PERCEIVED PEER NORMS, HEALTH BELIEFS, AND THEIR LINKS TO SEXUAL RISK BEHAVIOR AMONG COLLEGE STUDENTS

Thesis

Submitted to

The College of Arts and Sciences of the

UNIVERSITY OF DAYTON

In Partial Fulfillment of the Requirements for

The Degree of

Master of Arts in Clinical Psychology

By

Cassandra Lee Hartman

UNIVERSITY OF DAYTON

Dayton, Ohio

December, 2019

PERCEIVED PEER NORMS, HEALTH BELIEFS, AND THEIR LINKS TO SEXUAL RISK BEHAVIOR AMONG COLLEGE STUDENTS

Name: Hartman, Cassandra Lee

APPROVED BY:

_____
Jackson A. Goodnight, Ph.D.
Faculty Advisor
Associate Professor, Department of Psychology

_____
Catherine Lutz Zois, Ph.D.
Committee Member
Professor, Department of Psychology

_____
Julie Walsh-Messinger, Ph.D.
Committee Member
Assistant Professor, Department of Psychology

ABSTRACT

PERCEIVED PEER NORMS, HEALTH BELIEFS, AND THEIR LINKS TO SEXUAL RISK BEHAVIOR AMONG COLLEGE STUDENTS

Name: Hartman, Cassandra Lee
University of Dayton

Advisor: Dr. Jackson A. Goodnight

Previous research suggests that the Health Belief Model and the model of Pluralistic Ignorance are used interdependently to account for individuals' engagement in sexual risk behavior (Wulfert & Wan, 1995; Miller & McFarland, 1991; Downing-Matibag & Geisinger, 2009). The present study investigates whether health belief variables (i.e., perceived susceptibility, perceived severity, and perceived self-efficacy) moderate or mediate the association between perceived peer norms and sexual risk behavior among college students. Results did not provide support for health belief variables acting as a moderator or a mediator of the association between perceived peer norms and sexual risk behavior. However, the results indicate that perceived peer norms consistently predicted sexual risk behavior among college students. These findings underscore findings from previous research regarding how important our perception of our peers is, and how this perception may drive our own behavior.

ACKNOWLEDGEMENTS

I would like to offer my sincere gratitude to everyone who assisted in me in completing my thesis. I greatly appreciate the assistance of my thesis advisor, Dr. Jackson Goodnight on all steps in developing and completing this study. Additionally, I would like to thank Dr. Catherine Zois and Dr. Julie Messinger for their discerning comments on my paper. Without the help and support of these committee members, my thesis would not have been as well constructed and written as it is. Many thanks to Dr. Erin O'Mara Kunz for the use of and help with Survey Monkey.

Furthermore, everyone who has assisted me through this process in any way deserves many thanks. Too numerable to mention by name, all those who supported me or provided feedback at any point are greatly appreciated.

This work has been supported in part by the University of Dayton Office for Graduate Academic Affairs through the Graduate Student Summer Fellowship Program.

TABLE OF CONTENTS

APPENDICES

LIST OF FIGURES

LIST OF TABLES

INTRODUCTION

Emerging adulthood (ages 18 to 25) is a developmental period which embodies a time of exploration and identity development often accompanied by risk-taking behavior (Arnett, 2000). Such risk-taking behavior is characterized by substance use (e.g., binge drinking), risky driving (e.g., driving while intoxicated), and risky sexual activity (e.g., unprotected sex). Of these behaviors, sexual risk-taking is of particular concern because the consequences of such behavior are becoming more prevalent. Despite sexual education efforts, wide availability of contraceptives, and public knowledge health concerns related to risky sexual behavior, the rate of sexually transmitted infections (STIs) continue to rise (Centers for Disease Control, 2010), and half of new STI cases are accounted for among emerging adults (Weinstock, Berman, & Cates, 2004).

Research has shown that, among other factors, sexual behavior is associated with perceived sexual norms (i.e., shared expectations or beliefs about appropriate ways of acting in a social situation), such that perceiving risky sexual behavior as normative is correlated with increased engagement in sexual risk behaviors. In addition, other variables (e.g., substance use, self-esteem, and depression) predicting risky sexual behavior and perceived sexual norms have been explored. Such research has found that more depressive symptoms are associated with less sexual risk behavior while increased levels of substance use, lower levels of self-esteem, and many other factors are associated with increased sexual risk behavior (Tross et al., 2015; Sterk, Klein, & Elifson, 2004). The present study investigated variables from two models that have been used to explain one's own engagement in sexual risk behavior, the Health Belief Model and the model of Pluralistic Ignorance, in an effort to understand how personal beliefs and perceived

peer acceptability of sexual risk taking are associated with college students' engagement in sexual risk behaviors. While these two models have been used extensively to explain sexual risk behaviors, no study has yet explored how these models may work together. The current study aimed to understand how privately held health beliefs influence one's perception of normative peer sexual behavior, how this relates to one's own engagement in sexual risk behavior, and how privately held health beliefs may explain the relationship between perceived peer norms and one's own engagement in sexual risk behavior.

Sexual Risk Behavior

Risk behavior includes any activity which exposes an individual to potential harm. Sexual risk behaviors include substance use before sex, sex with multiple partners, sex with strangers, sex without condom use, sex without discussing risk factors, and sex without discussing partner's sexual history (Luster & Small, 1994; Turchik & Garske, 2009; Bowers et al., 2016). Risky sexual behavior is important to understand due to its numerous negative consequences. These outcomes include, but are not limited to, unplanned pregnancy, low self-esteem, low GPA, poor academic performance, and psychological distress (Cooper, 2002; Turchik & Garske, 2009; Gil-Rivas, 2012; Bowers, Segrin, & Joyce, 2016). Risky sexual behavior also negatively affects physical health, due to the increased chance of sexually transmitted infections such as HIV.

Research has found that there is a vast difference among college students between the frequency of sexual risk behavior that is perceived to occur and the frequency of reported sexual risk behavior. Research investigating perceived norms and risky sexual behavior have consistently found that college students misperceive sexual behavior as more normative than it actually is. The National College Health Assessment found that 49.1% of college students

reported having vaginal sex 1 or more times in the past 30 days, while 94.4% of college students perceived that the average student engaged in vaginal sex 1 or more times in the past 30 days (American College Health Association, 2008).

Several studies have investigated links between risky sexual behavior and perceived norms of sexual risk-taking on college campuses (Sherwin & Corbett, 1985; Selvan, Ross, Kapadia, Mathai, & Hira, 2001; Lewis, Litt, Cronce, Blayney, & Gilmore, 2014; Bay-Cheng & Eliseo-Arras, 2008; Hynie, Lydon, Cote, & Wiener, 1998). For example, Martens, Page, Mowry, Damann, Taylor, and Cimini (2006) found a relationship between perceived sexual norms on college campuses and college students' engagement in risky sexual behavior, such that college students who misperceived sexual behavior as more normative were more likely to engage in sexual risk-taking behaviors. Although perceptions regarding the acceptability and prevalence of sexual risk taking among peers may predict the execution of such risk behavior, there are other factors that may also be influential. Within the sexual risk taking literature, there are two predominant models or theories used to understand sexual risk behavior: health-belief model and pluralistic ignorance.

Health Belief Model

The Health-Belief Model (HBM) was developed to systematically explain and predict preventive health behavior. This model specifically looks at relations between health behaviors, practices, and utilization of health services (Hochbaum, Rosenstock, & Kegels, 1952). It was updated to include general health motivation in order to differentiate between illness and sick-role behavior from health behavior (Janz & Becker, 1984). Motivations for starting a health behavior can be split into one of three categories: individual perceptions, modifying behaviors, and likelihood of action.

Individual perceptions refer to factors that affect the perception of disease, such as perceived susceptibility to disease and illness, and perceived severity of diseases and illnesses. Perceived susceptibility is the perceived likelihood of experiencing a condition that would adversely affect one's health, which varies from person to person. Individuals with low perceived susceptibility rebuff the possibility of developing an adverse condition, and are less likely to engage in protective behaviors (e.g., individuals who believe they are not vulnerable to an STI are more likely to engage in sexual behavior without using condoms). Individuals with moderate perceived susceptibility acknowledge the statistical possibility of contracting a disease. Meanwhile, individuals with high, or extreme perceived susceptibility believe in the real probability that they will contract an adverse illness or disease, and are more likely to engage in protective behaviors.

