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ABSTRACT

Several studies have shown that adolescents have reasonably high levels of knowledge about Acquired Immune Deficiency Syndrome (AIDS) transmission and prevention, yet they still engage in risky sexual activities. In response to this dilemma, a theoretically and empirically grounded intervention which went beyond presenting facts and figures was developed and tested. The curriculum provides basic information about AIDS and other sexually transmitted diseases (STDs), but it also attempts to counter negative beliefs about condom use, reinforce positive ones, and includes skills training for discussing and negotiating condom use with a partner. The materials are intended for hetereosexually active adolescents at high risk of contracting AIDS and other STDs. The curriculum was based on the theory of reasoned action and social learning and cognition theories. The curriculum consists of three components: a comic book which presents basic information; a videotape in which teenage actors model skills for negotiating condom use with a partner; and a group skills training in which skills are modeled by peer facilitators and where participants engage in role playing and receive feedback on their performances. The skills training curriculum is intended for small groups from 6 to 12 adolescents and is led by an adult and two peer facilitators. The curriculum was designed to be appropriate for African American and white hetereosexually active adolescents. Reactions from the earliest study participants have been uniformly positive. (Contains 14 references.) (ABL)

THE PROCESS AND PITFALLS OF DEVELOPING A CULTURALLY RELEVANT CURRICULUM TO REDUCE AIDS AMONG SEXUALLY ACTIVE TEENAGERS: THE TAKE 5 PROJECT

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The research team is an interdisciplinary group of scholars including a sociologist (Mary Gillmore), a psychologist (Diane Morrison), an educational psychologist (Sharon Baker), and three social workers (Mary Lou Balassone, Lorraine Gutierrez, and Cheryl Richey). In addition, a developmental and clinical psychologist (Elizabeth Wells), and a social worker (Kevin Haggerty), both with extensive skills training experience, provided consultation on skills training. Special thanks are due Jane Sandberg, a MSW graduate student in social work, whose contributions to this project were invaluable.

BACKGROUND

Although the incidence of AIDS among adolescents is still quite low, there is reason to believe that adolescents are at risk (Brooks-Gunn, Boyer & Hein, 1988). First, owing to the long incubation period for AIDS, many young adults with AIDS may have been infected as teenagers (Curran, et al., 1988). Second, the rate of new AIDS cases in the adolescent population has been doubling every fourteen months (Kipke & Hein, 1990). Third, rates of several other sexually transmitted diseases (STDs) have been rising in the adolescent population and rates of premarital pregnancy in this population remain high (Cates, 1990; Hein, 1988). Although condom use among adolescent males appears to have increased (Sonenstein, Pleck, & Ku, 1988), the findings above and data from several studies suggest that the majority of sexually active adolescents do not consistently take precautions to avoid contracting the AIDS virus.

It is unlikely that adolescents continue to engage in risky sexual behaviors solely out of ignorance. Several studies have shown that adolescents have reasonably high levels of knowledge about AIDS transmission and prevention, yet adolescents still engage in risky sexual activities (DiClemente et al, 1991; Hingston, Strunin, & Berlin, 1990; DiClemente, Boyer, & Morales, 1988; Kirby, 1985). This is not to suggest that providing information is unimportant; accurate knowledge about transmission and prevention of communicable diseases is clearly a necessary step toward behavior change. However, providing information alone is not likely to be sufficient to change behavior.

In response to this dilemma, we sought to develop and test a theoretically and empirically grounded intervention which goes beyond presenting facts and figures. The curriculum we developed does provide basic information about AIDS and other STDs, but it also attempts to counter negative beliefs about condom use, reinforce positive ones, and includes skills training for discussing and negotiating condom use

with a partner. The materials are intended for heterosexually active adolescents at high risk of contracting AIDS and other STDs. Although we inform adolescents that abstinence is the only absolute protection, it is unlikely that these high-risk adolescents, who are already sexually active, will refrain from future sexual activity. We felt that they needed the knowledge and skills to protect themselves within the context of continuing sexual activity. We sought to develop a curriculum that is culturally sensitive, appropriate for both boys and girls, and relatively short and simple to administer so that it could be delivered in settings other than schools, such as public health clinics, juvenile detention facilities, social service agencies, etc., in order to increase the chances that it will reach those high risk adolescents who are not regular school attenders. What follows is a description of the process of developing the curriculum.

THEORETICAL UNDERPINING

The curriculum was based on Fishbein and Ajzen's theory of reasoned action (Fishbein, & Ajzen, 1975), and Bandura's social cognitive and social learning theories (Bandura, 1982, 1971). The theory of reasoned action states that the best predictor of a behavior, such as using a condom, is a person's intention to use a condom. Behavioral intention is posited to be a function of two variables: the affective response (i.e., attitude) toward performing the behavior and perceived social norms about the behavior. Attitude, in turn, is based upon beliefs about the outcomes of performing the behavior and the evaluation of the outcome. For example, one might think that is very likely that using a condom results in an interruption of sex, and that such an interruption is undesirable. Analogously, perceived norms regarding the behavior is a function of the person's beliefs about the wishes of relevant others with regard to his or her performing the behavior, and how motivated one is to comply with these wishes. Figure 1 depicts the model.

