HIV/AIDS Education, Prevention and Control Course (BNS101): The Way Forward

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Botswana currently has one of the highest HIV-positive prevalence rates in the world. University students are an important group seriously affected by this pandemic. They represent one of the country's richest resources for the future, and faculty at University of Botswana believe there is a responsibility to educate them in a way that helps them preserve their health and vitality. This article represents a case study of one university faculty's efforts to fight the threat of HIV/AIDS to their student body. This case study reviews the early stages of faculty endeavors beginning with the development of an HIV/AIDS course and continuing through evaluation of the success and failures of the course, as well as current refinements now being made. Because the problem of HIV/AIDS on campus is a common one throughout sub-Saharan Africa, the authors hope that this case study of one faculty's approach may be helpful to those facing the same challenge.

Key words: HIV/AIDS, university students, effective programs, Botswana

One of the most serious health issues in sub-Saharan Africa today is the HIV/AIDS pandemic. Botswana has one of the highest HIV incidences in sub-Saharan Africa, with 44% of those who are 25 years of age or older being HIV-positive (Joint United Nations Programme on HIV/AIDS [UNAIDS], 2005). This article represents a case study of one faculty's efforts to fight the threat of HIV/AIDS on campus in a Botswana university.

University students represent one of the country's richest resources for the future, and the faculty at University of Botswana believe there is a responsibility to ensure that educational programs not only prepare graduates for service but also inculcate the values of self-care and self-nurturance.

Because the problem of HIV/AIDS on campus is an important one in all countries, the authors hope that this case study will be helpful to others facing the same challenge.

Background

In 2001, nurse educators and physiologists (mostly prepared at doctoral level) from the Department of Nursing Education developed an undergraduate HIV/AIDS course. Initially the course was to be offered to

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all freshmen in the faculty of education only, but it was later made available to students in other faculties. The objectives of this course were to (a) improve the students' knowledge about HIV/AIDS, (b) improve their attitudes toward HIV-positive individuals, and (c) change their risky sexual behaviors.

In 2004, 3 years after the commencement of the HIV/AIDS course, a qualitative, formative evaluation was performed to assess its effectiveness. The evaluation of the course was part of a larger study conducted at the University of Botswana to evaluate the students' perceptions of the effectiveness of the health and wellness center and the HIV/AIDS education, prevention, and control course in improving the HIV/AIDS-related knowledge, attitudes, and behavior of the university undergraduate students. Because the details of the design and analysis of that study have been reported elsewhere (Brown et al., 2006), the authors present an abridged methodology in this report. The study used the qualitative descriptive design using the Rapid Assessment Process (RAP). This approach is defined by Beebe (2003) as an intensive team-based qualitative inquiry using triangulation (investigators and data collection methods) for data collection and analysis to quickly develop an understanding of a situation from the insider's perspective. RAP is a modern ethnographic approach specifically adapted to urgent situations like the HIV/AIDS pandemic, in which it is necessary to make decisions quickly. The investigating team that focused on the HIV/AIDS course interviewed 18 young women and 19 young men representing all undergraduate levels. Using open-ended questions, 20 individual interviews and three group interviews were conducted. Content analysis was used to derive themes. The study's conclusions can be summarized under the following five themes:

a. **The universality of risky sexual behaviors on campus**

Students described their entrance into university life as a jolting transition from a life tightly regulated by home and village morals to an atmosphere of almost total freedom in which it is hard to find structure for one's life (Brown et al., 2006). In this atmosphere, which they described as "freedom at last," alcohol, peer pressure, boredom, and opportunities for "sugar daddies" and "sugar mommies" resulted in almost universal risky sexual behaviors, including unprotected sex.

b. **The dominance of young men over young women in sexual behavior**

Both young men and young women made it clear that young women had absolutely no ability or right to say no to sex or sex without a condom. This result was universal and in concert with much of the literature. This is a problem throughout sub-Saharan Africa, and its importance is summarized in the UNAIDS motto from 1990: "AIDS wears a woman's face" and by Princess Kasune Zulu (Zulu, 2004) of Zambia who said in a BBC broadcast, "Africa is in the death grip of HIV/AIDS and a generation of African girls is standing on the frontline of the carnage."

