We had hypothesized that the intervention's immediate impacts on condom use attitudes, self-efficacy, and intentions would be sustained if participants' condom use efforts were successful (reinforced). The data indicated that the immediate impacts on condom use attitudes and condom use self-efficacy were not sustained. Although participants in the health educator condition held more positive condom use attitudes than did control participants at baseline, condom use attitudes declined in the month preceding the 30-day assessment. Moreover, among participants in all three conditions, condom use self-efficacy at the follow-up assessments was significantly less than that

at either the baseline or immediate posttest. It is possible that participants' subsequent experiences during sexual contacts, including experience with condoms, were inconsistent with (i.e., did not reinforce) the beliefs that they reported at the immediate posttest. Instead of maintaining the beliefs and pleading special circumstances to explain the inconsistent behavior (as one focus group participant remarked, "Man, you should have seen her"), participants may have modified their beliefs.

Although the intervention promoted correct and consistent condom use, participants were informed that they could reduce their risk of infection by having sex with fewer partners and by having sex less often. The findings indicated that participants in all conditions intended to have sex with more partners and then reported having sex with one more partner on average in the month preceding each follow-up assessment. Similar increases were observed in their intentions and in the reported number of acts of vaginal intercourse with steady and casual partners. (Participants averaged one more act of intercourse in the month preceding each follow-up assessment.) It is possible that the sexual activity of many participants was adversely affected by their STD symptoms in the days prior to their clinic visit; and, following treatment, their activity returned to more typical levels.

The one intervention impact that was sustained over the 6-month study period involved condom use intentions. Specifically, condom use intentions with steady and with casual partners increased following participation in the intervention and remained strong. At the posttest and 30-day follow-up, more than half of the participants reported that they intended to use condoms whenever they had sex with their steady partner; at the 6-month follow-up, slightly less than half indicated such intentions. The data suggested that intentions to use condoms consistently were

stronger for casual partners than for steady partners. However, among individuals who had both a steady partner and casual partners (which was roughly one-third of the participants completing each assessment), proportionately more participants reported consistent condom use intentions with their steady partners as the study progressed, and fewer participants reported consistent condom use intentions with their casual partners. The stronger intention for consistent condom use with one's steady partner than with one's casual partner may reflect the perception that the risk of an unintended pregnancy is greater with a steady partner than with a casual partner.

Finally, participants in all conditions reported more frequent condom use (in the past thirty days) at the follow-up assessments. The review by Kim et al. (1997) indicates that an impact on condom use is associated with interventions which are culturally targeted as ours was. However, the reported behavior, "more than half of the time," was not the recommended behavior, which was to use condoms for each and every act of intercourse. Because participants in all conditions reported more frequent use, the increase appears to have been due to the experience of having an STD and receiving disease-specific information and treatment. Alternatively, reports of increased condom use could reflect demand characteristics. The purpose of the intervention would have been clear to any participant assigned to either intervention condition: a poster on the health educator's wall displayed the videotape's title and theme song, "Put it On!" Moreover, participants in all conditions received condoms when they completed each questionnaire. Thus, any participant who was motivated to exaggerate his actual condom use could certainly do so. However, if participants were motivated to portray themselves in a favorable manner, one might expect to see the same demand characteristics at work when participants reported condom use attitudes and condom use self-efficacy, both of which declined during the study period; and one

might expect to see the same demand characteristics at work when participants reported the number of partners they intended to have sex with in the next month and the number of partners they did had sex with, both of which increased during the study period.

The present findings can be interpreted in light of a prior review of the effectiveness of video interventions delivered in STD clinics (Healton & Messeri, 1993). In six of the eight studies, most of the participants were African American men. Healton and Messari found that educational interventions delivered by videotape had substantial short-term effects on knowledge about and attitudes toward condoms. Our findings, based on black adolescent males, indicated modest, immediate effects on condom use knowledge and self-efficacy. Stronger impacts were observed among participants in our face-to-face health educator condition. To the extent that our findings can be generalized, they suggest that an intervention presented face-to-face to African-American males by an African-American health educator may have greater immediate impact on psychosocial determinants of sexual and condom use behavior than a culturally appropriate videotape that presents the same messages in the same period of time.

