Electronic Theses, Projects, and Dissertations

Office of Graduate Studies

12-2017

THE ROLE OF HEALTH BELIEF MODEL CONSTRUCTS IN CONDOM USE AMONG EARLY YOUNG ADULTS

Christina Rose Vieux

Follow this and additional works at: https://scholarworks.lib.csusb.edu/etd

Part of the Health Psychology Commons

THE ROLE OF HEALTH BELIEF MODEL CONSTRUCTS IN

CONDOM USE AMONG EARLY YOUNG ADULTS

————————————————

A Thesis

Presented to the

Faculty of

California State University,

San Bernardino

————————————————

In Partial Fulfillment

of the Requirements for the Degree

Master of Arts

in

Psychology: General/Experimental

————————————————

by

Christina Rose Vieux

December 2017

THE ROLE OF HEALTH BELIEF MODEL CONSTRUCTS IN

CONDOM USE AMONG EARLY YOUNG ADULTS

———————————————

A Thesis

Presented to the

Faculty of

California State University,

San Bernardino

———————————————

by

Christina Rose Vieux

December 2017

Approved by:

Dr. Donna M. Garcia, Committee Chair, Psychology

Dr. Kelly Campbell, Committee Member

Dr. Joseph D. Wellman, Committee Member

ABSTRACT

Human immunodeficiency virus (HIV) and acquired immunodeficiency syndrome (AIDS) are ailments that have a social and political impact in the U.S. Since their discovery more than three decades ago, there has been an intense focus on eradicating these deadly diseases. Although there has been a lot of progress in the fight against HIV and AIDS, there are communities still disproportionately affected by it. Based on data from the Center for Disease Control and Prevention (CDC), one such community is young adults age 20 to 24 (CDC, 2016a). These young adults are at the focal center of the HIV/AIDS epidemic for various reasons; yet, this group is often overlooked in HIV literature and prevention/intervention strategies. Additionally, this community is known for inconsistent condom use, although there have been countless public service announcements (PSAs) and interventions promoting the use of condoms as a means of preventing not only unwanted pregnancy but the contraction of sexual transmitted infections (STIs) including HIV/AIDS. The aim of the current study was to test a comprehensive moderated mediation model and assess factors associated with condom use among early young adults age 18 to 24 above and beyond known variables such as age, gender, and ethnicity/race. These variables included participants' age of sexual debut, number of lifetime sexual partners, perceived threat of contracting STIs and HIV/AIDS, and exposure to cues to action as predictors of condom use. The decision to expand the study to assess condom use among early young adults (18 -24) as opposed to focusing

exclusively on young adults (20 -24) was based on early young adults being less

likely to be tested for HIV compared to other age groups (CDC, 2008). For the

moderated mediation model, I drew on the health belief model (HBM) and tested

whether 1) the relationship between sexual debut and condom use was mediated

by number of lifetime sexual partnerships, and 2) the relationships between

sexual debut and the mediator were moderated by perceived threat, and whether

the relationships between the mediator and condom use was moderated by

perceived threat and cues to action. The full model was not supported. The

implication of this study is that more current research is needed to understand

early young adults and their condom use, as they are a community that is most

vulnerable to HIV/AIDS and a key component in the fight against this disease.

ACKNOWLEDGEMENTS

I would like to express my sincerest gratitude to Dr. Garcia for her useful comments, encouraging words, and her drive to help me complete my thesis. Additionally, I would like to thank Drs. Campbell and Wellman for serving on my committee. To Dr. Campbell, thank you for serving on my committee for all these years, and to Dr. Wellman, thank you for joining my committee at the nth hour and providing your statistical expertise.

DEDICATION

I dedicate my thesis to my family and friends. To my mother, Rita Darcelin, there are no words to express the amount of gratitude I have for all that you have done for me during my graduate career. Thank you for accompanying me all those many years to the train station at the butt crack of dawn so that I can arrive to school on time, and for all the many years you accompanied me home from the train station late at night. Additionally, thank you for supporting me financially and emotionally during my graduate career. To my grandparents, Joseph and Marie Rose Darcelin, my aunt, Marie Gladys Darcelin, my cousin, Cynthia LaRoche, and my sister Tania Arroyo, thank you for the encouraging words and emotional support you provided during these many years.

Lastly, to my nephew, Bryson "Bug" Arroyo, thank you for your patience during those days and nights I had to work on my thesis, and for all those times you showed me that there were times I just needed to have fun.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

x

CHAPTER ONE

INTRODUCTION

In 2015, young adults (i.e., 20 to 24 year olds) constituted only 7 percent of the U.S. population (U.S. Census Bureau, Population Division, 2016) but accounted for 18 percent of all human immunodeficiency virus (HIV) cases (CDC, 2016a). This population has been disproportionally represented in HIV annual incidence rates over the course of several years that have either increased or remained stable (CDC, 2016a). Young adults are not only overly represented in HIV incidence rates but are also overrepresented in sexually transmitted infections (STIs) incidence rates as well. Of the reported U.S. gonorrhea and chlamydia cases in 2014, youths and young adults accounted for more than 50 percent of these cases with young adults making up more than half of that percentage (CDC, 2014). Diagnosis of an STI increases the likelihood of HIV infection. Thus, the increased prevalence of STIs in young adults is a likely contributor to their disproportionate representation in HIV/AIDS statistics. Based on studies assessing condom use among various age groups (see Nasrullah, Oraka, Chavez, Johnson, & Dinenno, 2017), a plausible explanation for young adults' high rate of STIs and by extension HIV is the fact that they are less likely (relative to older adults) to use a condom during sexual intercourse.

A strategy endorsed by the medical community to prevent new incidences of HIV (and other sexually transmitted infections) is to promote the use of

1

condoms. This has been accomplished through public service announcements (PSAs), commercials sponsored by governmental agencies, medical organizations, and condom manufactures (e.g. Trojan), and health centers/clinics providing easy access to condoms (CDC, 2017; SMAIF, 2017)

The research community has aided in the promotion of condom use through their studies of factors associated with condom use as well as utilized health behavior models such as the health belief model (HBM) to explain condom use or condom use intention. It is through their work, condom use promotion efforts are being modified to better target individuals less likely to use condoms (e.g. youths, and early and young adults). My goal in the current study is to extend research on the HBM by integrating it with research concerning two aspects of people's sexual history: their age of sexual debut and number of sexual partners. Both of these factors have been shown to predict condom use.

Sexual Debut and Condom Use

Multiple studies have illustrated a positive relationship between sexual debut age and condom use (Morris et al., 2014; Ngome, 2016), and contraceptive inconsistency (Magnusson, Masho, & Lapane, 2012). These studies, such as Li et al. (2015), Shrestha, Karki, and Copenhaver (2015), and Yotebieng, Halpern, Mitchell, and Adimora (2009), have reported early sexual debut initiators (ESDIs) used condoms less frequently relative to later sexual debut initiators (LSDIs). Early sexual debut is commonly defined as having

sexual intercourse for the first time at or before the ages of 13 to 16. Other

research that examines the age of debut incrementally have found a similar

positive relationship between age of sexual debut and condom use. For

example, Yotebieng and colleagues (2009) found that each year of delay in

sexual debut increased the likelihood of condom use at first sex by 1.44 times.

Sexual Debut and Multiple Lifetime Sexual Partnerships

In addition to studies demonstrating a positive relationship between sexual

debut age and condom use consistency, research has illustrated a negative

association between sexual debut and number of lifetime sexual/multiple sexual

partnerships (Baumann et al., 2011; Sneed, 2009). These studies have reported

a higher number of lifetime sexual partnerships among ESDIs than LSDIs

(Baumann et al., 2011; Jensen et al., 2011; Li et al., 2015; Ma et al., 2009a;

Noubiap et al., 2015; Pettifor et al., 2004; Rissel et al., 2003; Santelli et al.,

1998). An explanation as to why ESDIs report having more sexual partnerships

than LSDIs lies in the fact that ESDIs have been sexual active for a longer of

period of time compared LSDIs, and so they are more likely to report a higher

number of sexual partnerships. There is also evidence that youth who engage in

early sexual debut initiation tend to engage in riskier health behaviors, including

low condom use and have an increased number of sexual partners (O'Donnell,

O'Donnell, & Stueve, 2001). In any case, regardless of the reason, the evidence

suggests that age of sexual debut is positively associated with condom use.

Multiple Lifetime Sexual Partnerships and Condom Use

Multiple lifetime sexual partnerships have not only been associated with sexual debut but associated with condom use consistency as well (Chialepeh & Susuman 2015; Mehra, Ostergren, Ekman, & Agardh, 2014; Noubiap et al., 2015; Tarkang, 2013a). For example, Richter, Valois, McKeown, and Vincent (1993) found that among high school students, a higher number of sexual partners since sexual debut was associated with reduced condom use. Across studies, there is consistent evidence that youth who engage in the risky behavior of having multiple sex partnerships are also likely to engage in the risk behavior of not using condoms.

Sexual History and Condom Use

The established relationships among age of sexual debut, number of sexual partners, and condom use indicate that youths' sexual history is related to their condom use. The pattern of relationships also offers the possibility that the association between age of sexual debut and condom use occurs through number of sexual partners. That is, one reason sex at a younger age is associated with reduced condom use is that the younger a person is when they have sex, the more likely they are to continue having sex and as a result have a greater number of sexual partners across their lifetime (see Santelli et al., 1998). That type of risky sexual behavior is then related to other risky sexual behaviors, including not using condoms. Although there is clear empirical support showing

4

that the sexual history factors are related both to each other and to condom use, the strength of these relationship may vary, however, depending on the extent to which condoms are psychologically salient. Two factors that can contribute to salience include the degree to which the youth feel personally threatened to sexual infections and their exposure to cues to action that promote condom use. Both of these factors are key constructs in the HBM.

