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Preventing Substance Abuse and HIV/AIDS among Urban Minority Youth: Evidence from a University-Community Partnership

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Abstract

Purpose: To assess whether evidence-based prevention protocols could positively influence substance abuse and HIV/AIDS knowledge and reduce sexual risk-taking behaviors among urban minority youth.

Design: Pretest-posttest design.

Setting: Four urban high schools and five summer camp programs located in the Northeastern United States.

Subjects: A total of 653 African American and Hispanic/Latino youth, ranging in ages from 13 to 18.

Intervention: The intervention for this study incorporated elements from the following evidence-based protocols that have been endorsed by the U.S. Centers for Disease Control and Prevention (CDC) and the Center for Substance Abuse Prevention (CSAP): Be Proud! Be Responsible!; CASASTART; Focus on Youth; and Street Smart. Sessions were comprised of six, 50-minute modules that incorporated role-plays, discussions, and multimedia formats to actively educate and engage youth in prevention activities.

Measures: This study used the National Minority Substance Abuse / HIV Prevention Initiative Cohort 7 Youth Questionnaire., which was developed by CSAP as part of a national cross site evaluation of all Minority AIDS Initiative (MAI) funded programs throughout the United States. Sexual risk behavior served as our outcome variable, with the following ten predictors being assessed for the study: disapproval / alcohol use, school importance, delinquency/crime, disapproval / tobacco use, disapproval / marijuana use, illicit drug use, stress- related alcohol and drug use, HIV/AIDS knowledge, HIV/AIDS testing, and negative peer attitudes.

Analysis: Principal components, multiple imputation, and mulitivariate regression analyses were systematically employed to develop a parsimonious model that included ten predictors of sexual risk.

Results: Changes in pre and posttest measures revealed that participants who were at heightened risk were also more inclined to get tested for HIV/AIDS after receiving the intervention (95% confidence level). At posttest, an increase in HIV/AIDS knowledge seemed to have a buffering effect against risky sexual behaviors. Additionally, participants who thought of school more favorably were less likely to engage in sexual risk taking behaviors at posttest (95% confidence level).

Conclusion: A combination of evidence-based prevention curricula can help transform knowledge into positive behavioral change.

Keywords: Substance abuse and HIV/AIDS prevention, urban minority youth, university-community partnership

Purpose

A serious public health threat impacting the United States is the inextricable link between substance abuse and HIV/AIDS infection. Of particular concern is the devastating impact that these twin epidemics have had on racial and ethnic minority communities [1]. Responding to this crisis, the federal government launched the Minority AIDS Initiative (MAI) to help community-based organizations expand their capacity to provide and sustain effective, integrated prevention services in urban centers disproportionately impacted by HIV/AIDS. One such program funded under the MAI is a university-community partnership known as Project C.O.P.E. (Communities Organizing for Prevention and Empowerment), which targeted the city of Paterson, New Jersey [2,3]. The purpose of this study was to assess whether a comprehensive substance abuse and HIV/AIDS prevention program,

consisting of CDC and CSAP endorsed health education/ risk reduction curricula, could positively influence substance abuse and HIV/AIDS knowledge and reduce sexual risk-taking behaviors among African American and Hispanic youth residing in a high risk community.

Methods

Design

A one-group pretest posttest design was used to examine changes in substance abuse and HIV/AIDS knowledge and behaviors among a cohort of racial and ethnic minority adolescents. The performance measure was administered to program participants in person by members of our prevention intervention staff at baseline and exit (6 to 8 weeks from baseline).

Sample

We sampled a total of 653 African American (29.71%) and Hispanic/Latino (69.37%) youth ages 13 to 18 at both pretest and posttest. The adolescents were all enrolled in high school at the time of the study and attended grades 9th through 12th. Study participants were recruited from four high schools and five summer camp programs in the city of Paterson, New Jersey.