Modifying behaviors are other variables that may influence individual perceptions (e.g., sociodemographics such as educational attainment). The HBM categorizes these modifying behaviors as perceptions of threat, perceived severity, perceived benefits, perceived barriers, cues to action, and self-efficacy (Champion & Skinner, 2008). Perceptions of threat can be understood through perceived seriousness, perceived benefits of taking action, and barriers to taking action. Perceived seriousness refers to an individual's beliefs concerning the effects of a specific disease or illness (e.g., an individual who perceives the consequence of unintended pregnancy as low is more likely to engage in sexual risk behavior). The effects may be considered according to the complexities, including emotional and financial burdens, that a disease or illness would create (e.g., loss of work time, pain and discomfort). Perceived benefits of taking action involves the next steps an individual takes, once one has accepted the susceptibility of a disease and acknowledged its seriousness. The direction of action taken (e.g.,

engage in protective behaviors) depends on the beliefs regarding the action (e.g., using condoms to prevent contraction of STIs). However, action may not occur, even when an individual understands that the benefits to taking action are effective. Such barriers to taking action may be associated with the characteristics of prevention and/or treatment (e.g., measures are inconvenient, expensive, or painful).

Health-Belief Model and Sexual Risk Behavior. Many studies have applied the HBM to sexual risk behavior, specifically HIV risk (e.g., inconsistent condom use). According to the HBM, an individual's likelihood of engaging in sexual risk behaviors depends upon variables such as their perceived susceptibility to an illness or negative outcome, perceived severity of an illness or negative outcome, and their self-efficacy to engage in protective behaviors. Further, the HBM has been used to provide a framework for prevention-focused interventions, such as smoking, substance use, sexual risk-taking, and HIV/AIDS (Conner & Norman, 1996).

High levels of the HBM variables (i.e., perceived susceptibility, perceived severity, and self-efficacy) are related to increased engagement in protective behaviors. For instance, if an individual believes he/she is very likely to contract an illness, he/she is more likely to engage in protective behaviors so he/she does not contract said illness. Early research regarding HIV prevention found that the cost/benefit dimension is consistently associated with changes in behavior, over and above perceived susceptibility or perceived severity (Emmons et al., 1986; Hingson, Strunin, Berlin, & Heeren, 1990; Joseph et al., 1987). Wulfert and Wan (1995) used the health belief model to investigate condom use and sexual risk taking. This study looked at social model influences by asking participants to rate the frequency of condom use compared to that of their significant other and how much their peers would approve of them always using condoms (i.e., perceived peer acceptance). They found that condom use depended on self-efficacy,

perceived social support for using condoms, and expected consequences of condom use. Additionally, they found that self-efficacy was a function of perceived social support and expectancies of condom use (e.g., "Condoms prevent unwanted pregnancies"). In this study, 28% of the total variance in intentions to use condoms was explained by variables from the HBM, while the social context dimension (i.e., norms) explained 68% of the total variance.

Downing-Matibag and Geisinger's (2009) qualitative study used the HBM as the framework for understanding what factors are associated with sexual risk behavior among college students. They found that participants commonly underestimated their susceptibility to STIs and believed that the consequences of contracting an illness would be high. Further, the benefit to engage in protective behaviors were not greater than the cost, and they were not effective in planning, discussing, or knowing about all the ways possible to protect themselves.

Pluralistic Ignorance

The model of pluralistic ignorance has also been used to explain engagement in sexual risk behaviors. Pluralistic ignorance (PI) refers to mistaken beliefs about the feelings, ideas, and actions held by two or more persons (Allport, 1924). Pluralistic ignorance misleads people's understanding of the world around them. These shared erroneous ideas persist and appear at every level of social existence whenever human beings have to take others into account, making pluralistic ignorance important to understanding social life in general. Pluralistic ignorance leads to distorted images and beliefs that may contribute to stereotypes, ethnocentrism, self-fulfilling prophecies, and ideologies.

Miller and McFarland (1991) characterized pluralistic ignorance as the belief that an individual's internal values, beliefs, and behaviors are different from others' values, beliefs, and behaviors, even though the individual's external values, beliefs, and behaviors are congruent

with the public opinion. In this definition, internal values, beliefs, and behaviors are what an individual internalizes and subscribes to in their personal, private life. External values, beliefs, and behaviors refers to what an individual expresses in the presence of others. These internal and external values, beliefs, and behaviors are not congruent in the model of pluralistic ignorance. In pluralistic ignorance, an individual matches their external values, beliefs, and behaviors to what they perceive is normative, regardless of their internal values, beliefs, and behaviors. The idea of pluralistic ignorance accounts for public conformity to social norms, regardless of the lack of common private support.

Pluralistic Ignorance and Sexual Risk Behavior. Research has applied the pluralistic ignorance framework to the study of risk behavior to understand why risk behavior is misperceived as being more normative than it is. Martens et al. (2006) found a positive correlation between actual sexual behavior and perceived peer sexual behavior among college students. It was also discovered that statistically significant positive relationships exist between actual and perceived peer frequency of oral, vaginal, and anal sex, but no statistical significance between actual and perceived peer number of sexual partners was found. Though they did not demonstrate it in their study, Martens et al. (2006) cited PI as an explanation for the overestimation of drug use, sexual risk behavior, and alcohol consumption. Additionally, they reported that the cultural stereotype of college life may explain why these behaviors were misperceived as more normative. Specifically, media outlets portray these behaviors, as opposed to other sexual behaviors or recreational use of illegal substances, as typical of college life.

Lambert, Kahn, and Apple (2003) and Reiber and Garcia (2010) used measures of self and perception of others' engagement in sexual risk behavior in their application of pluralistic ignorance model. Reiber and Garcia (2010) found that both men and women rated their same-sex

peers as being more comfortable with sexual behaviors than they themselves felt. Selvan et al. (2001) investigated perceived norms and sexual risk behavior among secondary school students in India. They found that students reporting strong avoidant sexual norms (i.e., believing in abstinence) are less likely to engage in sexual risk behaviors, and are more likely to practice protective behaviors (e.g., have monogamous relationships, use contraceptives, or practice abstinence). Additionally, students with peers who follow avoidant sexual norms are more likely to abstain from sexual risk behavior. Selvan et al. (2001) also found that perceived norms, peer group norms, risk behavior (e.g., alcohol use), intended sexual behavior, sociodemographic variables, and perceived chances of getting HIV/STD accounted for 15% of the variance in sexual risk behavior.

The Current Study

The current study aimed to investigate how variables from the Health-Belief Model and the theory of Pluralistic Ignorance may work together to explain engagement in sexual risk behavior among undergraduates. While both the HBM and PI have been used to explain risk behavior on college campuses, these two models work in opposing ways and do not take into account certain aspects of the other. For instance, according to the HBM, the higher one's perceived susceptibility, perceived severity, and self-efficacy, the more likely it is that one engages in protective behaviors. However, the HBM does not directly account for peer influence. On the other hand, whereas PI claims that perceived peer behavior has powerful influence on behavior, the influences of one's own beliefs (i.e., privately held beliefs) are thought to be relatively inconsequential. For instance, if an individual perceives his/her peers as engaging in a lot of risk behavior, they will also engage in a lot of risk behavior, regardless of whether they are comfortable with such behavior or believe they are highly susceptible to a negative outcome.

The current study investigated how health beliefs and perceptions of peer behavior and beliefs may work in conjunction to explain engagement in sexual risk behavior. Several possible interdependencies between health beliefs and perceived peer norms will be considered. First, a moderation model was tested. According to this model, the influence of perceived peer norms (e.g., acceptability and frequency) on one's own engagement in sexual risk behavior (i.e., self-risk behavior) depends upon one's own privately held health beliefs related to sexual risk behavior (see Figure 1). Under high levels of perceived susceptibility to negative consequences of sexual risk behavior, the relationship between perceived peer norms (e.g., acceptability and frequency) surrounding sexual risk behavior and one's engagement in risk behavior (i.e., self-risk behaviors) would weaken, while under low levels of perceived susceptibility, the relationship between perceived peer norms surrounding sexual risk behavior and one's engagement in risk behavior would strengthen. The same pattern was expected for other health belief variables (i.e., self-efficacy, perceived severity), such that at high levels of these variables, the link between perceived peer norms and self-risk behaviors would weaken, while at low levels of these variables, the link between perceived peer norms and self-risk behaviors would strengthen.

