



# The Association of the Theory of Planned Behavior Constructs and Condom Use among African-American Students Attending a Historically Black University

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**Abstract-** The objective of this study was to examine the associations/correlations between the Theory of Planned Behavior Constructs (subjective norm, attitudes toward condom use, perceived behavior control, behavioral intention, and condom use) as applied to these variables among African American men and women ( $\geq 18$  years of age) attending a Historically Black Colleges and Universities HBCU by demographic variables (age, educational classification, gender, and religious affiliations). The participants completed a 30-minute online quantification questionnaire on condom use. The researchers conducted a two-sample t-test to determine the difference in the mean scores for each Theory of Planned Behavior (TPB) construct by steady and casual partners' condom use and non-condom use among participants. The results of the study concluded that the attitude towards condom use of condom users ( $M=10.56$ ,  $SD=8.86$ ) was substantially different from the attitude towards condom use of non-condom users ( $M=6.31$ ,  $SD=6.17$ ). Also, the perceived behavioral control (PBC) of condom users ( $M=4.97$ ,  $SD=2.93$ ) was substantially different from the perceived behavioral control of non-condom users ( $M=3.18$ ,  $SD=1.96$ ). Although the participants' attitudes towards condom use and perceived behavioral control were significantly associated with condom use, continued strategies are needed to examine the behaviors. The implications of this study was to continue to educate HBCU students on the significance of condom use with casual partners and possibly periodically with steady partners regardless; as to reduce sexually transmitted infections (STDs or STIs); which could eventually bring some positive social changes to students in HBCU and possibly beyond.

**Keywords-** HBU, HBCU, Condoms Usages, HIV/AIDS, STDs, Students, Sexually Transmitted Diseases/Infections STDs or STIs

## I. INTRODUCTION

Human Immunodeficiency Virus (HIV) has a devastating impact on minorities in the United States. Although African Americans represent only 14% of the U.S. population, they account for over 45% of the HIV cases in the United States (Centers for Disease Control & Prevention [CDC], 2010). The

prevalence rate of HIV cases among African-Americans is the highest as compared to any other ethnicity. African American men and women are disproportionately affected with HIV (CDC, 2010). Data from the Sexually Transmitted Diseases (STDs) surveillance studies show that HIV positivity is highest in African American males who have sex with males (MSMs; CDC 2007a). In fact, in the state of Texas, HIV was the ninth leading cause of death for all African Americans and the third leading cause of death for both African American men and women aged 35–44 (Texas Department of State Health Services [TDHS], 2009). It is arguable that the behaviors of young African American men and women, about their attitudes toward the use of condoms as a “defensive mechanism” have unequivocally contributed to their past and possibly repeated current outcomes; when dealing with HIV/STDs as compared to their counterparts. This was the primary focus of this study.

## II. SYSTEMIC FACTORS IMPACTING HIV/AIDS TRANSMISSION IN AFRICAN AMERICAN COMMUNITIES

CDC (CDC, 2017) stated, “Race and ethnicity, by themselves, are not risk factors for HIV infection. However, because of a complex set of historical, structural, environmental, and cultural factors—including racism and discrimination, poverty, denial, stigma, homophobia, and limited access to health care—African Americans are more vulnerable to HIV infection” (p. 2). Also, adolescents (10-19) and young adults (20-24) are at greater risk of contracting STDs than older adults. The reasons are behavioral, biological, and cultural (CDC, 2017). As well, STDs are more prevalent with these age ranges due to lack of insurance and transportation, issues with confidentiality, and discomfort using facilities and services designed for adults (CDC, 2017).

The lack of consistent and correct condom use is the leading mode of transmission for HIV in African-Americans (TDHS, 2010; Essien et al., 2005; Weller et al., 2002; Lauby, Smith, Stark, Person, & Adams, 2000). Consistent condom use can prevent the transmission of HIV and sexually transmitted infections (STI) and is often the key component of HIV prevention efforts (CDC, 2017). Lack of consistent condom use and the rate of HIV cases could be exacerbated by the close

proximity of male and female students living together on campus at a majority of Historically Black University (HBUs). In the state of the study, Texas, HIV was the ninth leading cause of death for all African (Texas Department of State Health Services, 2009).