c. **The lack of compliance to the "ABCs" of the pandemic (abstinence, be faithful, and "condomize")**

Participants indicated clearly that students were simply not abstaining or being faithful, and many were not using condoms. Of those who used condoms, many did so incorrectly and few did so consistently.

d. **Myths**

Students reported a number of myths common in the culture, including the belief that AIDS could be cured by having sex with a virgin, that it could be caused by witchcraft and cured by a traditional healer, and that it could be caused by widowhood (*boswagadi*). In Setswana, *boswagadi* refers to the belief that a widow or widower is impure and that sexual contact with him or her can cause illness unless traditional cleansing is performed. There was also a belief that the United States injected the HIV virus into the condoms they donated. This belief was reinforced by the fact that when a condom is put in warm water, the lubricant produces wormlike particles that some believe are the HIV virus.

Although many students indicated that they no longer believed most of these myths, there was one important exception: witchcraft and the cure by traditional healers. Students were clearly uncomfortable with this issue and reluctantly admitted that many still believed it.

e. **Student experience of the effectiveness of the interventions**

Students were clear that the course increased their knowledge about HIV/AIDS and improved their attitudes toward HIV-positive individuals. However, it did not significantly decrease their risky sexual behavior.

Students' Suggestions for Improving the Course

In addition to these five major themes, students made a number of specific suggestions for improving the course: (a) use peer educators (b) provide direct interaction with HIV-positive persons, (c) include fieldwork assignments that allow direct interaction with AIDS patients, and (d) include locally developed, culturally appropriate videos with Botswana actors and actresses.

The Way Forward: Refining the Intervention

The authors were concerned that, although the interventions had helped the students to increase their knowledge and improve their attitudes, their sexual risk behaviors had not changed.

The next step in the process was to learn how to make the course effective in changing these sexual risk behaviors. The authors began by investigating what, if anything, has been successful in other countries. They discovered that a number of successful interventions have been created in other countries.

The authors decided on "the way forward," which would be based on these study results as well as on two other areas of information reported in the literature: (a) studies of programs in the United States shown to be effective in changing sexual risk behaviors in young people, and (b) programs shown to be effective in developing countries.

Studies of Programs in the United States Shown to be Effective in Changing Risky Sexual Behavior

The United States has also faced problems of adolescent sexuality. In the early 1990s, there was considerable concern about a teen pregnancy rate of 117 per 1,000 girls between the ages of 15 and 19 years. Many interventions were created to change the sexual risk behaviors of teenagers, and by 2000 the rate had decreased by 28% and has remained constant at 84 per 1,000 young girls a decade later (Henshaw, 2004).

Table 1. Ten Characteristics of Programs Effective in Decreasing Risky Sexual Behaviors

1. Focus on a small number of sexual behaviors.
2. Use theoretical approaches known to modify social behavior.
3. Deliver and reinforce a message about abstaining and/or using condoms.
4. Provide information about how to avoid intercourse or use protection.
5. Include activities addressing social pressures about sexual behavior.
6. Include practice of communication, negotiation, and refusal skills.
7. Involve participants and have them personalize the information.
8. Incorporate behavioral goals, teaching methods, and materials appropriate to the age, sexual experience, and culture of the students.
9. Last a sufficient length of time.
10. Select and train teachers who believe in the program.

In a large meta-review of the literature performed to discover the cause of this progress, Kirby (1997, 2001) evaluated 250 studies to determine which specific interventions could be scientifically shown to be effective in changing sexual risk behavior. Kirby (2001) used stringent criteria in documenting programs and their characteristics that produced changes in the sexual behavior of adolescents. He accepted only experimental or quasiexperimental designs with a minimum sample of 100 subjects and only programs that followed participants for a minimum of 3 months after the intervention was completed. Only eight interventions could clearly be shown to have a causal effect on decreasing sexually risky behavior. Kirby (2001) also delineated 10 characteristics reported in all these effective interventions that were not reported in the ineffective programs. These characteristics can be seen in Table 1.

Kirby's 2001 study showed that such interventions could (a) delay the onset of sex, (b) reduce the frequency of sex, (c) reduce the number of sexual partners, and (d) increase the use of condoms. The materials for these programs were made available for purchase.