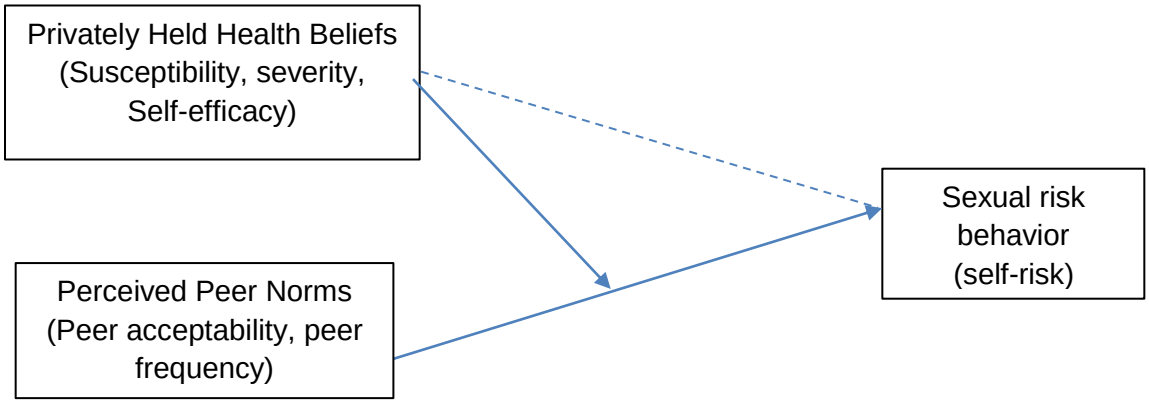

Figure 1 : Moderation Model

A second model explaining the interdependencies between health beliefs and perceived peer norms was a mediation model. According to this model, the influence of perceived peer norms (e.g., acceptability and frequency) on one's own engagement in sexual risk behavior (i.e., self-risk behavior) was mediated by one's own privately held health beliefs related to sexual risk behavior (see Figure 2). A similar study investigating mate selection found that personal beliefs mediated a relationship between social comparison and mate selection (Castro, Hattori, Yamamoto, de Araújo Lopes, 2014). Therefore, I hypothesized the relationship between perceived peer norms (e.g., acceptability and frequency) surrounding sexual risk behavior and one's engagement in risk behavior (i.e., self-risk behaviors) was explained by low levels of perceived susceptibility to negative consequences of sexual risk behavior. The same pattern was expected for other health belief variables (i.e., self-efficacy, perceived severity), such that the link between perceived peer norms and self-risk behaviors was explained by low levels of these variables.

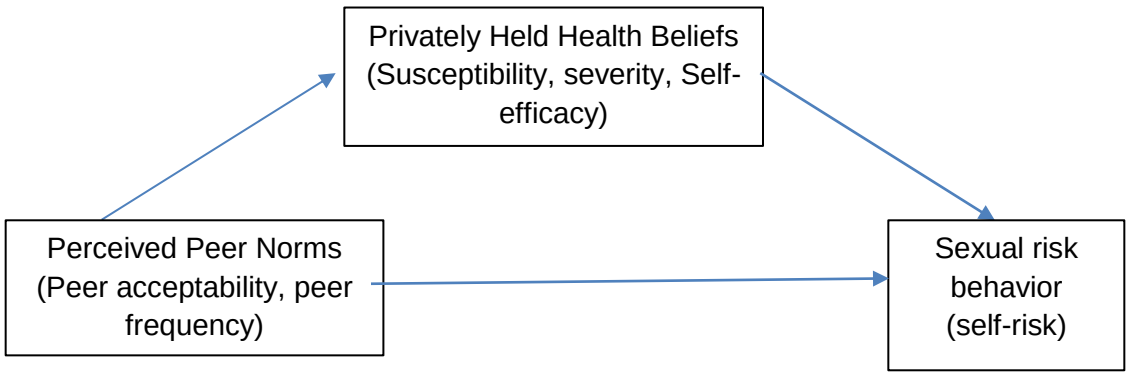

Figure 2 : Mediation Model

METHOD

Participants

The sample included 159 participants from the University of Dayton who were recruited from the psychology participant pool and compensated with credit for their participation. Of these participants, 27.7% were 18 years old, 33.3% were 19, 22% were 20, 8.2% were 21, 6.9% were 22 or older, and the remaining participants (n=3) did not answer the question. In terms of gender, 67.9% were female and 30.2% were male, and the remaining participants (n=3) did not answer the question. In terms of ethnicity, 83.6% were Caucasian, 4.4% African American, 3.1% Hispanic, 3.1% Asian, 0.6% Native American, 2.5% were of another ethnicity, and the remaining participants (n=4) did not answer the question. In terms of sexual orientation, 91.8% identified as heterosexual, 4.4% identified as bisexual, 0.6% identified as homosexual, 0.6% identified as asexual, 0.6% identified as pansexual, none identified as demisexual and the remaining participants (n=3) did not answer the question.

Procedure

Using SurveyMonkey, participants provided informed consent before completing a series of questionnaires, including those for this study. Each questionnaire for this study was presented on a separate page. The orders of the pages, including the page consisting of questions pertaining to demographic characteristics, were randomized. A debriefing page that explained the study to the participants was presented last. After data collection was completed, the debriefing sheet was emailed to all participants to ensure that everyone was able to review the information in the debriefing.

Measures

In addition to reporting their age, gender, ethnicity, year in school, grade point average (GPA), and sexual orientation, participants completed questionnaires assessing perceived susceptibility and perceived severity of negative consequences for sexual risk behavior, perceived self-efficacy of condom use in varied situations, participants' attitudes toward sexual risk behavior, perceived sexual risk behavior of close peers, one's own engagement in sexual risk behaviors, and social desirability. The means of each variable used can be found in Table 1.

Perceived Susceptibility and Severity. Privately held beliefs about perceived susceptibility and perceived severity were measured. After reviewing the literature, most studies use only a few items to measure these variables and I was unable to find a standard measure of health belief variables. I compiled the items from previous studies used to assess these constructs and found that many items over-lapped between studies and the measure used by Levinson, Jaccard, and Beamer (1995) had a measure for perceived susceptibility and perceived severity that was the most inclusive of all the articles reviewed. Therefore, this study utilized the Perceived Susceptibility and Severity measure (Levinson et al., 1995). Examples of items are: "What are the chances you will get an STD?" and "How bad or good do you believe it would be if you were to become pregnant now?" Internal reliability for this scale was $\alpha = .34$. See Appendix A.

Perceived Self-Efficacy of Condom Use. The Condom Use Scale (CUS; Grimley et al., 1996) was used to assess attitudes regarding condom use and self-efficacy (pertaining to condom use). The CUS has three subscales (i.e., condom use self-efficacy, advantages or condom use, and disadvantages of condom use), each with five items (e.g., "I would be safe from disease"); only the condom use self-efficacy subscale was used in the analyses. Participants answered each

item using a 5-point Likert-type scale (1- not at all confident to 5- extremely confident). The internal reliability was α = .81. See Appendix B.

Attitudes Toward Sexual Risk Behavior. The Sexual Norms Scale (Lambert, Kahn, & Apple, 2003) was used to assess attitudes toward sexual risk behavior, but was be modified to include privately held beliefs, perceived peer norms, and perceived norms for the average same sex student. Examples of items are: "How comfortable are you with the amount of hooking up that goes on at [school name]?" and "How comfortable are you with consuming alcohol during a hook-up?" Participants rated each item using an 11-point scale with three points labeled: 1= *very uncomfortable*, 6= *neutral*, 11= *very comfortable*. Internal reliability was α = .77. See Appendix C.

Perceived Peer Norms. A modified version of the Sexual Norms Scale (Lambert, Kahn, & Apple, 2003), referenced above, was used to assess attitudes toward sexual risk behavior, but was altered to refer to close friends and the average same sex student (e.g., "How comfortable are your close friends with the amount of hooking up that goes on at [school name]?" and "How comfortable is the average same sex student with consuming alcohol during a hook-up?" Participants rated reach item using an 11-point scale with three points labeled: 1= *very uncomfortable*, 6= *neutral*, 11= *very comfortable*. Internal reliability was α = .76.

Perceived Peer Engagement in Sexual Risk Behaviors. The Sexual Risk Survey (SRS; Turchik & Garske, 2009) was used to assess perceived peer engagement in sexual risk behaviors, by altering the wording to refer to peers instead of the self. The SRS includes five scales (e.g., Impulsive Sexual Behaviors, Risky Sex Acts, Sexual Risk Taking with Uncommitted Partners, Intent to Engage in Risky Sexual Behaviors, and Risky Anal Sex Acts) and a total of 23 items (e.g., "How many times have your peers had an unexpected and unanticipated sexual

experience?", "How many times have your peers had sex with someone you don't know well or just met?"). The internal consistency is .93. See Appendix D.

The SNS and SRS measures were found to be highly correlated. Using SPSS, I transformed the scores from the original measures into z-scored then added them together to create a composite peer norms variable. This peer norms variable was used in the primary analyses.

Sexual Risk and Protective Behaviors. The Sexual Risk Survey (Turchik & Garske, 2009), referenced above, was used to assess participants' engagement in sexual risk behaviors (e.g., "How many partners have you had sex with?"). Internal reliability was $\alpha = .91$.

Social Desirability. Due to the sensitive nature of the topics addressed in the study, it was important to also assess the validity of the participants' answers by including a social desirability scale. The Balanced Inventory of Desirable Responding (BIDR; Paulhus, 1988) is a 40-item (e.g., "I am fully in control of my own fate," "There have been occasions when I have taken advantage of someone.") scale measuring self-deceptive positivity and impression management. Participants rated each item using a 7-point scale (1- Not True to 7- Very True). The internal consistency for the total measure was .69 (Paulhus, 1988). See Appendix E.

