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Behavioral Risk Factors Contributing to Elevated Sexually Transmitted Infections in Peoria, Illinois

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Walden University
2024

Abstract

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by

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Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Health Education and Promotion

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Abstract

In Peoria, Illinois, sexually transmitted infection (STI) rates are significantly higher among females between the ages of 18 and 24 than those of state and national rates. Without proper treatment and education, females are at a greater risk of long-term health consequences and financial burdens. This quantitative study explored behavioral risk factors contributing to elevated STIs among cisgender (an individual's gender assigned at birth) females between the ages of 18 and 24 living in Peoria, Illinois, who have sex with cisgender males. This study helped to fill a gap in the literature to understand why STI rates are elevated among the abovementioned population. This research study was grounded on the theory of planned behavior (TPB) constructs, attitudes, subjective norms (i.e., peer), and perceived behavior control (PBC) to determine if correlations existed among each construct (separately) and condom use. Primary data were collected from cisgender females who have sex with cisgender males using an online survey (N = 92). A Pearson correlation analysis was calculated for each TPB construct (independent variable) and condom use (dependent variable) using IMB SPSS statistics V.27 for Windows. Primary data collection from the research participants demonstrated a positive correlation between attitudes and condom use, a negative correlation between subjective norms (i.e., peer) and condom use, and a weak correlation between PBC and condom use. These results contribute to positive social change so health professionals can be better equipped to develop culturally tailored STI prevention programs specific to this population that focus on positive attitudes towards condom use.

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Dedication

This dissertation is dedicated to my husband Ryan, the glue that held our household together, and my children, Caitlyn, Hunter, and Jackson. You are my world. Follow your dreams, and always remember, if you can't run towards the finish line, walk; if you can't walk towards the finish line, crawl; and if you can't crawl to the finish line, roll. Eventually, you will get there, and I will cheer you on the entire way.

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Chapter 1: Introduction to the Study

Introduction

This quantitative study explored behavioral risk factors contributing to elevated sexually transmitted infections (STIs) among cisgender females ages 18 and 24 living in Peoria, Illinois. STI rates among females ages 18 and 24 living in Peoria, Illinois, are significantly higher than their cisgender male counterparts. STIs are among the most reported infections in the United States (Illinois Department of Public Health, 2023). If left untreated, females are at risk for severe and long-term health consequences, such as reproductive health problems, infertility, cancer, fetal and perinatal health problems, and sometimes death (National Institute of Health, 2023). Cisgender pertains to an individual who identifies with their birth sex. For this study, cisgender males and cisgender females are referred to as “male” and “female.” For this study, information regarding the term cisgender and identity was explained, and a survey question included if the individual participating in the survey was born a female at birth, identified as a female, and had sex with a person who was born a male who identified as a male.

Chapter 1 serves as an introduction to this study. This chapter includes the background of literature relative to the study, the problem statement, which identifies the gap in the literature about the health education and promotion discipline as it relates to STI behavior factors, and the research questions focusing on the theory of planned behavior (TPB), which was used as the theoretical framework for the study. A detailed explanation of the TPB constructs and behavioral risk factors related to condom use is

discussed in the theoretical framework section of this chapter. Lastly, this chapter covers the study's definitions, assumptions, scope and delimitations, limitations, and significance.

This study contributes to positive social change. The results of the study can help health care professionals and health educators develop behavioral intervention programs culturally tailored to females ages 18 and 24 living in Peoria, Illinois, who have the highest prevalence of STIs. This study can likewise promote positive social change through increased support to health providers on how best to educate individuals diagnosed with an STI.

Background

STIs are the most significant public health problem in the United States (Office of Disease Prevention and Health Promotion, 2019). Of the approximately 20 million new STIs each year, nearly half of all new STI infections occur among young people ages 15 to 24 (Centers for Disease Control and Prevention [CDC], 2021a). Females have a greater risk of contracting an STI, and nearly one in four adolescent females has an STI (CDC, 2018).

In 2018, new STI infections totaled nearly $16 billion in direct lifetime medical costs (CDC, 2021a; Office of Disease Prevention and Health Promotion, 2019). Often, common viral STIs such as chlamydia, gonorrhea, human papillomavirus (HPV), and genital herpes go undiagnosed and are not reported to the CDC until a health complication occurs (Office of Disease Prevention and Health Promotion, 2019). STIs

diagnosed when health complications arise can lead to increased healthcare expenditures to treat these health complications. Furthermore, chlamydia and gonorrhea infections can cause significant morbidity, which includes but is not limited to pelvic inflammatory disease (PID) and human immunodeficiency virus (HIV) (Douglas et al., 2021).

Untreated STI diagnoses can cause serious long-term health consequences for girls and young women. If STIs are left untreated, at least 24,000 women each year will become infertile. Complications of STIs can also become a financial burden because many undiagnosed STIs have irreversible consequences, resulting in long-term health problems such as reproductive health problems, infertility, cancer, fetal and perinatal health problems, and sometimes death. Treating individuals with life-long illness resulting from STIs are the costliest because treatment is ongoing (Office of Disease Prevention and Health Promotion, 2019).

