



## USING SOCIAL COGNITIVE THEORY TO PREDICT SAFER SEX BEHAVIORS IN AFRICAN AMERICAN COLLEGE STUDENTS

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**Abstract:** Safer sex is important for protection against STDs and HIV/AIDS. Most of the HIV-related research is targeted towards high-risk groups such as prostitutes, gays and substance abusers there is evidence that HIV/AIDS is increasing in college students particularly among African-American college students. The purpose of this study was to study predictors of safer sex behaviors among African-American college students using social cognitive theory. A cross-sectional survey design was used in this study with valid and reliable subscales. All data were analyzed by the Statistical Package for Social Sciences (SPSS), Version 16. For modeling the predictors of safer sex, stepwise multiple regression was used. Self-efficacy toward safer sex predicted 14.7% variance in safer sex. Recommendations for designing safer sex interventions are presented.

**Zusammenfassung:** Sichereres Geschlechtsverkehr als Schutz gegen STDs und HIV/AIDS ist sehr wichtig. Die meisten der HIV-in Verbindet die Forschung mit eine Gruppe wo dieses Risiko sehr groß ist die genannte "Risiko-Gruppen" wie Prostituierten, Homosexuellen. Die werden gezielt analysiert auf eine Gruppe die offenbar HIV/AIDS Risiko erhöht ist, besonders unter Afrikanisch-Amerikanischen Studenten. Der Zweck dieser Studie war, eine sicheres Geschlechtsverhaltens beizubringen unter den Afrikanisch-Amerikanischen Studenten, um dass zu studieren, aber auch die kognitive Sozialtheorie zu verwenden. Ein Modell- Design wurde in dieser Studie entwickelt mit den gültigen und zuverlässigen Basis verwendet. Alle Daten wurden durch das statistische Paket für Sozialwissenschaften (SPSS), Version 16 analysiert. Für die Verwendung des Kommandoomen, welche dienen für einen sichereren Geschlechtsverkehr, wurden schrittweise mehrfache Rückbildung verwendet. Einen sichereren Geschlechtsverkehr würde Praktiziert von 14.7% des Teilnehmer. Es würden Empfehlungen dargestellt für ein sicheres Geschlechtsverhaltens.

**Key words:** social cognitive theory, safer sex, HIV/AIDS, college students.

### 1. Introduction

Safer sex behaviors such as correct and consistent condom usage and a monogamous relationship are important for protection against STDs (sexually transmitted diseases) and HIV/AIDS (Human Immunodeficiency virus/acquired immunodeficiency syndrome). The HIV/AIDS epidemic has reached alarming proportions. There were an estimated 1,147,697 cases diagnosed and reported to Centers for Disease Control and Prevention (CDC) at the end of 2004 [1]. When it comes to African-American population, HIV/AIDS epidemic is a health crisis. In 2005, blacks accounted for 18,121 (49%) of the estimated 37,331 new HIV/AIDS diagnosis in 33 states. Furthermore, of the estimated 18,849 people under the age of 25 whose diagnosis of HIV/AIDS was made from 2001-2004, in 33 states with HIV reporting, 11,554 (61%) were black [2]. The risk for high risk heterosexual transmission is highest for African-American females (17.3%) in the age-group 13-24 while it is high (7.7%) for African-American males for the same age-group [3]. Hence we know that HIV/AIDS is a growing problem in younger age group as well as the adult ages. Promotion of safer sex behaviors such as correct and consistent condom usage along with monogamous relationships can lead to control of this epidemic.

Social cognitive theory which explains human behavior as a triadic reciprocal relationship between behavior, environmental factors and personal factors, has found its applicability in various behaviors

for primary prevention such as smoking cessation programs and problem solving skills. It has also found its role in secondary prevention programs such as diabetes education programs and female condom use promotion programs in sexually transmitted disease clinics [4]. Some of the social cognitive factors associated with consistent condom use and safer sex intentions in heterosexual college students have been identified to be higher HIV risk perceptions, positive attitudes towards condom usage, safer sex negotiation higher safer sex perceptions of self-efficacy and fewer negative outcomes of condom use [5]. Interventions for promoting safer sex behaviors in African-American adolescents have used multiple cognitive-behavioral theories such as social cognitive theory, theory of reasoned action and planned behavior[6], or a safer sex educational program [7] which is a atheoretical

Psychometrically valid and reliable instruments were used in studies addressing parent-adolescent communication and safer sex behaviors among college students [8]. Constructs of extended Health Belief Model have been tested psychometrically in predicting safer sex intentions of juvenile delinquents [9] and situational self-efficacy model for safer sex [10] have been tested among college students successfully in the past. Self-efficacy scales have also been tested in the past to disclose HIV status to sex partners and negotiating safer sex among HIV/AIDS affected individuals with some success [11]. Safer sex strategies used by male sex workers were measured by validating an instrument based on Browne and Minichiello model in an Australian study [12].