RESULTS

Preliminary Analyses

Means and standard deviations were calculated for the following variables: perceived susceptibility and severity, self-efficacy of condom use, attitudes towards sexual risk behavior, perceived peer norms, participant sexual risk behavior, and social desirability. The results are presented in Table 1. Correlations were also calculated between the continuous variables. These are reported in Table 2. Peer norms and desirable responding were significantly, positively correlated with participant's sexual risk behavior. Additionally, a paired sample t-test was conducted to compare participants' engagement in sexual risk behavior (M=17.74 , SD=13.99) to their perceptions of their peers' engagement in sexual risk behavior (M=25.07, SD=15.06); there was a significant difference between participant's engagement in sexual risk behavior and their perception of their peers' engagement, $t(155)= -8.12$, $p> .000$.

Table 1

Means and Standard Deviations of Variables.

Variable	*M*	*SD*	*n*
Perceived Susceptibility and Severity	10.57	2.05	159
Perceived Self Efficacy of Condom Use	13.50	2.59	159
Attitudes Toward Sexual Risk Behavior	19.81	9.17	159
Perceived Peer Norms	24.10	10.15	159
Sexual Risk Behavior	17.74	13.99	159
Social Desirability	6.29	5.35	159

Table 2

Correlations of the Continuous Variables and Desirable Responding Measure.

Measure	1	2	3	4
1. Perceived Susceptibility and Severity	-			
2. Self-Efficacy of Condom Use	.05	-		
3. Peer Norms	.01	.10	-	
4. Sexual Risk Behavior (Self)	-.08	-.05	.68*	-
5. Balanced Inventory of Desirable Responding	.09	0.29	-.13	-.29*

Note. * p< 0.01.

Primary Analyses

Hypotheses were tested using the PROCESS macros for SPSS (Hayes, 2013). Mediation and moderated mediation were tested using a bootstrapping approach. This method determines statistical significance of mediation by producing percentile-based confidence intervals via repeated resampling of the data, and unlike other approaches, it does not have normality assumptions (Preacher & Hayes, 2008). In all of the following analyses, desirable responding, age, gender, year in school, and GPA were included as covariates, and participants' self-report of sexual risk behavior was the criterion variable.

The first analyses tested part of the moderation model 1 by estimating the main and interaction effects of perceived susceptibility and perceived severity and perceived peer norms on participants' engagement in sexual risk behavior. Participants' perceived susceptibility and perceived severity to negative consequences of sexual risk behavior did not have a significant

association with one's own engagement in sexual risk behavior, *b*= -.07, SE=.06, *t*(143) = -1.12, *p*=.27. Perceived peer norms had a significant association with one's own engagement in sexual risk behavior, *b*=0.6, SE =.01, *t*(143)=10.82, *p*<.0001. The interaction of perceived susceptibility and perceived severity and perceived peer norms was not associated with participants' engagement in sexual risk behavior, *b*= .00, SE=.01, *t*(143)=-.26, *p*=.79.

The second analysis tested part of the moderation model 1 by estimating the main and interaction effects of perceived self-efficacy and perceived peer norms on participants' engagement in sexual risk behavior. Participants' perceived self-efficacy did not have a significant association with one's own engagement in sexual risk behavior, *b*= -.09, SE=.07, *t*(141) =-1.32, *p*=0.19. Perceived peer norms had a significant association with one's own engagement in sexual risk behavior, *b*=.06, SE= .01, *t*(141)=-1.32, *p*<.0001. The interaction of perceived self-efficacy and perceived peer norms was not associated with participants' engagement in sexual risk behavior, *b*= -.01, SE=.01, *t*(141)=-1.29, *p*=.20.

The third analysis tested part of the mediation model by estimating the mediating effect of perceived susceptibility and severity on the association between perceived peer norms and participants' engagement in sexual risk behavior. The mediating effect was not found to be significant, *b*=00, 95% CI [-.0036, .0006]. Perceived susceptibility and severity was not significantly associated with participants' engagement in sexual risk behavior, *b*=-.07, SE=.06, *t*(144)=-1.09, *p*=.28, but the direct effect of perceived peer norms and participants' engagement in sexual risk behavior was statistically significant, *b*=.06, SE=.01, *t*(144)=10.87, *p*<.0001.

The fourth analysis tested part of the mediation model by estimating the mediating effect of perceived self-efficacy on the association between perceived peer norms and participants'

engagement in sexual risk behavior. [1] The mediating effect was not found to be significant, *b*=-.00, 95% CI [-.0039, .0001]. Perceived self-efficacy was not significantly associated with participants' engagement in sexual risk behavior, *b*=-.09, SE=.07, *t*(142)=-1.29, *p*=.20, but the direct effect of perceived peer norms and participants' engagement in sexual risk behavior was statistically significant, *b*=.06, SE=.01, *t*(143)=10.59, *p*<.0001.

[1] Due to the lack of relation between condom use-related health beliefs and sexual risk behavior, I looked into both the Sexual Risk Survey and the Sexual Norm Scale to delineate which items assess condom use specifically and created new variables with these specific items for each scale. After correlating these new variables to the self-efficacy subscale of condom use and the Perceived Susceptibility and Severity scale, there were no significant correlations.

DISCUSSION

The current study aimed to understand whether personal beliefs and perceived peer norms have interdependent associations with sexual risk behavior among college students. Several possible associations were tested. First, I examined whether high levels of health belief variables would predict less sexual risk behavior. I also examined whether, consistent with PI, the perception of peer acceptability of sexual risk-taking would predict more self risk-taking, regardless of one's beliefs about sexual risk behavior. In addition, a moderation model was tested, such that the association between peer norms and sexual risk behavior would weaken under high levels of health beliefs (i.e., high levels of perceived susceptibility and severity and/or high levels of self-efficacy), but would strengthen under low levels of health beliefs. Lastly, a mediation model was tested, such that the association between peer norms and sexual risk behavior is explained by health beliefs.

Results revealed that health beliefs were not correlated with sexual risk behavior. These results were inconsistent with previous findings by Wulfert and Wan (1995) and Downing-Matibag and Geisinger (2009), which suggested that perceived susceptibility and severity to disease and negative consequences of sexual risk behavior predicted less sexual risk-taking. This discrepancy could be because there is no standard measure of health beliefs. Further, it is possible that the measures did not detect a significant effect due to the limited number of items for the measures of health belief variables. Another possibility is that the sample and method of this study differed from the previous studies. Downing-Matibag and Geisinger (2009) conducted semi-structured interviews with 71 participants at a large, Midwestern university, whereas

Wulfert and Wan (1995) collected data from 496 undergraduates at a public university using an anonymous questionnaire. Previous studies used one or two items each to assess for perceived susceptibility and perceived severity (Wulfert & Wan, 1995; Levinson, Jaccard, and Beamer, 1995). Of the previous research investigating sexual risk behaviors on college campuses, I could not find any that investigated health beliefs and perceived peer norms in the same study. One study that investigated health beliefs and sexual risk behavior model used the theory of reasoned action, the health belief model and self-efficacy theory to investigate sexual risk behavior among secondary school students (Selvan et al., 2001). This is the only study found which also included perceived peer behavior. Selvan et al. (2001) found that students who reported high traditional sexual norms (e.g., believing in abstinence) were less likely to engage in sexual risk behavior while students who reported non-conservative sexual norms were more likely to practice protective behaviors (e.g., have monogamous relationships, use contraceptives, or practice abstinence). Perhaps the current study did not find any significant relationship between HBM and SRB while previous studies such as Selvan et al. (2001) did, because this study investigated perceived susceptibility and perceived severity to both STIs in general and more specifically HIV, rather than only HIV or HIV and AIDS. Looking at STIs in general may have made a difference because public health information regarding these STIs is less common than preventive measures and susceptibility to HIV and AIDs. Further, Selvan et al. (2001) investigated sexual norms among adolescents in India, a highly patriarchal society which hinders women's ability to negotiate safer sex practices with their partners, and the number of items assessing each variable were direct and limited, using at most three items to assess one construct.

Another key difference between the current study and previous research includes the different risk behaviors being assessed. This study investigated a number of different sexual risk

behaviors (e.g., condom use, number of partners, alcohol use before sex, perceived susceptibility and severity of STIs), whereas other studies have focused on one risk factor as it related to sexual risk behavior. These risk factors, even when similar across studies, have been measured in different ways, which can also affect the results found in each study; this is one reason why a standard measure for health beliefs should be created.

Consistent with the predictions from PI, peer norms were correlated with sexual risk behavior, and participants' believed that their peers engaged in greater levels of sexual risk behavior than themselves. Previous research has found this similar pattern and reported it as indicative of the presence of PI (Martens et al., 2006; Lambert et al., 2003; Reiber & Garcia, 2010). This confirmation of PI shows how influential peers' influence is over one's behavior. A second possibility is that this misconception of higher acceptance of sexual risk behavior among peers drives one's sexual risk behavior. A third possibility is that sexual risk behavior causes individuals to start to believe that their peers also engage in risk behaviors, to potentially rationalize or normalize their own behavior.