In 2015, of all chlamydia cases in the United States occurred among African Americans which were more than 5.9 times that among Caucasian Americans. When examining the data by gender compared to other races, these statistics are more alarming. For African-American women, the rate of chlamydia was more than 5.4 times higher than the rate among Caucasian American women. In African American men, the chlamydia rate was more than 6.8 times higher than among Caucasian American men (CDC, Center of Disease Control and Prevention, 2016).

In 2015, 21.4 of all cases of reported primary and secondary syphilis were among African Americans which was 5.2 times for African Americans than Caucasian Americans. The primary and secondary syphilis rate among African-American men was more than five times higher than that of Caucasian American men and the rate among African-American women was more than 8 times higher than that of Caucasian American women. It is important to note these findings on other inflammatory diseases, as both chlamydial infection and syphilis facilitates the transmission of HIV infection (CDC, Center of Disease Control and Prevention, 2017). Inadequate sexual protection facilitates contraction of multiple STDs which adversely impact African American communities.

### III. IMPACT OF CONDOM USE AND SEXUAL PROTECTION DECISIONS IN ADOLESCENT AND COLLEGE AGE GROUPS

A number of reasons impact decisions to use condoms in different populations. In their qualitative study of 22 African American males (ages 18–24 years old) with access to health services from four designated community centers (Chicago, IL South-Side) and at risk of HIV/STDs, Kennedy, Nolen, Applewhite, Waiters, and Vanderhoff (2007) found participants made the decision to engage in sexual activities early in the relationship and believed condom use was beneficial in preventing pregnancy and disease transmission. At-risk for HIV/STDs were established by participants' self-report of unprotected sex, inconsistent condom use or multiple sexual partners during a 3–6 months.

In terms of actual use of condoms, participants in the Kennedy et al. (2007) study, noted a number of reasons that impacted their desire/choice to use condoms which included health appearance of the partners, physical appearance of the partner, length of time with person involved in the sexual relationship, and type of sex (pleasure interference during oral sex). When choosing not to use condoms, the participants gave the following reasons:

Lack of immediate access to condoms, inconvenience, the mood-killing length of time it takes to put on a condom, and female partner's disinterest in condom use. By far, the largest rationale was general disinterest in condom use, which was

often related to disliking the feel of condoms, not knowing how to use a condom properly, and not caring about the consequences of not using a condom. Getting caught up in the moment and not wanting to spoil the mood by taking the time to retrieve and put on a condom were also cited as reasons for not always using condoms" (Kennedy et al., 2007, pp. 1037-1038).

Murray and Miller (2000) found college students were much more consistent in using strategies to prevent pregnancy through birth control than to prevent transmission of sexual diseases. In their study of 45 men and 60 women ages 17-45 (of varying ethnicities) enrolled in an introductory health course at a regional college, the college students' self-reported *almost always* usage of condoms to prevent STDs did not increase after the course. Murray and Miller (2000) emphasized the need for continuing education of college students with constant reinforcement.

In their research of health, cultural implications, and HIV/AIDs factor related to Latino (a) college students, Cintron, Owens, and Cintron (2007) acknowledged the small group approach as more successful for intervention strategies. Also, cultural themes should be included in programs for these students such as gender roles, respect for age and traditions (*respeto*), and family norms (*familismo*). "Successful programs will evidence an emphasis on multicultural knowledge with a focus on the impact of intergenerational issues and consideration of varying degrees of assimilation among Latino/populations..." (Cintron, Owens, & Cintron, 2007, p. 95). Beyond intervention strategies and decisions on prevention of STDs, a number of theories exist on how to best address risk and healthy behaviors. In this study, the researchers examined the Theory of Planned Behavior as the framework (lens of analyses) for the study.