Our findings also suggest that our educational intervention did not provide participants with the knowledge, skills, or motivation needed to enact the recommended risk reduction behaviors on a continuing basis. Indeed, the intervention's immediate impacts on condom use self-efficacy were not even sustained for one month. However, an educational intervention presented in a busy clinic setting will have to be of limited duration. Thus, prevention researchers and programmers need to combine their efforts with the efforts of other service providers and offer community-based programming in settings that are readily accessible, receptive, and proximal to the locations and settings where adolescents gather and meet potential partners.

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Figure 1. Self-Regulation Model

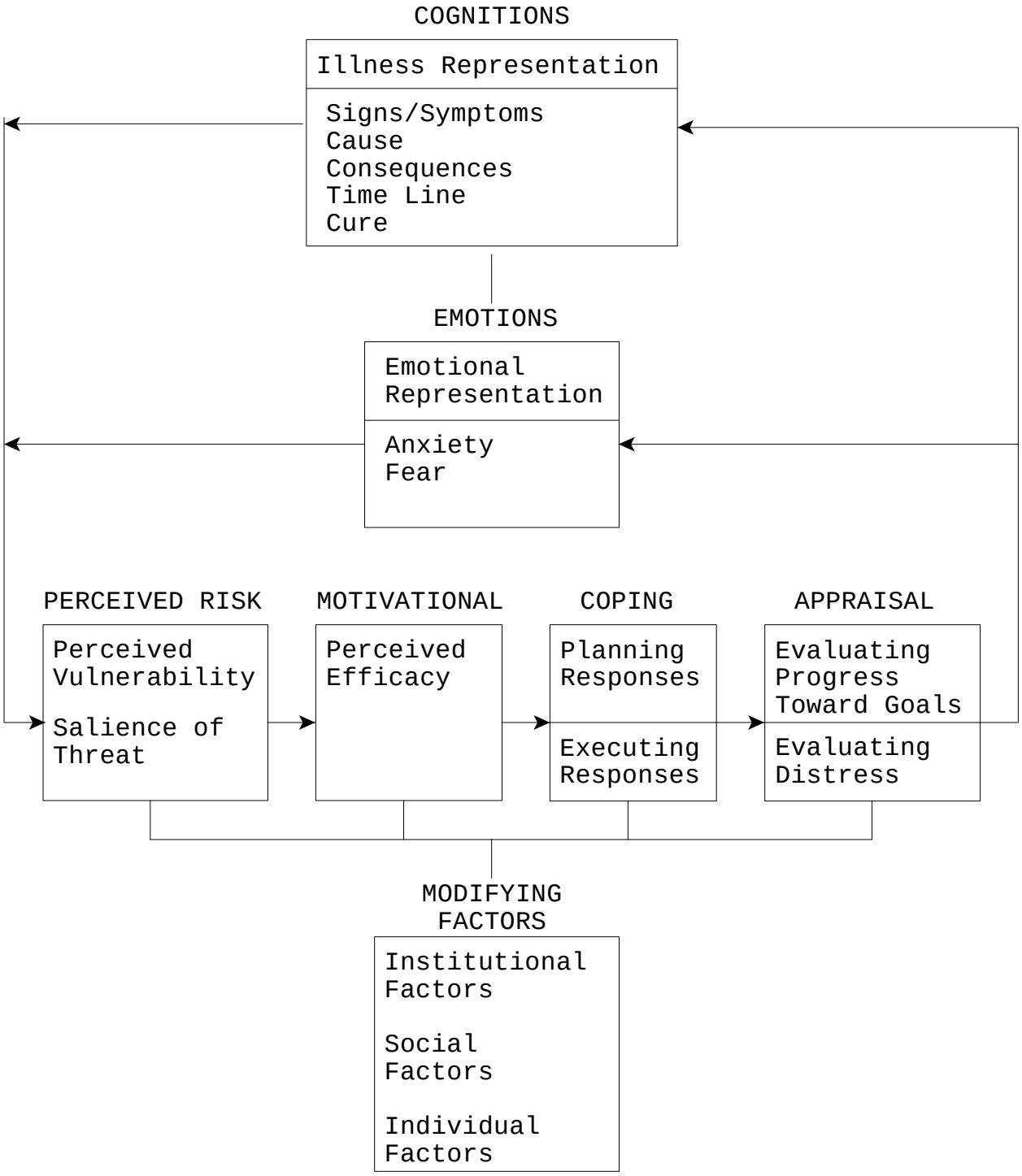

Table 1. Baseline Characteristics

Variable	%	n
Last grade		
7th grade	0.5	3
8th grade	5.0	28
9th grade	10.7	60
10th grade	26.2	147
11th grade	28.6	161
12th grade	23.3	131
GED	3.2	18
Trade school	0.9	5
Some college	1.6	9
Lived With [1]		
Both parents	13.7	77
Mother	55.2	310
Father	3.0	17
Other adults	11.7	66
Wife/partner	5.5	31
Alone	2.1	12
Marital Status		
Single	97.2	546
Married	0.9	5
Separated	1.6	9
Missing	0.4	2
Number of Children		
0 Children	71.4	401
1 Child	20.5	115
2 Children	6.6	37
3 Children	1.2	7
6 Children	0.2	1
Missing	0.2	1

Notes: [1] Categories are not mutually exclusive or exhaustive.

Table 2. Condom Use Outcomes at Baseline, Posttest, 30-Days, and 6-Months

Condom Use Variable	Condition Means HE[1]	VT	CT	Time Means Mean	SD	n
Knowledge[2]						
Baseline	4.3	4.4	4.3	4.3	1.1	561
Posttest	5.1	4.7	4.3	4.7	1.1	549
Self-Efficacy						
Baseline	1.5	1.5	1.5	1.5	.5	561
Posttest	1.7	1.7	1.6	1.6	.5	545
30-days	1.1	1.1	1.1	1.1	.6	560
6-months	1.1	1.1	1.1	1.1	.6	185
Steady Partner Intentions						