Problem Statement

Females living in Peoria, Illinois, between the ages of 18 and 24 have higher STI rates than those of state and national rates (Buedel, 2016; Peoria City/Peoria County Health Department, 2018b; Renken, 2018). However, it is unknown why STI rates in Peoria, Illinois, among females ages 18 to 24 are significantly higher. This study applied the TPB constructs attitudes, subjective norms (peer), and perceived behavioral control (PBC) to determine if there were any correlations between each construct (independently) and condom use. The TPB postulates that health behavior (i.e., condom use) is the result of behavioral intentions, attitudes, norms (i.e., peers), and PBC (Ajzen, 1991; Sadovszky

et al., 2014). Researchers have suggested that the TPB constructs successfully predict condom use (Jeihooni et al., 2019; Mpeta et al., 2021). While prior researchers have effectively used the TPB constructs concerning condom use, studies in Peoria, Illinois, cease to exist.

In this research study, I sought to explore behavioral risk factors contributing to elevated STIs among cisgender females ages 18 and 24 living in Peoria, Illinois, using the TPB constructs as they relate to condom use. A more detailed explanation of the TBP constructs pertaining to condom use can be found in the Theoretical Framework section of this chapter.

Knowledge Gap/Significance

There is a significant knowledge gap that attempts to understand why STI rates among females aged 18 and 24 living in Peoria, Illinois, are much higher than in other cities and counties. No published data or research studies exist to understand why STIs are so high among this population. Furthermore, little to no research exists to understand these individuals and beliefs that can be impacted by culture, socioeconomics, and social norms, influencing an individual's ability and willingness to engage in behavioral change. A gap in the literature is that little information correlates to how females aged 18 and 24 who live in Peoria, Illinois, perceive their STI risk and sexual risk behaviors.

There are several ways this study promotes social change. This study can help develop behavioral intervention programs culturally tailored to females ages 18 and 24 living in Peoria, Illinois, to reduce HPV and STI rates. Evidence has suggested that

behavioral interventions help reduce HIV and STIs by decreasing sexual risk behaviors and increasing condom use (Sadovszky et al., 2014). However, STI prevention and educational services are not offered to females ages 18 and 24 living in Peoria, Illinois. Instead, these interventional programs focus on middle school and high school youth throughout Peoria, Illinois, public schools. As a result, STI cases continue to rise among individuals ages 18 and 24 (Alani, 2021).

Therefore, this research study can promote positive social change through increased support to health providers. Studies have indicated that healthcare providers do not effectively address STI prevention with their patients (National Academies of Sciences, Engineering, and Medicine, 2021). Conversations about STIs and prevention with a healthcare professional might be awkward because women tend to feel uncomfortable discussing and giving accurate information regarding their sexual history (Dawson, 2018; Secaucus, 2018). Thus, culturally tailored educational interventions specific to the needs of females ages 18 and 24 living in Peoria, Illinois, can influence how health educators and healthcare professionals care for, treat, and educate their patients to reduce STI rates in the future.

This study is significant because once behavior factors are identified that lead to high STI rates among females ages 18 and 24 living in Peoria, Illinois, community health leaders can develop interventions tailored to STI prevention for this population. What is relatively unknown is why STI rates are so high amongst females ages 18 and 24 in Peoria, Illinois. Notably, the highest rates of chlamydia and gonorrhea are within Peoria,

Illinois, particularly within zip codes 61602, 61603, 61604, and 61604 (Broaddus et al., 2016; Renken, 2018). According to the CDC (2018), individual determinants of health, such as sex without a condom increase the risk of STIs. Engaging in sex without a condom puts individuals at a higher risk for STIs (CDC, 2018; White, 2019).

Purpose of the Study

In this quantitative study, I explored the behavioral risk factors among females, ages 18 and 24, living in Peoria, Illinois that contribute to risky sexual behaviors (sex without a condom) during male and female sexual intercourse. Understanding how these behavioral risk factors and intentions affect condom use, public health professionals can be better equipped to navigate the challenges of providing STI preventative health information.

The independent variables examined in this study were derived from the TPB constructs. These include attitudes, subjective norms (i.e., peer), and PBC. Condom use was the dependent variable used in this study.

Research Questions and Hypotheses

In this quantitative study, I explored the behavioral risk factors among females, ages 18 and 24, living in Peoria, Illinois that contribute to risky sexual behaviors (sex without a condom) during male and female sexual intercourse. This research was necessary to understand how behavioral intentions, a construct of the TPB, affect condom use. Understanding these behaviors can allow health professionals to navigate the challenge of providing STI-preventative health information to change behavior. Each

independent variable (attitudes, subjective norms [i.e., peer]), and PBC was measured for association with the dependent variable (condom use) without any manipulation of variables.