### IV. THEORETICAL FRAMEWORK: THEORY OF PLANNED BEHAVIOR

Past research exploring factors influencing condom use typically framed constructs around the Theory of Reasoned Action (TRA) and the Theory of Planned Behavior (TPB) (Glasman & Albarracin, 2003). The TPB (Fisher & Fisher, 2000) is a specific and well-tested model that draws on the Theory of Reasoned Action (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975). The TPB provides a social cognition model that constitutes a framework for understanding social behavior in relation to potentially modifiable determinants (Ajzen, 1991). This theory postulates that the *intention to perform a behavior* is a function of a person's attitude, subjective norms, and perceived behavioral control (controllability and self-efficacy). *Attitude towards performing behavior* indicates a favorable or unfavorable evaluation of the particular behavior. *Subjective norms* refer to the perceived social pressure on a person to perform the behavior. *Perceived behavioral control* indicates the perceived ease or difficulty associated with behavior performance (self-efficacy) and the extent to which performance is up to the individual (controllability). These three factors influence subsequent behavior indirectly through behavioral intentions (Ajzen, 1991; 2002).

The TPB is a well-founded theory for predicting and understanding ways to change condom use behaviors among individuals (Ajzen, 1991; Ajzen & Madden, 1986). A meta-analytical study examined how well the TRA and TPB predicted condom use (Albarracin, Johnson, Fishbein, & Muellerleile, 2001). The authors analyzed 96 data sets, involving more than 20,000 participants, and found that, consistent with the theory's predictions, condom use was related to intention. Further, intention was related to *attitudes*, *subjective norms*, and *perceived behavioral control*. The core components of the TPB model have been successful in predicting condom use behavior (Figure 1). The Theory of Planned Behavior and its constructs were used in this study to examine condom use among African-American men and women attending a public historically Black university (HBCU) in Texas.

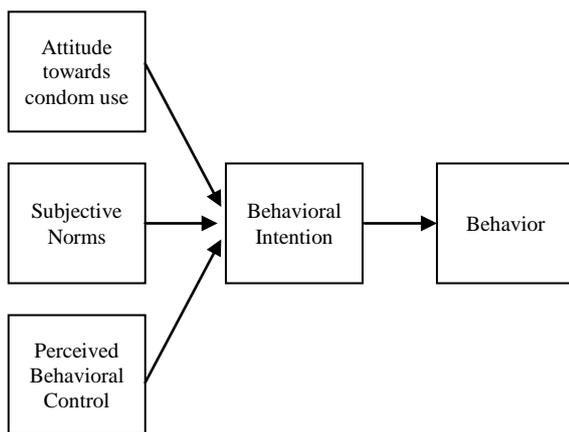


Figure 1. Theory of Planned Behavior Model (Ajzen, 2002)

## V. SIGNIFICANCE OF THE STUDY

Recent national surveys provided a great deal of information regarding condom use; however, nearly all these surveys were restricted to predominantly White populations. Given the increasing rate of STDs among African American college students, the research from this study contributes to the body of knowledge on health choices and decisions impacting minority communities. This study is significant as it supports the efforts of the CDC to prevent the spread of STDs. This purpose can be fulfilled through conducting research to understand the behaviors and attitudes of African American young adults which comprise a portion of this at-risk population. CDC (CDC, 2017) has emphasized four initiatives to reduce the high HIV/AIDS rates in the African American community which include: intensifying prevention efforts, promoting early diagnosis and treatment, implementation of interventions to reduce risks, and mobilization of the community through education and awareness of recognitions of threats, prevention of infections, and foci on strategies to remain healthy.