Kirby (2001) also suggested a process of deciding which program to use in a given community. His first decision was to replicate exactly a program that had been effective with a population similar to that of the population in question. The second decision was to construct a new program that contained all of the 10

effective characteristics. For this situation, he suggested a logic model to be followed. This model is a process for creating and/or adapting programs to a culture so different from those used in the original studies that the conclusions of those studies may be only partially or not at all appropriate to the population of interest.

Various evaluations have produced lists of "effective" programs similar to Kirby's list. Currently, three major agencies evaluate the effectiveness of such programs: the National Campaign to Prevent Teen Pregnancy, Advocates for Youth (2003), and Program Archive on Sexuality, Health and Adolescence (1995). The latter two are updated on an ongoing basis.

Studies of Programs Shown to be Effective in Changing Sexual Behavior in Adolescents and Youth in Developing Countries

For youth in developing countries, the concern is not only early pregnancy but also the devastating HIV/AIDS pandemic. Three primary agencies have been involved in developing and distributing programs to help young people in these countries to change their risky sexual behaviors. The first is UNICEF, which has served as a clearinghouse for programs and materials that seem effective in reducing sexual risk behaviors of youth. Although providing a rich treasury of reports of programs including a training package in HIV/AIDS communication and relationship skills called "Stepping Stones" (UNICEF, n.d.), UNICEF has not scientifically evaluated these programs.

A second source of information on programs effective in changing risky sexual behaviors in young people in developing countries is Advocates for Youth, with their Science and Success Program (Advocates for Youth, 2003). This organization has used stringent criteria to determine the effectiveness of the programs similar to those used by Kirby in 2001. In all, 10 programs were reported to be highly effective. According to these criteria, six showed statistically delayed initiation of sexual intercourse in the experimental group, and all showed a reduction of risky sexual behaviors among the sexually active youth in the experimental group. Eight programs showed an increased use of condoms, and six programs reduced the number of sex partners. One program showed a statistically sig-

nificant reduction in pregnancy and in the incidence of sexually transmitted infections.

The third source of information on effective programs is the recent work of Family Health International/Youth Net (Kirby, Laris, & Rolleri, 2005) that reviewed 83 studies in both developed and developing countries. A total of 18 of these were performed in developing countries, and six of these were in sub-Saharan Africa. None were in Botswana, and none in university settings in sub-Saharan Africa. In all, 33 programs were reported effective, and 17 characteristics common to most of the effective programs and lacking in most of the ineffective programs were identified.

In conclusion, it has been scientifically shown that some programs both in the United States and in developing countries significantly decreased sexual risk behaviors in youth. Characteristics specific to effective programs have been identified.

There are several gaps in development of the authors' knowledge, however. The first is that fewer programs in sub-Saharan Africa have been scientifically evaluated. The second is that the majority of this work has been performed in primary/elementary or secondary/high schools or in clinics or communities. Far fewer have been done in universities. Third, little of this work has been done in Botswana, and what has been done there has not applied to the university. As a way forward, the authors proposed a model for reducing risky sexual behaviors among University students in Botswana, which they have begun. This process consists of three steps: (a) contextualizing to Botswana the programs shown to be effective in other countries, (b) implementing the contextualized program, and (c) scientifically evaluating the success in Botswana of the contextualized materials. The authors have finished only the first step so far but believe that sharing their process may be helpful to others.