Research question (RQ)1: Is there a correlation between attitudes and condom use among females ages 18 and 24 living in Peoria, Illinois?

$H_1$1: There is a correlation between attitudes and condom use among females ages 18 and 24 living in Peoria, Illinois.

$H_0$1: There is no correlation between attitudes and condom use among females ages 18 and 24 living in Peoria, Illinois.

RQ2: Is there a correlation between subjective norms (i.e., peer) and condom use among females ages 18 and 24 living in Peoria, Illinois?

$H_1$2: There is a correlation between subjective norms (i.e., peer) and condom use among females ages 18 and 24 living in Peoria, Illinois.

$H_0$2: There is no correlation between subjective norms (i.e., peer) and condom use among females ages 18 and 24 living in Peoria, Illinois.

RQ3: Is there a correlation between PBC and condom use among females ages 18 and 24 living in Peoria, Illinois?

$H_1$3: There is a correlation between PBC and condom use among females ages 18 and 24 living in Peoria, Illinois.

$H_0$3: There is no correlation between PBC and condom use among females ages 18 and 24 living in Peoria, Illinois

Theoretical Framework

Exploring the behavioral risk factors among females ages 18 and 24 living in Peoria, Illinois, that contribute to risky sexual behaviors (sex without a condom) during male and female sexual intercourse required an established framework. Before developing an effective method of STI prevention, it is necessary to assess one's knowledge, attitudes, and self-efficacy toward sexual behaviors, such as sex without a condom (Farahani et al., 2020). The TPB, an extension of the theory of reasoned action (TRA), correlates the link between a behavior and a particular belief (Ajzen, 1991).

The TPB was the theory of choice for this study because it is widely used in multiple disciplines within healthcare and has been used in studies to predict sexual behaviors (Je et al., 2020). While other health behavior theories, such as the health belief model (HBM), are used in predicting sexual behaviors, the TPB provides the most significant explanation of the influences and intentions toward condom use behaviors (Catalano et al., 2017; Montanaro et al., 2018; Neuberger & Pabian, 2019).

The TPB postulates that behavioral intentions predict actual behavior, so the RQs developed for this study were based on the TPB constructs: attitudes towards condom use, subjective norms (i.e., peer), and PBC. The TPB has mainly been used to understand, predict, and change risky sexual behaviors (i.e., condom use) in at-risk populations (Aziz et al., 2021; Lee, 2022; McCarthy et al., 2022; Watsi & Tarkang, 2022). In combination with PBC and subjective norms, attitudes are likely to predict condom intentions (Ajzen, 1991). In other words, a person's intent is what roots the behavior. Intention to prevent or

cause behaviors is motivated by perceived attitudes, social beliefs, peer influences, and self-efficacy (Ajzen, 1991). Behavioral beliefs are likely to produce a favorable or unfavorable attitude towards a behavior such as condoms during sex. According to Ajzen (1991), normative beliefs can result in perceived social pressure or subjective norms, while control beliefs give rise to PBC. Researchers often use the TPB to predict and explain social, sexual, and reproductive health behaviors (Je et al., 2020). STI symptoms in adults, particularly women, often develop slowly, which can cause delays in treatment and lead to reproductive health problems such as PID, ectopic pregnancies, and infertility (Je et al., 2020).

The RQs for this study correlated to the TPB as I sought to identify the intention of a particular behavior (i.e., engaging in sex without a condom with a male partner), an individual's attitude towards the behavior, subjective norms (i.e., peer), and PBC. Upon the initial question about cisgender and identity, the first RQ aimed to determine a correlation between attitudes and condom use among females ages 18 and 24 living in Peoria, Illinois. For example, healthy sexual attitudes may serve as a protective factor against risky sexual behaviors such as sex without a condom and having multiple sexual partners (Cadely et al., 2020; Montanaro et al., 2018). Prior research has indicated that individuals who have healthy sex attitudes are more likely to either abstain from having sex at an early age or engage in sex with a condom to prevent STIs and unplanned pregnancies (Cadely et al., 2020).

The second RQ used in this study aimed to identify the correlation between subjective norms (i.e., peer) and condom use. For example, peer influence and social pressures may influence condom use (Baudouin et al., 2020). The views of friends, parents/guardians, teachers, and religious beliefs may discourage sex altogether, or an individual might be more likely to use a condom during sex based on societal norms (Baudouin et al., 2020). Subject norms also pertain to the expectations of important groups such as peers or parents (McCarthy et al., 2022). For example, if a peer believes one should engage in sex using a condom, the individual is more likely to use one (Baudouin et al., 2020).

Furthermore, perceptions regarding peers' sexual behaviors (descriptive norms) have a more significant influence on condom use (McCarthy et al., 2022). According to Yu et al. (2022), an increased peer perception regarding risk behaviors independent from actual peer behaviors is indicative of sexually risky behaviors such as sex without a condom. Risk behavior perceptions such as fewer peers using condoms when having sex can lead to that individual having unprotected sex as well based on their assumption.