Figure 1 about here

Bandura's conceptual framework also provided a basis for the intervention. Skills training approaches to behavior change, based on social learning theory (Bandura, 1971), attempt to alter behavior through demonstration and practice of new responses to problematic situations. Skills training uses a sequence of steps--instruction, modeling, role-playing, and feedback--that are seen as central to the behavior change process. In addition, social cognitive theory suggests the importance of attending to both contextual factors (e.g., the environment) and to self-efficacy beliefs. From this perspective, skills training increases self-efficacy which, in turn, increases the likelihood of the desired behavior. The skills training portion of the curriculum includes the use of a variety of situations where condom use might be discussed and employs peers as role models providing adolescents with many examples of skilled negotiations with partners.

EMPIRICAL GROUNDING

A preliminary elicitation survey was conducted in which adolescents from the target population were queried regarding their beliefs about condom use using open-ended questions. The target population was defined as adolescents in juvenile detention and adolescents attending an urban public health STD clinic. Criteria for study inclusion were that the youth be unmarried, adolescent (defined as ages 14-19), African American or white, and heterosexually active (defined has having had sex with a member of the opposite sex within the last three months).[1]

These responses were then incorporated in a series of close-ended questions which were designed to measure the theory of reasoned action variables, self-efficacy, and knowledge about AIDS and other STDs. The questionnaires were

administered to 130 African American and white heterosexually active adolescents in juvenile detention, and to 100 adolescents attending an urban public health STD clinic. Data from this survey provided a major part of the empirical grounding of the intervention. For example, the data informed us about the beliefs about condoms held by the target population. We then attempted to design our messages to reinforce positive beliefs (e.g., condoms help prevent STDs) and alter negative beliefs (e.g., condoms interrupt sex).

These data also informed us as to gender and race differences in beliefs and attitudes about condoms (e.g., males thought it more likely than females that condoms protect against pregnancy; white youths thought it more likely than African American youths that condoms interfere with romance), and about differences by partner type (i.e., steady vs. new or casual partners). This information was incorporated into the educational materials insofar as was possible in an attempt to enhance the cultural sensitivity and gender appropriateness of the materials.

CURRICULUM DEVELOPMENT

The curriculum consists of three components: (1) a comic book which presents basic information, (2) a videotape in which teen actors model skills for negotiating condom use with a partner, and (3) group skills training in which skills are modeled by peer facilitators and where participants engage in role playing and receive feedback on their performances. The skills training curriculum is intended for small groups of from 6 to 12 adolescents and is led by an adult and two peer facilitators. The development of each of these materials is presented below.

Comic Book

Originally intended as a pamphlet, we decided a comic book would be more appealing to adolescents and therefore more likely to be read. We began by outlining the comic book's information which includes:

1. Basic information on STDs and AIDS (what they are, how they are transmitted), common symptoms but with a strong message that STDs are often symptomless, and what to do if you think you have an STD.
2. A series of brief vignettes in which we attempt to alter misconceptions about STDs and try to change negative beliefs about condoms.
3. Illustrated instructions on proper condom use.
4. Presentation of skill steps with illustrations of each.[2]
5. Information about where to get (free or purchased) condoms, where to go for free or low cost STD checks, and a list of telephone numbers for further information (e.g., AIDS hotline).

Next, we developed preliminary scenarios for the vignettes based on both the clinical experience of one of our team members who was formerly a nurse clinician with over 10 years of experience an STD clinic, and on the data from the earlier survey. Each scenario focuses on a few brief messages (e.g. you can't always tell if a person has an STD; using condoms doesn't mean you don't trust your partner). We portrayed males taking responsibility for condom use, as well as females, and African American as well as white youths being knowledgeable and willing to use condoms.

After several in-house reviews of the content by our team members, which resulted in several revisions of the content, an advisory committee of community professionals who work with adolescents around sexuality and reproductive issues reviewed the materials for both content and gender and cultural sensitivity. Based on their feedback, the content was again revised. At this point an artist was hired to draw preliminary sketches of some vignettes. We then had focus groups of adolescents from the target population evaluate the comic book's artistry, appeal, and content.

We discovered that the youths for whom these materials were intended were very concrete thinkers. For example, in one scene a boy is watching a physician on television talking about STDs, and as a humorous touch, the artist had the physician leaning out of the T.V. The youths reacted quite negatively to this saying things like "people don't come out of T.V.'s". The artist also had drawn a humorous condom character whose function was somewhat analogous to a voice-over, but the youths did not like the character claiming "condoms don't talk". The youths liked anything with a story line, which reaffirmed our decision to use a comic book rather than a pamphlet. They also taught us to reduce the number of words and write messages that were less threatening.

With this information, we again revised the comic book and after an internal review by our team, sent it to the artist for the final renditions. Examples of two of the pages are shown in Figures 2 and 3.