Measures

As part of the Center for Substance Abuse Prevention (CSAP) Minority AIDS Initiative (MAI), this study administered the National Minority SA/HIV Prevention Initiative Cohort 7 Youth Questionnaire. This outcome survey was designed by CSAP to help prevention initiatives learn more about how to keep young people from using drugs and from becoming infected with HIV. All federal grantees were required to administer this outcome survey to their program participants as part of a national cross-site evaluation of all MAI funded programs across the United States. The survey was divided into three overarching sections: 1) facts about you; 2) attitudes and knowledge; and 3) behavior and relationships.

Adolescents completed this 50 minute self-administered questionnaire that assessed eleven variables, with sexual risk behaviors serving as the outcome variable. The response, sexual risk behaviors, was comprised of 12 items. Specifically, students responded to questions regarding the prevalence of sexual intercourse, number of sexual partners, contraceptive use (i.e., In the last 30 days, did you or your boyfriend or girlfriend talk about using condoms?), and the age at which such behavior began (i.e., How old were you when you had sex for the first time (including vaginal, oral, or anal sex?). In addition, the role of alcohol and other drugs in sexual activities was also considered (i.e., Think about the last time you had sex. Did you drink alcohol or use drugs before you had sex the last time?).

The following ten variables were examined as predictors of sexual risk behaviors: disapproval of alcohol use; disapproval of tobacco use; disapproval of marijuana use; school importance; delinquency/crime; illicit drug use; stress-related alcohol/drug use; HIV/AIDS knowledge; HIV/AIDS testing; and negative peer attitudes. The disapproval of alcohol use variable was measured by asking students whether they would be able to say no to a friend who offered them alcohol, and this measure included a 4-point Likert scale to assess the level of risk (ranging from 1=strongly agree to 4=strongly disagree). Additionally, students were also asked how they feel about someone their age who drinks one or two alcoholic beverages nearly every day. Similarly, the disapproval of tobacco use and disapproval of marijuana use variables were assessed by asking students how they felt about one of their peers using either tobacco or marijuana (1=neither approve or disapprove; 2=somewhat disapprove; 3=strongly disapprove; and 4=don't know or can't say). The school importance variable was assessed by 9 items by asking students to give a self-report of their grades, with answer choices ranging from Mostly Fs to Mostly As. Participants were also asked how important they believed what they learned in school was going to be later in life (ranging from 1=very important to 5=not at all important). The delinquency and crime variable assessed whether students have ever been in juvenile/adult detention, jail, or prison for more than 3 days? The measure of illicit drug use examined the frequency of illegal drug use over the previous 30-day period (e.g., cocaine or crack, heroin, hallucinogens, and methamphetamine). The stress-related alcohol/drug use construct also focused on the past 30-day period by asking program participants how stressful things have been because of their alcohol and drug use and whether using these substances caused emotional distress (ranging from 1=not at all to 4=extremely). To measure HIV/AIDS knowledge, youth were presented with several true/false questions (e.g., Only people who look sick can spread the HIV/AIDS virus; Birth control pills can protect women from getting the HIV/AIDS virus; and There is no cure for AIDS). Survey respondents were also probed whether they would get tested for HIV if given the opportunity. Moreover, the survey also included questions pertaining to negative peer attitudes by asking youth how many of their friends engage is risky behaviors such as smoking cigarettes, getting suspended from school or dropping out, smoking marijuana or weed, and sniffing glue, gases, or sprays to get high.

Intervention

According to the prevention principles proposed by the National Institute on Drug Abuse (NIDA 2003), "Community prevention programs that combine two or more effective programs can be more effective than a single program alone [4]." Building upon these guiding principles, we have adopted a comprehensive substance abuse and HIV prevention approach that includes community mobilizing, intensive case management, and interactive education-based interventions. The intensive case management model (i.e., CASASTART) and HIV/AIDS prevention curricula (e.g., Be Proud! Be Responsible, Focus on Youth, and Street Smart) have been rigorously field-tested and evaluated by the Center for Substance Abuse Prevention (CSAP) and Centers for Disease Control and Prevention (CDC). Based on prior research, this multi-tiered strategy has proven to be an effective method for reducing substance abuse and HIV risk among African American and Hispanic/Latino adolescents [4].