<center>Health Belief Model</center>

The health belief model (HBM) has been used in numerous studies to explain health-related behaviors such as HIV testing (Ratcliff, Zlotnick, Cu-Uvin, Payne, Sly, & Flanigan, 2012) and condom use behavior (Basen-Engquist, 1992). It was developed in the1950s as an effort to comprehend why individuals failed to participate in preventive and disease detection programs (Fisher & Fisher, 2000). Later on, the model was extended to include people's responses to symptoms (Kirscht, 1974) and adherence to medical regimes (Becker, 1974).

The primarily purpose of the HBM is to explain why individuals fail to take preventive measures despite obvious health risks (e.g. screening behaviors, contraceptive use behaviors, and adherence/compliance with medication regimen behaviors). According to Champion and Skinner (2008) the HBM consists of six constructs.

- *Perceived susceptibility* - the belief regarding the probability of contracting a disease.

- *Perceived severity* - the "belief about how serious a condition and its [consequences] are" (Champion & Skinner, 2008, p. 48).

- *Perceived barriers* – the "belief about the tangible and psychological costs of the advised action" (Champion & Skinner, 2008, p. 48).

- *Perceived benefits* – the "belief in efficacy of the advised action to reduce risk or seriousness of impact" (Champion & Skinner, 2008, p. 48).

- *Cues to action* – the internal or external cues that promote a behavior. Cues to action can provide how-to information, promote awareness, and use reminder systems to trigger an action (Champion & Skinner, 2008).

- *Self-efficacy* – the "confidence in one's ability to take action" (Champion & Skinner, 2008, p. 48).

In the present study, I selected two of the constructs (perceived threat and cues to action) with strong empirical support to include in my examination of condom use frequency among early young adults.

Perceived Threat

Perceived threat is a cognitive construct composed of perceived susceptibility and perceived severity. Perceived threat to an STI (including HIV) occurs when individuals believe they can be infected by an STI (perceived susceptibility) and that the consequences of that infection are moderate to severe (perceived severity). Studies using the HBM to explain condom use have often

used perceived severity or perceived susceptibility, or both. Many researchers often use a single question to represent perceived severity or susceptibility, whereas others sometimes combine measures of both into a composite of perceived threat.

Studies such as Tarkang (2015) and Tarkang (2013b) have illustrated perceived severity and susceptibility to be significant predictors of consistent condom use. Moreover, studies assessing the relationship between perceived severity and condom use have reported increased severity perception to be positively associated with condom use (Gartoulla, Sudip, & Pantha, 2013; Katikiro & Njau, 2012) and consistent condom use (Ngome, 2016). As for those assessing the relationship between perceived susceptibility and condom use, they have reported increased perceived susceptibility to be related to increased condom use (Adih & Alexander, 1999; Gartoulla et al., 2013).

Although studies primarily tend to utilize the perceived severity and susceptibility constructs as opposed to the perceived threat construct, I will be using this construct in my model. Across studies, both perceived severity and susceptibility have been directly associated with condom use, and it stands that both constructs can also serve as moderators. As stated previously, perceived threat is a culmination of a person's perceived severity and susceptibility to an illness; thus, I predict that perceived threat just like perceived severity and susceptibility will have a moderating effect on the relationship among other factors that predict condom use. For example, it is possible that the negative

relationship between age of debut and number of sexual partners is moderated by perceived threat. Plausibly, even among ESDIs, the threat of vulnerability to a severe STI could inhibit the high-risk behavior of having multiple sexual partners. Similarly, is it possible that the positive relationship between number of sexual partners and condom use is reduced or even reversed when perceived threat is high. That is, people who frequently change sexual partners might be more inclined to use a condom if they perceive their behavior makes them susceptible to STIs.

Cues to Action

Research indicates that self-reported condom use increases as cues to action increases (Gartoulla et al., 2013; Southerland, 2013; Tarkang, 2013b). For example, Hingson, Strunin, Berlin, and Heeren (1990) found that condom use among adolescents increased as they experienced more cues to action (i.e., knew someone with AIDS, discussed AIDS with friends, discussed AIDS with Physician, had media exposure to AIDS information, and had a teacher discuss AIDS in classroom). Despite evidence showing a relationship between cues to action and condom use, there are studies, such as Tarkang (2015), that have found that cues to action are not always a predictor of condom use. A plausible explanation for the inconsistent findings is that the relationship between cues to action and condom use is moderated (see Champion & Skinner, 2008).

Despite mixed results regarding the effect of cues to action on condom use, I will be including cues to action in this study, as this construct is part of the

HBM and a potentially important construct in determining condom use. Thus, rather than focusing on the simple relationship between cues to action and condom use, I examine the possibility that cues to action moderate the relationship between condom use and both aspects of early young adults' sexual history (i.e., number of sexual partners) and their self-efficacy in using a condom.

The inclusion of cues to action is an important aspect of my research. Although cues to action is an integral piece of the HBM, this construct has not been as systematically assessed as have other factors in that model (Champion & Skinner, 2008).

Sexual History, Health Belief Model Constructs, and Condom Use

The empirically supported relationships among sexual history (i.e. sexual debut and number of sexual partners) and three health belief model constructs (i.e. perceived severity and susceptibility, and cues to action), and condom use illustrate that sexual history and the aforementioned health belief model constructs are related to condom use. As stated previously, studies assessing condom use do not use the perceived threat construct but rather both the perceived severity and susceptibly constructs. Thus, it was hypothesized perceived threat would have an effect on condom use as it is a composite of perceived severity and susceptibility.

The association between the aforementioned factors alludes to the likelihood that not only the relationship between sexual debut and condom use

9

occurs through number of sexual partners but that relationship is mediated by perceived threat and cues to action.

The Present Study

The present study assessed factors associated with condom use frequency among self-identified heterosexual early young adults using constructs from the health belief model and integrating these factors with other known factors such as age of sexual debut and number of sexual partners. I focused exclusively on heterosexual participants because of the low sample size I obtained consisting of participants self-identifying as gay, lesbian, and bisexual. I tested a moderated mediation model in which age of sexual debut was the independent variable, condom use was the dependent variable, and number of lifetime sexual partners was a mediator of the IV-DV relationship, perceived threat (susceptibility and severity) was a moderator of the IV-DV and mediator-DV relationships, and cues to action was a moderator of the mediator-DV relationships. My test of the overall model was accompanied by three specific hypotheses.

<u>Hypothesis 1</u>

The relationship between sexual debut age and lifetime sexual partners would be moderated by perceived threat.

The relationship between lifetime sexual partners and frequency of condom use would be moderated by both perceived threat and cues to action.

Hypothesis 3

Sexual debut age would have indirect effects on frequency of condom use through lifetime sexual partners, particularly when perceived threat and cues to action were high.
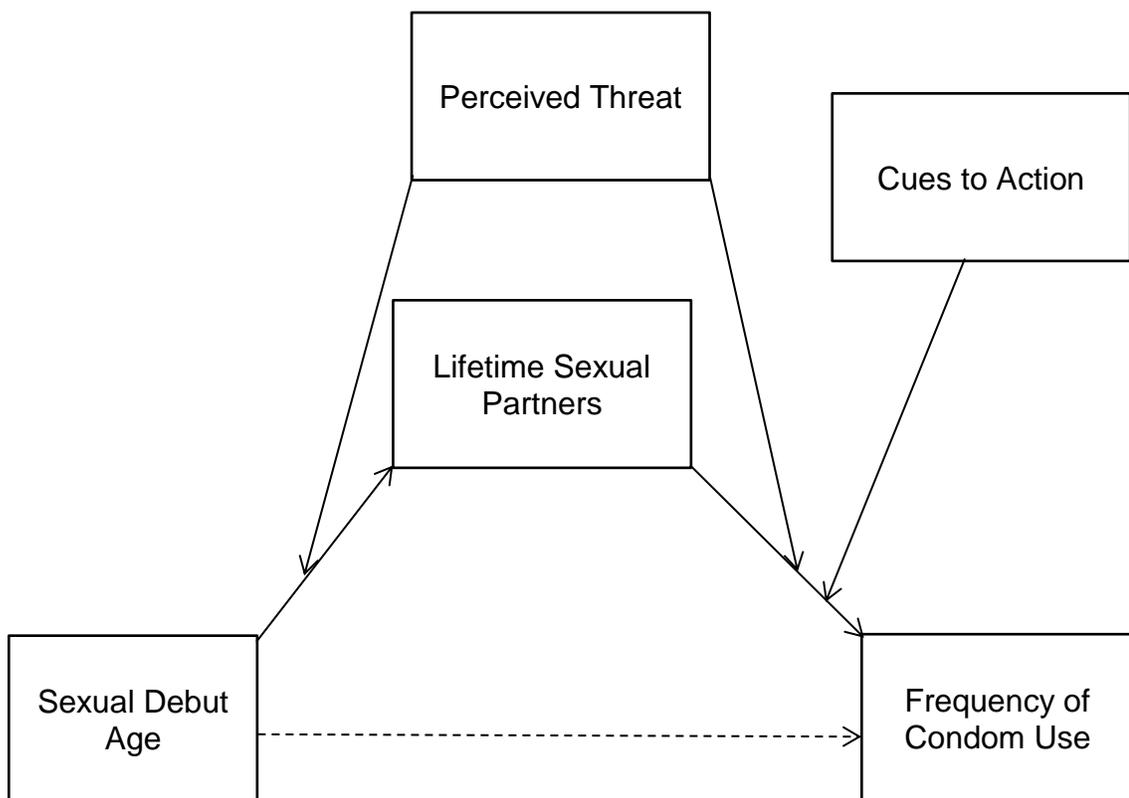

Figure 1. Proposed Moderated Mediation Model: Frequency of Condom Use

CHAPTER TWO

METHODOLOGY

Participants

Four hundred seventy-eight participants were recruited through 1) Amazon Mechanical Turk (Mturk) ($N = 176$, 36.8%), a crowdsourcing e-commerce marketplace that connects individuals with paid and unpaid workers, and 2) SONA ($N = 302$, 63.2%), California State University, San Bernardino Psychology Department's cloud-based participant management software. A total of 107 participants were excluded from the final analyses for various reasons. Participants were excluded for not meeting the eligibility criteria listed in Table 1 ($N = 81$), failing careless response checks ($N = 36$), not completing the entire survey ($N = 29$), not reporting their gender or ethnicity/race ($N = 3$), and being univariate outliers ($N = 4$).