The last element of the TPB is PBC, which aligns with this study's final RQ. For example, an individual might believe their partner would oppose using a condom during sex, or condoms might not be easily accessible at the time of sexual activity (Ramirez-Correa & Ramirez-Santana, 2018). Brar et al. (2020) determined that women who believe that condoms interfere with sexual pleasure or their partner's sexual pleasure are less likely to discuss condom use with their partner. Condom use is a relational behavior that

involves both parties, unlike female birth control. Condom use during sex can require a woman to be assertive when communicating contraception with their partner. Higher levels of PBC or self-efficacy can predict condom use (Gray & Fisher, 2021; Mpeta et al., 2021). PBC can also indicate anticipated obstacles and impediments that may determine condom use intention (Ajzen, 1991). However, Isaacs et al. (2021) argued that PBC does not significantly predict condom-use intentions or behaviors.

A small body of research has demonstrated that self-efficacy is linked to risky sexual behaviors (Bassore et al., 2023; Brar et al., 2020; Yu et al., 2022). Sexual self-efficacy can determine PBC in behaviors such as refusing sex, initiation of sex, refusal to have sex without condoms, condom use, and sexual communication with a partner (Brar et al., 2020). Bassore et al. (2023) found that adolescents with high condom use self-efficacy were 2.2 times more likely to use condoms consistently than those with low condom use self-efficacy. A more detailed explanation of the TPB is in Chapter 2.

Nature of the Study

In this quantitative study, I sought to explore behavioral risk factors contributing to elevated STIs among females ages 18 and 24 living in Peoria, Illinois. I used a snowball sample using social media as the primary method of communication. An announcement was posted on Facebook and Instagram with information regarding the survey. The announcement included a hyperlink that redirected the participant to the consent form and online survey. There was also an option on Facebook to share the

information with friends. In addition, several community organizations agreed to share the announcement on their social media pages.

The data were analyzed using a correlational design method to gather information from participants by completing an online survey. Specifically, I examined associations between attitudes, subjective norms, and PBC and how they correlate to condom use. Dichotomous questions included questions regarding relationship status, knowledge/understanding of STIs or sexually transmitted disease (STDs), number of sexual partners, and previous STI diagnoses. Pearson's correlation coefficient, or Pearson's *r,* was used to answer the research study questions and hypotheses between each independent and dependent variable (condom use).

Variables

The independent variables examined in this study were derived from the TPB constructs. They included attitudes, subjective norms, and perceived behavioral. Condom use was the dependent variable used in this study.

Definitions

The following list of definitions either have variable meanings or are not common knowledge. They are defined below:

Attitude Towards Behavior: Represents positive or negative feelings towards achieving an action (Ajzen, 1991).

Behavioral Intention: The motivational factors that can influence a given behavior, whereas the stronger the intention to perform a behavior, the more likely that behavioral will be performed (Ajzen, 1991).

Cisgender Female and Cisgender Male: A person whose gender identity aligns with the sex they were assigned at birth (Wamsley, 2021).

Condom: A lubricated or nonlubricated prophylactic penile barrier used to prevent pregnancy and transmission of an STI, including HIV (Ajayi et al., 2019).

Perceived Behavioral Control (PBC): Refers to a person's perception of the ease or difficulty of performing that behavior (Ajzen, 1991).

Self-efficacy: The confidence an individual has in their ability to perform a desired outcome (Ajzen, 1991).

Sexually Transmitted Infections (STIs): Infections that are transmitted through sexual activity and/or intimate physical contact with another individual (U.S. Preventative Services Task Force, 2020).

Socioeconomic Status (SES): The social class or standing of a person or group that combines education, income, and occupation (American Psychological Association, 2021).

Subjective Norms: Social pressure one may have to perform or not perform the behavior or action based upon normative beliefs and the motivation to comply with the subjective norm (Ajzen, 1991). For this study, peer norms were used to measure subjective norms.

Assumptions

I assumed that participants for the study met the following criteria: sexually active, cisgender females who had had sex with cisgender males in the past year, who were between the ages 18 and 24, living in Peoria, Illinois. I also assumed that the participants knew what a condom was and that they prevented STIs and unplanned pregnancies. Inconsistent condom use and/or sex without a condom contributes to the high rates of STIs among females, ages 18 and 24, living in Peoria, Illinois. Correct condom placement and consistent condom use are highly effective in preventing STIs (CDC, 2020a). According to the CDC (2020a), a reduced number of sexual partners, abstinence, mutual monogamy, and condom use are the most effective ways to prevent STIs, which is why it was essential to factor the number of sexual partners and consistent condom use in the independent variables.

I also assumed that participants met the criteria for the study (re: sexually active, female at birth, between the ages 18 and 24, and lived in Peoria, IL), the study size was sufficient to meet the criteria for the study, participants were honest in their answers, and participants had an understand or knowledge of what STIs were and their names.

