Evaluation of a Self-Management Course to Increase Safer Sex Behaviors

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Abstract

A peer-led HIV education class at Washington State University increased student knowledge and reported safer sex behaviors. The class integrated safer-sex information with self-management and sexual decision-making skills. Previous research on the class showed significant decreases in high-risk sexual behavior, but was of limited generality due to lack of appropriate control groups. A paired-sample control group was established for the present study using 57 students from introductory psychology courses. Experimental participants significantly reduced their reported number of total sex acts and significantly increased reported condom use in comparison to the control group. The experimental group's reported condom use significantly increased while the control group's reported usage significantly decreased. These results support previous findings about the effectiveness of a multi-component HIV education program, and suggest that the students in the program changed socially significant sexual behaviors compared to their peers who did not receive the HIV education program.

Introduction

According to past research Douglas [1], the behavior of university students nationwide places them at elevated risk for contracting STDs, including HIV. High rates of binge drinking (34%) and high rates of serial monogamy coupled with low rates of reported condom usage during the last intercourse paint a picture of increased risk. Other research has found high-risk sexual behaviors in heterosexual college populations DiClemente [2]. Over 9,400 cases of HIV infection in people under the age of 29 were reported by thirty-three states in 2004 (CDC, 2005), an infection rate that has remained stable over previous years.

A variety of studies have identified the characteristics of heterosexual college students who consistently engage in safer sex behaviors, e.g., regularly using condoms, having fewer partners and greater sexual communication skills. For example, Basen-Engquist [3] found intention to engage in safer behaviors, self-efficacy for condom use, perceived-risk susceptibility and reduced barriers to condom use to be predictors of safer sex behaviors. Other factors reported in the literature are positive attitudes towards condoms, condom use negotiation skills, and cognitive planning for condom use Raj [4]; Sheeran [5]; Gebhardt [6]; Henderiksen.

Designing effective interventions, however, has proven to be difficult. A review of the literature by Choi and Coates [7] found that programs successfully reducing high risk behaviors are programs with multiple components that affect the participants' general pattern of sexual behavior as a whole Coates [8]; Kelly [9]. Three programs showing reductions in high risk behavior among college students Fisher et al. [10]; Brigham, [11], all used the multi-component approach suggested by Choi and Coates [7].

Consistent with these findings Fisher [12] proposed a prevention program based on the individual's information about AIDS prevention, motivation to engage in AIDS prevention, and behavioral skills for performing the specific acts for prevention. This model and the AIDS Risk Reduction Model of Boyer and Kegeles [13] served as guides for the development of the Psychology 106 course (Psychology applied to daily living: Dealing with friends, alcohol and sex) evaluated in the present research.

The literature on AIDS prevention provides the foundation for the program Kelly [14,15]; Fisher et al. [10] and findings from our own research Horn and Brigham [16]; Brigham et al. [17]; Lindemann et al. [18] determined the current content and format of Psychology 106, a course that has been taught at four other universities in addition to Washington State University. The course is a one credit, graded class, which provides an academic incentive for taking the course. Class sections are limited to 20 students allowing for a discussion-centered approach...
with many exercises and participation while minimizing time spent on lecturing. The course sections are taught by a team of undergraduate peer instructors who have been trained in both content and instructional skills. Sexual decision-making skills, safer sex behaviors, and HIV/AIDS/STD information are presented within a self-management conceptual framework. Finally, students report and evaluate their own behavior.

A lack of an appropriate control group has limited the generality of the behavior changes reported by students in the course. To deal with this issue, an equivalent comparison group was generated. It was predicted that at the end of semester the students in the Psychology 106 course would have higher rates of condom use and lower frequencies of high-risk sexual behavior than their peers in the comparison group.

**Methods**

**Participants**

The control group consisted of 69 students recruited from the introductory psychology study pool. After the pretest, the 69 control participants were matched with 69 students from the Psychology 106 program on the basis of gender, class standing, and sexual activity. The sample was 68% female and 32% male. Fifteen percent of the participants had never been sexually active, 67% were currently sexually active, and 18% were not currently sexually active but had been in the past. In terms of class standing, 70% were freshmen, 20% sophomores, and the remaining 10% were juniors or seniors. The two groups of participants were demographically and behaviorally comparable. Research was conducted according to ethical guidelines and approved by WSU’s Internal Review Board to ensure safety of the participants.

**Materials**

A pretest, posttest and weekly self-report forms were used to obtain the data for this study. The pretest and posttest contained the Sexual Behavior Survey developed by Horn and Brigham [16], as well as the Condom Self-Efficacy Scale developed by Brafford and Beck [19]. The weekly self-report forms contained questions on the number of sexual acts performed that week, number of times a condom was used, number of partners, and amount of alcohol consumed. All data in the study were collected anonymously using individually generated continuity numbers that allowed each student’s data to be grouped together without ever using students’ names. This procedure was developed by Kearney [20] and removes major demand characteristics from the collection of longitudinal data. Further, the peer instructors never had access to their students’ data.