The intervention incorporated elements from the following evidence-based prevention protocols: Be Proud! Be Responsible! CASASTART, Focus on Youth, and Street Smart [5-9]. Over the course of the intervention, which lasted approximately six to eight weeks, program participants were exposed to several, 50-minute hands-on modules that incorporated role-plays, games, discussions, and multimedia formats to actively engage youth in substance abuse and HIV/AIDS prevention activities. In addition to delivering the evidence-based curricula, our prevention team played an integral role in referring adolescents to HIV/AIDS testing sites throughout the community, and also arranged for the city's mobile testing unit to visit

various program sites. The following section provides a description of the model programs included in our initiative.

Model Programs

CASASTART

CASASTART (Striving Together to Achieve Rewarding Tomorrows) has been identified by SAMHSA as a model substance abuse prevention program. CASASTART was originally developed as a substance abuse and violence prevention program serving high-risk adolescents and their families living in socially distressed neighborhoods [5]. The program is a comprehensive, neighborhood-based, school-centered model that aims to provide coordination among police, schools, and community-based organizations to achieve two goals: 1) to redirect and build resiliency in the lives of youth who are at risk of using drugs, becoming delinquent, or dropping out of school; and 2) to reduce and control illegal drug use and related crime in the neighborhoods where the adolescents live to make the areas safer and more nurturing environments [9]. CASASTART has served as our program's organizing framework and we have incorporated core elements of this model (e.g., community mobilizing and intensive case management) into our comprehensive prevention plan as a means of addressing the unique demands of at-risk youth in our service area.

To further contextualize our prevention plan, we have identified three CDC-endorsed HIV prevention curricula (e.g., Be Proud! Be Responsible!, Focus on Youth, and Street Smart) that are culturally responsive and attend to the service needs of our target population. Salient aspects from each of these behavioral interventions (e.g., small group discussions, interactive group activities, video presentations, and condom demonstrations) have been integrated into our prevention intervention service plan [6-9].

Be Proud! Be Responsible!

This prevention curriculum encourages participants to build a sense of pride and self-worth, develop a futuristic orientation, and behave in a responsible manner. The curriculum consists of six, 50-minute modules and employs educational videos, films, role-plays, games, exercises, and condom demonstrations to increase knowledge of HIV transmission and prevention, risk reduction, condom use, safe-sex behaviors, confidence, personal negotiation and resistance skills [6].

Focus on Youth (FOY)

This CDC-endorsed HIV/AIDS prevention program is an eight-session intervention that utilizes discussions, games, and multimedia formats to actively engage youth in HIV/AIDS education/prevention activities. The program is comprised of seven, 90-minute sessions that focuses on decision-making, negotiation skills, communication, values clarification and goal setting, as well as educational information pertaining to condom use. Health education topics also include facts regarding AIDS, STIs, contraception, and human development. The curriculum is further enhanced by booster sessions in which program participants are given specific challenges to work through to reinforce the skills (e.g., decision making, communication, and condom use) that were developed throughout the primary phase of the protocol [8].

Street Smart

This multisession, skills-building program was originally developed to help groups of runaway youth reduce unprotected sex, number of sex partners, and substance use. Delivered in a small, group session format, the intervention consists of eight, 1.5 to 2 hour sessions delivered over a two to six week period. During the initial stage of the intervention, HIV/AIDS prevention information is shared through multi-media approaches, such as video and art workgroups. This provides a comfortable and safe forum in which youth review and discuss commercial HIV/AIDS prevention videos and then develop their dramatizations, public service announcements, commercials, and rap songs. The primary focus of these sessions is a social skills building approach, with a particular emphasis on assertiveness and coping. Exercises are then introduced to help adolescents identify their emotional and behavioral reactions and unrealistic expectations in potentially high-risk situations [9].