Two models were tested that explored the possibility that peer norms and health beliefs had interdependent associations with sexual risk behavior. First, a moderation model was tested in which it was hypothesized that under high levels of health belief variables (i.e., perceived susceptibility to negative consequences of sexual risk behavior, perceived severity of negative consequences of sexual risk behavior, and self-efficacy to engage in protective behaviors), the relationship between perceived peer sexual risk behavior and self risk behavior would weaken. Second, a mediation model was tested in which it was hypothesized that the relationship between perceived peer norms (e.g., acceptability and frequency) surrounding sexual risk behavior and one's engagement in risk behavior (i.e., self-risk behaviors) was explained by low levels of

health belief variables (i.e., perceived susceptibility to negative consequences of sexual risk behavior, perceived severity of negative consequences of sexual risk behavior, and self-efficacy to engage in protective behaviors). Support was not found for these hypotheses. In sum, perceived peer norms predicted one's engagement in sexual risk behavior and this effect was not moderated or mediated by health beliefs.

This study had several strengths as well as several limitations. Strengths of this study included a relatively large sample size and including multiple scales measuring self and perceived peer sexual risk behavior. The measures used to assess sexual risk behavior and perceived peer sexual behavior is a strength because previous studies have only looked at either perceived acceptance of sexual risk behavior or perceived sexual acts and behavior. This study assessed both perceived acceptance of sexual risk behavior and perceived sexual risk behavior for both participants and participants' peers.

Limitations of this study included: the location where the study was completed, generalizability of the results, and the limited number of items measuring health beliefs of participants and perceived health beliefs of peers. Given that the study was completed at a small, Catholic university, the size and religious affiliation of the university may have skewed the results. As the university at which the study was conducted was small, although the online questionnaires were completed anonymously, participants may have had concerns that their responses would make them identifiable to others. Further, the institution is a Catholic university and previous research has found that religious identification may be a protective factor against sexual risk behavior (Zaleski & Schiaffino, 2000). Considering the means and standard deviations for participants' attitudes toward sexual risk behavior and their engagement in sexual risk behavior, the religious affiliation of the university could account for these floor effects.

Additionally, the sample is not characteristic of the general U.S. emerging adult population, therefore the generalizability of the results is limited. The validity of the health belief variables may have been reduced by the small number of items they contained, which in turn could underestimate the actual associations between health beliefs and the other variables in the study. Further, this study did not assess the participants' understanding of sexually transmitted infections and how prevalent or not these infections are within the population.

One clinical implication of the findings of the current study is that perceptions of peer behavior predicting sexual risk behavior among college students are extremely salient in this population. Further, prevention and intervention efforts related to increasing protective behaviors should include peer support (e.g., mediated discussions with peer groups regarding practicalities of using preventive/safe sexual behaviors), as there is a clear and consistent correlation between perceived peer behavior and sexual risk behavior. If individuals do not have protective health beliefs about sexual risk behaviors because they do not believe STIs and other negative consequences of sexual risk behavior are salient, another clinical implication is that more education about the prevalence of such negative consequences is needed. Future research should focus on if perceived peer behavior consistently predicts one's sexual risk behavior among all emerging adults (i.e., ages 18-25), and not just among emerging adults attending post-secondary education institutions. Additionally, future research should investigate whether broader protective health beliefs (e.g., diet, exercise, routine vaccinations, and other preventive actions) relate to protective sexual health beliefs (e.g., condom use, STI testing, emergency contraceptives). It is important to investigate if these broader protective health beliefs correlate with protective sexual health beliefs, and if they do not, investigating why this may be the case is equally as necessary. The question remains: why are eating healthy and exercising important

behaviors but protecting oneself from unintended pregnancy, risk, or STIs is not? Is it because there is more public information readily available or advertised for the importance of healthy diets and exercise than there is for susceptibility to negative consequences of sexual risk behavior? Further, future research should be focused on developing a comprehensive measure of health beliefs related to sexual risk behavior that is both valid and reliable.

As explained previously, consequences of sexual risk behavior are increasing, particularly among emerging adults (ages 18-25 years), despite numerous efforts to promote protective sexual behavior. Although no significant results were found regarding health beliefs moderating or mediating the association between peer norms and sexual risk behavior, this study substantiates previous research which found a positive correlation between an individual's engagement in sexual risk behavior and their perception of their peer's engagement in sexual risk behavior (i.e., peer norms). Due to the continued confirmation of the significant, positive association between peer norms and sexual risk taking, it is imperative to understand and account for how peers and their behavior (or how we perceive their behavior) affect an individual's behavior.

REFERENCES

Allport, F. H. (1924). The group fallacy in relation to social science. *American Journal of Sociology, 29*(6), 688-706.

American College Health Association. (2009). American College Health Association-National College Health Assessment Spring 2008 Reference Group Data Report (abridged): the American College Health Association. *Journal of American college health: J of ACH, 57*(5), 477.

Arnett, J. J. (2016). College students as emerging adults: The developmental implications of the college context. *Emerging Adulthood, 4*(3), 219-222.

Bay-Cheng, L. Y., & Eliseo-Arras, R. K. (2008). The making of unwanted sex: Gendered and neoliberal norms in college women's unwanted sexual experiences. *Journal of Sex Research*, *45*(4), 386-397.

Bowers, J. R., Segrin, C., & Joyce, N. (2016). The role of transitional instability, psychological distress, and dysfunctional drinking in emerging adults' involvement in risky sex. *Journal of Social and Personal Relationships*, *33*(8), 1097-1119.

Castro, F. N., Hattori, W. T., Yamamoto, M. E., & de Araújo Lopes, F. (2014). Social comparisons on self-perception and mate preferences: The self and the others. *Psychology*, *5*(7), 688-699. doi:10.4236/psych.2014.57080

Catania, J. A., Coates, T. J., Greenblatt, R. M., Dolcini, M. M., Kegeles, S. M., Puckett, S., Corman, M., Miller, J. (1989). Predictors of condom use and multiple partnered sex among sexually-active adolescent women: Implications for aids-related health interventions.

Centers for Disease Control and Prevention, & Centers for Disease Control and Prevention. (2010). Atlanta: CDC; 2011. *Hepatitis C information for health professionals. Guidelines for laboratory testing and result reporting. Also available from: URL: http://www. cdc. gov/hepatitis/HCV/LabTesting. htm# section1 [cited 2013 Jun 7]*.

Champion, V. L., & Skinner, C. S. The Health Belief Model. Health behaviour and health education; theory, research, and practice. Edited by: Glanz K, Rimer BK, Viswanath K. 2008.

Chen, Y., Li, X., Zhou, Y., Wen, X., & Wu, D. (2013). Perceived peer engagement in HIV-related sexual risk behaviors and self-reported risk-taking among female sex workers in Guangxi, China. *AIDS care*, *25*(9), 1114-1121.

Conner, M., & Norman, P. (1996). The role of social cognition in health behaviours.

Cooper, M. (2002). Alcohol use and risky sexual behavior among college students and youth: Evaluating the evidence. Journal of Studies on Alcohol, (Suppl. 14), 101–117.

Downing-Matibag, T. M., & Geisinger, B. (2009). Hooking up and sexual risk taking among college students: A health belief model perspective. *Qualitative Health Research*, *19*(9), 1196-1209.

Emmons, C. A., Joseph, J. G., Kessler, R. C., Wortman, C. B., Montgomery, S. B., & Ostrow, D. G. (1986). Psychosocial predictors of reported behavior change in homosexual men at risk for AIDS. *Health Education Quarterly*, *13*(4), 331-345.

Gil-Rivas, V. (2012). Sexual risk taking among college students: Correlates and consequences. *RD McAnulty, RD, Sex in college: The things they don't write home about*, 211-220.

Grimley, D. M., Prochaska, G. E., & Prochaska, J. O. (1996). Assessing Decisional Balance and Self-Efficacy for Condom Use. *American Journal of Health Behavior*^{o}, *2*(6), 406-416.

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.

Hochbaum, G., Rosenstock, I., & Kegels, S. (1952). Health belief model. *United States Public Health Service*.

Hynie, M., Lydon, J. E., Cote, S., & Wiener, S. (1998). Relational sexual scripts and women's condom use: The importance of internalized norms. *Journal of Sex Research*, *35*(4), 370-380.

Janz, N. K., & Becker, M. H. (1984). The health belief model: A decade later. *Health education quarterly*, *11*(1), 1-47.

Joseph, J. G., Montgomery, S. B., Emmons, C., & Kirscht, J. P. (1987). Kessler. *R. c., Ostrow, DG, Wortman, CB, O'Brien, K., Eller, M., & Eshleman, S*, 231-250.

Lambert, T. A., Kahn, A. S., & Apple, K. J. (2003). Pluralistic ignorance and hooking up. *Journal of sex research*, *40*(2), 129-133.