Figures 2 and 3 about here

Videotape

The main purpose of the videotape is to teach, through modeling, skills to negotiate condom use with a partner. The video also contains messages to reinforce some of the material in the comic book (e.g., STDs can be symptomless), and messages to alter negative beliefs about condoms (e.g., some condoms permit more sensation than others). The videotape development followed a process similar to that of the comic book.

We began by developing the skill steps we wished to teach, relying on the previous skills training experience of our team members and on the literature on skills training approaches. Initially, we devised five skill steps, but our advisory

board recommended fewer steps, each with a short simple name so that they would be more easily remembered. With the advisory board's help we came up with names for the four skill steps: (1) Think it up (e.g., plan in advance what to say, when and where to say it, and what your bottom line will be if your partner refuses to use a condom), (2) Bring it up, (3) Keep it up (e.g., if the partner resists, repeat the request, use "I" messages, etc.), and (4) Reward it (e.g., regardless of the outcome, give yourself credit for having the courage to bring it up; and if your partner agrees, let him or her know you appreciate it).

Once the skill steps were finalized, we developed a set of preliminary vignettes in which the skills were modeled. After several inhouse reviews by our team, each followed by a revision of the scripts, we asked our advisory board to review the scripts. They offered solid advice and the scripts were again revised. Next, we hired undergraduate theater majors to audiotape the scenarios. We then presented the audiotaped scenarios to several focus groups of youths from the target population, who provided feedback on realism, content, etc. Based on this feedback, the scripts were again revised and reviewed for cultural sensitivity by two African American consultants.

We hired a professional playwright who had written plays about adolescent sexuality (e.g., teen pregnancy) to imbue the scripts with dramatic appeal, linguistic touches, and credibility. He created a story which integrated the separate vignettes into a coherent story line and then worked with focus groups of adolescents from the target population to identify the unique features of their natural language. He did this by having the youths improvise lines. Even though none of these youths had prior acting experience, the playwright was able to motivate the youths to do this, and to do it seriously. The penultimate draft of the scenarios, produced by the playwright, was then reviewed by our team and our advisory board, and the playwright made final revisions based on these suggestions.

Meanwhile, casting calls for teenage actors were sent out to all local theaters which employed young actors, to all high schools who had drama programs, and to the University of Washington's theater department. The playwright auditioned approximately 40 youths for the parts and chose eight to play the main characters. Thirteen others were hired as extras for scenes requiring more characters.

The playwright also conducted rehearsals with the young actors and directed the videotaping. The University of Washington's Instructional Media Services did the videotaping and performed all technical aspects of producing the finished tape. Videotaping took approximately 50 hours spread over four very long days with scenes sometimes requiring as many as 30 takes, and seldom fewer than 20 or so. This produced about five hours of videotape which then was laboriously edited into a 27 minute final tape. Research staff members were present throughout the taping and editing to ensure that curricular aims were being met.

Skills Training Curriculum

Research team members with expertise in skills training approaches developed the content of the skills training curriculum. A review of the literature on skills training, Bandura's social learning and social cognitive theories, our own expertise, and that of our consultants, provided the background for this endeavor. The goal was to develop a skills training curriculum that could be delivered to a group of 6 to 12 adolescents in a clinic or social service agency in a minimal number of sessions. Practitioners in these settings felt strongly that the high risk adolescents we were trying to reach with this curriculum would not return for multiple sessions. At the same time, we strongly felt that a single session would not be adequate because for effective skills training, there needs to be some time for skill practice between sessions. We compromised by developing two four-hour skills training sessions,

designed to be delivered about a week apart. Each session is led by an adult and two peer facilitators.

Development of the skills training curriculum was an ongoing process with multiple revisions based on in-house reviews of the material, practice runs using the research staff, and a pilot test with adolescents. The process began with a review of the literature on skills training with adolescents and a listing of the major components to be included in the training. These included increasing perceptions of STD vulnerability, group processes (e.g., how to give and receive feedback), peer modeling, role playing a variety of situations which vary from easier to harder, and receiving and giving structured feedback. Next exercises appropriate for each of the components were drafted and reviewed by our team. The curriculum was then revised, reviewed again, and revised again. Finally, it was pilot tested with a group of adolescents who were applying for the peer facilitator positions. Based on the pilot test, the curriculum was again revised and then reviewed by two external experts on skills training. Following this review, and another revision, the curriculum was then finalized.

The overall goals of the skills training are that participants: (1) learn and be able to perform the four basic skill components, (2) generalize their knowledge of the specific skills to interactions with sexual partners in their own lives, and (3) use condoms every time they engage in sexual activity. The sessions contain some educational information, but most of the time is devoted to role-playing the skill steps. As noted earlier, the four skill steps include (1) "Think it up"--In this step, participants are encouraged to plan ahead what they will say to their partners and when might be a good time to bring the topic of condom use up, how they will counter partner objections, and what their "bottom line" will be should the partner refuse; (2) "Bring it up"--in this step, participants are taught and practice "opening lines"; ways to bring the subject of condom use up with a partner; (3) "Keep it up"--

participants are taught and practice skills for persisting even when a partner at first refuses to comply with the request; and (4) "Reward it"--in this step, participants are taught to give themselves a "pat on the back" for having the courage to bring up the topic, and to reward their partner if he or she complies with the request. The various exercises are delivered in a mix of smaller groups (2 or 3 participants to a group) and in the larger group where all participants are involved in the same exercise.