Despite CDC statistics reporting the majority of new HIV infections were in the 20 to 24 year old age range, I was interested in early young adults (18 to 24 years of age) and their condom use based on HIV testing statistics indicating this population is less likely to be tested for HIV (CDC, 2008; Johnson et. al., 2010). Additionally, it has been reported at the end of 2012, a high percentage of early young adults are living with undiagnosed HIV (Hanson, Venturelli, & Fleckenstein, 2018). And so, I widened the age range to encompass early young adults (18 to 24 years old).

Table 1. Eligibility Criteria

Characteristic	Criteria
Age	18 years to 24 years old
Marital Status	Unmarried
Sexual Orientation	Heterosexual
Engaged in Vaginal Intercourse	Recently engaged in vaginal intercourse within the past year.

The final analyses were based on 329 participants (256 females; 73 males). Participants ranged in age from 18 to 24 with a median age of 20, and the majority (49.2%) of participants self-identified as Hispanic/Latino. Table 2 presents the overall distribution of participant demographic characteristics.

Table 2. Participant Demographic Characteristics

Characteristics	*N or M*	% or SD
Age	20.2	1.72
Gender		
Female	256	77.8%
Male	73	22.2%
Ethnicity/Race		
Hispanic/Latino	162	49.2%
White	118	35.9%
African American/ Black	25	7.6%
Asian	16	4.9%
Native Hawaiian/ Pacific Islander	3	.9%
Multiracial	3	<1%
Some Other Race	1	<1%
American Indian/ Alaskan Native	1	<1%

Procedure

The survey was administered through Qualtrics, and completion of the survey took 15 - 20 minutes. Participants who were interested in the study were presented with an informed consent form (Appendix B & C). Once participants agreed to participate in the study, they were led directly to the survey, which consisted of questions that assessed demographic, sexual behavior and history, and other variables such as exposure to condom use promotion efforts (Appendix E & F). After completing the survey, participants were presented with a debriefing statement (Appendix D), and either compensated $3.25 (Mturk participants) or 1 unit of credit (SONA participants) for participating in the study.

Measures

Sexual Debut Age

Participants were asked to report how old they were when they first had sexual intercourse. Participants' sexual debut age ranged from 11 to 23 with a median age of 17. In line with previous research assessing the relationship between condom use and sexual debut age (Shrestha et. al., 2015), sexual debut was converted from a continuous variable to a dichotomous variable where participants either had sexual intercourse prior to age 16 (early sexual debut initiators) or after 17 (later sexual debut initiators). Approximately 37 percent of the participants were classified as early sexual debut initiators. The majority (25.8%) of participants had sexual intercourse at age 18.

Lifetime Sexual Partners

Participants were asked to report the number of sexual partners they have had over the course of their lifetime, *M* = 4.13, *SD* = 4.86, Range = 1 to 40. The question was designed to have participants report the number of sexual partners they have had since they first had sexual intercourse up to the present.

Perceived Threat (PT)

Participants perceived threat to STIs and HIV/AIDS were assessed using a composite score created from items related to perceived severity and perceived susceptibility to STIs and HIV/AIDS. Ten items related to perceived severity were measured using a scale of 1 (*strongly disagree*) to 5 (*strongly agree*), and five items related to perceived susceptibility were measured using a scale of 1 (*no chance*) to 5 (*very good chance*). Because both severity and susceptibility are related constructs of threat, I followed the lead of previous research and combined them into a single construct of perceived threat (see Champion & Skinner, 2008). The perceived threat composite was created by averaging the perceived severity and perceived susceptibility items together α = .69. Higher scores indicated a higher threat perception of STIs and HIV/AIDS.

Cues to Action (CA)

A 13-item composite consisting of external cues to action related to condom use. Participants indicated on a scale of 1 (*not at all influential*) to 5 (*extremely influential*) the level of influence each cue to action had on their decision to use a condom during sexual intercourse (e.g., seeing a condom

display in a store or having an interaction with or knowing people who are HIV positive or have AIDS), α= .89, M = 2.95 and SD = 0.80. Higher scores indicated cues to action had a strong influence on condom use decisions.

Frequency of Condom Use

Frequency of condom use was assessed using a single-item, "Thinking back to all the times you had vaginal intercourse, how often was a condom used?" This item was measured on a scale ranging from 1 (*never*) to 5 (*every time),* M = 3.63 and SD = 0.97.

Covariate

This study included one standard demographic covariate: gender. Because there were an insufficient number of male participants to run the model separately for men and women or to compare the groups, I used gender as a covariate rather than a factor.

A copy of the survey used in this study can be found in Appendix C and Appendix D.

Demographic Questionnaire

At the end of the survey, participants were asked to indicate their age, gender, ethnicity/race, marital status, and sexual orientation.

Careless Response Checkers

Careless Responding, whether it is intentional or unintentional, can influence psychometric and quantitative analyses such as correlation, reliability estimates, scale development, and factor analysis (Meade & Craig, 2012). Hence, the inclusion of two instructed-response items used to detect careless responding among participants. The following instructed-response item was used twice in the survey: "Select strongly disagree for this question".

CHAPTER THREE

RESULTS

Analytic Plan

Prior to conducting moderation and conditional analyses, bivariate correlations were assessed to determine the relationship among variables of interest as well as the covariate (see Table 2). I also ran independent t-tests to assess whether responses to the predictor and outcome variables varied as a function of participant gender (see Table 3). Bivariate correlations and t-tests were conducted using SPSS 19, and the moderated mediation analysis was conducted using Hayes PROCESS Macro (Hayes, 2013). Direct and indirect effects were examined based on 5,000 bootstrap samples, and used a 95% bias corrected confidence interval in which the exclusion of zero in the confidence interval indicated a significant effect.

Bivariate Correlations

Frequency of condom use was positively correlated with sexual debut age ($r = .18$, $p = .001$) and cues to action ($r = .25$ $p = .000$). Sexual debut age was negatively correlated with number of lifetime sexual partners ($r = -.41$ $p = .000$).

Being female was related to a lower number of lifetime sexual partners ($r = -.13$, $p = .021$) and increased cues to action ($r = .14$, $p = .011$).

Table 3. Correlation Between Variables of Interest and Covariate

	1	2	3	4	5	6	7	8
1. Sexual Debut Age								
2. Number of Sexual Partners	-.41**							
3. Cues to Action	.02	.01						
4. Perceive Threat	-.02	.07	.19*					
5. Condom Use	.18**	-.08	.25*	.05				
6. Gender	.01	-.13*	.14*	-.05	-.05			

Note: * $p<.05$; ** $p<.01$.

<u>Independent T-tests</u>

Independent samples *t*-tests was performed among each variable of interest by gender (see Table 4). Results of these tests indicated gender differences in the number of lifetime sexual partners, $t(328) = 2.32$, $p = .021$ as well as cues to action, $t(328) = -2.55$, $p = .011$. Based on the results, males ($M = 5.29$) on average reported more sexual partners than did females ($M = 3.80$). Results also indicated females ($M = 3.01$) reported greater exposure to cues to action encouraging condom use than males did ($M = 2.74$).

Table 4. Independent T-tests Among Variables of Interest by Gender

Measures	Men (N = 76)	Women (N = 253)	t	p
1. Sexual Debut Age	17.04 (2.20)	17.07 (1.87)	-0.13	.898
2. Number of Sexual Partners	5.29 (6.10)	3.80 (4.40)	2.32	.021
3. Perceive Threat (1 -5)	3.87 (0.32)	2.74 (0.73)	0.86	.392
4. Cues to Action (1 -5)	2.74 (0.73)	3.01 (0.82)	-2.55	.011
5. Condom Use (1 -5)	3.73 (0.96)	3.06 (0.97)	0.97	.334

Note. Standard deviations in parentheses

Testing of Hypotheses

To test the model and proposed hypotheses, Hayes PROCESS Model 64 was used. The full results of the moderated mediation model are reported in Table 4. As illustrated in Table 4, participant gender was a significant covariate in Model 1 and a marginally significant covariate in Model 2. Relative to men, women reported they had fewer sexual partners ($b = -1.58$, $p = .009$) and were marginally less likely to use condoms ($b = -0.22$, $p = .090$). Participants' age of sexual debut (early versus late initiation) was marginally and positively related to their number of sexual partners ($b = 11.23$, $p = .072$) and positively related to their frequency of condom use ($b = 0.26$, $p = .021$). Unexpectedly, perceived threat was positively related to sexual partners ($b = 3.89$, $p = .009$) and unrelated to condom use ($b = -0.12$, $p = .582$). Another way to interpret the relationship between threat and sexual partners is that as number of sexual partners increased so did perceived vulnerability to health-threatening STIs. Lifetime partners was unrelated to condom use ($b = -0.04$, $p = .793$) but cues to action positively predicted condom use ($b = 0.40$, $p < .001$). Below I report the moderated and mediated effects that correspond with my three focused hypotheses.

Hypothesis 1

As predicted, perceived threat moderated the relationship between sexual debut age and number of sexual partners ($b = 3.81$, $p = .019$). The test of simple

slopes indicated that the nature of the interaction, however, was inconsistent with predictions. Among early sexual initiators, the relationship between perceived threat and number of sexual partners was positive ($b = 0.26$, $t = 2.96$, $p = .004$). In other words, as threat increased, so did the number sexual partners. Thus, threat did not suppress sexual activity as suggested by the HMB. The positive relationship in my study is plausibly because early sexual initiators were accurately aware that higher numbers of sexual partners increased their threat of contracting STIs. The slope for the relationship among perceived threat and number of sexual partners was not significant for late sexual initiators ($b = 0.08$, $t = 1.12$, $p = .265$).