Method of Analysis

Principal components, multiple imputation, and multivariate regression analyses were employed to develop a parsimonious model with ten predictors of sexual risk behavior among our target population. Because each predictor block contained multiple items, we incorporated the concept of weighted state space, which is constructed through principal components analysis (PCA). The PCA was not applied as a variable reduction technique, but to obtain orthogonal principal components and the percentage of variance they explained (the weight) to construct an n dimensional Euclidean space (the weighted state space), which allowed us to develop a quantifiable measure for each individual in relation to a specific predictor block [10-12].

Multiple imputation (MI) was also used to address issues pertaining to incomplete data at pretest and posttest intervals. Multiple imputations with 10 iterations were applied to produce complete sets of quantified predictor blocks (or category measures) with unbiased and efficient parameter estimates [13]. Multivariate regression analyses were then performed on the ten imputed datasets to explain sexual risk behaviors among this sample of racial and ethnic minority youth. Table 1 shows the ten variables that were at least significant at 90% confidence level for either the pretest or posttest models.

Variables	Coefficient for pretest	Coefficient for posttest
Disapproval / alcohol use	-0.596 (0.0027)	-0.289 (0.0725)
School importance	-0.037 (0.4124)	-0.158 (0.0284)
Delinquency/crime	0.341 (0.0806)	0.3907 (0.0108)
Disapproval / tobacco use	-0.317 (0.0670)	0.108 (0.2366)
Disapproval / marijuana use	0.025 (0.3827)	-0.274 (0.0000)
Illicit drug use	0.402 (0.0000)	0.196 (0.0005)
Stress / Alcohol & drug use	0.369 (0.0601)	0.320 (0.0255)
HIV/AIDS knowledge	0.134 (0.0424)	-0.065 (0.0874)
HIV/AIDS testing	0.146 (0.3579)	0.935 (0.0003)

Negative peer attitudes	0.417 (0.0000)	0.184 (0.0004)
Adjusted R-squared	0.229	0.247

Table 1: Regression results for pre- and posttests; Numbers in the parentheses indicate the p-values of the coefficients

Results

As shown in Table 1, results of the multiple regression analyses indicate that the ten predictors explained 22.9% and 24.7% of the variance for the pre- and posttest models respectively. For both models, at the 95% confidence level, negative peer attitudes and use of illicit drugs (e.g., cocaine or crack, heroin, hallucinogens, and methamphetamine) seemed to encourage sexual risk behaviors. However, posttest results revealed that youth who disapproved of marijuana use were less inclined to engage in risky sexual behaviors (95% confidence level), while a significant relationship is nonexistent at pretest. When examining the influence of the stress-related alcohol / drug use construct, we observed a statistically significant positive relationship with sexual risk behaviors at posttest (95% confidence level). Also, at posttest, participants who were at a heightened risk were also more inclined to get tested for HIV/AIDS. Additionally, the posttest model revealed that an increase in knowledge of HIV/AIDS, although marginally significant (90% confidence level), had a buffering effect against risky sexual behaviors. In addition, posttest results showed that students who thought of school more favorably were less likely to engage in sexual risk taking behaviors. While at pretest, the above variables are either not significantly related with sexual risk behavior or related in an unintuitive manner. The results further suggest that the intervention approaches employed in our study have generated expected outcomes.

Discussion

Summary

Through a university-community partnership our study aimed to develop and coordinate a comprehensive substance abuse and HIV/AIDS prevention program targeting racial/ethnic minority youth residing in an economically disadvantaged community. By developing a comprehensive, yet varied, approach to prevention that considered the needs and diversity of our study population, we were able to actively engage program participants using elements of four evidence-based health education/risk reduction curricula [5,6,8,9].