Levinson, R. A., Jaccard, J., & Beamer, L. (1995). Older adolescents' engagement in casual sex: Impact of risk perception and psychosocial motivations. *Journal of Youth and Adolescence*, *24*(3), 349-364.

Lewis, M. A., Litt, D. M., Cronce, J. M., Blayney, J. A., & Gilmore, A. K. (2014). Underestimating protection and overestimating risk: Examining descriptive normative perceptions and their association with drinking and sexual behaviors. *Journal of sex research*, *51*(1), 86-96.

Luster, T., & Small, S. A. (1994). Factors associated with sexual risk-taking behaviors among adolescents. *Journal of Marriage and the Family*, 622-632.

Martens, M. P., Page, J. C., Mowry, E. S., Damann, K. M., Taylor, K. K., & Cimini, M. D. (2006). Differences between actual and perceived student norms: An examination of alcohol use, drug use, and sexual behavior. *Journal of American College Health*, *54*(5), 295-300.

Miller, D. T., & McFarland, C. (1991). When social comparison goes awry: The case of pluralistic ignorance.

Paulhus, D. L. (1988). Assessing self deception and impression management in self-reports: the Balanced Inventory of Desirable Responding.

Reiber, C., & Garcia, J. R. (2010). Hooking up: Gender differences, evolution, and pluralistic ignorance. *Evolutionary Psychology*, *8*(3), 147470491000800307.

Selvan, M. S., Ross, M. W., Kapadia, A. S., Mathai, R., & Hira, S. (2001). Study of perceived norms, beliefs and intended sexual behaviour among higher secondary school students in India. *AIDS care*, *13*(6), 779-788.

Sherwin, R., & Corbett, S. (1985). Campus sexual norms and dating relationships: A trend analysis. *Journal of Sex Research*, *21*(3), 258-274.

Sterk, C. E., Klein, H., & Elifson, K. W. (2004). Self-Esteem and 'At Risk' Women: Determinants and Relevance to Sexual and HIV-Related Risk Behaviors. *Women & Health*, *40*(4), 75-92. doi:10.1300/J013v40n04_05

Tross, S., Feaster, D. J., Thorens, G., Duan, R., Gomez, Z., Pavlicova, M., Hu, M.C., Kyle, T., Erickson, S., Spector, A., Haynes, L., & Metsch, L. R. (2015). Substance use, depression and sociodemographic determinants of HIV sexual risk behavior in outpatient substance abuse treatment patients. *Journal Of Addiction Medicine*, *9*(6), 457-463. doi:10.1097/ADM.0000000000000162

Turchik, J. A., & Garske, J. P. (2009). Measurement of sexual risk taking among college students. *Archives of sexual behavior*, *38*(6), 936-948.

Weinstock, H., Berman, S., & Cates, W. (2004). Sexually transmitted diseases among American youth: incidence and prevalence estimates, 2000. *Perspectives on sexual and reproductive health*, *36*(1), 6-10.

Wulfert, E., & Wan, C. K. (1993). Condom use: A self-efficacy model. *Health Psychology*, *12*(5), 346.

Wulfert, E., & Wan, C. K. (1995). Safer sex intentions and condom use viewed from a health belief, reasoned action, and social cognitive perspective. *Journal of Sex Research*, *32*(4), 299-311.

Zaleski, E. H., & Schiaffino, K. M. (2000). Religiosity and sexual risk-taking behavior during the transition to college. *Journal of adolescence*, *23*(2), 223-227.

APPENDIX A

Perceived Susceptibility and Severity (PSS)

Please rate follow using (1- no chance, 2- a slight chance, 3- a 50-50 chance, 4- a pretty good chance, 5- almost certainly).

1. What are the chances you will get an STD?

1	2	3	4	5
No chance	Slight chance	50-50 chance	Pretty good chance	Almost certainly

2. What are the chances you will get the HIV virus?

1	2	3	4	5
No chance	Slight chance	50-50 chance	Pretty good chance	Almost certainly

3. Imagine that sometime soon you (and your partner) do not use condoms for some reason. Let's say you go ahead and have sexual intercourse just once anyway. At that moment, how likely are you to feel that you would get an STD? Would you feel that:

   1) there is almost no chance of becoming pregnant
   2) there is some chance, but it probably will not happen
   3) my chances of becoming pregnant are fifty-fifty
   4) there is a good chance of becoming pregnant
   5) I would almost certainly become pregnant.

4. Suppose that sometime soon you (and your partner) went for a whole month without using any birth control and you were having sexual intercourse about as often as you usually do. How likely would you feel it would be that you would get pregnancy that month? Would you feel that**:**

   1) there is almost no chance of becoming pregnant
   2) there is some chance, but it probably will not happen
   3) my chances of becoming pregnant are fifty-fifty
   4) there is a good chance of becoming pregnant
   5) I would almost certainly become pregnant

Please answer the following:

1. How serious or bad would it be if you were to contract an STD now?

1	2	3	4	5
Not at all serious				Extremely serious

2. How bad or good do you believe it be if you were to become pregnant now?

1	3	4	5	6	7	9
Horrible						Wonderful

APPENDIX B

Condom Use Scale (CUS)

Please rate how important each statement is to his or her decision whether or not to use condoms using a 5-point Likert scale rated items from 1 = not important to 5 = extremely important.

Condom use, primary partner

1. I would be safer from disease.

1	2	3	4	5
Not important				Extremely important

2. It makes sex feel unnatural.

1	2	3	4	5
Not important				Extremely important

3. I would feel more responsible.

1	2	3	4	5
Not important				Extremely important

4. It would be too much trouble.

1	2	3	4	5
Not important				Extremely important

5. It protects my partner as well as myself.

1	2	3	4	5
Not important				Extremely important

6. My partner would be angry.

1	2	3	4	5
Not important				Extremely important

7. I would be safer from pregnancy.

1	2	3	4	5
Not important				Extremely important

8. I would have to rely on my partner's cooperation.

1	2	3	4	5
Not important				Extremely important

9. It is easily available.

1	2	3	4	5
Not important				Extremely important

10. My partner would think that I do not trust him or her.

1	2	3	4	5
Not important				Extremely important

Condom use, nonprimary partner(s)

11. I would be safer from disease.

1	2	3	4	5
Not important				Extremely important

12. It makes sex feel unnatural.

1	2	3	4	5
Not important				Extremely important

13. I would feel more responsible.

1	2	3	4	5
Not important				Extremely important

14. It would be too much trouble.

1	2	3	4	5
Not important				Extremely important

15. It protects my partner as well as myself.

1	2	3	4	5
Not important				Extremely important

16. My partner would be angry.

1	2	3	4	5
Not important				Extremely important

17. I would be safer from pregnancy.

1	2	3	4	5
Not important				Extremely important

18. I would have to rely on my partner's cooperation.

1	2	3	4	5
Not important				Extremely important

19. It is easily available.

1	2	3	4	5
Not important				Extremely important

20. My partner would think that I do not trust him or her.

1	2	3	4	5
Not important				Extremely important

Please rate using a 5-point Likert scale ranging from 1 = not at all confident to 5 = extremely confident, how confident you would be using condoms with each type of partner in a variety of sexual situations:

Condom use, primary partner

1. When you have been using alcohol or other drugs?

1	2	3	4	5
Not at all confident				Extremely confident

2. When you are sexually aroused?

1	2	3	4	5
Not at all confident				Extremely confident

3. When you think your partner might get angry?

1	2	3	4	5
Not at all confident				Extremely confident

4. When you (or your partner) are already using another method of birth control?

1	2	3	4	5
Not at all confident				Extremely confident

5. When you want your partner to know you are committed to your relationship?

1	2	3	4	5
Not at all confident				Extremely confident

Condom use, nonprimary partner(s)

6. When you think the risk for disease is low?

1	2	3	4	5
Not at all confident				Extremely confident

7. When you have been using alcohol or other drugs?

1	2	3	4	5
Not at all confident				Extremely confident

8. When you are sexually aroused?

1	2	3	4	5
Not at all confident				Extremely confident

9. When you think your partner might get upset?

1	2	3	4	5
Not at all confident				Extremely confident

10. When you are already using another method of birth control?

1	2	3	4	5
Not at all confident				Extremely confident

APPENDIX C

Sexual Norms Scale (SNS)

1. **How comfortable are <u>you</u> with the amount of hooking up that goes on at the University of Dayton?**

   1 6 11

   Very uncomfortable Neutral Very comfortable

2. **How comfortable are <u>your close friends</u> with the amount of hooking up that goes on at the University of Dayton?**

   1 6 11

   Very uncomfortable Neutral Very comfortable

3. **How comfortable is <u>average same sex student</u> with the amount of hooking up that goes on at the University of Dayton?**

   1 6 11

   Very uncomfortable Neutral Very comfortable

4. **How comfortable are <u>you</u> with having sex with a stranger during a hook up?**

   1 6 11

   Very uncomfortable Neutral Very comfortable

5. **How comfortable are <u>your close friends</u> with having sex with a stranger during a hook up?**