Hypothesis 2

Contrary to predictions, the relationship between lifetime sexual partners and condom use frequency was not moderated by perceived threat ($b = 0.03$, $p = .487$) or cues to action ($b = -0.02$, $p = .153$).

Hypothesis 3

The test of moderation mediation showed two significant indirect effects. Sexual debut age was indirectly related to condom use frequency through lifetime sexual partners when cues to action was high ($M = 3.74$) and threat was either low ($M = 3.52$; $b = 0.08$, $SE = .042$, $LCI = .013$, $UCI = .179$) or at moderate levels ($M = 3.84$; $b = 0.10$, $SE = .043$, $LCI = .022$, $UCI = .195$). When threat was high ($M = 4.16$), the indirect effect was not significant even when cues to action were high ($b = 0.09$, $SE = .072$, $LCI = -.036$, $UCI = .249$).

Table 5. Ordinary Least Square Regression Model Coefficients

	B	SE	t	P	CI Lower	CI Upper
Model 1:						
Lifetime Partners						
Constant	-5.52	5.04	-1.09	.275	-15.43	4.40
Sexual Debut	11.23	6.23	1.80	.072	-1.02	23.48
Perceived Threat	3.39	1.29	2.62	.009	0.84	5.93
Debut x Threat	-3.81	1.62	-2.36	.019	-6.99	-0.63
Gender	-1.59	0.60	-2.64	.009	-2.77	-0.40
$R^2 = .150$; $p < .001$						
Model 2:						
Condom Use Frequency						
Constant	2.95	0.85	3.47	.001	1.28	4.63
Lifetime Partners	-0.04	0.15	-0.26	.793	-0.34	0.26
Sexual Debut	0.26	0.11	2.33	.021	0.04	0.49
Cues to Action	0.40	0.09	4.61	.000	0.23	0.57
Partners x Cues	-0.02	0.02	-1.43	.153	-0.05	0.01
Perceived Threat	-0.12	0.22	-0.55	.582	-0.54	0.31
Partners x Threat	0.02	0.04	0.70	.487	-0.04	0.09
Gender	-0.22	0.13	-1.74	.083	-0.47	0.03
$R^2 = .102$; $p < .001$						

Note. $N = 329$; Sexual Debut: 0 = Early; 1 = Late; Gender: Male = 0; Female = 1
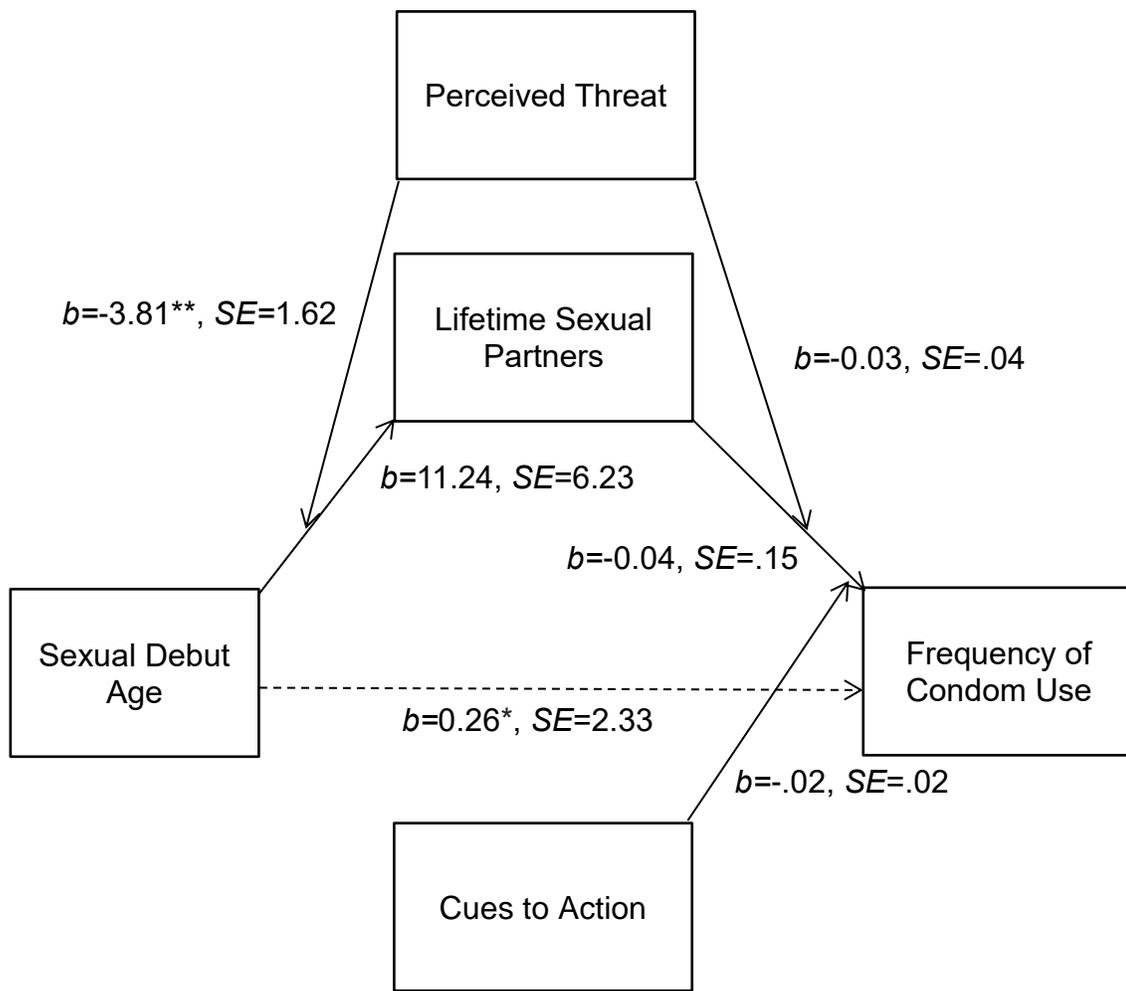
Figure 2. Conditional Process Analysis: Frequency of Condom Use

The figure contains the following boxes and path labels:

- Perceived Threat
- Lifetime Sexual Partners
- Sexual Debut Age
- Frequency of Condom Use
- Cues to Action

Path labels:
- *b*=-3.81**, *SE*=1.62
- *b*=-0.03, *SE*=.04
- *b*=11.24, *SE*=6.23
- *b*=-0.04, *SE*=.15
- *b*=0.26*, *SE*=2.33
- *b*=-.02, *SE*=.02

CHAPTER FOUR

DISCUSSION

Results from the moderated mediation analysis showed sexual debut significantly predicted condom use, which supports current research stating that the older individuals are when they first have sex, the more likely they are to use a condom consistently. Results also showed a significant interaction effect between sexual debut and perceived threat on number of sexual partners, but a non-significant effect between number of sexual partners and perceived threat and cues to action and perceived threat on condom use. Moreover, the results showed that when cues to action were high and perceived threat was low or moderate (but not high); number of sexual partners mediated the relationship between sexual debut and condom use.

As stated in the first paragraph, there was a significant interaction effect between sexual debut and perceived threat on number of sexual partnerships. Research assessing the relationship between age of sexual debut and number of sexual partners has demonstrated a negative association between the two. The significant interaction effect between sexual debut and perceived threat on number of sexual partners in my study could be interpreted to suggest that perceived threat strengthens the relationship between sexual debut and number of sexual partners. Among early sexual debut initiators, threat leads to an increase in sexual partners. Another (and more feasible) interpretation is to consider the reverse direction: that an increase in the number of partners is

associated with increased threat. In other words, early sexual debut initiators who have had multiple sexual partners are accurately aware they are at an increased threat of contracting STIs or HIV. A practical implication from this result is that increasing perceived threat might not be the best strategy to discourage early young adults who initiate sexual activity from having multiple lifetime sexual partners. My research suggests that such strategies might not work. Further, increasing perceived threat might be an ineffective strategy to encourage condom use. Thus, developers of interventions aimed at increasing condom use should exercise caution if they plan to incorporate strategies that increase perceptions of threat as a means to increase condom use. Indeed, research suggests that such fear tactics are only successful at motivating positive health behavioral change when they induce high levels of both susceptibility and severity and are accompanied by high-efficacy messages that convey the targeted population's ability to perform the needed behavioral changes (Witte & Allen, 2000). In my study, susceptibility was quite low ($M =$ 1.94; $SD = .75$) and efficacy messages were not included. Theoretically, my findings do not provide support for the HBM's emphasis on perceived threat, at least in terms of a combination of perceived severity and susceptibility. However, the possibility remains that threat might be an important component of the HBM when perceived susceptibility and efficacy to engage in the intended behavior are both high.

The non-significant interaction effects between sexual partners and perceived threat as well as number of sexual partners and cues to action on condom use indicate that perceived threat and cues to action do not have a moderating effect on the relationship between number of sexual partners and condom use. Cues to action, however, did predict condom use. Thus, although my prediction concerning the moderating role of cues to action was not supported, my research does indicate that cues to action might be an important component in successful interventions aimed at increasing condom use among 18 to 24 year olds. Because the proposed moderated effect was not supported in my research, my study provides no insight into why cues to action is sometimes shown to be an important predictor of condom use (see Champion & Skinner), whereas, other times it is not (Tarkang, 2015). If cues to action had interacted with number of lifetime partners to predict condom use, that finding would have given some support to the proposition that inconsistencies in findings could be due to cues to action only being beneficial for some (those with multiple lifetime sexual partners) but not other young adults.