Baseline	2.4	2.4	2.4	2.4	2.4	511
Posttest	5.1	4.9	4.5	4.9	1.8	394
30-days	5.1	5.1	5.1	5.1	1.6	385
6-months	5.0	5.0	5.2	5.1	1.5	119
Casual Partner Intentions						
Baseline	3.9	3.5	3.7	3.7	2.2	448
Posttest	5.6	5.5	5.4	5.5	1.1	278
30-days	5.1	4.9	4.8	5.0	1.4	314
6-months	5.6	5.3	5.3	5.4	.9	96
Attitudes						
Posttest	3.2	3.1	3.0	3.1	.4	549
30-days	2.8	2.8	2.8	2.8	.4	561
6-months	2.9	2.8	2.7	2.8	.4	187
Perceived Risk						
Baseline	2.2	2.2	2.3	2.2	1.0	559
Posttest	2.0	2.0	2.2	2.1	1.0	548
30-days	1.6	1.7	1.7	1.7	.7	558
6-months	1.8	2.0	1.9	1.9	.8	184

Note: [1] HE = Health Educator condition, VT = Videotape condition, and CT = Standard care condition

[2] An estimate of a cell's standard deviation is given by the TIME marginal standard deviation; cell sample sizes are roughly one-third of the TIME marginal sample size.

Table 3. Behavioral Outcomes at Baseline, Posttest, 30-Days, and 6-Months

Variable	Condition Means HE[1]	VT	CT	Time Means Mean	SD	n
Number of Partners[2]						
Baseline	2.3	3.0	2.7	2.7	3.4	529
30-days	3.3	2.9	3.3	3.2	2.6	557
6-months	3.1	3.2	2.7	3.0	2.0	187
Steady Partner Number of Acts [2][3]						
Baseline	3.1	3.0	2.9	3.0	1.6	558
30-days	3.9	4.0	3.8	3.9	1.1	392
6-months	4.1	3.9	3.9	4.0	.9	123
Condom Use [2][4]						
Baseline	2.4	2.4	2.4	2.4	2.4	511
30-days	4.7	4.8	4.8	4.8	1.7	389
6-months	4.9	4.7	5.1	4.9	1.5	122
Casual Partner Number of Acts [2][3]						
Baseline	3.1	3.0	2.9	3.0	1.6	558
30-days	3.9	3.7	3.7	3.8	1.4	324
6-months	3.8	4.2	4.0	4.0	1.0	102
Condom Use [2][4]						
Baseline	3.9	3.5	3.7	3.7	2.2	448
30-days	4.7	4.5	4.5	4.6	1.6	314
6-months	5.4	4.9	4.8	5.0	1.2	99

Notes: [1] HE = Health Educator condition, VT = Videotape condition, and CT = Standard care condition
[2] Recall period is the past 30 days.
[3] Number of acts of vaginal intercourse.
[4] Condom use during vaginal intercourse.

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