The specific goals of the skills training include:

1. To acknowledge the importance of the approach in dealing with situations effectively,
2. To increase knowledge about STD's, AIDS, and their prevention,
3. To understand that there are many ways to negotiate condom use and that skill steps do not dictate content,
4. To increase self-efficacy regarding negotiating condom use,
5. To be able to provide supportive feedback to other and to self for discussing condom use and safer sex,
6. To reduce apprehension and anxiety about discussing sexual matters with partners,
7. To increase empathy for a partner requesting condom use,
8. To learn new strategies from peers about negotiating condom use, and
9. To begin planning how to handle difficult or challenging situations when negotiating condom use with a partner.

The first session begins with a get acquainted exercise, time for reading the comic book, and viewing the videotape. This is followed by setting out ground rules for the sessions. Next an STD transmission game is played which aims to increase awareness of how quickly an STD like AIDS can spread and how transmission can be stopped. The "TAKE 5" skill steps are then described using clips from the videotape to illustrate each step, and these are reinforced by peer facilitators who model each of the skill steps. The next exercise asks participants to brain storm situations where asking a partner to agree to use condoms might be relatively easy and situations where it might be quite difficult. Participants are then asked to write their own personal "easy" and "difficult" situations on cards. (The author of the card is kept anonymous.) Next the peer facilitators model asking a partner to agree to

condom use in a relatively easy situation, and participants are also taught how to give constructive feedback on the role play performances. Participants are then divided into small groups where each one plays each of three roles: the person who asks a partner to agree to using condoms; the recipient of the request, and an observer who gives feedback and offers suggestions for improvement. These first situations role played are relatively easy situations (i.e., not much partner resistance). After the role play, the whole group meets together to share strategies and provide feedback. Role playing in small groups is then repeated this time using the "easy" situations that the participants themselves suggested. The session ends with a review, brief evaluation, and reminders of the second scheduled session.

To encourage participants to return on time for the second session, all participants arriving on time may enter a drawing for a "door prize". The second session begins with a review of the skill steps and moves into strategies for dealing with more difficult situations. Peer facilitators model ways to effectively handle a difficult situation (e.g., partner is resistant to condom use), and then participants break into small groups to role play tougher situations. The strategies developed in these role plays are then shared with the entire group. This is followed by a "stump the group" exercise in which participants take turns negotiating condom use with a very resistant "partner" (one of the peer facilitators). Other participants are encouraged to offer suggestions during this exercise. It is followed by a discussion of strategies that seemed effective, and ones that did not. Participants are again placed in small groups where they role play difficult situations, presumably armed with a greater variety of strategies. The small group work is shared with the entire group, and the session ends with a review and evaluation.

GENDER AND CULTURAL SENSITIVITY

The curriculum was designed to be appropriate for African American and white heterosexually active adolescents. Our feeling was that we couldn't develop a single model that would be appropriate for all major ethnic groups, yet we wanted to include more than one group so we could test whether it worked equally well for both.

To enhance the gender and cultural sensitivity of the curriculum, we took many steps, some of which have been previously described. First, we used the data from our earlier survey to inform us as to the similarities and differences among males and females, and African American and white youths in their attitudes, beliefs, intentions, and behaviors regarding condom use. We tried to weave this information into the content of the comic book and videotape. We had focus groups of both African American and white youths from the target population review our materials and make suggestions for changes. The playwright had several groups of African American and white males and females from the target populations improvise the scripts so he could write the scripts in the argot of the target populations. Our advisory committee, which consisted of both males and females, African American and white professionals, as well as two African American consultants, reviewed all our materials for cultural sensitivity and gender appropriateness. In addition, one member of our research team, a member of an ethnic minority group, has had extensive previous experience working with educators and social workers around issues of cultural sensitivity and she provided an ongoing review of all materials. Although they did not always agree, feedback from all of these persons was invaluable for increasing the cultural sensitivity of our materials.

MONETARY COSTS

Excluding the research team's time, the cost of producing the videotape was approximately $22,332. This included the payments to youths who participated in the focus groups (30 youths @ $11/session = $330), payments to actors (9 principal and 13 extras = $2,385), fees to the playwright for both script writing and directing the videotaping ($6,000), all media service fees associated with actual production of the videotape ($13,120), transportation of youths for focus groups ($108.24), food for actors during videotaping and snacks for focus group members ($373.70), and miscellaneous expenses ($15.56).

Cost of the comic book included the artist's time ($1350), three focus groups ($5/session = $50), and duplicating costs ($923 for 450 copies of 8 original pages). The major expense in duplicating costs was the laser color cover which cost $675. The total cost for producing 450 comic books was about $2353.