This research offers results from a study using a self-administered quantifications' questionnaire among African-American men and women, aged 18 years and older, attending

a public historically Black college (HBU) in Texas. Furthermore, CDC (CDC, Center of Disease Control and Prevention, 2017) asserts;

Race and ethnicity in the United States are risk markers that correlate with other more fundamental determinants of health status such as poverty, access to quality health care, health care seeking behavior, illicit drug use, and living in communities with high prevalence of STDs. Acknowledging the disparity in STD rates by race or ethnicity is one of the first steps in empowering affected communities to organize and focus on this problem. (p. 69)

## A. Methods

### 1) Participants

The data for this study derived from self-administered questionnaires completed by sexually active African-American men and women 18 years of age or older attending a HBU in Texas. The participants also had to be able to fill out and understand the questionnaire in English. The researchers conducted the study at a historically Black university as this setting provided access to the age groups among African-Americans who are typically disproportionately affected with HIV. The principal investigator/researcher recruited participants via campus announcements email. In the request for participation email, the researchers described the purpose and benefits of the study, explained the eligibility requirements for participants, and informed prospective participants were that participation in the study was voluntary and all information would be anonymously reported. Prospective participants were advised not to use any identifiers while completing the online questionnaire. Participants were directed to click on a URL link provided in the email which provided access to the instrument in Survey Monkey in which they completed an informal consent form.

## B. Hypotheses

This study hypothesized two major hypotheses which were:

1. Alternative Hypothesis: There are associations/correlations between the Theory of Planned Behavior Constructs as applied to these variables among African American men and women attending a HBU by demographic variables and the use of condoms.
2. Null Hypothesis: There are no associations/correlations between the Theory of Planned Behavior Constructs as applied to these variables among African American men and women attending a HBU by demographic variables and the use of condoms.

## VI. INSTRUMENTATION AND MEASUREMENT OF VARIABLES

After consenting to participate in the study, participants were then given access to the online questionnaire with a completion time of approximately 20 minutes. The instrument was adapted by this researcher and other researchers who focus on condom use (Williams et al., 2001; Norris, Phillips, Statton, & Pearson, 2005; Lindberg, 1993; Bogart, Ceil, & Pinkerton, 1999, 1999; Giles, Liddell, & Bydowell., 2005; Wigger et al., 2003; Galavotti, 1995; Rosengard et al., 2006; Albarracin et al., 2000). The instrument examined self-reported condom use

among African-American men and women attending a Historically Black Colleges and University (HBCU). The instrument contained 25 questions. The items consisted of questions in three categories: (1) condom use, (2) constructs of the theory of planned behavior (attitude towards condom use, subjective norms, perceived behavioral control, and behavioral intention), and (3) demographic data. A pilot study of approximated 50 females and 25 males was conducted to determine the reliability and validity of the adapted instrument.

## VII. INSTRUMENT SECTION 1: CONDOM USE

Condom use was measured by two items, both of which asked about condom use at last intercourse. One item measured condom use with any sexual partners; the other item measured condom use with steady/casual partner (Williams, Michael, Bowen, Timpson, McCoy, Perkins, Saunders, & Young, 2001; Norris, Phillips, Statton, & Pearson, 2005). The questions were as follows: "Was a condom used the last time you had sexual intercourse?" (Yes/No), and "Last time you had sexual intercourse you were with your partner" (Steady/Casual). These condom use measurement questions were adapted by Williams et al. (2001) and Norris et al. (2005). Similar condom use measurement questions were used by several researchers conducting outcome measurements with condom use (*Model "B" Questionnaire*, 1995; Empelen, Schaalma, Kok, & Jansen, 2001; BRSS, 2005; and Meekers & Rossem, 2005). These measures were chosen because they required relatively few questions and were easier to answer accurately, as compared to other measures, which include questions that require respondents to estimate their frequency of condom use during some specified time interval (NHSDA, 1996; Ross & Leonard, 1997; Anderson, Rietmeijer, & Wilson, 1998).

## VIII. INSTRUMENT SECTION 2: CONSTRUCTS RELATED TO THE THEORY OF PLANNED BEHAVIOR

### A. Attitude towards condom use

This measure included five items for steady/casual partners' attitude towards condom use (Bogart et al., 1999). Participants' attitudes towards condom use with steady/casual partners were measured by five statements on a semantic differential scale: "I believe using a condom every time I have sex with my steady/casual partner would be..." Anchors for the five scales will be unpleasant/pleasant, harmful/beneficial, unenjoyable/enjoyable, unsatisfying/satisfying, and bad/good. The range included: (1) Very Much (negative) and (5) Very Much (positive). Higher scores were assigned to the positive anchor. The average of the five items was used as a measure of each respondent's overall attitude towards using condoms with steady/casual partners. This section of the questionnaire was adapted from Bogart et al., (1999) with an internal consistency: Cronbach alpha of 0.87. Similar attitude towards condom use questions were used in several research studies, including Zissimopoulos (2005) and Kraft, Rise, Sutton, & Raysamb (2005).