Scope and Delimitations

Specifically, I examined behavioral risk factors among females ages 18 and 24 living in Peoria, Illinois, that contribute to risky sexual behaviors (sex without a condom) during male and female sexual intercourse. Additionally, I used the TPB constructs attitudes, subjective norms (i.e., peer), and PBC towards condom use. This study was

delimited to females ages 18 and 24 living in Peoria, Illinois. Females who did not engage in intercourse with males were excluded from this study.

Limitations

There were some limitations in this study. First, this study only includes cisgender females ages 18 to 24 living in Peoria, Illinois who have sex with cisgender males. While the term cisgender was defined, individuals may not fully understand the meaning. Secondly, this study did not include the LGBTQ+ community and results may not be generalized to other populations. Third, respondents may have responded using socially acceptable responses which may impact the validity of the responses. While this study presents limitations, it presents further opportunities for future research studies.

Significance

This study is significant because once individual determinants of behavioral intentions that lead to high STI rates among females ages 18 and 24 living in Peoria, Illinois, are identified, community health leaders can develop interventions tailored to STI prevention for this population. What was relatively unknown is why STI rates are so high amongst females ages 18 and 24 in Peoria, Illinois.

According to the CDC (2018), individual determinants of health, such as sex without a condom, contribute to increased STIs. Engaging in sex without a condom puts individuals at a higher risk for STIs (White, 2019). STIs are preventable when individuals take protective measures, such as using a condom during sexual intercourse (CDC, 2018;

Rodrigues et al., 2019). Moreover, condoms are the most effective means of preventing an STI (CDC, 2021d).

Having sex without a condom puts females at risk for serious health consequences such as PID, ectopic pregnancies, HIV, and infertility (U.S. Preventative Services Task Force, 2020). Therefore, it is necessary to identify if attitudes towards condom use, subjective norms (i.e., peer), and PBC among females ages 18 and 24 living in Peoria, Illinois, are significant factors or insignificant factors contributing to high STI rates. These results can then help create a blueprint for programs that promote positive reproductive health and safe sex behaviors.

There were several ways this study promotes positive social change, which may help reduce STI rates among females living in Peoria, Illinois. Behavioral intervention programs culturally tailored to females living in Peoria, Illinois, can help reduce HIV and STI rates. Evidence has suggested that behavioral interventions help reduce HIV and STIs by decreasing sexual risk behaviors and increasing condom use (Sadovszky et al., 2014). STI prevention and educational services are not offered to females ages 18 and 24 living in Peoria, Illinois. Instead, these interventional programs focus on middle and high schools throughout Peoria, Illinois. The intention is that sexual education/intervention will carry with an individual through adulthood.

This study promotes positive social change through increased support to health providers. Studies have indicated that healthcare providers do not effectively address STI prevention with their patients (Secaucus, 2018). Having conversations about STIs and

prevention with a healthcare professional might be awkward because women tend to feel uncomfortable talking about and giving accurate information regarding their sexual history (Dawson, 2018; Secaucus, 2018). Thus, culturally tailored educational interventions specific to the needs of females ages 18 and 24 living in Peoria, Illinois, can influence how health educators and healthcare professionals care for, treat, and educate their patients to reduce STI rates in the future.

Summary

This chapter introduced the quantitative study, the problem statement, the purpose of the study, and the identified variables within the study. It is relatively unknown why STI rates are so high in females, ages 18 and 24, living in Peoria, Illinois. There is a lack of research to determine what behavioral factors contribute to increased STIs. Furthermore, the TPB was identified as the theoretical framework as it provided a context for understanding the different influences on one's intentions to engage (or not engage) in a behavior. While there are limitations to the study (i.e., participation, truthfulness, and accessibility to work with local doctors' offices, clinics, and the public health department), the need for the study far outweighs the potential limitations. Results from this study can positively impact social change because it can lead health professionals towards solutions to reach this population of individuals with the highest rates of STIs. Chapter 2 provides a detailed literature review, with Chapter 3 identifying the research methodology. Chapter 4 provides a summary of statistical analysis of this quantitative research study that addressed behavioral risk factors among females ages 18 and 24

living in Peoria, Illinois, that contribute to risky sexual behaviors (sex without a condom) during male and female sexual intercourse. Finally, Chapter 5 highlights the interpretation of the findings for each TPB construct: attitudes, subjective norms (peer), and perceived behavior control towards condom use, the limitations/barriers to the study, implications for social change, and recommendations for future research.

Chapter 2: Literature Review

Introduction

In this quantitative study, I explored behavioral risk factors contributing to elevated STIs within Peoria, Illinois. STI rates among females ages 18 and 24 living in Peoria, Illinois, are significantly higher than their male counterparts. I researched behavioral risk factors that may contribute to the prevalence of high STI rates among females ages 18 and 24 living in Peoria, Illinois. Furthermore, this research study adds more knowledge on how to educate and promote safe sex (i.e., using condoms) among this population.