Most of the cost associated with developing the skills training curriculum was associated with research team members' labor. Additional costs included: duplication of preliminary and final drafts of the curriculum (about $75), production of laminated poster boards (which contain the session's agenda, skills steps, etc., $90), a pilot test of the training for which adolescents were paid $25/session (total = $275), and training of peer facilitators (2 sessions @ $25/session = $475). Excluding research team labor, the cost of developing the curriculum was approximately $915

PITFALLS

The Strain between Good Science and Feasibility

The project's major goals are to design and evaluate the relative effectiveness of the three interventions (comic book alone, comic book plus video, and comic book with video and group skills training). Throughout the project we found it

necessary to compromise between good science and practical considerations. A decision that supports the former is often in conflict with the latter. For example, it seemed wise to provide several group skill training sessions spaced evenly over a period of time in order to give the training a fair test and allow for training effects to "take" and generalize, yet the reality of being able to get adolescents to return for multiple sessions, and the limited time adjudicated adolescents are in detention before they are released or sent to a long-term facility demanded a brief intervention. Each of these decision dilemmas resulted in intense debate of the pros and cons, thus necessarily taking up considerable staff time and energy, and almost always resulted in a compromise of some kind.

In the above example, the essential questions seem to be: What is the minimum amount of exposure to the intervention that may be expected to have an effect? What are the essential components of the intervention for learning and behavior change to occur? Little is known about how much of any intervention protocol is really necessary to produce meaningful and lasting change, nor about which components of an intervention like our skills training program are essential and which are not. Many would argue that more intervention always results in greater treatment or training gains. However, recent research testing this hypothesis suggests that briefer interventions may with some populations be more effective than longer interventions (Edelson, 1990). In the end, we decided to make the interventions as brief as possible without sacrificing what we felt to be the most important ingredients, but we were forced to make this decision on the basis of very little empirical evidence.

Another dilemma surfaced regarding random assignment of individual study participants to treatment conditions. Although this is, without question, ideal, it created problems for us. For example, in juvenile detention random assignment of individuals would result in potential treatment contamination because of the

likelihood of study participants from all three conditions interacting, given their confinement in the same building. In the public health clinics, we were concerned that by the time we recruited enough study participants for the group skills training condition, which requires scheduling in advance, those recruited earlier might not show up. We therefore decided to recruit for two week intervals, assigning all who consented to study participation during this time to one of the three treatment conditions. The order of treatment condition to which the block of subjects is assigned was initially chosen randomly, then that order is being retained throughout the study. In view of the fact that the average stay in juvenile detention is about 12 - 14 days, it seemed wise to leave a week between blocks where no recruitment took place in juvenile detention, to decrease the likelihood of treatment contamination.

Reality vs. Effectiveness

Another dilemma arose over how "real" the scripts for the comic book and video should be versus how effective we wanted them to be. The dilemma was that the more "real" we made the scripts, the less effective they might be; or the more effective the messages, the less likely youths will say these things.

For example, the natural language of the population for whom the materials are intended is liberally sprinkled with rather crude words. The playwright who reworked our preliminary vignettes, and who used focus groups of adolescents to improvise the script in order to give the playwright good insights into their natural language, used many of these words in the initial scripts. Reactions from our advisory committee ranged from "that's great; that's how the kids really talk; if you want to make any changes, put more of it [swear words] in the script" to "the swearing is unnecessary and detracts from the overall message; take it out." We felt that the crude words were unlikely to offend the youths, but if the intervention were found to be effective, might these words deter adults from choosing to use it? After

all, ultimately, it is the adults who choose the educational materials for our children. Again, we compromised by eliminating many, but not all, of the crude words.

Another dilemma surfaced over "telling it like it is" vs. telling it like it ought to be. For example, kids often use the word "clean" to refer to someone who does not have a sexually transmitted disease. The health educators on our advisory committee objected to this word saying that they are trying hard to disabuse kids of the notion that someone with a sexually transmitted disease is dirty, and they did not want us to inadvertently reinforce the opposite. We agreed and altered the script.

There was also some disagreement among our advisors as to what constitutes stereotypical "black" behaviors. For example, in one comic book vignette, two African American male siblings are playing basketball. The older brother tells the younger one that using condoms takes skill, just like doing a "fade away jump shot". The implication is that with practice condoms aren't nearly as awkward and uncomfortable as they are at first. A few members of our advisory committee felt that depicting African American boys playing basketball is fostering a stereotype of African Americans. Ironically, it was a white advisory committee member who voiced this concern. The African American advisory committee members and consultants felt that while there may be some truth to the objection, the kids for whom the materials were intended would be able to relate to the scene, so they suggested we leave it in. Our focus groups of adolescents reacted very positively to the scene; in fact, it was one of their favorites. We therefore left it in. Similarly, in the video, there are two scenes in which boys (2 African American and 1 white) are playing basketball, but we also depicted them in another scene fixing a car.