Contextualization of Materials

The first step in the process was to obtain materials from the programs shown to be effective in other countries. However, it was important to carefully contextualize them, because they neither address the Sub-Saharan situation nor the university level of education. Sub-Saharan African cultures are particularly important to address because of the raging HIV/AIDS
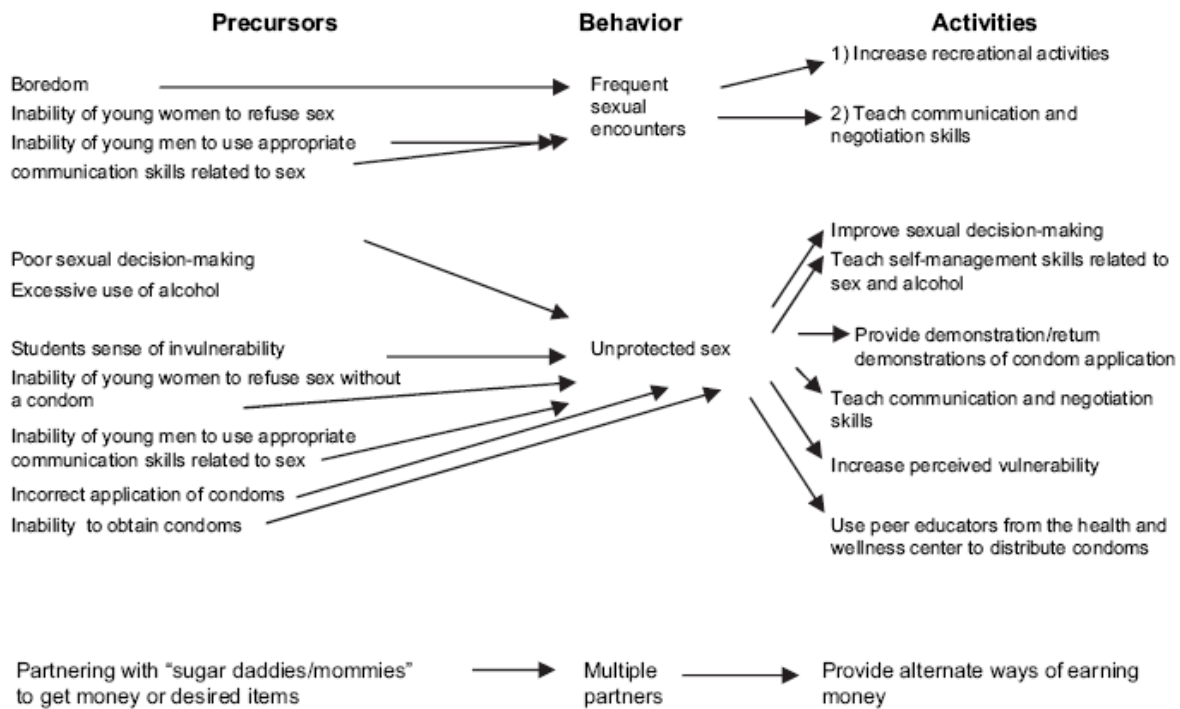
Precursors **Behavior** **Activities**

Boredom

Inability of young women to refuse sex

Inability of young men to use appropriate
communication skills related to sex

Frequent
sexual
encounters

1) Increase recreational activities

2) Teach communication and
negotiation skills

Poor sexual decision-making

Excessive use of alcohol

Students sense of invulnerability

Inability of young women to refuse sex without
a condom

Inability of young men to use appropriate
communication skills related to sex

Incorrect application of condoms

Inability to obtain condoms

Unprotected sex

Improve sexual decision-making

Teach self-management skills related to
sex and alcohol

Provide demonstration/return
demonstrations of condom application

Teach communication and negotiation
skills

Increase perceived vulnerability

Use peer educators from the health and
wellness center to distribute condoms

Partnering with "sugar daddies/mommies"
to get money or desired items

Multiple
partners

Provide alternate ways of earning
money

Figure 1. Results of using Kirby's logic model to change effective program materials to make them culturally appropriate in Botswana.

pandemic in that area of the world. University students are a crucial age group to address because (a) university students belong to the reproductive age group that will be responsible for the immediate economic and family health in the country and (b) there is a pressing need for immediate leadership in Botswana and all sub-Saharan African countries to guide political decisions to deal quickly and effectively with the pandemic. This leadership will come from university graduates.

The authors began by contextualizing to Botswana programs reported to be effective in other cultures. They hope this model will be helpful to other countries needing to do similar contextualization. They began with Kirby's logic model. Kirby (1997, 2001) describes a logic model as a road map that shows concisely the mechanisms or activities of the program that can affect behavior to achieve a desired goal. The program activities target the precursors that lead to risky sexual behaviors. Kirby (1997) emphasizes that the road maps should be evidenced-based.