STIs are the most significant health problem in the United States (National Academies of Sciences, Engineering, and Medicine, 2021). Nearly half of new STI diagnoses come from young persons ages 15 to 24 (CDC, 2021a; Office of Disease Prevention and Health Promotion, 2019). If left untreated, females are at risk for severe and long-term health consequences, such as reproductive health problems, infertility, cancer, fetal and perinatal health problems, and sometimes death (Office of Disease Prevention and Health Promotion, 2019). Aside from abstinence, condom use is the most effective way to prevent STIs, HIV, and unwanted pregnancies (Ajayi et al., 2019; Rodrigues et al., 2019). Therefore, there is a need for evidence-based behavioral prevention and interventional programs as they have been proven to work in the past (Feldstein Ewing & Bryan, 2020).

Over the past several decades, STI rates in the United States declined and eventually reached an all-time low between 2001 and 2009. These trends caused governmental funding to shift priorities away from behavioral STI prevention programs to biomedical approaches toward HIV prevention, which included preexposure prophylaxis and postexposure prophylaxis antiviral medications (Feldstein Ewing & Bryan, 2020). While successful in the reduction of HIV prevention, the use of preexposure prophylaxis among sexually active individuals caused an increase in STIs (Feldstein Ewing & Bryan, 2020).

In 2019, chlamydia and gonorrhea cases reached an all-time high for the sixth consecutive year (CDC, 2021c). These two infections are the most common and costly and compromise the health of millions of people in the United States. The CDC reported that chlamydia cases increased by nearly 20% since 2015, with 1.8 million cases, and gonorrhea cases increased by 50%, with 616,392 cases (CDC, 2021c).

Chlamydia

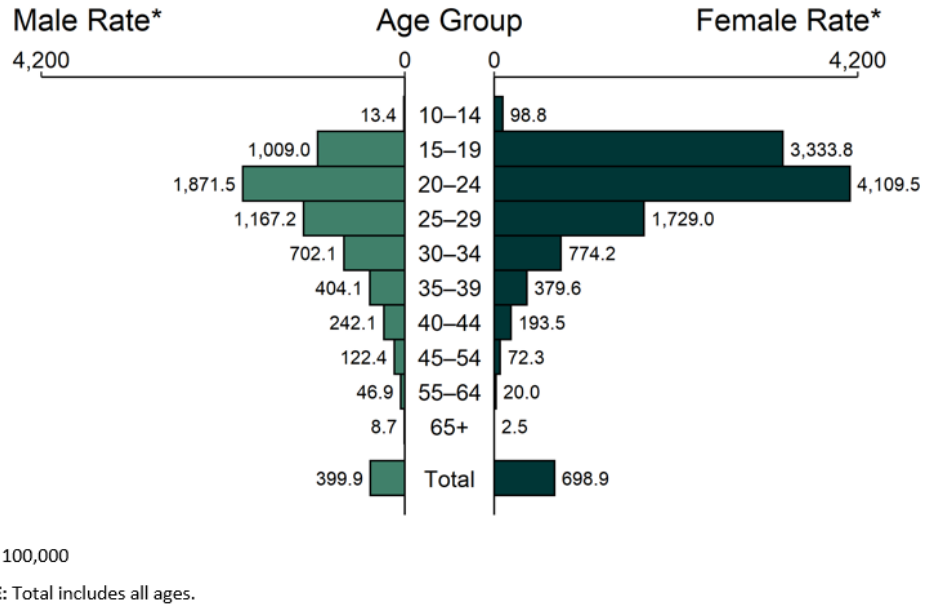
Chlamydia trachomatis (chlamydia) is one of the most prevalent bacterial STIs that can lead to serious health consequences if left untreated (CDC, 2022; Martinelli et al., 2019). Chlamydia is often referred to as the “silent” infection because most individuals with chlamydia are asymptomatic with no abnormal physical signs or symptoms. Transmission can occur through sexual contact with the penis, vagina, mouth, or anus of an infected partner (CDC, 2021a). It can also be spread from an untreated mother to their baby during childbirth. Often, individuals do not develop symptoms until

several weeks postexposure (CDC, 2021a). If left untreated, chlamydia can cause adverse health outcomes such as PID, ectopic pregnancy, and infertility. Furthermore, individuals infected with chlamydia, mainly young persons, have an 18 to 26% chance of reinfection within 3 to 6 months (Vacca & Gold, 2018).

Approximately two-thirds of chlamydia infections occur in females ages 15 to 24, and the CDC estimated that 1 in 20 sexually active young women ages 14 to 24 years has chlamydia. In 2018, the CDC estimated that chlamydial infections cost the United States approximately $691 million in direct medical costs (CDC, 2021c). Figure 1 represents the age groups where chlamydia rates are highest (CDC, 2022).

Figure 1

Chlamydial Rates of Reported Cases by Age Group and Sex, United States in 2020



Note. Reprinted from CDC Sexually transmitted disease surveillance report, 2020. *STI Surveillance Report*, 2020, p. 26. https://www.cdc.gov/std/statistics/2020/2020-SR-4-10-2023.pdf

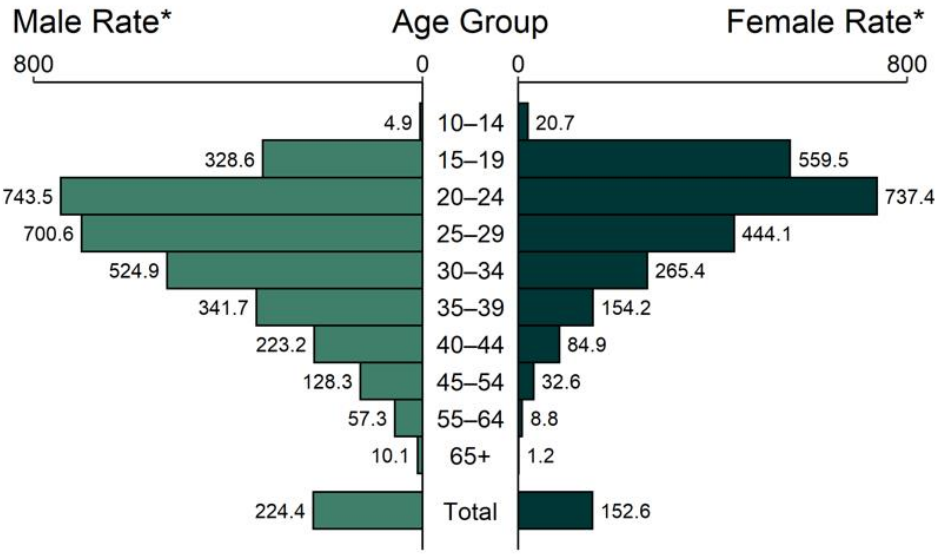
Gonorrhea

Gonorrhea is a STI caused by the *Neisseria gonorrhoeae* bacterium, which infects the mucous membranes of the reproductive tract, including the cervix, uterus, and fallopian tubes in women (CDC, 2022). Additionally, gonorrhea can infect the urethra in women, as well as mucous membranes of the mouth, throat, eyes, and rectum. Most women with gonorrhea are asymptomatic, and even when they develop symptoms, they are often mistaken for a bladder or vaginal infection (CDC, 2022).

The CDC (2022) estimated that approximately 1.6 new gynecological infections occurred in the United States in 2018, with more than half of the infected persons appearing in young people aged 15 to 24. Gonorrhea infections are asymptomatic, so the individual is often not aware they are infected and can spread the infection to others (CDC, 2021b). In 2018, the CDC (2021b) estimated that gonorrhea infection cost the United States approximately $271 million in direct medical costs. Figure 2 represents the age groups where gonorrhea cases are highest (CDC, 2021b).

Figure 2

Gonorrhea



Note. Reprinted from CDC Sexually transmitted disease surveillance report, 2020. *STI Surveillance Report*, 2020, p. 45. https://www.cdc.gov/std/statistics/2020/2020-SR-4-10-2023.pdf

While most symptoms of gonorrhea are asymptomatic in women, some side effects are mild and nonspecific, which can often be mistaken as a vaginal or bladder infection. Initial symptoms include increased vaginal discharge or vaginal bleeding between menstrual periods (CDC, 2022). Untreated gonorrhea in women can cause PID, internal chronic pain, and internal abscesses. Gonorrhea can be cured with a single intramuscular injection of ceftriaxone; however, this medication cannot cure any permanent damage caused by the disease (CDC, 2022).

Literature Search Strategy

The purpose of this literature review is to assess the literature regarding behavioral risk factors contributing to elevated STIs among females ages 18 and 24. This literature review comprises five sections: the literature search strategy, literature related to the theoretical foundation of this study, the TPB, literature associated with the conceptual framework of the study, and literature related to key variables and concepts. Lastly, this chapter provides a summary and conclusions to the literature relevant to this study.

The literature search strategy for this chapter included subjects such as STIs/sexually transmitted diseases, STIs, STDs, chlamydia, gonorrhea, TPB, TRA, attitudes, behavioral intentions, PBC, and subjective behavior. Articles were searched using online databases, including Medline, CINAHL simultaneous searches, and ProQuest Health. All were synched with the Walden University Library page.

Boolean phrases included but were not limited to STIs, sexually transmitted diseases or STDs or STIs, sexual behavior or sexual activity or sex, condom use, or condom predictors. Key term searches included *STDs, STIs, theory of planned behavior, theory of planned behavior or theory of reasoned action, condom use, perceived behavioral control and condom use, peer and social norms and condom use behaviors, self-efficacy and condom use, sexual behavior, sexual intentions,* and *condom use.* The search included original peer-reviewed articles and seminal work. From these searches, over 100 articles were identified as relevant sources for this literature review.