Another issues was whether to assign homework between group training sessions. Research on behavior change suggests that assignments for practice between training sessions enhance learning. Our pilot data suggested, however, that the youths would not be likely to complete the homework assignments and did not

like them. Do we drop them and potentially weaken training effects or do we keep them even though compliance is likely to be low and therefore compromise the intervention anyway? Because there is no way to "force" the youths to complete their homeworks, we decided to drop them.

We debated whether to have race homogeneous or heterogeneous groups for the skills training. On the one hand, with race homogeneous groups, it is easier to ensure cultural sensitivity. On the other hand, in every day life, African American and white youths necessarily come in contact and interact with one another quite frequently in our community; therefore, race homogeneous groups may seem contrived and unusual to participants. Further, role playing with more diverse others may help the generalization of skills to novel situations. We asked both our advisory committee and our focus groups of adolescents what they thought. There was virtually unanimous agreement that the groups should be race heterogeneous. We agreed to do this, but it raised some practical problems. For example, do we hold a group off until we get a perfect race and gender balance, but risk losing those who expressed an interest early in the study, or do we recruit over a shorter period of time and risk imbalanced groups? If the latter, how imbalanced can the groups be before it becomes a problem (say, for example, one African American and all the rest white; or one male and all the rest female)? We are still working on this problem and, while we are attempting to recruit race and gender balanced groups, we know that it will not always work out.

The decision to have race heterogeneous groups raised another issue. What race should the adult leader and peer facilitators be? We decided to insure that for every group held, there would be at least one African American and one white person among the three group facilitators.

The measurement of skill acquisition created another dilemma. Although there is unanimous agreement that observing behaviors in natural settings is the best

measure of skill acquisition and use, it is rarely possible due to practical as well as ethical constraints. Experts in skill training have therefore opted for role play tests in which a "realistic" situation is described and the respondent is asked what he or she would do or say. It is generally believed that more accurate measures of skill attainment occurs when the stimulus scenes are realistic and personally compelling, and the respondent has to reply aloud as if in the situation. In our situation, we had to settle for a paper and pencil role play test. This decision was based on several considerations including a lack of resources to do role play tests with each study participant, space constraints in the settings in which the interventions are being delivered, and concern that requiring subjects to return for follow-up assessments might risk greater attrition.

Underestimating Time Requirements

Although the team approach we adopted for designing the curriculum has obvious strengths--for example, its interdisciplinary nature and the combination of academic researchers and community practitioners--it took a great deal more time than a smaller team would have to negotiate so many schedules, debate the pros and cons of each choice and negotiate compromises in our "revise and resubmit" process of developing the materials. We feel that the materials we developed are better as a result of this team approach, but it added considerably to the cost in terms of our time and effort.

Additionally, we began by developing the content of the videotape first. About two-thirds of the way through this process, we began working on the comic book as well. Only when the videotape and comic book were close to completion did we begin work on the skills training curriculum. This proved to be a mistake. Each of these instructional materials took more time to develop than we had

envisioned, and we would have been much more efficient had we begun work on all three simultaneously.

Underestimating Monetary Costs

Probably no major project ever gets accomplished without underestimated costs, and ours is no exception. We had not originally budgeted for a playwright, but his contribution helped us avoid a major pitfall of creating scripts which, while they might have the essential ingredients we wished to incorporate, had little appeal to teenagers. Analogously, we had originally budgeted for a pamphlet rather than a comic book. When it became clear that a comic book was much more appealing to teenagers, we then needed to locate and hire an artist. Not only were the salaries for the playwright and artist not included in our budget, but it took considerable time and effort to locate and interview prospective artists, and evaluate their work, before hiring them. We then had to work around their busy schedules, as well as our own, and things did not always progress as rapidly as we had initially planned.

EVALUATING THE MATERIALS

We are currently evaluating the materials in a study using a sample of heterosexually active adolescents who are at high risk of contracting STDs. Adolescents are being assigned to one of three study conditions where they receive either the comic book alone, the comic book and the video, or the comic book, video and skills training. Adolescents are recruited from two urban county health department clinics which provide STD and reproductive health care, and from the county juvenile detention facility. To be eligible for the study, the adolescent must be currently heterosexually active (defined as having had sex in the prior 3 months with a member of the opposite sex), between the ages of 14 and 19, unmarried,

either African American or white, and have no plans for moving out of the area within the next 6 months.

Adolescents exposed to the three conditions (comic book alone, comic book and video, comic book and video and group skills training) are being compared on several dimensions relevant to the study's aims. These include STD knowledge, perceived STD risk, beliefs and attitudes about condoms, skills for negotiating condom use, perceived comfort talking to one's partner about condoms, self-efficacy regarding condom use, intentions to use condoms, condom use and other relevant variables. Measures are obtained prior to intervention, immediately following intervention, and at 3 and 6 months following intervention. In addition, for consenting subjects, STD diagnostic exams are performed at pretest and at the 6 month follow-up, and medical records will be reviewed for evidence of new STDs contracted during the 6 month follow-up period.

It will be about a year before the data are in and analyzed, and we can begin to draw some conclusions regarding the relative efficacy of the three types of educational materials for changing behaviors.