This model specifies three major elements to be considered in creating/adapting an effective program: (a) relevant sexual risk behaviors to be targeted, (b) precursors that predispose students to take part in those behaviors, and (c) activities specifically targeted to change those precursors and/or behaviors.

The work began with the data from the authors' previous research listing both the risky sexual behaviors and their precursors as they were elicited from the interviews of that research. This provided a beginning template for discussion. Members of the research team discussed, added, deleted, and clarified these behaviors and created a list of both the behaviors and precursors to be addressed in the intervention. Next, the group chose activities from the effective programs that could be created or adapted to change each of these behaviors and/or precursors. As shown in Figure 1, some of these activities (e.g., increasing recreational activities and providing alternate ways of earning money) were related to the
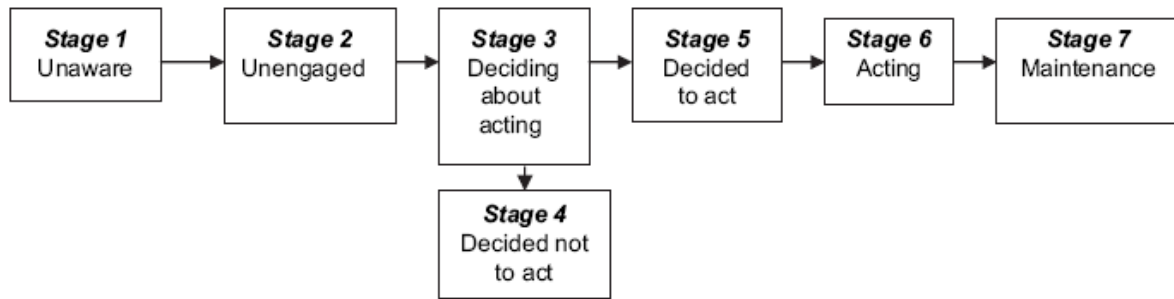
Figure 2. Stages of the Precaution Adoption Process Model.

broader student environment; others seemed appropriate to address by incorporating effective learning activities into the current health and wellness center. Germane to this discussion are the learning activities that can be incorporated into the HIV course to enable it to change behavior as well as increase knowledge and improve attitudes toward people with HIV.

Use of this model made clear what precursors and behaviors needed to be changed. Perusal of available materials from effective programs gave the authors possibilities for addressing these precursors and behaviors.

The most recent stage of the work involved contextualizing materials from other programs and organizing them into an intervention, the success of which could be scientifically evaluated. To do this, a strong conceptual framework is being used to guide the work. This framework will help in evaluating the success of the program and in making its results more generalizable. The Precaution Adoption Process Model (PAPM) was chosen, which is a relatively new stage theory that finely tunes an intervention to individual readiness. Stage theories are based on the idea that people do not make complex health decisions like changing sexual behavior at one point in time or in one decisive moment. Rather, there are stages through which the person passes from being completely unaware of the health threat to enacting and maintaining the health behavior. The PAPM is similar to transtheoretical stage theory but with important differences, one of which is the inclusion of a maintenance stage, which is particularly important in the HIV/AIDS pandemic. The stages of the Precaution Adoption Process Model are shown in Figure 2.

Using the PAPM, the authors are currently engaged in creating/adapting learning activities to address the sexual behavior or precursors identified in their work with Kirby's model (Figure 1). The materials from the effective programs fell easily into four categories that directly addressed the three PAPM transitions to be tested: (a) materials on increasing perceived vulnerability that addressed the transition from Stage 2 to Stage 3 ("unengaged" to "deciding about acting"), (b) materials on sexual decision-making that addressed the transition from Stage 3 to Stage 5 ("deciding about acting" to "decided to act"), and (c) materials on self-management skills, communication skills, and condom application and removal skills that addressed the transition from Stage 5 to Stage 6 ("deciding to act" to "acting").

There were a number of exercises and lesson plans that specifically addressed each of these transitions. Although not yet fully implemented into the curriculum, some samples of the results of the contextualization are presented here.