It is in this backdrop that the purpose of this study was to predict safer sex behaviors among African American college students using social cognitive theory. Such a study would be able to provide guidance in designing social cognitive theory based interventions.

## 2. Methods

A cross-sectional study design was used. The Institutional Review Board (IRB) at a large Midwestern University approved this study in March 2008. A convenience sample of 173 African-American college students was approached to participate in this study until a quota sample of 150 sexually active students was found. Informed consent for the participants was inbuilt in the survey instrument.

Self-report scales were developed for constructs of social cognitive theory that included situational perceptions for safer sex, self-efficacy toward safer sex, self-efficacy in overcoming barriers toward safer sex, expectations about safer sex (comprising of outcome expectations and outcome expectancies), self-control about safer sex and safer sex behaviors. Content validity, face validity and readability of the items under each self-report scale was established by a panel of six experts and the first author in two-round review process. This instrument had 43-items.

The Cronbach alphas were as follows: a) self-efficacy towards safer sex was found to be 0.64, b) self-efficacy towards overcoming barriers for safer sex was found to be 0.90, c) situational perceptions about safer sex was found to be 0.75, d) outcome expectations about safer sex was found to be 0.80, e) outcome expectancies about safer sex was found to be 0.75, f) self-control towards safer sex was found to be 0.72.

For construct validation a confirmatory factor analysis using maximum likelihood method was done that confirmed a single-component solution satisfying the criteria of Eigen value over 1 (Eigen values are variance in all the variables that is accounted for by that factor), factor loadings over 0.40, and accounting for a) 30.9% of the variance for self-efficacy towards safer sex b) 70% of variance for self-efficacy towards overcoming barriers for safer sex, c) 47.13% of variance for situational perceptions for safer sex, d) 53.03% of variance for outcome expectations for safer sex, e) 55.8% of variance for outcome expectancies towards safer sex, f) 47.4% of variance for self-control towards safer sex.

All data were analyzed by the Statistical Package for Social Sciences (SPSS), Version 16. The predictors used in stepwise regression analysis were self-efficacy towards safer sex, self-efficacy towards overcoming barriers for safer sex, expectations for safer sex, and situational perceptions for safer sex and self-control for safer sex.

### 3. Results

There were a total of 150 African-American college students drawn from a large public University in the Midwest who were sexually active and who participated in this study. The mean age of the respondents was 22.17 years (s.d. 4.58) with a range of 15-50 years. The respondent pool was composed of 69 males (46%) and 81 females (54%). Majority of the respondents (29.3%, n=44) were seniors, followed by freshmen (23.3%, n=35), juniors (20.7%, n=31), graduate students (14.0%, n=21), and sophomores (12.7%, n=19). Slightly more than half of the respondents had a cumulative GPA of 3.0 or more (54.2%). When asked about the number of sexual partners in the last year, majority (45.9%, n=69) said that they had just one partner while 19.9% (n= 30) had 2 partners, 12.3% (n=18) had 3 partners, 5.5% (n=8) had 4 partners, and 3.4% (n=5) had 5 partners and 8.3% (n=12) had more than 6 partners while 4.8% (n=7) had no partners. When asked the question whether they had been ever diagnosed with sexually transmitted disease, majority (86.7%, n=130) replied in the negative. Majority of the participants (18.8%, n=28) had their first sexual intercourse at the age of 16 years closely followed by 17 and 18 years respectively (18.1%, n=27) with a mean age of 16.91 (s.d. 2.33) and a range of 10 to 25 years.

The score on safer sex ranged from 0-20 with a mean of 14.42 (s.d. 5.21). The score on self-efficacy for safer sex ranged from 0-20 with a mean of 16.42 (s.d. 3.42). The score on self-efficacy in overcoming barriers for safer sex ranged from 0-16 with a mean of 10.76 (s.d. 4.94). The score on expectations for safer sex ranged from 0-64 with a mean of 52.89 (s.d. 13.74). The score on situation perceptions for safer sex ranged from 0-16 with a mean of 6.24 (s.d. 4.21). The score on self control for safer sex ranged from 2-16 with mean of 12.36 (s.d. 3.40).