   1 6 11

   Very uncomfortable Neutral Very comfortable

6. **How comfortable is <u>average same sex student</u> with having sex with a stranger during a hook up?**

1	6	11
Very uncomfortable	Neutral	Very comfortable

7. **How comfortable are <u>you</u> with consuming alcohol during a hook up?**

1	6	11
Very uncomfortable	Neutral	Very comfortable

8. **How comfortable are <u>your close friends</u> with consuming alcohol during a hook up?**

1	6	11
Very uncomfortable	Neutral	Very comfortable

9. **How comfortable is <u>average same sex student</u> with consuming alcohol during a hook up?**

1	6	11
Very uncomfortable	Neutral	Very comfortable

10. **How comfortable are <u>you</u> having sex without condoms during a hook up?**

1	6	11
Very uncomfortable	Neutral	Very comfortable

11. **How comfortable are <u>your close friends</u> with having sex without condoms during a hook up?**

1	6	11
Very uncomfortable	Neutral	Very comfortable

12. **How comfortable is <u>the average same sex student</u> with having sex without condoms during a hook up?**

1	6	11
Very uncomfortable	Neutral	Very comfortable

APPENDIX D

Sexual Risk Survey (SRS)

Instructions: Please read the following statements and record the number that is think it is true for you or your peers over the past 6 months for each question on the blank. Please do not leave items blank. Remember that in the following questions ‘‘sex’’ includes oral, anal, and vaginal sex and that ‘‘sexual behavior’’ includes passionate kissing, making out, fondling, petting, oral-to-anal stimulation, and hand-to-genital stimulation. Refer to the Glossary for any words you are not sure about. Please consider only the **last 6 months** when answering and please be honest.

1. How many partners have **you** engaged in sexual behavior with but not had sex with?

0	1	2	3	4
Not applicable	1-2 partners	3-5 partners	6-10 partners	11+ partners

2. How many partners have **your close friends** engaged in sexual behavior with but not had sex with?

0	1	2	3	4
Not applicable	1-2 partners	3-5 partners	6-10 partners	11+ partners

3. How many partners has **the average same sex student** engaged in sexual behavior with but not had sex with?

0	1	2	3	4
Not applicable	1-2 partners	3-5 partners	6-10 partners	11+ partners

4. How many times have **you** left a social event with someone they just met?

0	1	2	3	4
Not applicable	1-2 times	3-5 times	6-10 times	11+ times

5. How many times have **your close friends** left a social event with someone they just met?

0	1	2	3	4
Not applicable	1-2 times	3-5 times	6-10 times	11+ times

6. How many times has **the average same sex student** left a social event with someone they just met?

0	1	2	3	4
Not applicable	1-2 times	3-5 times	6-10 times	11+ times

7. How many times have **you** ‘‘hooked up’’ but not had sex with someone you didn’t know or didn’t know well?

0	1	2	3	4
Not applicable	1-2 times	3-5 times	6-10 times	11+ times

8. How many times have **your close friends** “hooked up” but not had sex with someone you didn’t know or didn’t know well?

0	1	2	3	4
Not applicable	1-2 times	3-5 times	6-10 times	11+ times

9. How many times has **the average same sex student** “hooked up” but not had sex with someone you didn’t know or didn’t know well?

0	1	2	3	4
Not applicable	1-2 times	3-5 times	6-10 times	11+ times

10. How many times have **you** gone out to bars/parties/social events with the intent of ‘‘hooking up’’ and engaging in sexual behavior but not having sex with someone?

0	1	2	3	4
Not applicable	1-2 times	3-5 times	6-10 times	11+ times

11. How many times have **your close friends** gone out to bars/parties/social events with the intent of ‘‘hooking up’’ and engaging in sexual behavior but not having sex with someone?

0	1	2	3	4
Not applicable	1-2 times	3-5 times	6-10 times	11+ times

12. How many times has **the average same sex student** gone out to bars/parties/social events with the intent of ‘‘hooking up’’ and engaging in sexual behavior but not having sex with someone?

0	1	2	3	4
Not applicable	1-2 times	3-5 times	6-10 times	11+ times

13. How many times have **you** gone out to bars/parties/ social events with the intent of ‘‘hooking up’’ and having sex with someone?

0	1	2	3	4
Not applicable	1-2 times	3-5 times	6-10 times	11+ times

14. How many times have **your close friends** gone out to bars/parties/ social events with the intent of ‘‘hooking up’’ and having sex with someone?

0	1	2	3	4
Not applicable	1-2 times	3-5 times	6-10 times	11+ times

15. How many times has **the average same sex student** gone out to bars/parties/ social events with the intent of ‘‘hooking up’’ and having sex with someone?

0	1	2	3	4
Not applicable	1-2 times	3-5 times	6-10 times	11+ times

16. How many times have **you** had an unexpected and unanticipated sexual experience?

0	1	2	3	4
Not applicable	1-2 times	3-5 times	6-10 times	11+ times

17. How many times have **your close friends** had an unexpected and unanticipated sexual experience?

0	1	2	3	4
Not applicable	1-2 times	3-5 times	6-10 times	11+ times

18. How many times has **the average same sex student** had an unexpected and unanticipated sexual experience?

0	1	2	3	4
Not applicable	1-2 times	3-5 times	6-10 times	11+ times

19. How many times have **you** had a sexual encounter you engaged in willingly but later regretted?

0	1	2	3	4
Not applicable	1-2 times	3-5 times	6-10 times	11+ times

20. How many times have **your close friends** had a sexual encounter they engaged in willingly but later regretted?

0	1	2	3	4
Not applicable	1-2 times	3-5 times	6-10 times	11+ times

21. How many times has **the average same sex student** had a sexual encounter they engaged in willingly but later regretted?

0	1	2	3	4
Not applicable	1-2 times	3-5 times	6-10 times	11+ times

For the next set of questions, follow the same direction as before. However, if you or your peers have never had sex (oral, anal or vaginal), please put a ‘‘0’’ on each blank.

22. How many partners have **you** had sex with?

0	1	2	3	4
Not applicable	1-2 times	3-5 times	6-10 times	11+ times

23. How many partners have **your close friends** had sex with?

0	1	2	3	4
Not applicable	1-2 times	3-5 times	6-10 times	11+ times

24. How many partners has **the average same sex student** had sex with?

0	1	2	3	4
Not applicable	1-2 times	3-5 times	6-10 times	11+ times

25. How many times have **you** had vaginal intercourse with- out a latex or polyurethane condom? Note: Include times when you have used a lambskin or membrane condom.

0	1	2	3	4
Not applicable	1-2 times	3-5 times	6-10 times	11+ times

26. How many times have **your close friends** had vaginal intercourse with- out a latex or polyurethane condom? Note: Include times when you have used a lambskin or membrane condom.

0	1	2	3	4
Not applicable	1-2 times	3-5 times	6-10 times	11+ times

27. How many times has **the average same sex student** had vaginal intercourse with- out a latex or polyurethane condom? Note: Include times when you have used a lambskin or membrane condom.

0	1	2	3	4
Not applicable	1-2 times	3-5 times	6-10 times	11+ times

28. How many times have **you** had vaginal intercourse without protection against pregnancy?

0	1	2	3	4
Not applicable	1-2 times	3-5 times	6-10 times	11+ times

29. How many times have **your close friends** had vaginal intercourse without protection against pregnancy?

0	1	2	3	4
Not applicable	1-2 times	3-5 times	6-10 times	11+ times

30. How many times has **the average same sex student** had vaginal intercourse without protection against pregnancy?

0	1	2	3	4
Not applicable	1-2 times	3-5 times	6-10 times	11+ times

31. How many times have **you** given or received fellatio (oral sex on a man) without a condom?

0	1	2	3	4
Not applicable	1-2 times	3-5 times	6-10 times	11+ times

32. How many times have **your close friends** given or received fellatio (oral sex on a man) without a condom?

0	1	2	3	4
Not applicable	1-2 times	3-5 times	6-10 times	11+ times

33. How many times has **the average same sex student** given or received fellatio (oral sex on a man) without a condom?

0	1	2	3	4
Not applicable	1-2 times	3-5 times	6-10 times	11+ times

34. How many times have **you** given or received cunnilingus (oral sex on a woman) without a dental dam or ‘‘adequate protection’’ (please see definition of dental dam for what is considered adequate protection)?

0	1	2	3	4
Not applicable	1-2 times	3-5 times	6-10 times	11+ times

35. How many times have **your close friends** given or received cunnilingus (oral sex on a woman) without a dental dam or ‘‘adequate protection’’ (please see definition of dental dam for what is considered adequate protection)?

0	1	2	3	4
Not applicable	1-2 times	3-5 times	6-10 times	11+ times

36. How many times has **the average same sex student** given or received cunnilingus (oral sex on a woman) without a dental dam or ‘‘adequate protection’’ (please see definition of dental dam for what is considered adequate protection)?