Many materials addressed increasing students' perceived vulnerability, which would facilitate the transition from Stage 2 to Stage 3 ("unengaged" to "deciding about acting"). An example is shown in Figure 3. In addition, the previous study clearly indicated that all students expressed a desire to have more contact with people of their age who were living with HIV. The authors plan to invite the local organization, People Living With AIDS, to find young HIV-positive speakers willing to dialogue with the university students about their experiences. The authors will also ask the department of nursing education faculty to facilitate supervised therapeutic exchange with

In this game each student is given an index card. On one card is the letter "H"; on two cards is the letter "C." The rest are blank. The students are told to randomly talk with each of 5 students for 60 seconds. After talking with them, they sign each others' cards. The students are then all asked to sit down and the instructor asks the student who has the letter "H" on their card to stand up. It is then explained that that student has HIV. That person is then asked to list the students named on their card with whom they talked. Those people are asked to stand up and told that they contracted HIV from the first person. However, if they have a "C" on their card, it indicates that they used a condom and did not get HIV. They are then asked to call off the names from their card of students with whom they talked and who also became infected (unless they have a "C" on their card to protect them). This exercise personalizes and makes visual the deadly pervasiveness of the pandemic.

Figure 3. An example of an exercise to increase perceived vulnerability to HIV/AIDS—*The "How You Catch AIDS" Game.*

willing AIDS patients at a nearby hospital. These learning experiences should also increase the students' understanding of their vulnerability to HIV. Additionally, there are some culture-specific materials like the Bobonong Home Based Care Video, a Setswana video that addresses the lives of Batswana who are/were living with HIV/AIDS that the authors will use for classroom discussion. Similarly, participation in youth-oriented radio programs such as Ya-Rona, GabZ FM would enhance students' interaction with the infected and affected community.

The next category of materials selected were those to facilitate the transition from Stage 3 to Stage 5 ("deciding about acting" to "decided to act"). The materials selected for this transition were those related to sexual decision-making. Participants in the research interviews explained that one serious barrier to making safe sex decisions was peer pressure. Students explained that they felt it was vitally important to have the "five Cs": cash, cars, clothing, cell phone, and celebrity. But it is not easy for university students to get enough money for these, and particularly for young girls, the easiest route to these things was having a "sugar daddy."

Other culturally specific areas of peer pressure include young girls proving their fertility by getting

Things to Consider if…
The Situation: You've been seeing a Sugar Daddy/Mommy who treats you very well, but you have always had unprotected sex. You're wondering if it's really worth the money you get to take the chance of getting HIV, so you are thinking about saying that you will not have sex without a condom. What are the pros and cons of insisting that you use a condom?

The Process

Pros   Cons
_____   _____
_____   _____
_____   _____

Figure 4. An example of sexual decision-making skills.

pregnant, marrying as early as possible, and ensuring old age security by bearing as many children as possible. A strategy for ensuring a husband is to become pregnant (impregnated) by a boyfriend. Although different from some of the peer pressures addressed in the materials from effective programs, these culture-specific issues can be incorporated during the contextualization process. The belief that a woman who has not proven her fertility by having a child would never be considered marriageable is a challenging one to the research team. However, it could be addressed through the use of various strategies such as the use of decision-making exercises similar to what is shown in Figure 4, whereby a student can be requested to examine the costs and benefits of getting pregnant by a man who is not her husband. The belief could also be addressed through personalized role plays that show the consequences of bearing children out of wedlock. Young women who became pregnant but whose partners denied responsibility could be

Situation: A teacher is soliciting sex from a student in return for a higher grade
Teacher: If you really want to get an A in this course, why don't you try paying for it with a little sex?
Student: My work earned an A and if you don't give me the grade I earned, I will report you to the Sexual Harassment Committee.
Teacher: Didn't your parents teach you Botho?
Student: Yes they did—it means to respect my elders, BUT ALSO MYSELF!

Figure 5. Example of a filmstrip dialogue modeling the correct understanding of *botho*, a cultural concept of respect for elders.

invited to share their experiences with students enrolled in the course.

Many materials relevant to resisting peer pressure were reported in the published programs. Some of the activities included role play to help students become consciously aware of these pressures and values clarification sessions to help them make conscious decisions. Other materials were directed specifically at the decision-making process. A contextualized example of a sexual decision-making exercise appropriate to Botswanan culture is shown in Figure 4.