Table I depicts the results from stepwise multiple regression. From all the possible predictors only self-efficacy towards safer sex was found to be a statistically significant predictor explaining 14.7% of the variance.

**Table I.** *Parameter estimates from the final regression model for safer sex behaviors as predicted by self-efficacy towards safer sex (n=150, adjusted R<sup>2</sup>=0.147).*

Parameter	Unstandardized coefficients	Standard Error	t	p-value
Intercept	4.663	1.933	2.412	0.017
Self-Efficacy towards safer sex	0.594	0.115	5.155	0.000

### 4. Discussion

The purpose of this study was to determine predictors of safer sex behaviors among African American college students using constructs of social cognitive theory. Results of this study found that among all the different constructs of social cognitive theory, self-efficacy towards safer sex explained 14.7% of variance towards the dependent variable. This was a statistically significant result and hence rules out chance as a likely explanation.

This study gives credence to the fact that self-efficacy is the most powerful predictor in social cognitive theory and is directly associated with safer sex behaviors. This relates to the earlier studies which showed a direct significant association between perceived self-efficacy and safer sex behaviors [5]. Another study done in the past [13] using self-efficacy explained 40% of the variance in intention to use condoms among college students. Some of the other predictors for safer sex practices were

situational factors, in predominantly Caucasian students [14], peer influence in Russian students [15], positive subjective norms, and greater self-efficacy in predominantly Latino adolescents [16]. However the number of studies done on predictors of safer sex behaviors in college students are few and there is a need of many more studies especially with a random selection of participants.

No comment can be made about temporality or dose-response relationship as this was a cross-sectional study. There is a need of longitudinal studies in the future with similar participants. The association in this study does seem behaviorally plausible and the adjusted  $R^2$  0.147 provides strength of association. This association can be considered as strong in behavioral and social sciences and lends credence to self-efficacy as an important predictor of safer sex which should be utilized by future interventions.

This is the first study which uses five subscales of social cognitive theory for prediction of safer sex among African-American college students. This study was not without limitations. First it lacked random selection of participants which introduced sampling bias. Ideally a random selection of participants such as by random digit dialing or using random number tables would have added confidence to the study results. Secondly there was no record kept of students who refused to participate in the study. We do not know their reasons for not participating. Some of the students opted out of the study after partial survey completion. We do not know the reasons for this action too. It would have been nice to know if these non-responders were in any way different from the responders. Third, there was a recall period of 30 days and 1 year on some of the survey items. It is very difficult to remember what one did during past 30 days or in the past year leading to approximation and inaccuracy. Fourth, the instrument was all self-report and had sensitive items giving rise to social desirability bias. Another source of measurement bias could have arisen from the presence of the researcher while the participants completed the survey questionnaires. Fifth, this study was conducted at one campus of the university and among a specific target population of African-American college students; hence the results have limited generalizability in terms of different settings and in other groups of students. Finally as mentioned earlier, this was a cross-sectional study and hence nothing can be said about the temporality of association.

## 5. Implications for practice

It is evident from this study that more health education programs that promote safer sex behaviors by building self-efficacy component in African-American college students are needed.

Building self-efficacy by practicing the skills of condom usage in small steps is what is desired among these students. This can be done by using a penile model and demonstrating condom wearing, condom removal in incremental easy steps by a health educator preferably of an African-American ethnicity. Participatory practice among the participants can build mastery. Self-efficacy can also be built through using credible African-American role-models (for example having a famous movie star demonstrate the condom use behavior). Using techniques such as positive reinforcement and persuasiveness one can counter the past failures of the participants in their initiative to maintain safer sex behaviors such as condom use intentions and achieving monogamy. Health educators can easily do this by asking participants to identify instances where the participants were successful in changing a negative behavior to a positive one and then the educators can state that the participants can do the same with sexual behavior change [4]. Behavior change interventions among youths, at an individual level should focus on use of condoms and reduction in number of partners [18]. Recommendations for life-skills development such as communication skills, self-efficacy for correct and consistent condom use and negotiation are emphasized in young people [19]. The challenges of providing accurate information, skills and reproductive health services related sexuality education to youth across various European countries face as practices vary from country to country [17].

## Literature

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