**Procedure**

The Psychology Department at Washington State University offers the Psychology 106 program as a scheduled, graded course. All students received an extensive description of the course content and data reporting procedures, and then signed informed consent forms during the first class meeting. Peer instructors were enrolled in Psychology 497 (instructional practicum) and received extensive training in both course content and instructional skills in small groups prior to the start of the semester. They also met weekly for two hours each week to review materials for the next class session and rehearse teaching scenarios.

The peer instructors used discussion, practice, and homework to cover the course material. Every week, one chapter focusing on a specific topic from the course manual Brigham [16] was covered in class. Topics included basic self-management skills, condom acquisition and usage, sexual communication and assertiveness, minimizing risk factors of drug and alcohol usage, and information about HIV/AIDS, including risk perception and assessment, testing and demographics. Every topic had related exercises, homework assignments, activities, readings or role play rehearsals as the primary instructional strategies in addition to the weekly class discussions. For example, in a session concerning condom use, students actively compared the strength, appearance, smell, and sensitivity of condoms, prior to walking through the ten steps to correctly apply a condom, first with the peer instructors, then on their own, using demonstration phalluses. The weekly homework assignments were designed to allow students to continue learning outside of the classroom and focused on applied behaviors. Assignments included calling a HIV hotline to find the answer to a question they had regarding HIV, discussing HIV with a friend, purchasing and carrying condoms, and giving a condom to a friend. The assignments were completed weekly and then discussed in detail during the class. Students also self-monitored their sexual behavior by turning in anonymous weekly self-report forms.

The students also develop an Individual Action Plan, taking the information and skills they learned in class and applying it to their personal lives. In the process of developing the plan, students were encouraged to assimilate the knowledge gained in class into goals and lifestyle changes, whether they were sexually active or not. The overall strategy of the materials, homework, and action plan was to provide students with experiences as close as possible to the self-management and health protective behaviors that have been hypothesized to be important for preventing the transmission of HIV and other STDs.

Because not every student enrolled in the course was sexually active, and to counter the common perception of college students that young people are at low risk for contracting HIV, the topics in class included the medical and epidemiological descriptions of common STDs (Chlamydia, herpes, and HPV), as well as prevention of those STDs, prevention of sexual assault, and birth control methods, including abstinence. Grading in the course included attendance, participation, completion of the action plan, completion of the anonymous weekly self-report.
forms, and a final exam over HIV/AIDS information and self-management.

Participants in the control group were recruited from the Psychology Department participant pool. Upon arriving at a data collection session, the control participants were given the packet containing the same instruments filled out by students in 106 and instructions for completing them to receive research credit. They were informed that if they were selected to participate in the full study, subsequent forms would be mailed to them with a business reply envelope and a raffle ticket for one of three $25 prizes to be drawn at the end of the semester.

In order to maintain anonymity, a special selection process was designed by the research team. The front page, containing the participant's name and mailing information, was separated from the rest of the packet and placed in a pile in the same order as the packets. The packets were then analyzed to determine to which category the participant belonged: currently sexually active, previously sexually active but currently abstinent, or never sexually active. After each was assigned a category, the paired sample was selected and entered into the computer using SPSS. The corresponding packets (e.g., 1, 3, 6, 9, 11, 14, etc.) were filed in a separate computer for the purpose of mailing the subsequent forms to participants, and were later destroyed.

Results

Data collected from the weekly self-report forms and pre- and post-test on the percentage of weekly condom use was analyzed using a 2 x 2 (group x time) repeated measures ANOVA. The results showed that although the control group initially reported using condoms at a slightly higher rate, they had a significantly lower percentage of reported condom use overall (F1,17 = 7.985, p<.05) due to a decrease across the semester. An increase in reported condom use by the experimental group resulted in a significant interaction (F 4,68 = 2.622, p<.05; Figure 1). The results of the pretest/posttest question, «In the past month, how many times have you used a condom?» were analyzed with a 2 x 2 (group x pre-test/posttest) repeated measures ANOVA. A significant main effect for group indicated that the experimental group reported using more condoms than the control group (F 1,54 =56.585, p<.05). On the pre-test, the control group reported higher condom usage than the experimental group, but this group reported a decrease in condom usage at the post-test. While the experimental group reported higher condom use in the post test.

The number of weekly sexual acts was also analyzed with a 2 x 2 (group x time) repeated measures ANOVA. The analysis showed that the experimental group reported significantly fewer sexual acts than the control group, and their reported number of weekly sex acts decreased across the semester. A significant main effect for time was found (F 1,112 = 92.438, p<.05). There was also an observed interaction between group and time (F 1,112 = 4.207, p<.05; Figure 2).

Further analysis showed that the number of students who reported being sexually active decreased in the experimental condition and increased in the control condition. Because equal numbers of students reported being sexually active at the pre-test a Chi Square test was used to analyze the difference reported at post-test. It revealed that this difference was significant X2 (1 N=138) = 10.87 p<.01. Finally, a comparison of the participants’ Condom Self-Efficacy Scale scores showed that the students in the experimental condition increased their self-efficacy of condom use during the semester significantly compared to the control group which displayed little improvement across the semester in a 2 X 2 (group x time) repeated measures ANOVA, (F1,112=5.138, p<.05; Figure 3).