Additionally, culturally specific teaching/learning mechanisms are available locally. For instance, the authors plan to use class time to critique radio drama programs such as Makgabaneng, which depicts the peer pressures of youth in Botswana and attempts to make suggestions for coping with such challenges.

Finally, materials were selected to facilitate transition from Stage 5 to Stage 6 ("decided to act" to "acting"). The exercises selected were (a) self-management exercises, (b) communication exercises, and (c) condom application/removal exercises. The previous study indicated a number of problems with condom application, including the confusion over how to remove the condom and the idea that the condom was to be put on after rather than before ejaculation. These skills will be taught by demonstration, return demonstration, and a number of games using a condom model. Demonstration of female condoms is also important. Students in the original research pointed out that lectures in the HIV/AIDS prevention course covered the male condom only.

Related to making the decision to use a condom is the belief mentioned by the students in the authors' previous study that the fact that small wormlike entities begin to float to the surface if a condom is submerged in warm water indicates that the condoms are injected with the HIV virus by U.S. manufacturers. This belief could be addressed by a small-group experiment in which one condom is placed in a glass of warm water next to another glass of warm water into which a small amount of spermicide is dropped. The result shows exactly the same wormlike particles in both glasses, helping the students understand that these are not the HIV virus but the oily lubricant interacting with the water.

The teaching/learning approaches used in effective programs for the mastery of communication skills are various types of role playing. Often, role play is first presented as written exercises and later students act out the dialogue for specific situations. Live modeling or a film clip is frequently presented as the students use a checklist to see whether the participants used the correct skills. In the previous study, the students were clear that audiovisual demonstrations were helpful, but they were also clear that they would have preferred Batswana actors and actresses. The authors decided it was important to create their own, more culturally appropriate filmstrips using Batswana students as actors and actresses and situations that are familiar to Batswana youth.

An example of a dialogue to be used in the film clip is shown in Figure 5. These filmstrips will

originally use faculty as models. As students become more familiar with the process, there will be an open invitation for those students who are comfortable with the process to replace faculty as actors and actresses in the films.

One type of communication is refusal skills, that is, that ability to say no to sex. The available materials from effective programs include various methods of teaching how to say no. These materials describe word and body gestures that reinforce the no. After a discussion of both verbal and nonverbal components of saying no, live or filmed demonstrations are shown to convey both effective and ineffective ways of saying no. The students are then asked to indicate which ways were effective and which were not. They are divided into groups of two or three and given scripts asking them to play out an appropriate way of saying no. They are then asked to practice the skill of saying no to anything (not necessarily sex) in their everyday life and to keep a journal of those experiences until they reach 30 experiences of saying no; the belief being that by that time the behavior will have become automatic. The culturally appropriate ways of saying no in Botswana are different, but materials from the effective programs can be adapted to this culture. The authors were told that the Setswana concept of "*botho*" was sometimes interpreted by the students as respecting their elders or persons in authority so completely that they would be unable to refuse their request for sex. So the decision was made to include a discussion about *botho* as respect not only for others but also for self. They need to understand that *botho* does not prevent them from saying no to sexual advances of older relatives, teachers, or other individuals, and that decisions about their own bodies need to be made according to their own values. So skits in Botswana will include *botho* or other culturally appropriate concepts and customs. Once the materials from the effective programs are made culturally appropriate in these ways, they can be used successfully to teach students, particularly young women, to say no to unwanted sex (see Figure 5).

Conclusions

The authors hope that the description of this case study of one faculty's attempts to address the devas-

tating HIV/AIDS pandemic on a university campus in Botswana will be helpful to others who are faced with the same problem. The authors are presently continuing to contextualize available effective programs to the Setswana culture. When this is done, the plan is to conduct an experimental pretest/posttest study in which students currently taking the HIV course are randomly selected to engage in an extra 20 1-hour sessions of these learning experiences. A comparison will then be made between their behavior change and that of the students who have not taken part in the extra learning experiences. Students not in the experimental arm of the study will have an opportunity to participate in using the newly adapted materials after the data are collected. The authors will report the results of this research and hope others in similar situations will also make available their successes and failures in this important endeavor.

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