0	1	2	3	4
Not applicable	1-2 times	3-5 times	6-10 times	11+ times

37. How many times have **you** had anal sex without a condom?

0	1	2	3	4
Not applicable	1-2 times	3-5 times	6-10 times	11+ times

38. How many times have **your close friends** had anal sex without a condom?

0	1	2	3	4
Not applicable	1-2 times	3-5 times	6-10 times	11+ times

39. How many times has **the average same sex student** had anal sex without a condom?

0	1	2	3	4
Not applicable	1-2 times	3-5 times	6-10 times	11+ times

40. How many times have **you** or your partner engaged in anal penetration by a hand (‘‘fisting’’) or other object without a latex glove or condom followed by unprotected anal sex?

0	1	2	3	4
Not applicable	1-2 times	3-5 times	6-10 times	11+ times

41. How many times have **your close friends** or their partners engaged in anal penetration by a hand (‘‘fisting’’) or other object without a latex glove or condom followed by unprotected anal sex?

0	1	2	3	4
Not applicable	1-2 times	3-5 times	6-10 times	11+ times

42. How many times has **the average same sex student** or their partner engaged in anal penetration by a hand (‘‘fisting’’) or other object without a latex glove or condom followed by unprotected anal sex?

0	1	2	3	4
Not applicable	1-2 times	3-5 times	6-10 times	11+ times

43. How many times have **you** given or received analingus (oral stimulation of the anal region, ‘‘rimming’’) without a dental dam or ‘‘adequate protection’’(please see definition of dental dam for what is considered adequate protection)?

0	1	2	3	4
Not applicable	1-2 times	3-5 times	6-10 times	11+ times

44. How many times have **your close friends** given or received analingus (oral stimulation of the anal region, ‘‘rimming’’) without a dental dam or ‘‘adequate protection’’(please see definition of dental dam for what is considered adequate protection)?

0	1	2	3	4
Not applicable	1-2 times	3-5 times	6-10 times	11+ times

45. How many times has **the average same sex student** given or received analingus (oral stimulation of the anal region, ‘‘rimming’’) without a dental dam or ‘‘adequate protection’’(please see definition of dental dam for what is considered adequate protection)?

0	1	2	3	4
Not applicable	1-2 times	3-5 times	6-10 times	11+ times

46. How many people have **you** had sex with that you know but are not involved in any sort of relationship with (i.e., ‘‘friends with benefits’’, ‘‘fuck buddies’’)?

0	1	2	3	4
Not applicable	1-2 times	3-5 times	6-10 times	11+ times

47. How many people have **your close friends** had sex with that they know but are not involved in any sort of relationship with (i.e., ‘‘friends with benefits’’, ‘‘fuck buddies’’)?

0	1	2	3	4
Not applicable	1-2 times	3-5 times	6-10 times	11+ times

48. How many people has **the average same sex student** had sex with that they know but are not involved in any sort of relationship with (i.e., ‘‘friends with benefits’’, ‘‘fuck buddies’’)?

0	1	2	3	4
Not applicable	1-2 times	3-5 times	6-10 times	11+ times

49. How many times have **you** had sex with someone you don’t know well or just met?

0	1	2	3	4
Not applicable	1-2 times	3-5 times	6-10 times	11+ times

50. How many times have **your close friends** had sex with someone they don’t know well or just met?

0	1	2	3	4
Not applicable	1-2 times	3-5 times	6-10 times	11+ times

51. How many times has **the average same sex student** had sex with someone they don’t know well or just met?

0	1	2	3	4
Not applicable	1-2 times	3-5 times	6-10 times	11+ times

52. How many times have **you** or your partner used alcohol or drugs before or during sex?

0	1	2	3	4
Not applicable	1-2 times	3-5 times	6-10 times	11+ times

53. How many times have **your close friends** or their partners used alcohol or drugs before or during sex?

0	1	2	3	4
Not applicable	1-2 times	3-5 times	6-10 times	11+ times

54. How many times has **the average same sex student** or their partner used alcohol or drugs before or during sex?

0	1	2	3	4
Not applicable	1-2 times	3-5 times	6-10 times	11+ times

55. How many times have **you** had sex with a new partner before discussing sexual history, IV drug use, disease status and other current sexual partners?

0	1	2	3	4
Not applicable	1-2 times	3-5 times	6-10 times	11+ times

56. How many times have **your close friends** had sex with a new partner before discussing sexual history, IV drug use, disease status and other current sexual partners?

0	1	2	3	4
Not applicable	1-2 times	3-5 times	6-10 times	11+ times

57. How many times has **the average same sex student** had sex with a new partner before discussing sexual history, IV drug use, disease status and other current sexual partners?

0	1	2	3	4
Not applicable	1-2 times	3-5 times	6-10 times	11+ times

58. How many times have **you** had sex with someone who has had many sexual partners?

0	1	2	3	4
Not applicable	1-2 times	3-5 times	6-10 times	11+ times

59. How many times have **your close friends** had sex with someone who has had many sexual partners?

0	1	2	3	4
Not applicable	1-2 times	3-5 times	6-10 times	11+ times

60. How many times has **the average same sex student** had sex with someone who has had many sexual partners?

0	1	2	3	4
Not applicable	1-2 times	3-5 times	6-10 times	11+ times

61. How many partners have **you** had sex with who had been sexually active before you were with them but had not been tested for STIs/HIV?

0	1	2	3	4
Not applicable	1-2 times	3-5 times	6-10 times	11+ times

62. How many partners have **your close friends** had sex with who had been sexually active before they were with them but had not been tested for STIs/HIV?

0	1	2	3	4
Not applicable	1-2 times	3-5 times	6-10 times	11+ times

63. How many partners has **the average same sex student** had sex with who had been sexually active before they were with them but had not been tested for STIs/HIV?

0	1	2	3	4
Not applicable	1-2 times	3-5 times	6-10 times	11+ times

64. How many partners have **you** had sex with that you didn't trust?

0	1	2	3	4
Not applicable	1-2 times	3-5 times	6-10 times	11+ times

65. How many partners have **your close friends** had sex with that they didn't trust?

0	1	2	3	4
Not applicable	1-2 times	3-5 times	6-10 times	11+ times

66. How many partners has **the average same sex student** had sex with that they didn't trust?

0	1	2	3	4
Not applicable	1-2 times	3-5 times	6-10 times	11+ times

67. How many times have **you** had sex with someone who was also engaging in sex with others during the same time period?

0	1	2	3	4
Not applicable	1-2 times	3-5 times	6-10 times	11+ times

68. How many times have **your close friends** had sex with someone who was also engaging in sex with others during the same time period?

0	1	2	3	4
Not applicable	1-2 times	3-5 times	6-10 times	11+ times

69. How many times has **the average same sex student** had sex with someone who was also engaging in sex with others during the same time period?

0	1	2	3	4
Not applicable	1-2 times	3-5 times	6-10 times	11+ times

APPENDIX E

Balanced Inventory of Desirable Responding (BIDR)

Using the scale of 1 to 7 below, indicate how much you agree with each statement

1. My first impressions of people usually turn out to be right.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

2. It would be hard for me to break any of my bad habits.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

3. I don't care to know what people really think of me.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

4. I have not always been honest with myself.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

5. I always know why I like things.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

6. When my emotions are aroused, it biases my thinking.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

7. Once I've made up my mind, other people can seldom change my opinion.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

8. I am not a safe driver when I exceed the speed limit.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

9. I am fully in control of my own fate.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

10. It's hard for me to shut off a disturbing thought.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

11. I never regret my decisions.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

12. I sometimes lose out on things because I can't make up my mind soon enough.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

13. The reason I vote is because my vote can make a difference.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

14. My parents were not always fair when they punished me.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

15. I am a completely rational person.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

16. I rarely appreciate criticism.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

17. I am very confident of my judgments.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

18. I have sometimes doubted my ability as a lover.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

19. It’s all right with me if some people happen to dislike me.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

20. I don’t always know the reasons why I like to do things

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

21. I sometimes tell lies if I have to.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

22. I never cover up my mistakes.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

23. There have been occasions when I have taken advantage of someone.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

24. I never swear.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

25. I sometimes try to get even rather than forgive and forget.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

26. I always obey laws, even if I'm unlikely to get caught.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

27. I have said something bad about a friend behind his or her back.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

28. When I hear people talking privately, I avoid listening.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

29. I have received too much change from a salesperson without telling him or her.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

30. I always declare everything at customs.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

31. When I was young I sometimes stole things.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

32. I have never dropped litter on the street.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

33. I sometimes drive faster than the speed limit.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

34. I never read sexy books or magazines.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

35. I have done things that I don't tell other people about.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

36. I never take things that don't belong to me.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

37. I have taken sick-leave from work or school even though I wasn't really sick.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

38. I have never damaged a library book or stole merchandise without reporting it.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

39. I have some pretty awful habits.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

40. I don’t gossip about other people’s business.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree