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## USING THE THEORY OF PLANNED BEHAVIOR TO DETERMINE THE CONDOM USE BEHAVIOR AMONG COLLEGE STUDENTS

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### Abstract

The study utilized the Theory of Planned Behavior (TPB) to determine condom use behavior among college students. A total of 218 college students with mean age of 20.9 years old participated in the study. A 32- item cross-sectional survey was administered among the participants. The constructs of attitude towards behavior, perceived behavioral control, and subjective norm ( $p < 0.001$ ) significantly predicted intention to use condoms and they accounted for 64% of the variance. Behavioral intention significantly predicted condom use and it accounted for 15% of the variance. The TPB could be used to guide programs in promoting condom use among college students.

### Keywords

Theory of Planned Behavior; College students; condom use

## INTRODUCTION

Although any population is at risk of contracting sexually transmitted infections (STIs) such as chlamydia, gonorrhea, syphilis, and human immunodeficiency virus (HIV), young adults between the ages of 20–24 years are at a higher risk of contracting these diseases. For instance, Centers for Disease Control [CDC] (2013) estimates that nearly 20 million new STIs cases occur every year in the United States (US) with 50% of those cases occurring among young people ages 15–24 years old. In 2013, 34% of gonorrhea and 39% of chlamydia cases were reported among young adults between ages 20 – 24 years old (CDC, 2013). Sexually active college students are prone to STIs because of they engage in high sexual activities and risky sexual behaviors (Davis, Sloan, MacMaster, & Kilbourne, 2007; Oncale & King, 2001). American College Health Association [ACHA] (2012) revealed that 9% of college students reported having four or more sexual partners in the last 12 months. Weinstock, Berman, and Cates (2004), indicated that college students represent nearly 50% of the people who contract STIs each year. Apart from abstinence which is avoidance from any and all sexual activities, which is 100% effective in preventing STIs, consistent and correct condom use has been found to be the next most effective way to prevent STIs. The national college health assessment data indicated that in the last 30 days only 5.5% of college students used condoms during oral sex, 53.5% used condoms during vaginal

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intercourse, and 29.7% used condoms during anal intercourse (American College Health Association, 2012). While condom use behaviors are very low among college students (Florence, 2012), it is reported that consistent condom use behaviors are even lower among college students (Liu, Bing & Za Zhi, 2006). Therefore, the purpose of the study was to determine the extent the Theory of Planned Behavior (TPB) constructs account for the variability of condom use behaviors among college students.

### Theoretical Framework

The Theory of Planned Behavior (TPB) was developed by Icek Ajzen as an attempt to predict human behavior (Ajzen, 1991). The TPB posits that attitude toward the behavior, subjective norm, and perceived behavioral control influence behavioral intention.

The first construct of the theory is **behavioral intention**, which is the motivational factors that influence behavior (Ajzen, 1991). The stronger the intention to engage in a given behavior, the more likely it is to perform that behavior. The second construct is **attitude towards the behavior** which is the extent to which a person has a favorable or unfavorable appraisal of a given behavior. Attitude consists of behavioral beliefs and outcome evaluations. **Subjective norm** is the third construct which is a social pressure to perform or not to perform a given behavior. Combination of normative beliefs and motivation to comply constitute subjective norm. **Perceived behavioral control** also plays a key role in the TPB and it refers to people's perception of the ease or difficulty of performing the behavior of interest.

**TPB and condom use**—A comprehensive literature review showed that the TPB has been used to predict condom use behaviors among young Hispanics (Malcolm, Huang, Cordova, Freitas, Arzon, Jimenez, Pantin, & Prado, 2013), South African university students (Protogerou, Flisher, Wild & Aaro 2013), School and University students in the United Kingdom (Newby, Brown, French, & Wallace, 2013), Chinese female sex workers and injecting drug users (Jing, Lau, Xi, Chuliang, Jun, Hongyao, Renfan, Zhangquan, & Zhenglin, 2009), Portuguese and Spanish university students (Muñoz-Silva, Sánchez-García, Nunes, Martins, 2007), young adults in rural Ethiopia (Molla Åstrøm & Berhane, 2007), Xhosa adolescents in South Africa (Jermmott, Heeren, Ngwane, Hewitt, Jemmott, Shell & O'Leary, 2007), and heterosexual men in a high-income country (Gredig, Nideroest, & Parpan-Blaser, 2006). Even though those studies revealed that TPB has been used extensively in predicting condom use behaviors among different group of people, the efficacy of the theory has not been tested among US college students vis-a-vis their condom use behavior. However, it must be said that there was one study that utilized TPB to compare condom use behaviors between US college students and South African students (Heeren, Jemmott, Mandeya, & Tyler, 2007). Another study by Turchik and Gidycz (2012) also used TPB to evaluate condom use behaviors among college students, but there were other variables measured in that study.

## Methodology

**Design and Sample size:** The design of the study was a cross-sectional. A sample size of 200 participants was determined a priori to achieve effect size of .20, with a power of .80 at the alpha level of .05 (Polit and Hungler, 1998).

**Participants and recruitment processes:** The participants in this study were college students, both males and females, and were 18 years or above. The study utilized a purposive sample and the questionnaires were distributed to the participants in the classroom during class instructions. The study was approved by Northern Kentucky University's Institutional Review Board (IRB). Participants were asked to sign informed consent before filling out the questionnaire.

**Instrument:** An existing questionnaire based on TPB (Asare & Sharma, 2010) was adopted. The original instrument had 55 items but for the purpose of this study, the items were reduced to 32 items because this study is just measuring condom use behavior, whereas the 55-item survey was used to measure condom use and monogamous behaviors. The behavioral intention of the participants in this study was measured by three items on a 7 – point unipolar self-reporting scale with possible responses ranging from strongly disagree (1) to strongly agree (7). In the current study, three items were used to assess behavioral beliefs construct and those items were measured on a 7-point unipolar self-reporting scale such as strongly disagree (1) to strongly agree (7). There were three outcome evaluation items and they were measured on a 7-point bipolar self-reporting scale such as extremely unimportant (-3) to extremely important (+3). The multiplicative scores between behavioral control and outcome evaluation were used to assess participants' attitude towards condoms (see table for the results). Three items were used to measure normative beliefs on a 7-point unipolar self-reporting scale which ranges from strongly disagree (1) to strongly agree (7). Motivation to comply subscale was also measured by three items on a 7-point bipolar self-reporting scale of not at all important (-3) to very much important (+3). The multiplicative scores of motivation to comply and normative beliefs items were used to assess subjective norm. It consists of control beliefs and perceived power. Control beliefs items were three and a 7-point unipolar self-reporting scale ranging from strongly disagree (1) to strongly agree (7) were used to evaluate them. Perceived power construct also had three items and a 7-point bipolar self-reporting scale with range of less likely (-3) to more likely (+3) was utilized in measuring participants' perceived behavioral control about condom use. The multiplicative results of constructs of control beliefs and perceived power were utilized to assess perceived behavioral control. See figure 1 for how the constructs were operationalized in the current study.

**Validity tests:** Prior to the use of the instrument permission was obtained. The test retest reliability correlation coefficients for the TPB constructs were reported to be greater than .70 and the internal consistency tests had Cronbach's alphas higher than .70 (Asare & Sharma 2010). In the current study, the instrument was administered to 30 participants twice in two week intervals for the reliability tests. The test-retest correlation coefficients were as follows: intention (.90), attitude towards the behavior (.95), subjective norms (.93) and

perceived behavioral control (.90). Cronbach's alphas for the instrument were: intention (.80), attitude to the behavior (.75) subjective norms (.71) and perceived behavioral (.70).

**Data analysis:** Descriptive statistics were run on the demographic data to describe the sample and chi-square analyses were also used to evaluate the participants' condom use behavior. Stepwise multiple regression analyses were performed to find which of the constructs account for the variance of the participants' condom use behaviors. All data were analyzed using the SPSS 19.0 for Windows.

## RESULTS

### Participant characteristics

A total number of 218 students participated in the study. More than half, 51% (n=112) of the participants were males and 49% (n = 106) were females. The ages of the participants ranged from 19 years to 43 years with a mean age of 20.91 (SD= 2.97) years old. Approximately 69% (n = 151) of the participants were juniors, 20% (n = 44) seniors, 10% (n = 22) sophomore and 1% freshman. More than 96% of the respondents were non-Hispanic whites, 3% were African Americans and 1% other ethnic group. A total of 81% of the respondents indicated that they were in current relationships. Over 93% of respondents reported having sexual intercourse in the past three months and of those about 59% did not use a condom the last time they had sex. A total of 51% of the respondents reported having sex with more than one sexual partner in the past three months. More surprisingly, 9% of those participants who had sex with multiple partners indicated that they did not use condoms. There was no significant relationship between the participants' gender and condom use. However, of those participants who reported having sexual intercourse in the past three months, more males, 57% (n = 86) than females 43% (n = 66) reported condom use. There was a significant relationship between the participants' age and condom use behavior. Approximately 26% of students between the ages 19 – 22 years old as compare to 5% of those between 23 – 43 years old reported no condom use in the past three months. The number of years participants have spent in school (freshman, sophomore, junior, and senior) did not relate to their condom use behaviors.

### Descriptive statistics

Table 1 summarizes the distribution of means and standard deviations for intention, attitude, subjective norm, and perceived control of condom use. The possible score range for the Behavioral intention subscale was 3 – 21, however the actual mean score was 15.08 (SD = 6.77) indicating that the participants had moderate intention to use condoms. The participants had high favorable attitude toward condom use as it was evident in their mean score of 50.55 (SD = 19.19). For subjective norm and perceived behavioral control subscales, the participants' scores were in the lower end 5.63(SD = 25.70) and 11.91 (SD = 19.59) respectively. This indicates that the significant others' opinions about the participants' condom use behavior and the participants' perceived control about condom use have low influence on their condom use behaviors.

### **Intention and condoms**

The construct of behavioral intention ( $p < 0.001$ ) was a significant predictor of the participants' condom use behavior. The construct of behavioral intention accounted for 15% of variability in the participants' condom use behavior. Perceived behavior control also significantly predicted respondents' condom use behavior and it accounted for 35% of the variance (see table 2).

The constructs of attitude towards behavior ( $p = 0.04$ ), subjective norm ( $p = 0.00$ ), and perceived behavioral control ( $p = 0.001$ ) significantly predicted the participants' intention to use condom and they accounted for 64% of the variance. This means when the participants' attitude towards behavior, subjective norms and perceived behavioral control constructs were included in the model, the value of the variance increased to 64% and that those three constructs contributed 49% (69% – 15%) of the variability of the participants' condom use behaviors.

### **Attitude towards condoms**

The multiple regression analysis also revealed that the participants' attitude toward condom use significantly ( $p < .01$ ) predicted their intention to use condoms. Chi-square analysis also revealed that over 80% of the participants had positive attitude towards condom use. For instance, 78% of the participants strongly agreed that if they used a condom during sexual intercourse they would protect themselves against STIs. Approximately 87% of the participants strongly agreed that condom use could help them prevent pregnancy. However, a small percentage (about 6.3%) strongly disagreed that condom use can protect them against HIV. About 76% of the participants indicated it is extremely important to them to use condom to protect themselves against pregnancy and STIs.

### **Subjective norm**

Subjective norm and normative beliefs were significant predictors of the participants' intentions to use condoms. However, the participants were split on the opinions of their friends about their condom use behavior. For example, about 51% of the participants indicated it was important to them when their friends approve of their condom use while 49% of the respondents reported that their friends' approval of their condom use behavior was not important to them. A majority of the respondents (61%), reported that their family's approval of their condom use is important to them. Also, 51% of the respondents indicated that their sexual partners' approval of condom use was important to them.

### **Perceived behavioral control**

Perceived behavioral control significantly predicted ( $p < 0.01$ ) participants' behavioral intention and condom use behaviors. A total of 42% of the participants reported that it was very difficult for them to use a condom during sexual activity but 25% indicated that it was not difficult at all for them to use condoms every time they have sex. However, 58.9% of the participants said they were very confident in using condoms during sexual intercourse. On the flip side, 10.7% of the participants reported that they were not confident in using condoms during sexual intercourse. Majority (81.3%) of the participants reported that they had control over their own decision to use condoms.

## DISCUSSION

The purpose of the study was to determine the extent the Theory of Planned Behavior constructs account for the variability of condom use behaviors among college students. Consistent and correct condom use can help reduce the spread of STIs among sexually active individuals including college students. It is critical to understand college students' intentions and attitude towards condom use and the TPB can help explain that. Therefore, TPB constructs which include behavioral intention, attitude towards behavior, subjective norm, normative belief, and perceived behavioral control were operationalized in the study.

### Risky sexual behavior

At the college level, most students become sexually active because most college-aged students are late adolescents or young adults who are at a developmental stage where sexual relationships become normative behavior. Unfortunately, some of these late adolescents still believe that they are invincible and therefore continue to engage in risky sexual behavior. For instance, Florence (2012) concluded that about 40% of the participants were sexually active but did not engage in condom use during their last act of sex. ACHA (2012) report also revealed risky sexual behavior among college students. This study does not only confirm the assertion that college students are sexually active but also it supports the conclusions drawn by those studies that college students engage in risky sexual behavior. For instance, in current study 93% of the participants indicated that they had sex in the past three month and 9% of those respondents reported multiple sexual contacts but did not use condoms.

### Condom use behavior

Recent studies contend that college students do not consistently use condoms (Davis et al., 2007; Charbel El Bcheraouia, Madeline Y. Suttonb, Felicia P. Hardnett b & Sandra B. Jones, 2012; Oncale & King, 2001). The findings of this study lent credence to those previous studies. Almost 60% indicated that for the past three months they were sexually active but did not use condoms. This is indicative of the seriousness of the problem; however, various studies have argued that condom use is not popular in long-term relationships (Mc-Cormack, 1997), in monogamous relationships (Gold, Karmilof-Smith & Morton, 1992), and in regular heterosexual relationships (Glor & Severy, 1990; Pilkington, Kern, & Indest, 1994). Undeniably, in heterosexual relationships for instance, so long as the partners are in long term relationship, faithful to their partner, are aware of their partner's past sexual history, and both had had their STI status tested before, condom use for STI protection might not be necessary. But on the other hand, if the partners have not tested to know their STI status, even though they may be in a long-term relationship, they may still be susceptible to STIs since some of the STIs are asymptomatic and manifestation of the symptoms depend on the integrity of individual immune system. So until both parties know their STIs status, it will be advisable to use condoms unless both parties did not have any prior relationship or did not engage in risky sexual behaviors.

### **Intention to use condom**

Participants' intention is proximal to the intended behavior, i.e. condom use. A study among college students indicated that behavioral intention has a strong relationship with their condom use behavior (Heeren, Jemmott, Mandeya, & Tyler, 2007). In the current study, the participants who had intention to use condoms reported that they actually used them and this supports the fact that behavioral intention is a significant predictor of condom use. Since intention has a strong correlation with condom use behavior and it is also antecedence to that behavior, any education aimed at promoting condom use among college students should seek to influence their intentions.