As noted above, the model test provided some evidence of moderated-mediation. When cues to action were high and perceived threat was low or moderate (but not high), number of sexual partners mediated the relationship between sexual debut and condom use. Because the significant indirect paths were positive, the finding suggests that although early sexual debut is associated with increased number of sexual partners and reduced condom use, the indirect

effect of debut on condom use via number of sexual is positive when cues to action are high and perceived threat of STIs is low or moderate. Thus, the combination of high cues to action and low to moderate levels of perceived threat seem to overcome the otherwise negative impact on condom use as a result of early sexual debut's influence on increased sexual partners. This moderated-mediation effect, however, must be interpreted with caution because it did not correspond with my prediction. I had expected the mediated moderation effect to be most evident when cues to action and perceived threat were both high. If in future research my find effect was replicated, then one could surmise that high cues and low to moderate perceived threat could be effective at encouraging condom use among early young adults with multiple lifetime sexual partners who initiated sex before age 16. If this effect was not present when perceived threat was high, then the finding would indicate that high levels of threat erase the benefits of high cues to action.

Perhaps high levels of threat without clear guidelines on how to use and obtain condoms or effectively demand they be used during sex lead young adults to engage in avoidance coping, and not think about condoms (Aronson, Fried, & Stone, 1991; Witte & Allen, 2000). As observed by Witte and Allen (2000), in the absence of high self-efficacy messages about people's ability to use and require condoms during sex, high threat messages led to avoidance strategies that resulted in lowered condom use. High threat to STIs could also override cues to action because high threat might lead young adults to associate condoms with

STIs. Consequently, these individuals might avoid using condoms because they do not want to think about STIs or HIV/AIDS during sex (Pullum, Cleland, & Shah, 1999). If replicated, the practical implications for my moderated mediation result would be that interventions using the HBM model and geared towards increasing condoms would perhaps be most effective if they maintained high cues to action, but engaged in strategies to maintain perceived threat to STIs and HIV at low to moderate levels. This approach might be particularly effective among early young adults who initiated sex before they were 16 and have had numerous sexual partners.

Limitations to this research include not incorporating variables such as condom use self-efficacy, considering the type of sexual relationship people were currently in (e.g., casual or marriage), and utilizing other health behavior model constructs. The inclusion of these variables could serve to either explain or strengthen relationships within the hypothesized model. As for the utilization of other health behavior model constructs, these variables could further explain relationships as well as assist in determining a stronger predictive model of condom use. Additional limitations to this research were not running the model separately by gender as well as by sexual orientation. If the model was run separately by gender, results may have indicated that the model was more suitable for one gender and not the other. Based on the independent samples t-tests in the current study as well as findings in previous research, there are gender difference in sexual behaviors such as number of reported sexual

partners (Turchik & Garske, 2009). As for running the model separately by sexual orientation, just as if the model was run separately by gender, the results may have indicated the model to be more suitable for one sexual orientation rather than another. The decision to not run the model separately by gender or sexual orientation was based on having a low male sample size as well as having a very low sample of participants self-identify as a sexual orientation other than heterosexual.

One other potential limitation in the studies is the possibility that participants were not truthful when reporting their sexual behaviors. In future studies, the effects of social desirability bias should be taken into consideration when asking participants to self-report their number of sexual partnerships and other sexual behaviors. For example, individuals in the current study may have over reported (males) or underreported (females) their number of lifetime sexual partnerships (see Turchik & Garske, 2009). This was evident in the variable's range, Range = 1 to 4, and median score of 4.

Although not a limitation to the current study, the effects of self-esteem (self-worth) should be considered when assessing the relationship between perceived threat and condom use. Past research suggests that self-esteem might play an important role in how perceived threat of STIs affect condom use. For example, Blanton, Gerrard, and McClive-Reed (2013) observed a boomerang effect when they highlighted the risks associated with unhealthy sexual behavior. After being exposed to the consequences of STIs, sexually

31

active college students who were high in self-esteem (rather than low) expressed *decreased* commitment to using condoms during sex. Thus, the relationship between threat and condom use is possibly moderated by self-esteem. In my model test, the positive relationship between perceived threat and number of sexual partners could have been because participants with high self-esteem showed a similar boomerang response as in Blanton et al. (2013). Perceiving a threat to their well-being might have led them to engage in riskier sexual behaviors.

Conclusion

The aim of this study was to assess condom use among early young adults, as they are a population disproportionately affected by HIV and other STIs, and known to use condoms inconsistently. Results from the study did not support the full model; however, they did provide some insights into what factors are significant predictors of condom use. Thus, results from this study are promising in that they supported relationships that other studies have found to be significant. My research also illustrates the need to further assess factors associated with condom use among early young adults. To expand on this study, variables such as perceived threat and cues to action should be examined to further assess their effect on condom use via number of sexual partners. Such examination, however, should incorporate exposure to high-efficacy messages about condom use into the model.

Overall, my results support past research findings concerning the direct effect that early sexual debut has on reducing condom use. My findings also suggest that the construct perceived threat could be a beneficial inclusion in future studies rather than the separate constructs of perceived severity and susceptibility. Finally, my study offers some insight into the circumstances under which the effects early sexual debut has on reduced condom use via increased number of sexual partners can be mitigated: when cues to action are high and perceived threat of contracting an STI and HIV is low or moderate.

APPENDIX A

INSTITUTIONAL REVIEW BOARD APPROVAL DISPOSITION

**Human Subjects Review Board
Department of Psychology
California State University,
San Bernardino**

PI: Vieux, Christina; Garcia, Donna

From: John P. Clapper

Project Title: The Role of Health Belief Model Constructs in Condom Use among College Students

Project ID: H-16FA-08

Date: 10/20/16

Disposition: Administrative Review

Your IRB proposal is approved to include 300 participants. If you need additional participants, an addendum will be required. This approval is valid until 10/20/2017.

Good luck with your research!

_____

John P. Clapper, Co-Chair
Psychology IRB Sub-Committee

APPENDIX B

INFORMED CONSENT (MTURK)

Informed Consent

Sexual Behaviors in College Students

Introduction/Purpose: This study is being conducted to assess various sexual practices in college students.

Approval: This study has been approved by the Psychology Department Institutional Review Board (IRB) subcommittee of the California State University, San Bernardino (CSUSB). A copy of the official Psychology IRB Committee stamp of approval should appear somewhere on this consent form. CSUSB requires that you provide consent before participating in this study.

Compensation: If you decide to participate in this study, you will be asked to complete a survey regarding your sexual behaviors, religiosity, HIV-related attitudes/beliefs, and other personal information. The survey will take around 20 minutes to complete. You will be compensated with $3.25 after completion of the survey. However, if you fail careless response indicators that are designed to detect if participants are taking the study seriously, your responses will be removed from the study and you will not receive any compensation.

Participation: This study is limited to participants who have engaged in vaginal intercourse within the past year, over the age of 18, heterosexual, and unmarried. Participation in this study is voluntary. You have the ability to decide if you would like to participate or not in this study. You may withdraw from this study at any time or refuse to answer any questions without penalty or loss of benefits to which you are otherwise entitled.

Confidentiality: To ensure confidentiality, you will not be required to report any identifying information (e.g., name, contact information, full date of birth, etc.) that can be linked back to you. In addition, no IP addresses will be collected, and data will be stored on a password-protected computer that will only be accessed by the researcher. Results will be reported only in aggregate form so no one person's responses will be shared, and data will be destroyed 7 years after publication.

Risks: There are a few potential risks for participating in this study. Due to the survey containing questions of a sensitive nature, you may experience some discomfort, but this feeling should not be greater than that routinely encountered in daily life during similar discussions about sex. If at the completion of this survey you have questions about HIV/AIDs, you can contact the Center for Disease and Prevention Control (CDC) general information/testing and prevention at 1-800-232-4636.

Benefits: Even though participation in this study may not benefit you directly, it is believed that the information collected will help us gain a better understanding of sexual practices, including condom use, in college students.
Dissemination: Data from this study may be presented at regional, national, or international scientific conferences and/or submitted for publication in a peer-reviewed scientific journal.

Questions: If you have any questions concerning this survey, the results, or your participation in this study please feel free to contact Dr. Donna Garcia at dmgarcia@csusb.edu or Christina Vieux at vieuxc@coyote.csusb.edu. Results will be available after January 2017. You may also contact the Psychology Department Institutional Review Board (IRB) subcommittee of the California State University, San Bernardino (PSYC.IRB@csusb.edu) if you have any concerns about this study

Please read the following sentence:

I acknowledge that I have been informed of, and understand the nature and purpose of this study, and I freely consent to participate. I acknowledge that I am at least 18 years of age.

By clicking on "I agree", you are consenting to participate in this study and start the survey.

If you do not consent, you may click "I do not agree" and you will exit the survey.

If you choose, you may print a copy of the Informed Consent for your records.

APPENDIX C

INFORMED CONSENT (SONA)

Informed Consent

Sexual Behaviors in College Students

Introduction/Purpose: This study is being conducted to assess various sexual practices in college students.

Approval: This study has been approved by the Psychology Department Institutional Review Board (IRB) subcommittee of the California State University, San Bernardino (CSUSB). A copy of the official Psychology IRB Committee stamp of approval should appear somewhere on this consent form. CSUSB requires that you provide consent before participating in this study.

Compensation: If you decide to participate in this study, you will be asked to complete a survey regarding your sexual behaviors, religiosity, HIV-related attitudes/beliefs, and other personal information. The survey will take around 20 minutes to complete. You will receive 1 unit of extra credit as compensation after the completion of the survey. However, if you fail careless response indicators that are designed to detect if participants are taking the study seriously, your responses will be removed from the study and you will not receive any compensation.

Participation: This study is limited to participants who have engaged in vaginal intercourse within the past year, over the age of 18, heterosexual, and unmarried. Participation in this study is voluntary. You have the ability to decide if you would like to participate or not in this study. You may withdraw from this study at any time or refuse to answer any questions without penalty or loss of benefits to which you are otherwise entitled.

Confidentiality: To ensure confidentiality, you will not be required to report any identifying information (e.g., name, contact information, full date of birth, etc.) that can be linked back to you. In addition, no IP addresses will be collected, and data will be stored on a password-protected computer that will only be accessed by the researcher. Results will be reported only in aggregate form so no one person's responses will be shared, and data will be destroyed 7 years after publication.