### B. Subjective norms

Subjective norms were measured with six items for steady/casual partner (Giles et al., 2005). Respondents indicated the extent to which they felt that their significant others (partners, family, friends, and teachers) would endorse their use of a condom the next time they were to have sex, e.g., "My family thinks that I should use a condom the next time I have sex with my steady/casual partner" (1= Definitely Not to 5=Very Much). Respondents were required to indicate the extent to which they were motivated to comply with the wishes of their significant others, e.g. "Generally speaking, I want to do what my family thinks I should do" (1= Definitely Not to 5=Very Much). The normative belief responses were multiplied by one's motivation to comply response with the referent and the sum of the products served as an indirect measure of the subjective norm for both steady and casual partners. Higher scores indicated higher subjective norm. This section of the questionnaire was adapted from Giles and associates (2005) with an internal consistency: Cronbach alpha of 0.71. Similar subjective norm measurement questions were used in several other research studies focusing on condom use, including Albarracin et al. (2000) and Wiggers et al. (2003).

### C. Perceived behavioral control

Separate measures of perceived control and self-efficacy were employed on the distinction proposed by Armitage and Conner (1999; 2001). Perceived behavioral control (controllability) was measured with two items for steady/casual partners assessing control beliefs (controllability; Wigger et al., 2003). Respondents were asked, for instance, whether it was difficult for them to talk about condom use with a steady/casual sex partner and whether it was difficult for them to refuse sex if a steady/casual sex partner did not want to use condoms (1= Difficult to 3=Easy). The mean score for these two items was used to determine higher/positive controllability for both steady and casual partners. The measure for perceived behavioral control (controllability) was adapted by Wigger et al. (2003) reported an internal consistency reliability of: Cronbach alpha of 0.69. Similar perceived behavioral control measurement questions were used in several research studies focusing on condom use, including Kraft et al. (2005).

### D. Self-efficacy

Self-efficacy was measured with a total of two items for steady/casual partners (Galavotti, 1995; Rosengard et al., 2006). Participants were asked, "How confident are you that you would use a condom with your (steady/casual) partner when you are sexually aroused?" Possible responses ranged from 1 (Not at All Confident) to 5 (Extremely confident). The total self-efficacy score was the mean score of the two items. Higher scores indicated higher/positive self-efficacy for both steady and casual partners. The measure for self-efficacy was adapted by Galavotti (1995). Rosengard et al. (2006) reported an internal consistency reliability of: Cronbach alpha of 0.95 or < 0.05 or 95% accurate rate of data distributions.

IX. INSTRUMENT SECTION 3: BEHAVIORAL INTENTION

A. Intention to use condoms

Intention to use a condom was measured with two items for steady/casual partners (Albarracin, et al., 2000). Participants were asked, “How likely is it that from now on, for the month you would get your steady/casual partner to use a condom every time you have vaginal sex with him/her?” and “How likely is it that you would get your steady/casual partner to use a condom the next time you have sex with him/her?” Participants responded on a scale of 1 (very unlikely) to 7 (very likely). The mean of the scores was added and the higher score indicated higher/positive intentions to use condoms for both steady and casual partners. The measure for behavior intention was adapted by Albarracin et al. (2000) reported an internal consistency reliability of: Cronbach alpha of 0.82. Similar behavioral intention questions were used in several research studies focusing on an outcome condom use measurement, for example, (Rosengard, C., DaSilva, H., Rose, & Stein, 2005; Zissimopoulos, 2005).

X. RESULTS

A. Descriptive Analyses

The participants in the study were diverse in age, educational classification, religious affiliation, and marital status. Females in the age group 18-20 represented the majority (82%) of the participants. Most of the female participants self-reported that they were freshmen (82%), single (80%), and indicated their religious affiliation as Methodist (80%). Males in the age group 24-26 represented the majority (45%) of the participants. Most of the male participants self-reported that they were graduate students (32%), divorced or widowed (50%), and indicated their religious affiliation as Catholic (30%). Table 1 provides an overview of the demographic characteristics of the participants in this study.

TABLE I. DEMOGRAPHIC CHARACTERISTICS OF PARTICIPANTS (N = 447) ENROLLMENT IN LOCAL COLLEGES, 2005

Age Group	Female (n=343)	Male (n=104)	Total (447)
18-20	166(82%)	37 (18%)	203(46%)
21-23	136 (77%)	41 (23%)	177(40%)
24-26	16 (55%)	13 (45%)	29 (7%)
27 and above	25 (68%)	12 (32%)	37 (8%)
Missing age			1
<b>Classification</b>			
Freshman	47 (82%)	10(18%)	57(13%)
Sophomore	94 (78%)	27(22%)	121(27%)
Junior	100(79%)	26(21%)	126(28%)
<b>Marital Status</b>			
Divorced/Widowed	4(50%)	4(50%)	8(2%)
Married	15(68%)	7(32%)	22(5%)
Single	324(78%)	92(22%)	416(93%)
Missing marital status			1
<b>Religious Affiliation</b>			
Baptist	228(78%)	63(22%)	291(65%)
Catholic	21(70%)	9(30%)	30(7%)
Methodist	16(80%)	4(20%)	20(4%)
Other	76(73%)	28(27%)	104(23%)
Missing religious affiliation			1

B. Condom Use for Partner Sub-Categories, By Gender

Table 2 shows the demographics of participants by condom use for each type of partner sub-categorized according to gender. Most of the non-condom use occurred among women. Within the high-risk ‘Casual partner, Non-condom use’ category, the females were 24% compared to the males, who were 12%. The highest group of ‘Casual partner, Non-condom use’ was senior females (30%). Among the women, 54% (n=423) reported condom use with a steady partner, compared to 76% (n=286) with a casual partner. Among the men, 50% (n=108) reported condom use with a steady partner, compared to 88% (n=140) with a casual partner.

TABLE II. PARTICIPANTS BY CONDOM USE FOR PARTNER SUB-CATEGORIES, BY GENDER ENROLLMENT IN LOCAL COLLEGES, 2005.

Age	Female (n=343)				Male(n=104)			
	Casual partner		Steady partner		Casual partner		Steady partner	
	Use condom	No condom						
18-20	38(78%)	11(22%)	51(60%)	34(40%)	18(86%)	3(14%)	5(5%)	5(45%)
21-23	30(73%)	11(27%)	43(55%)	35(45%)	10(91%)	1(9%)	17(61%)	1(39%)
24-26	3(100%)	0	2(25%)	6(75%)	7(100%)	0	3(60%)	2(40%)
27+	1(50%)	1(50%)	10(45%)	12(55%)	0	1(100%)	1(10%)	9(90%)
<b>Marital Status</b>								
Divorced	1(100%)	0	2(66%)	1(33%)	1(100%)	0	0	3(100%)
Married	0	0	2(66%)	11(85%)	0	1(100%)	2(40%)	3(60%)
Single	71(76%)	23(24%)	102(57%)	78(43%)	34(89%)	4(11%)	25(54%)	21(46%)
<b>Religion</b>								
Baptist	46(71%)	19(29%)	68(52%)	62(48%)	22(85%)	4(15%)	17(50%)	17(50%)
Catholic	7(100%)	0	6(55%)	5(45%)	2(100%)	0	2(40%)	3(60%)
Methodist	6(100%)	0	5(50%)	5(50%)	1(50%)	1(50%)	1(50%)	1(50%)
Other	11(73%)	4(27%)	27(60%)	18(40%)	10(100%)	0	7(54%)	6(46%)
<b>Classification</b>								
Freshman	12(80%)	3(20%)	18(75%)	6(25%)	4(67%)	2(33%)	2(66%)	1(34%)
Graduate	2(100%)	0	7(47%)	8(53%)	1(100%)	0	2(33%)	4(67%)
Junior	20(80%)	5(20%)	27(39%)	29(61%)	12(92%)	1(8%)	6(60%)	4(40%)
Senior	19(70%)	8(30%)	24(51%)	23(49%)	6(86%)	1(14%)	13(53%)	12(47%)
Sophomore	19(73%)	7(27%)	29(55%)	24(55%)	12(92%)	1(8%)	4(40%)	6(60%)