CONCLUSIONS

It is too early to tell whether the educational materials we have developed will have any impact on youths' behaviors; however, we feel that the process used to develop the materials is sound. In our view, the critical elements of that process included empirically grounding the educational materials in the experiences of the target population, the use of professionals to attend to the technical and creative aspects of instructional development, and the use of focus groups and our advisory committee of community professionals to provide ongoing feedback as materials were being developed.

Reviews of the video and comic book by community health professionals have been very positive; in fact, they are eager for us to release them so they may begin using them. (We cannot release the materials until the data to evaluate the materials are in.) Reactions from our earliest study participants have been uniformly positive, so far. For example, a male in juvenile detention spontaneously said the video was "cool" and it "made you want to use condoms". Another study participant in detention spontaneously praised the comic book because it "told you everything". These are gratifying comments, but the ultimate question is whether high risk sexually active youths exposed to the materials change their behavior in such a way as to reduce their risk of AIDS and other STDs.

FOOTNOTES

[1]We included these two groups not only because these groups represent the largest number of STDs among adolescents in our county, but also because we feared that by including too many different racial and ethnic groups we would lose our ability to be culturally sensitive. Our plan is to develop materials for other racial and ethnic groups if these are successful.

[2]The skills steps were initially developed as part of the skills training curriculum and are described in that section.

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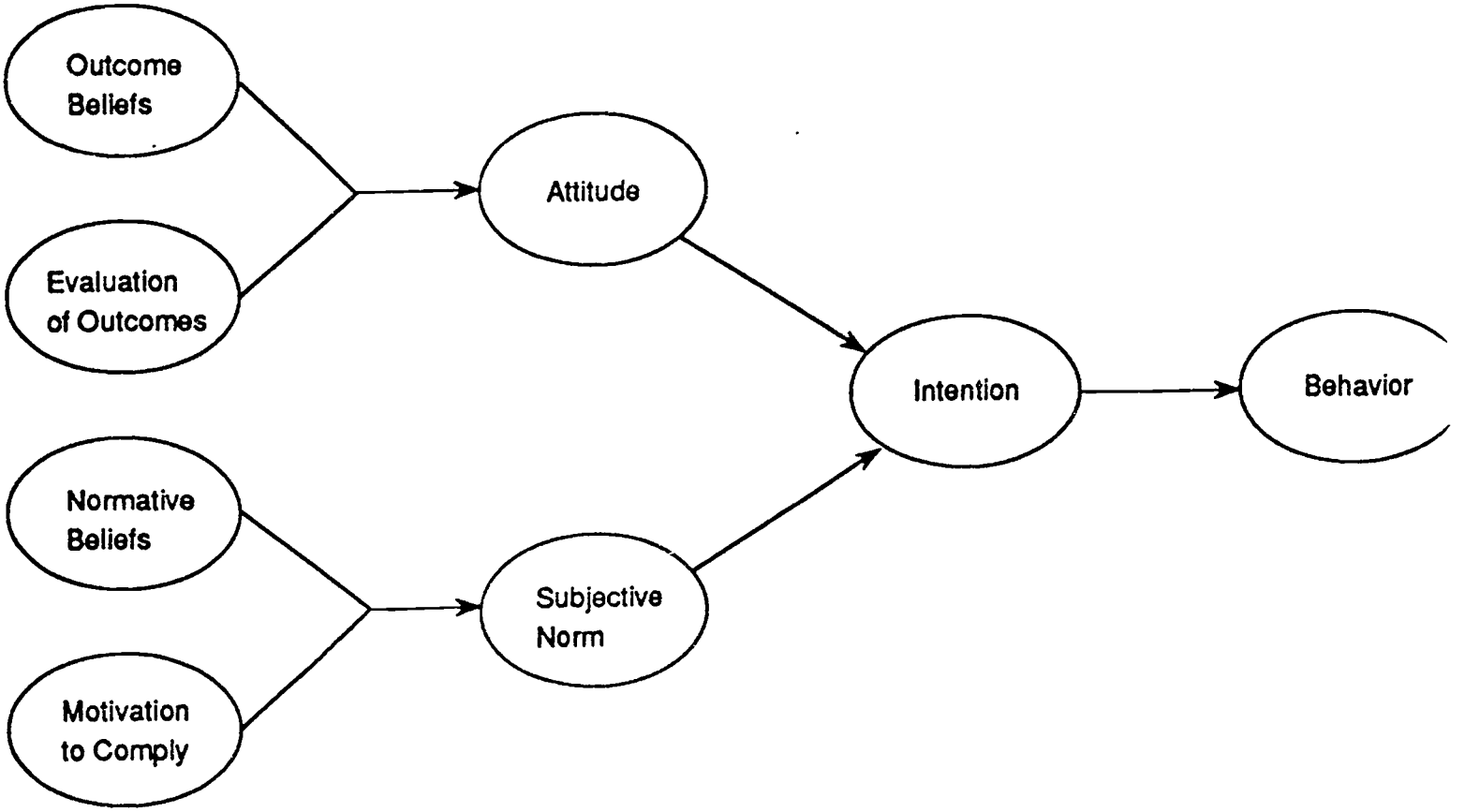
FIGURE 1



Fishbein/Ajzen Theory of Reasoned Action

PLAYING IT SAFE.