Risks: There are a few potential risks for participating in this study. Due to the survey containing questions of a sensitive nature, you may experience some discomfort, but this feeling should not be greater than that routinely encountered in daily life during similar discussions about sex. If at the completion of this survey you have questions about HIV/AIDs, you can contact the Center for Disease and Prevention Control (CDC) general information/testing and

prevention at 1-800-232-4636 or the Counseling and Psychological Service (CAPS) at (909) 537-5040.

Benefits: Even though participation in this study may not benefit you directly, it is believed that the information collected will help us gain a better understanding of sexual practices, including condom use, in college students.

Dissemination: Data from this study may be presented at regional, national, or international scientific conferences and/or submitted for publication in a peer-reviewed scientific journal.

Questions: If you have any questions concerning this survey, the results, or your participation in this study please feel free to contact Dr. Donna Garcia at dmgarcia@csusb.edu or Christina Vieux at vieuxc@coyote.csusb.edu. Results will be available after January 2017. You may also contact the Psychology Department Institutional Review Board (IRB) subcommittee of the California State University, San Bernardino (PSYC.IRB@csusb.edu) if you have any concerns about this study

Please read the following sentence:

I acknowledge that I have been informed of, and understand the nature and purpose of this study, and I freely consent to participate. I acknowledge that I am at least 18 years of age.

By clicking on "I agree", you are consenting to participate in this study and start the survey.

If you do not consent, you may click "I do not agree" and you will exit the survey.

If you choose, you may print a copy of the Informed Consent for your records.

APPENDIX D

DEBRIEFING STATEMENT

Debriefing Statement

Thank you for participating! The goal of this study was to assess condom use frequency through the examination of associated condom use factors and health behaviors such as perception of threat to a disease, self-efficacy to perform an action, and cues to action that promote a behavior.

We expect that the findings of this study will help aid in the development and implementation of comprehensive health education programs, and prevention and intervention strategies aimed at individuals between the ages of 18-34.

Of course, your responses, and other information about you will be completely anonymous. If you have any questions about this study or would like to learn more about the findings (after January 2017), please feel free to contact the investigators: Dr. Donna Garcia (dmgarcia@csusb.edu) or Christina Vieux (vieuxc@coyote.csusb.edu). Thank you for your participation.

APPENDIX E

SURVEY (MTURK)

For the sources listed below, please rate their level of influence on your decision to utilize condoms.

	Not at All Influential	Slightly Influential	Somewhat Influential	Very Influential	Extremely Influential
Condom display in store	❍	❍	❍	❍	❍
Doctor	❍	❍	❍	❍	❍
Interaction with/knowing people who are HIV positive or have AIDS	❍	❍	❍	❍	❍
Interaction with/knowing people who have sexually transmitted infections (e.g. herpes, chlamydia, gonorrhea)	❍	❍	❍	❍	❍
Internet	❍	❍	❍	❍	❍
Magazine ad(s)/article(s)	❍	❍	❍	❍	❍
Movie(s)	❍	❍	❍	❍	❍
Newspaper article(s)	❍	❍	❍	❍	❍
Poster(s)	❍	❍	❍	❍	❍
Pamphlet(s)	❍	❍	❍	❍	❍
Student Health Clinic/Center	❍	❍	❍	❍	❍
Television commercial(s)	❍	❍	❍	❍	❍
Television show(s)	❍	❍	❍	❍	❍

HIV/AIDS is a serious condition.
- ○ Strongly agree
- ○ Agree
- ○ Neither agree or disagree
- ○ Disagree
- ○ Strongly disagree

HIV/AIDS does not have significant financial consequences.
- ○ Strongly agree
- ○ Agree
- ○ Neither agree or disagree
- ○ Disagree
- ○ Strongly disagree

HIV/AIDS also effect family members, friends, and significant others.
- ○ Strongly agree
- ○ Agree
- ○ Neither agree or disagree
- ○ Disagree
- ○ Strongly disagree

Having HIV/AIDS would have a significant impact on my life.
- ○ Strongly agree
- ○ Agree
- ○ Neither agree or disagree
- ○ Disagree
- ○ Strongly disagree

The thought of having HIV/AIDS scares me.
- ○ Strongly agree
- ○ Agree
- ○ Neither agree or disagree
- ○ Disagree
- ○ Strongly disagree

Select Strongly Disagree for this question.
○ Strongly agree
○ Somewhat agree
○ Neither agree nor disagree
○ Somewhat disagree
○ Strongly disagree

Sexually transmitted infections (STIs) are a serious condition.
○ Strongly agree
○ Agree
○ Neither agree or disagree
○ Disagree
○ Strongly disagree

STIs do not have significant financial consequences.
○ Strongly agree
○ Agree
○ Neither agree or disagree
○ Disagree
○ Strongly disagree

STIs also effect family members, friends, and significant others.
○ Strongly agree
○ Agree
○ Neither agree or disagree
○ Disagree
○ Strongly disagree

Having an STI would have a significant impact on my life.
○ Strongly agree
○ Agree
○ Neither agree or disagree
○ Disagree
○ Strongly disagree

The thought of having an STI scares me.
- ❍ Strongly agree
- ❍ Agree
- ❍ Neither agree or disagree
- ❍ Disagree
- ❍ Strongly disagree

What is the likelihood you will contract HIV/AIDS in your lifetime?
- ❍ Extremely unlikely
- ❍ Unlikely
- ❍ Neutral
- ❍ Likely
- ❍ Extremely likely

Five years from now, what is the likelihood you will contract HIV/AIDS in your lifetime?
- ❍ Extremely unlikely
- ❍ Unlikely
- ❍ Neutral
- ❍ Likely
- ❍ Extremely likely

What is the likelihood you will contract a sexually transmitted infection (e.g. herpes, chlamydia, gonorrhea) in your lifetime?
- ❍ Extremely unlikely
- ❍ Unlikely
- ❍ Neutral
- ❍ Likely
- ❍ Extremely likely

Five years from now, what is the likelihood you will contract a sexually transmitted infection (e.g. herpes, chlamydia, gonorrhea) in your lifetime?
- ❍ Extremely unlikely
- ❍ Unlikely
- ❍ Neutral
- ❍ Likely
- ❍ Extremely likely

I feel confident in my ability to put a condom on myself or my partner.
- ❍ Strongly agree
- ❍ Somewhat agree
- ❍ Undecided
- ❍ Somewhat disagree
- ❍ Strongly disagree

I feel confident in my ability to use a condom correctly.
- ❍ Strongly agree
- ❍ Somewhat agree
- ❍ Undecided
- ❍ Somewhat disagree
- ❍ Strongly disagree

I feel confident I could gracefully remove and dispose of a condom when we have intercourse.
- ❍ Strongly agree
- ❍ Somewhat agree
- ❍ Undecided
- ❍ Somewhat disagree
- ❍ Strongly disagree

I feel confident in my ability to put a condom on myself or my partner quickly.
- ❍ Strongly agree
- ❍ Somewhat agree
- ❍ Undecided
- ❍ Somewhat disagree
- ❍ Strongly disagree

Select Strongly Disagree for this question.
- ❍ Strongly agree
- ❍ Somewhat agree
- ❍ Neither agree nor disagree
- ❍ Somewhat disagree
- ❍ Strongly disagree

Think back to when you first had vaginal intercourse, did you (or your partner) use a condom?
❍ Yes
❍ No
❍ I don't know/remember

Thinking back to all the times you had vaginal intercourse, how often was a condom used?
❍ Never
❍ Almost never
❍ Occasionally/Sometimes
❍ Almost every time
❍ Every time

How many vaginal sexual partners have you had in your lifetime?

How many vaginal sexual partners have you had in the past 1-year?

How many vaginal sexual partners have you had in the past 6 months?

How many vaginal sexual partners have you had in the past month?

Think back to when you first had vaginal intercourse, did you or your partner use coercion (e.g. begging, pleading)?
❍ Yes
❍ No
❍ I don't know/remember

Thinking back to all the times you had vaginal intercourse, did you or your partner use coercion (e.g. begging, pleading)?
❍ Yes
❍ No
❍ I don't know/remember

Have you ever been vaccinated for human papillomavirus (HPV)?
❍ Yes
❍ No
❍ I don't know/remember

What is your age?

Which category best describes your ethnicity/race?
○ African American/Black
○ American Indian/Alaskan Native
○ Asian
○ Hispanic/Latino
○ Native Hawaiian/Other Pacific Islander
○ White
○ Some other ethnicity/race, please specify _____
○ I prefer not to answer

What is your gender identity?
○ Female
○ Male
○ Another gender identity, please specify _____
○ I prefer not to respond

Which best describes your sexual orientation?
○ Bisexual
○ Gay
○ Heterosexual
○ Lesbian
○ Questioning or Unsure
○ Another sexual orientation, please specify _____
○ I prefer not to answer

What is your marital status?
○ Single/Never Married
○ In a Relationship
○ Married or Domestic Partnership
○ Widowed/Divorced
○ Separated
How old were you when you first had vaginal intercourse?

APPENDIX F

SURVEY (SONA)

For the sources listed below, please rate their level of influence on your decision to utilize condoms.