### **Attitude towards behavior**

A favorable attitude towards condoms also influences the actual behavior of condom use. Several studies have established that attitude towards condom use has strong association with actual condom use behavior (Pilkington, Kern, & Indest, 1994; Albarracin, Johnson, Fishbein, & Muellerleile, 2001; Campbell, Peplau, & DeBro, 1992; Reinecke, Schmidt, Ajzen, 1996; Sheeran, & Taylor, 1999) and the findings of this study validate those studies. For example, over 80% of the participants had favorable attitude towards condom use. However, more females than males have favorable attitude toward condom use. Though both male and females reported that condom use can help them prevent STIs, unplanned pregnancy, and HIV/AIDS, females were more likely to believe that condom use can help achieve those goals. This result supports Parson et al.'s (2000) conclusion that females reported more condom use benefits. Given the fact that attitude influence students' intention to use condoms, efforts should be made to educate college students, especially males students, to develop positive attitude towards condom use. Specifically, education should be promoted to dispel misperception about condom use. After decades of promoting condom use as a public health tool to reduce the spread of STIs, there is no denying fact that there is sufficient knowledge of the benefits of condom use. However, this study reveals that there is significant proportion of students out there who still have negative perception about condom use and therefore it behooves on public health professionals to step up their effort in public education about condom use as long as STIs still remain public health problem.

### **Gender**

Males and females tend to have different attitude towards condom use. Sacco et al examined gender differences in condom attitudes and condom use behaviors and they concluded that males engaged in condom use behavior more than females. The results of the current study are consistent with that of Sacco et al (1993). However, the probable reason why more males than females responded that they used more condoms is because of the nature of the survey questions. In most cases, since a male normally wears condoms and not female during a sexual act, when a question like "did you use a condom since your last sexual act" it is more likely that the man will say yes, while the female may say no. Even though both parties have been assumed to have used a condom, the female might be thinking that she did not use a condom. To address this problem, a future question could be "was a condom use in your last sexual intercourse?" and hopefully, this may forestall future ambiguity.

## Limitations

The study used a self-reporting instrument that has potential of introducing social desirability and there was way no of validating what the participants reported. The participants were asked to recollect their past sexual behaviors and it is possible that the participants might report inaccuracies in their past sexual behavior. The sampling selection may introduce bias because the study did not utilized random selection and thus the results cannot be generalized to other population. A convenient sample was used which might not be the correct representation of the population. The wording of some of the instrument items such as “have you ever used a condom during sexual intercourse” might be confusing to some of the participants. Another limitations is use of cross-sectional design. Data collected from cross-sectional study represent only a small fraction of the target population at a fixed time. However, it is inexpensive to use cross-sectional study and there is only one group to test. The cross-sectional method is less time intensive than other research methods, which will likely increase the number of participants.

**Implication**—Even though a lot of research studies have been done among college students and their condom use behaviors, a few studies have tested the efficacy of TPB in predicting condom use behavior among college students in the US. Therefore, this study seeks to close the gap in the literature. The study reveals that participants’ attitude toward condom use, subjective norms and perceived behavioral control significantly influence their intentions to use condoms and intention is very powerful influence on a given behavior. Since, college students have tendencies to engage in risky sexual behavior, health practitioners should design educational programs that could influence college students’ attitude toward condom use, subjective norms and perceived behavioral control. This may ultimately influence their intentions which could translate into actual use of condoms. Public health practitioners should continue to educate college students to dispel the myths they have about condoms and show them that correct and consistent use of condoms is the best way to protect themselves if they are going to engage in multiple sexual behaviors.

In conclusion, STIs are still public health issues and college students are at risk of contracting those diseases. Most college students have much information about condoms and their use. Most of them also have favorable attitude towards the use of condoms, but there are a few of them who still believe that they are invincible and therefore refuse to use condoms and yet they engage in risky sexual behaviors. The TPB constructs can be used to predict not only college students’ condom use behaviors but also they can be used to promote consistent use of condoms among college students.

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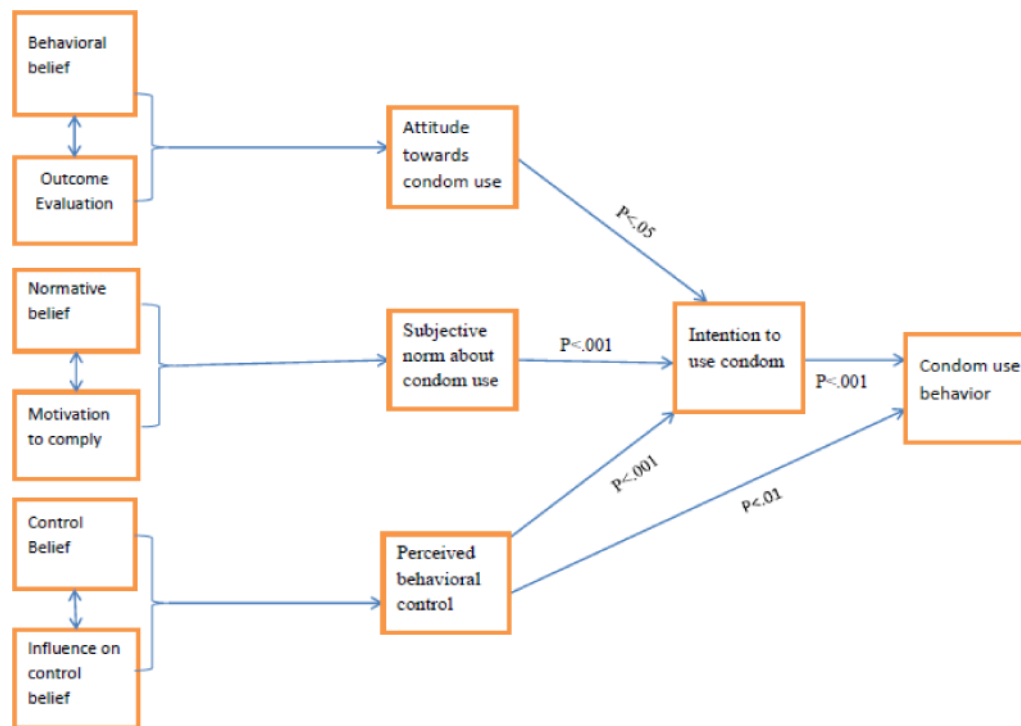
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**Figure 1.** TPB Constructs for predicting condom use behavior: Combination of behavioral belief and Outcome evaluation becomes attitude towards, attitude predicts intention to use condom and intention predicts actual condom use. Both normative belief and motivation to comply forms subjective norms which in turn predicts intention. Control belief and influence on control belief constitutes perceived behavioral control which predicts either intention or actual condom use.

Distribution of range, means and standard deviation of intention, attitude, subjective norm, perceived control as predictors of condom use (n= 218)

**Table 1**

	N	Possible Range	Observed Range	Mean	STL. Deviation
Behavioral Intention	218	3.00 – 21.00	3.00 – 21.00	15.08	6.77
Attitude toward Behavior	218	-6.00 – 63.00	0.00 – 63.00	50.55	19.19
Subjective Norm	218	-6.00 – 63.00	-41.00 – 52.00	5.63	25.70
Perceived behavioral Control	218	-6.00 – 63.00	-44.00– 52.00	11.91	19.59

**Table 2**  
 Parameter Estimates from the Final Regression Model for Condom Use as Dependent Variables as Predicted by the Behavior Intention and perceived behavioral control (n=218)

Model	Unstandardized Coefficients			Standardized Coefficients		
	B	STL Error	Beta	t	Sig.	
1	(Constant)	.74	.05	15.08	.00	
	Intention *	.01	.00	4.45	.00	
1	(Constant)	33.52	2.62	12.80	.00	
	P. Behavioral control **	4.94	.46	10.75	.00	

\* R-square = .15

\*\* R-square = .35

**Table 3**

Parameter Estimates from the Final Regression Model for Behavioral Intention as a Dependent Variable as Predicted by the attitude toward behavior, subjective norm and perceived behavioral control (n = 218)

Model	Unstandardized Coefficients		Standardized Coefficients		t.	Sig.
	B	STL. Error	Beta			
(Constant)	.637	1.645			.387	.699
Attitude toward behavior	.152	.073	.147		2.065	.041
Subjective norms	.400	.051	.553		7.860	.000
Perceived Behavior cont.	.270	.079	.247		3.429	.001

R-square = .64