Earlier substance abuse and HIV/AIDS prevention programs were shaped by cognitive-behavioral techniques, which included both individual and group-based interventions, with a particular focus on introducing behaviorally specific information and skills-building activities. More recently, there has been a departure from the person-centered approaches and a push towards identifying the intersection between individual-level factors and the environmental correlates associated with negative health outcomes. It therefore becomes paramount to structure preventive interventions and health education messages that address the contextual factors that disproportionately place minority adolescents at increased risk for acquiring HIV infection [14]. These newer initiatives have applied a public health approach to prevention that examines a constellation of risk and protective factors across various spheres of influence, such as individual, peer, family, school, and community [3,14].

Study findings revealed that by adopting an ecological approach to prevention (i.e., targeting various spheres of influence such as the individual, peer, family, school, and community) our intervention led to increased knowledge and improved behavioral outcomes among our program participants. For example, health education messages delivered through our prevention protocols seemed to discourage marijuana use at posttest and were associated with a reduction in risky sexual behaviors. An interesting finding emerged at posttest that showed that youth who were more likely to experience stress and emotional problems resulting from their alcohol and drug use were also more inclined to engage in sexual risk behaviors. It is possible that our intervention may have made our program participants more keenly aware of the link between alcohol / drug use and HIV infection, possibly contributing to greater levels of stress or emotional problems experienced by our study population.

The HIV/AIDS prevention information contained in our curricula also seemed to resonate with our youth in which we observed an increase in HIV/AIDS knowledge from pretest to posttest that was also translated into positive behavioral change. Additionally, at posttest, we found that students who felt connected to school and valued its importance were less inclined to engage in risky sexual behaviors. Our prevention staff, comprised primarily of fourth year undergraduate students, seemed to cultivate an atmosphere that as a secondary gain appeared to increase the students feeling of connection to their schools. Lastly, an interesting finding that emerged at posttest showed that program participants, who were more inclined to engage in sexual risky behaviors, were also more likely to get tested for HIV/AIDS. One plausible explanation is that our intervention may have caused increased awareness among these risk prone youth thereby encouraging them to be more conscious of their health status.

Limitations

One of the major limitations of this study was its pre-experimental research design and the potential threats to internal validity. Although our study design did allow us to assess for correlation, it did not account for factors other than the independent variables that may have caused the change between pretest and posttest results [15]. One potential threat to internal validity that we could not control for is the possible reactivity of measurement. For instance, the process of testing may change the phenomena being measured – i.e., the effect of being pretested may have sensitized our study participants and influenced their scoring on the posttest [15,16]. A difference in posttest and pretest results may then be attributed not necessarily to our intervention but rather to the experience gained by our subjects while taking the pretest. Notwithstanding these limitations, our exploratory investigation presents promising results.

Significance

Based on our study findings, it would appear that further studies would benefit from integrating varied, yet comprehensive, prevention protocols that combine both substance abuse and HIV/AID messaging. Evidence from our study has illuminated the advantages of tailoring our interventions to meet the unique needs of our target population.

There are a host of evidence-based preventive interventions that address specific public health problems impacting at-risk youth. However, there is a paucity of model programs that blend prevention perspectives to help mitigate multiple problem areas [17]. Our study

was able to demonstrate the benefits of providing culturally resonant and integrated substance abuse and HIV/AIDS prevention services to youth residing in an economically disadvantaged community. Because many youth living in high-risk urban environments are challenged by multiple stressors, providing a coordinated and multifaceted approach to prevention may provide an ecological safety net that serves to reduce substance abuse and sexual risk involvement.

Preventive intervention efforts should be tailored to meet the unique needs of the focal youth and nuances of the community. Health promotion practitioners would be wise to investigate the multiple environmental threats that can derail positive youth development and provide accurate and readily available substance abuse and HIV/AIDS prevention information that can further serve to reduce health disparities among inner city youth. Future research should continue to examine the constellation of factors that contribute to negative risk taking among African American and Latino adolescents and engage in evidence based research activities that can identify and promote best practices.

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