	Not at All Influential	Slightly Influential	Somewhat Influential	Very Influential	Extremely Influential
Condom display in store	❍	❍	❍	❍	❍
Doctor	❍	❍	❍	❍	❍
Interaction with/knowing people who are HIV positive or have AIDS	❍	❍	❍	❍	❍
Interaction with/knowing people who have sexually transmitted infections (e.g. herpes, chlamydia, gonorrhea)	❍	❍	❍	❍	❍
Internet	❍	❍	❍	❍	❍
Magazine ad(s)/article(s)	❍	❍	❍	❍	❍
Movie(s)	❍	❍	❍	❍	❍
Newspaper article(s)	❍	❍	❍	❍	❍
Poster(s)	❍	❍	❍	❍	❍
Pamphlet(s)	❍	❍	❍	❍	❍
Student Health Clinic/Center	❍	❍	❍	❍	❍
Television commercial(s)	❍	❍	❍	❍	❍
Television show(s)	❍	❍	❍	❍	❍

HIV/AIDS is a serious condition.
- ○ Strongly agree
- ○ Agree
- ○ Neither agree or disagree
- ○ Disagree
- ○ Strongly disagree

HIV/AIDS does not have significant financial consequences.
- ○ Strongly agree
- ○ Agree
- ○ Neither agree or disagree
- ○ Disagree
- ○ Strongly disagree

HIV/AIDS also effect family members, friends, and significant others.
- ○ Strongly agree
- ○ Agree
- ○ Neither agree or disagree
- ○ Disagree
- ○ Strongly disagree

Having HIV/AIDS would have a significant impact on my life.
- ○ Strongly agree
- ○ Agree
- ○ Neither agree or disagree
- ○ Disagree
- ○ Strongly disagree

The thought of having HIV/AIDS scares me.
- ○ Strongly agree
- ○ Agree
- ○ Neither agree or disagree
- ○ Disagree
- ○ Strongly disagree

Select Strongly Disagree for this question.
- ○ Strongly agree
- ○ Somewhat agree
- ○ Neither agree nor disagree
- ○ Somewhat disagree
- ○ Strongly disagree

Sexually transmitted infections (STIs) are a serious condition.
- ○ Strongly agree
- ○ Agree
- ○ Neither agree or disagree
- ○ Disagree
- ○ Strongly disagree

STIs do not have significant financial consequences.
- ○ Strongly agree
- ○ Agree
- ○ Neither agree or disagree
- ○ Disagree
- ○ Strongly disagree

STIs also effect family members, friends, and significant others.
- ○ Strongly agree
- ○ Agree
- ○ Neither agree or disagree
- ○ Disagree
- ○ Strongly disagree

Having an STI would have a significant impact on my life.
- ○ Strongly agree
- ○ Agree
- ○ Neither agree or disagree
- ○ Disagree
- ○ Strongly disagree

The thought of having an STI scares me.
- ❍ Strongly agree
- ❍ Agree
- ❍ Neither agree or disagree
- ❍ Disagree
- ❍ Strongly disagree

What is the likelihood you will contract HIV/AIDS in your lifetime?
- ❍ Extremely unlikely
- ❍ Unlikely
- ❍ Neutral
- ❍ Likely
- ❍ Extremely likely

Five years from now, what is the likelihood you will contract HIV/AIDS in your lifetime?
- ❍ Extremely unlikely
- ❍ Unlikely
- ❍ Neutral
- ❍ Likely
- ❍ Extremely likely

What is the likelihood you will contract a sexually transmitted infection (e.g. herpes, chlamydia, gonorrhea) in your lifetime?
- ❍ Extremely unlikely
- ❍ Unlikely
- ❍ Neutral
- ❍ Likely
- ❍ Extremely likely

Five years from now, what is the likelihood you will contract a sexually transmitted infection (e.g. herpes, chlamydia, gonorrhea) in your lifetime?
- ❍ Extremely unlikely
- ❍ Unlikely
- ❍ Neutral
- ❍ Likely
- ❍ Extremely likely

I feel confident in my ability to put a condom on myself or my partner.
- ○ Strongly agree
- ○ Somewhat agree
- ○ Undecided
- ○ Somewhat disagree
- ○ Strongly disagree

I feel confident in my ability to use a condom correctly.
- ○ Strongly agree
- ○ Somewhat agree
- ○ Undecided
- ○ Somewhat disagree
- ○ Strongly disagree

I feel confident I could gracefully remove and dispose of a condom when we have intercourse.
- ○ Strongly agree
- ○ Somewhat agree
- ○ Undecided
- ○ Somewhat disagree
- ○ Strongly disagree

I feel confident in my ability to put a condom on myself or my partner quickly.
- ○ Strongly agree
- ○ Somewhat agree
- ○ Undecided
- ○ Somewhat disagree
- ○ Strongly disagree

Select Strongly Disagree for this question.
- ○ Strongly agree
- ○ Somewhat agree
- ○ Neither agree nor disagree
- ○ Somewhat disagree
- ○ Strongly disagree

Think back to when you first had vaginal intercourse, did you (or your partner) use a condom?
○ Yes
○ No
○ I don't know/remember

Thinking back to all the times you had vaginal intercourse, how often was a condom used?
○ Never
○ Almost never
○ Occasionally/Sometimes
○ Almost every time
○ Every time

How many vaginal sexual partners have you had in your lifetime?

How many vaginal sexual partners have you had in the past 1-year?

How many vaginal sexual partners have you had in the past 6 months?

How many vaginal sexual partners have you had in the past month?

Think back to when you first had vaginal intercourse, did you or your partner use coercion (e.g. begging, pleading)?
○ Yes
○ No
○ I don't know/remember

Thinking back to all the times you had vaginal intercourse, did you or your partner use coercion (e.g. begging, pleading)?
○ Yes
○ No
○ I don't know/remember

Have you ever been vaccinated for human papillomavirus (HPV)?
○ Yes
○ No
○ I don't know/remember

What is your age?

Which category best describes your ethnicity/race?
❍ African American/Black
❍ American Indian/Alaskan Native
❍ Asian
❍ Hispanic/Latino
❍ Native Hawaiian/Other Pacific Islander
❍ White
❍ Some other ethnicity/race, please specify _____
❍ I prefer not to answer

What is your gender identity?
❍ Female
❍ Male
❍ Another gender identity, please specify _____
❍ I prefer not to respond

Which best describes your sexual orientation?
❍ Bisexual
❍ Gay
❍ Heterosexual
❍ Lesbian
❍ Questioning or Unsure
❍ Another sexual orientation, please specify _____
❍ I prefer not to answer

What is your marital status?
❍ Single/Never Married
❍ In a Relationship
❍ Married or Domestic Partnership
❍ Widowed/Divorced
❍ Separated

How old were you when you first had vaginal intercourse?

Have you had vaginal intercourse within the past year?
❍ Yes
❍ No

REFERENCES

Adih, W. K., & Alexander, C. S. (1999). Determinants of condom use to prevent

    HIV infection among youth in Ghana. *Journal of Adolescent Health,24*(1),

    63-72. doi:10.1016/s1054-139x(98)00062-7

Basen-Engquist, K., & Parcel, G. (1992). Attitudes, norms, and self-efficacy: A

    model of adolescents' HIV-related sexual risk behavior. *Health Education*

    Quarterly, 19(2), 263-277.

Baumann, P., Bélanger, R., Akre, C., & Suris, J. (2011). Increased risks of early

    sexual initiators: Time makes a difference. *Sexual Health*, 8(3), 431-

    435Brafford L.J., & Beck K.H. (1991). Development and validation of

    a condom self-efficacy scale for college students. *Journal of American*

    College Health. 39, 219-225.

Becker, M.H. (1974). The health belief model and personal health behavior.

    Health Education Monograph, 2, 324-473.

Blanton, H., Gerrard, M., & McClive-Reed, K. P. (2013). Threading the Needle in

    Health-Risk Communication: Increasing Vulnerability Salience While

    Promoting Self-Worth. *Journal Of Health Communication, 18*(11), 1279-

    1292. doi:10.1080/10810730.2013.778359

Brafford, L. J., & Beck, K. H. (1991). Development and Validation of a Condom

    Self-Efficacy Scale for College Students. *Journal of American College*

    Health,39(5), 219-225. doi:10.1080/07448481.1991.9936238

Center for Disease Control and Prevention. (2014). *CDC Fact Sheet: Reported*

      STDs in the United States 2014 National Data Chlamydia, Gonorrhea, and

      Syphilis. Retrieved from http://www.cdc.gov/std/stats14/std-trends-

      508.pdf.

Centers for Disease Control and Prevention. Persons Tested for HIV --- United

      States, 2006. *Morbidity and Mortality Weekly Report* August 8, 2008:

      57(*31*); 845-849

Center for Disease Control and Prevention. (2016). Diagnoses of HIV infection in

      the United States and dependent areas, 2015. *HIV Surveillance Report*,

      Volume 27. Atlanta, GA: US Department of Health and Human Services.

      Available at https://www.cdc.gov/hiv/pdf/library/reports/surveillance/cdc-

      hiv-surveillance-report-2015-vol-27.pdf.

Center for Disease Control and Prevention. (2017). HIV/AIDS. Retrieved from

      https://www.cdc.gov/hiv/programresources/guidance/condoms/index.html

Champion, V.L. & Skinner, C.S. (2008). The health belief model. In Glanz,K.,

      Rimer, B.K., & Viswanath, K. (Eds.). Health Behavior - Theory, Research,

      and Practice (pp. 45-62), Jossey-Bass, San Franciso, CA.

Chialepeh, W. N., & Susuman, A. S. (2015). Risk Factors of Inconsistent

      Condom Use among Sexually Active Youths: Implications for Human

      Immunodeficiency Virus and Sexual Risk Behaviours in Malawi. *Journal of*

      Asian and African Studies,52(4), 484-496.

      doi:10.1177/0021909615595992

Fisher, J.D. & Fisher, W.A. (2000). Theoretical approaches to individual-level

    change in HIV risk behavior. In Peterson, J. and DiClemente, R. (Eds.),

    Handbook of HIV Prevention (pp. 3-55), Kluwer Academic/Plenum

    Publisher, New York.

Gartoulla, P., Sudip, K.C., Pantha, S. (2013). Predictors of Condom Use in Men

    of Badi Community of Sahere Village Development Committee, Surkhet

    District, Nepal: Health Belief Model Perspective .*Journal of Womens*

    Health Care,02(04). doi:10.4172/2167-0420.1000133

Hanson, G., Venturelli, P. J., & Fleckenstein, A. E. (2018).*Drugs and society.*

    Burlington, MA: Jones & Bartlett Learning.

 Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional*

    process analysis. New York: The Guilford Press

Hendriksen, E. S., Pettifor, A., Lee, S., Coates, T. J., & Rees, H. V. (2007).