Discussion

As predicted, participants in the experimental group increased their reported condom use over the course of the semester, while the control groups’ reported usage declined, as shown by the significant main effect and interaction in Figure 1. Similarly, students in the 106 class increased their condom use...
self-efficacy significantly across the semester while the control groups’ scores were unchanged. In addition, students in the experimental group decreased their level of reported sexual activity while the control group increased theirs, as shown by the significant main effect and interaction in Figure 2. Finally, the number of students who reported being sexually abstinent increased in the experimental group and declined in the control group. In this analysis, the decrease in sexual activity was viewed as a positive outcome reflecting an increase in risk assessment and sexual decision-making skills.

Clearly, one area of concern about the results of the study is the self-reported nature of most of the data. This raises the possibility that those reports do not accurately reflect the students’ behavior and the reported changes are a function of variables other than the study’s procedures. However, there are reasons to believe that these data are valid representations of student responses. First, all of the data were collected anonymously and the procedures were based on the best practices found in the literature to increase validity of self-report data Barlow [21]; Babor [22]; Jaccard and Wan [23]; Stone [24]. For example, the reporting period was quite short (one week) and the behaviors reported were clearly defined and easy to discriminate (sexual intercourse and condom use). Finally, there were no course consequences associated with any changes in behavior.

From a review of the literature on STD and HIV/AIDS education and prevention programs, it appears that three features of the Psychology 106 program may be critical to the observed results: the use of peer instructors, the development of an effective condom skills procedure, and an emphasis on decision-making and planning. The importance of peers in influencing adolescents and young adults’ patterns of sexual behavior is well documented Basen-Enquist et al. [25]; Brigham et al. [16]; Latkin [26]; Norris and Ford [27]; Sionean et al. [28]. Peer influence can be either in terms of perceived norms or from the effects of formal peer leaders. The peer instructors in the 106 program served as models for a variety of techniques related to safer sex practices (condom use skills, sexual communication, appropriate assertiveness, etc.) as well as safer sex lifestyles.

Bandura [29] has written extensively about modeling processes and imitative learning. The instructional procedures and peer instructor training are designed to enhance the likelihood that students will identify with their peer instructors and adopt those behaviors. Although they are not a direct measure of identification, student course evaluations and comments can indicate their level of satisfaction and involvement with a course. Our university uses a single extensive evaluation instrument for undergraduate classes. The Psychology 106 instructors consistently receive some of the highest ratings in the college. Written comments about the peer instructors included “great”, “outstanding”, “outrageous” (a positive adjective in current student nomenclature), and “excellent”. The ratings and comments suggest that 106 students identified with the peer instructors and possibly adopted the modeled behaviors.

Another factor that may have contributed to the increased condom use by experimental group subjects is actual improvements in condom use skills and self-efficacy. A number of studies have shown a relationship between condom use failures and decreased use of condoms Kelly [14,15]; Norris and Ford [27]; Richters et al. [30]. The instructional sequence used in Psychology 106 has been demonstrated to increase condom use skills and self-efficacy Lindemann et al. [18] and this training may have increased the probability of successful condom use and positive experiences using condoms. In contrast, the control group lacked this training and likely had a greater probability of experiencing some form of condom failure (19-61%, as reported by Albert et al. [31]; Civic et al. [32]; Norris and Ford [27]; Sanders et al. [33]. These experiences may have produced a negative attitude towards condoms that, in turn, decreased their use of condoms. The decreased level of sexual activity and the increase in abstinence are also consistent with the literature on multi-component sexual education programs that teach a broad range of skills in addition to abstinence Jemmott et al. [34]; Shuey et al. [35]; Starkman and Rajani [36]. Like the Shuey et al. [34] study, we teach explicit decision-making skills and planning, rather than simply responding to environmental events. Boyer and Kegeles proposed a model for AIDS education and prevention programs called the AIDS Risk Reduction Model (ARRM). They theorize that three stages are necessary to reduce risky sexual behavior: (1) recognizing that one’s activities make one vulnerable to contracting HIV (and other STDs); (2) making the decision to alter risky sexual behaviors and committing to that decision; and (3) overcoming barriers to enacting the decision, including problems in sexual communication and seeking help when necessary to learn strategies to reduce risky behaviors. The Psychology 106 program closely follows the ARM model with an emphasis on planning and self-management. This combination of components likely contributed to the students making safer sex choices [37,38].

Conclusion

The results of the present experiment provide additional evidence that multi-component programs, including condom use training and planning, abstinence information, and decision-making instruction can be effective in increasing safer-sex behaviors. The results also suggest that peers can effectively teach this material which then greatly increases the number of students that can be enrolled in the course. Future research is needed to determine if the findings can be replicated in non-institutional courses with non-collegiate populations. Additionally, because the majority of our participants were Caucasian and female, more research is needed to determine if the program can be replicated with other populations. Finally, a long-term study is needed to determine if programs such as the Psychology 106 course can produce long-term behavior change.
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