C. Condom Use Knowledge and Condom Use

All of the demographic variables and condom use knowledge scores were calculated. This was done by using the mean, standard deviations, and ranges. In order to find the difference in the mean scores for each TPB construct by steady and casual partners' condom use and non-condom use among participants, the two-sample t-test was used. The tests were all statistically significant if  $p < 0.05$ .

The mean scores between condom users and non-condom users among steady partners, showed a substantial difference. The Attitude towards Condom Use,  $t(237) = 4.468, p = 0.000$ . This means that the Attitude towards Condom Use of condom users ( $M=10.56, SD=8.86$ ) was substantially different from the Attitude towards Condom Use of non-condom users ( $M=6.31, SD=6.17$ ).

When looking at Perceived Behavioral Control, there was another substantial difference in the mean scores between condom users and non-condom users among casual partners for Perceived Behavioral Control,  $t(63) = 3.842, p = 0.000$ . This means that the Perceived Behavioral Control of condom users ( $M=4.97, SD=2.93$ ) was substantially different from the Perceived Behavioral Control of non-condom users ( $M=3.18, SD=1.96$ ).

XI. DISCUSSION

The researchers' objective was to evaluate the factors that are associated with condom use among African American students attending a HBCU. Fortunato (2008) proved that sexual assertiveness (defined as the ability to express and maintain sexual feelings, beliefs, and intentions with one's sex partner in a direct and adaptive fashion) would predict condom use better than general assertiveness, sexual communication, and general communication. Our study contrasted with several research studies (Fortunato, 2008; Otto-Salaj, 2009) when dealing with perceived behavioral control. The study concluded by emphasizing the role of condom use negotiation strategies as a means to implement behavior change. This means that individuals express how difficult it is for them to talk about condom use with a steady/casual sex partner and whether it was difficult for them to refuse sex if a steady/casual sex partner did not want to use condoms. This study demonstrated the important influence of communication, specifically sexual assertiveness, on lifetime condom use.

The results of the study show that there was another substantial difference in the mean scores between condom users and non-condom users among casual partners for Perceived Behavioral Control,  $t(63) = 3.842, p = 0.000$ . This means that the Perceived Behavioral Control of condom users ( $M=4.97, SD=2.93$ ) was substantially different from the Perceived Behavioral Control of non-condom users ( $M=3.18, SD=1.96$ ). The study revealed that most of the non-condom use occurred among women. Compared to men within the high-risk 'Casual partner, Non-condom use' category, the females were 24% compared to the males who were 12%. The highest group of 'Casual partner, Non-condom use' was senior females (30%). The study clearly shows that more intervention strategies should be used to increase female condom use. It could be assumed that higher casual partner condom use is associated with risk aversion condom use habits. For example, an experience of sexual transmitted infection could initiate the development of the condom "habit" in a person for whom such an experience was traumatic. Another assumption could be that many individuals do not know the sexual history of their partners, especially those partners who engage in risky sexual behaviors. The data presented have important implications for the planning of interventions to promote the use of condoms among African American students.