    Predictors of Condom Use Among Young Adults in South Africa: The

    Reproductive Health and HIV Research Unit National Youth Survey.

    American Journal of Public Health,97 (7), 1241-1248.

    doi:10.2105/ajph.2006.086009

Hingson, R. W., Strunin, L., Berlin, B. M., & Heeren, T. (1990). Beliefs about

    AIDS, use of alcohol and drugs, and unprotected sex among

    Massachusetts adolescents. American Journal of Public Health, 80(3),

    295-299.

Jensen, K., Munk, C., Sparen, P., Tryggvadottir, L., Liaw, K., Dasbach, E.,

    Nygard, M., & Kjaer, S.K. (2011). Women's sexual behavior. Population-

    based study among 65,000 women from four Nordic countries before

    introduction of human papillomavirus vaccination. *Acta Obstetricia Et*

    Gynecologica Scandinavica, 90(5), 459-467.

Johnson AS, Heitgerd J, Koenig LJ, VanHandel M, Branson BM, Connelly E, Hall

    HI, Valleroy LA. Vital Signs: HIV testing and diagnosis among adults-

    United States, 2001–2009. Morbidity And Mortality Weekly Report. 2010;

    59(47):1550–1555.

Katikiro, E., & Njau, B. (2012). Motivating Factors and Psychosocial Barriers to

    Condom Use among out-of-School Youths in Dar es Salaam, Tanzania: A

    Cross Sectional Survey Using the Health Belief Model.*Isrn Aids,2012*, 1-8.

    doi:10.5402/2012/170739

Kirscht, J.P. (1974). The health belief model and illness behavior. *Health*

    Education Monograph, 2, 387-408.

Li, J., Li, S., Yan, H., Xu, D., Xiao, H., Cao, Y., Mao, Z. (2015). Early sex initiation

    and subsequent unsafe sexual behaviors and sex-related risks among

    female undergraduates in Wuhan, China. *Asia-Pacific Journal of Public*

    Health, 27(2_suppl), 21S-29S.

Ma, Q., Ono-Kihara, M., Cong, L., Xu, G., Pan, X., Zamani, S., Ravari, S.M.,

    Zhang, D., Homma, T., Kihara, M. (2009a). Early initiation of sexual

    activity: a risk factor for sexually transmitted diseases, HIV infection, and

unwanted pregnancy among university students in China. *BMC Public Health,9* (1). doi:10.1186/1471-2458-9-111

Magnusson, B. M., Masho, S. W., & Lapane, K. L. (2012). Early Age at First Intercourse and Subsequent Gaps in Contraceptive Use. *Journal of Womens Health,21*(1), 73-79. doi:10.1089/jwh.2011.2893

Mccall, S., & Brady, C. (2016). Condom Negotiation Efficacy and Condom Use Attitudes as Predictors of Condom use in African American College Students. *Journal of AIDS & Clinical Research,07*(04). doi:10.4172/2155-6113.1000563

Meade, A. W., & Craig, S. B. (2011, April). *Identifying careless responses in survey data.* Paper presented at the 26th annual conference of the Society for Industrial and Organizational Psychology, Chicago, IL.

Mehra, D., Östergren, P., Ekman, B., & Agardh, A. (2014). Inconsistent condom use among Ugandan university students from a gender perspective: a cross-sectional study. *Global Health Action,7*(1), 22942. doi:10.3402/gha.v7.22942

Mengistu, T. S., Melku, A. T., Bedada, N. D., & Eticha, B. T. (2013). Risks for STIs/HIV infection among Madawalabu University students, Southeast Ethiopia: a cross sectional study. *Reproductive Health,10*(1). doi:10.1186/1742-4755-10-38

Morris, L., Kouya, F., Kwalar, R., Pilapil, M., Saito, K., Palmer, N., Posado, R., Tih, P.M., Welty, T., Joa, J. (2014). Factors associated with inconsistent

condom use in adolescents with negative or unknown HIV status in

Northwest Cameroon. *AIDS Care, 26* (11), 1440-1445.

doi:10.1080/09540121.2014.920948

Nasrullah, M., Oraka, E., Chavez, P. R., Johnson, C. H., & Dinenno, E. (2017).

Factors Associated With Condom Use Among Sexually Active US Adults,

National Survey of Family Growth, 2006–2010 and 2011–2013. *The*

Journal of Sexual Medicine, 14(4), 541-550.

Ngome, E. (2016). Demographic, Socio-Economic and Psychosocial

Determinants of Current and Consistent Condom Use among Adolescents

in Botswana. *World Journal of AIDS,06*(04), 137-156.

doi:10.4236/wja.2016.64017

Noubiap, J. J., Nansseu, J. R., Ndoula, S. T., Wang, B., Jingi, A. M., Bigna, J. J.,

Aminde, L.N., Youmbi, A.R., Fokom-Domgue, J. (2015). Prevalence and

correlates of HIV-risky sexual behaviors among students attending the

Medical and Social Welfare Center of the University of Maroua,

Cameroon.*BMC Research Notes,8*(1). doi:10.1186/s13104-015-1638-2

O'Donnell, L., O'Donnell, C. R., & Stueve, A. (2001). Early sexual initiation and

subsequent sex-related risks among urban minority youth: The reach for

health study. *Family planning perspectives*, 268-275.

Pettifor, E., van der Straten, S., Dunbar, C., Shiboski, S., & Padian, S. (2004).

Early age of first sex: A risk factor for HIV infection among women in

Zimbabwe. AIDS, 18(10), 1435-1442.

Pullum, T., J. Cleland and I. Shah (1999), 'Consensus, Power and Trust in the

      Use of Family Planning and Condoms by Couples in Eastern and

      Southern Africa', *Social Sciences and Medicine*, 49 (7), 455-87

Ratcliff, T. M., Zlotnick, C., Cu-Uvin, S., Payne, N., Sly, K., & Flanigan, T. (2012).

      Acceptance of HIV Antibody Testing Among Women in Domestic Violence

      Shelters. *Journal of HIV/AIDS & Social Services*, 11(3), 291–304.

Richter, D. L., Valois, R. F., McKeown, R. E., & Vincent, M. L. (1993). Correlates

      of condom use and number of sexual partners among high school

      adolescents. *Journal of School Health*, *63*(2), 91-97.

Rissel, C., Richters, J., Grulich, A., de Visser, R.O., Smith, A.M.A. (2003). First

      experiences of vaginal intercourse and oral sex among a representative

      sample of adults. *Australian and New Zealand Journal of Public

      Health*, 27(2), 131-137.

Santelli, J., Brener, N., Lowry, R., Bhatt, A., & Zabin, L. (1998). Multiple sexual

      partners among U.S. adolescents and young adults. *Family Planning

      Perspectives*, 30(6), 271-275.

Sayles, J. N., Pettifor, A., Wong, M. D., MacPhail, C., Lee, S.-J., Hendriksen, E.,

      Rees, H.V., Coates, T. (2006). Factors Associated With Self-Efficacy for

      Condom Use and Sexual Negotiation Among South African Youth. *Journal

      of Acquired Immune Deficiency Syndromes*, *43*(2), 226–233.

Secretary's Minority AIDS Initiative Fund (2017). HIV Prevention Activities.

Retrieved November 08, 2017, from https://www.hiv.gov/federal-

response/federal-activities-agencies/hiv-prevention-activities

Shrestha, R., Karki, P., & Copenhaver, M. (2016). Early sexual debut: A risk

factor for STIs/HIV acquisition among a nationally representative sample

of adults in Nepal. *Journal of Community Health*, 41(1), 70-77.

Skinner, C.S., Tiro, J. & Champion, V.L. (2015). The health belief model. In

Glanz,K., Rimer, B.K., & Viswanath, K. (Eds.). Health Behavior-Theory,

Research, and Practice. Jossey-Bass, San Franciso, CA.

Sneed, C. D. (2009). Sexual risk behavior among early initiators of sexual

intercourse. *AIDS Care*, 21(11), 1395–1400.

Southerland, Shiree M. (2015). Factors related to condom use among sexually

active African American females using Health Belief Model Constructs and

potential cues to action with a mass communication/interpersonal

communication approach (Doctoral Dissertation) Retrieved from

http://trace.tennessee.edu/cgi/viewcontent.cgi?article=3738&context=utk_

graddiss

Tarkang, E. (2013a). Condom Use and Number of Sexual Partners among

Secondary School Female Students in an Urban City of Cameroon.

Rwanda Journal of Health Sciences,2(2), 30. doi:10.4314/rjhs.v2i2.6

Tarkang, E. (2013b). Predictors of Consistent Condom Use among Secondary

School Male Students in Mbonge Subdivision of Rural Cameroon.*Science

Journal of Public Health,1*(4), 165. doi:10.11648/j.sjph.20130104.11

Tarkang, E. (2015). Factors Influencing Consistent Condom Use among

Secondary School Male Students in Limbe Urban City, Cameroon. *Journal

of Scientific Research and Reports,4*(2), 101-113.

doi:10.9734/jsrr/2015/11334

Turchik, J. A., & Garske, J. P. (2009). Measurement of sexual risk taking among

college students. *Archives of sexual behavior, 38*(6), 936-948. DOI

10.1007/s10508-008-9388-z

U.S. Census Bureau, Population Division (2016). Annual Estimates of the

Resident Population by Single Year of Age and Sex for the United States:

April 1, 2010 to July 1, 2015 [PEPSYASEXN]. Retrieved from American

Factfinder.

Witte, K., & Allen, M. (2000). A meta-analysis of fear appeals: Implications for

effective public health campaigns. *Health education & behavior*, *27*(5),

591-615.

Yotebieng, M., Halpern, C. T., Mitchell, E. M., & Adimora, A. (2009). Correlates of

condom use among sexually experienced secondary school male students

in Nairobi, Kenya.*SAHARA-J: Journal of Social Aspects of HIV/AIDS,6*(1),

9-16. doi:10.1080/17290376.2009.9724924