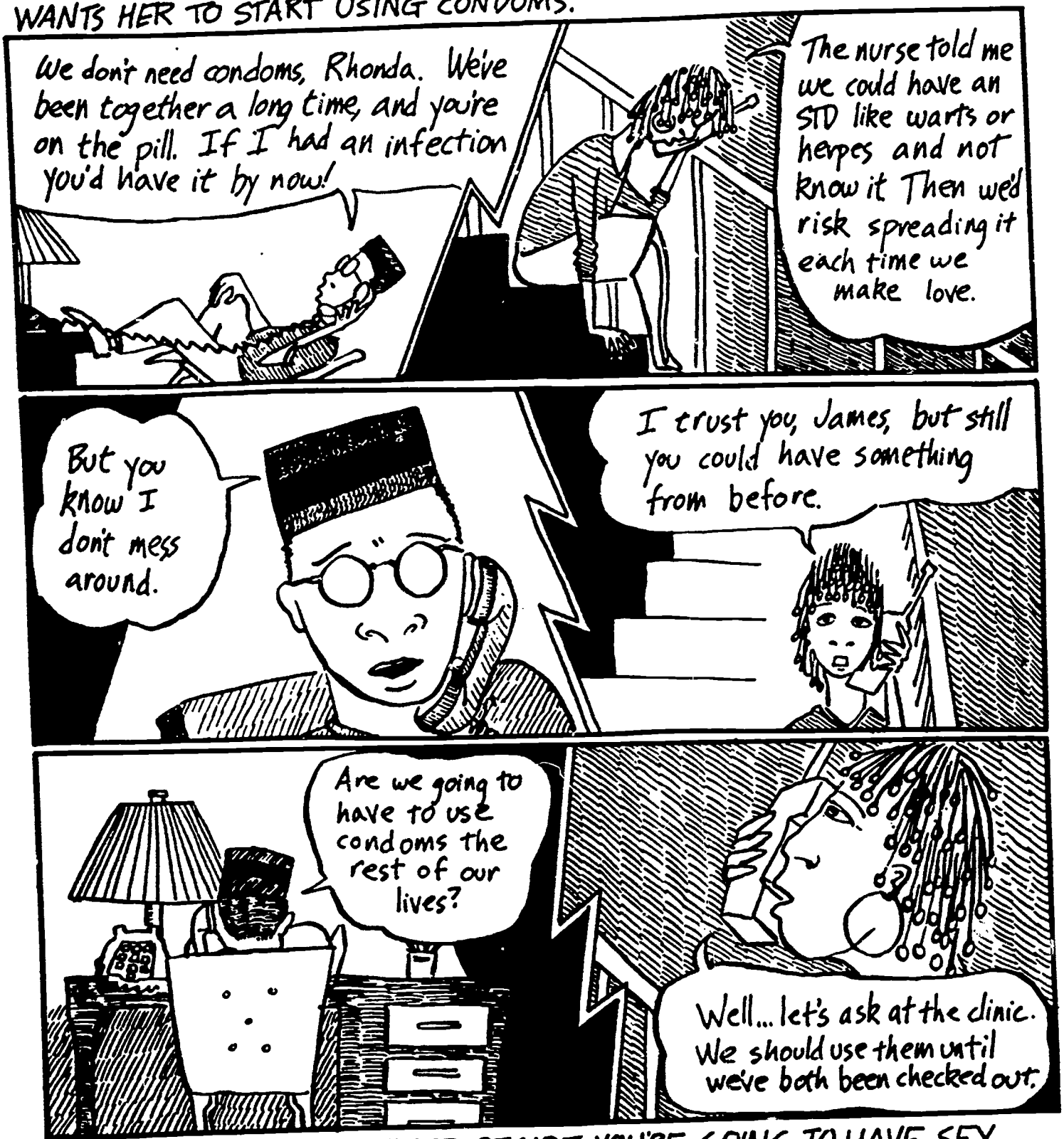
JANE AND LISA ARE TALKING ABOUT BOYS AND SEX.

YOUNG WOMEN OFTEN DON'T HAVE SYMPTOMS EITHER. USE RUBBERS ALL THE TIME, ESPECIALLY IF YOU'RE HAVING SEX WITH MORE THAN ONE PARTNER.

Figure 3

RHONDA AND JAMES REALLY TALK

RHONDA JUST GOT CHECKED AT THE STD CLINIC. SHE'S OK, BUT THE NURSE WANTS HER TO START USING CONDOMS.



IF YOU AND YOUR PARTNER DECIDE YOU'RE GOING TO HAVE SEX ONLY WITH EACH OTHER, TALK TO YOUR HEALTH CARE PROVIDER ABOUT WHEN YOU CAN STOP USING CONDOMS.