TABLE III. ASSOCIATION BETWEEN TPB CONSTRUCTS' SCORE AND CONDOM USE ACROSS STEADY PARTNERS (MULTIVARIATE)

	OR (SE)	Steady Condom Use & Non-Condom Use (N=133)	
		p-value	95% CI
		Attitude towards Condom Use $p=0.00$	
Attitude towards Condom Use	27.5 (0.40)	0.00	2.38-6.13

Abbreviations: OR=Odds Ratio, SE=Standard Error, CI=Confidence Interval  
 \*=significant  $p$ -value  $\leq 0.05$

TABLE IV. ASSOCIATION BETWEEN TPB CONSTRUCTS' SCORE AND CONDOM USE ACROSS CASUAL PARTNERS (MULTIVARIATE)

	OR (SE)	Casual Condom Use & Non-Condom Use (N=107)	
		p-value	95% CI
		Attitude towards condom use $p=0.01$	
Attitude towards Condom Use	3.8 (0.28)	0.01	0.64-0.89

Abbreviations: OR=Odds Ratio, SE=Standard Error, CI=Confidence Interval  
 \*=significant  $p$ -value  $\leq 0.05$

We rejected the Null Hypothesis and accepted the Alternative Hypothesis that there were associations/correlations between the Theory of Planned Behavior Constructs as applied to these variables among African American men and women attending a HBCU by demographic variables and the use of condoms.

XII. CONCLUSIONS AND IMPLICATIONS FOR RESEARCH AND PRACTICE

First, it seems important to make a distinction in motivational stages for condom use with steady partners, and condom use with casual partners. The most important step in the promotion of condom use with steady partners seems to be changes in risk perception, attitude, and social influence. For the promotion of condom use with casual sex partners, it seems most important to enhance self-efficacy regarding communication about the use of condoms. Increasing access to formal sex education, reducing the number of risky sexual

partners, maintaining condom use and consistency in relationships, and improving attitudes about condom use are all strategies for improving condom use within relationships and reducing high rates of HIV infections within the African American population (Van Empelen, Schaalma, Kok, & Jansen, 2001).

The observed attitudes and perceptions influencing condom use were consistent with the participants' education and knowledge. Bazargan, Bazargan, Husaini, Kelly, and Stein (2000) reported similar results, indicating that condom use could be related to participants' educational level. The results from this study agree with the findings that levels of knowledge about HIV infection through unprotected sex have a significant impact on behavioral skills. Fortunato (2008) corroborates the finding of a connection between level of knowledge and condom use. This study proved that as male participants' perceptions of susceptibility and educational aspirations increased in adolescence, their condom use increased in emergent adulthood. For female participants, confidence in knowledge and educational aspirations were positively correlated with having used a condom in the past 12 months. That is, as female participants' confidence in their knowledge and educational aspirations increased in adolescence, their condom use in the past 12 months (in emergent adulthood) also increased.

Both the direct and indirect effects of experiences with condoms played critical roles in the current use of condoms in this sample. Addressing these complex and interrelated challenges of condom use among the target population requires continued strategies to measure condom use behaviors among African American at HBCU in general. Further research is needed to assess condom use among African-American colleges and universities' students by sex, age, and religious affiliation. Knowledge gained from this study can be used as a needs-based assessment data for other studies, initiatives, or public health disparity. In addition, the results from this study will allow researchers to design condom use programs that are targeted at a community most in need of an intervention. In the final analysis the noted implications of this study should eventually bring some defined positive social changes to the students in HBCU in the state of Texas and possibly beyond if they are effectively implemented.

### XIII. LIMITATIONS OF THE STUDY

This "case study" yielded several limitations regardless of its results/findings. First, while the results/findings of the study shed some critical lights on how to positively address the spread of HIV/AIDs or STDs or STIs by the use of condoms, it cannot be generalized to other HBCUs statewide or even nationally. Also, other factors that influenced overall students' sexual behaviors which varies from one school to another, were not holistically inclusive in Texas HBU; but, they maybe in other schools statewide or possibly national which could interfere with the outcomes of the results/findings in this "case study."

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### CONFLICT OF INTEREST

We shared no conflict of interests in this study; because it was collectively, collaboratively, and financially self-supported by the researchers.

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