TPB

The TPB, an extension of the TRA, correlates the link between a behavior and a particular belief (Ajzen, 1991). The TPB was the theory of choice for this study because this theory is widely used in multiple disciplines within healthcare and has been used in studies to predict sexual behaviors (Je et al., 2020). While other health behavior theories, such as the HBM, are used in predicting sexual behaviors, the TPB provides the most significant explanation of the influences and intentions toward engaging in a specific behavior (Catalano et al., 2017; Neuberger & Pabian, 2019).

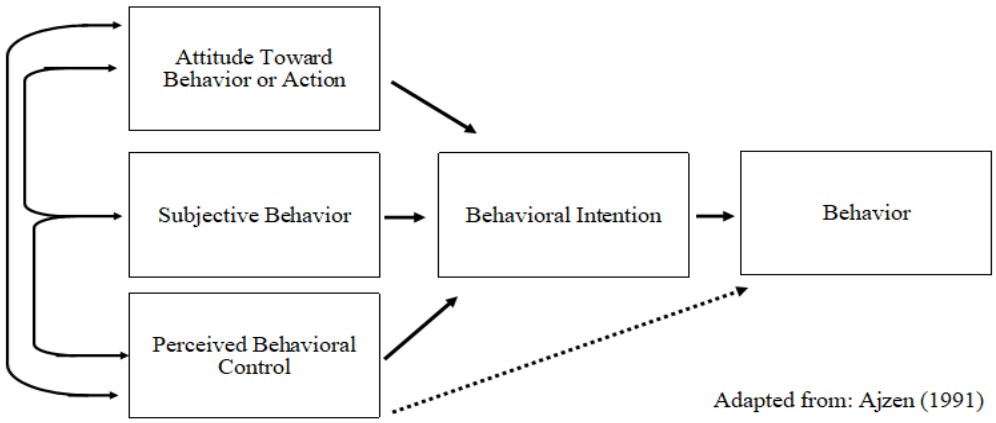
The TPB deems that a central determinant of one's behavior is an individual's behavioral intention to perform that behavior (Ajzen, 1991). These intentions are assumed to capture an individual's motivational factor behind a behavior, indicating how inclined the person is to perform said behavior (Ajzen, 1991). Essentially, the stronger the intention to perform the behavior, the more prone they are to engage in the behavior

and control it. Behavioral intention has three independent determinants of an individual's behavioral choice: attitude toward the behavior, subjective norms, and PBC.

Figure 3 illustrates the three independent determinants of an individual's behavioral intention.

Figure 3

Independent Determinants of Behavior Intention



Note. Adapted from "The Theory of Planned Behavior," by I. Ajzen, 1991. *Organizational Behavior and Human Decision Processes, 50*(2), p. 179-211. https://doi.org/10.1016/0749-5978(91)90020-T

The TPB has been analytically applied in research studies to gain knowledge about risky sexual behaviors, such as sex without a condom (Baudouin et al., 2020; Ju et al., 2020; Mpeta et al., 2021; Neuberger & Pabian, 2019). One study used the TPB constructs to understand how they work individually or combined to promote behavioral change (Kershaw et al., 2018). Studies have also used the TPB to understand the

association between sexual autonomy and reproductive health promotion behavior to create a blueprint for programs that promote reproductive health (Ju et al., 2020). According to Aziz et al. (2021), previous research using the TPB constructs and sexual risk behaviors has been conducted on adolescents or special populations (i.e., sex workers). Still, more research is needed for young adults to develop intervention messaging regarding condom use as STI prevention.

The TPB constructs (attitudes, subjective norms, and PBC) have proven to affect condom use (Eaton & Stephens, 2019; Marcinkowski et al.,2021; Mpeta et al., 2021; Neuberger & Pabian, 2019). Prior research has indicated that the TPB predicts safe sex behaviors among young adults and college students, particularly between the ages of 15 and 24 (Lee, 2022; Lin et al., 2021; Watsi & Tarkang, 2022). University/college students have lower rates of condom use when compared to the general population (Stephanou et al., 2022). This population is at a higher risk of contracting an STI due to having multiple sex partners (Lee, 2022) and forgoing condom use as a sign of love and trust in a relationship (Stephanou et al., 2022). Marcinkowski et al. (2021) used the TPB to identify predictors of STIs and pregnancy prevention intentions and behaviors in adolescents, primarily African-American adolescents. Similarly, Mpeta et al. (2021) used the TPB to gain knowledge concerning adolescents' intentions to engage in protective sexual behaviors. Both studies indicated that TBP constructs were indicative of condom use behaviors.

Attitudes are a common theme and a significant predictor in predicting condom use (Appiah et al., 2017; Grisby, 2018; Stephanou, 2022). Individuals who have a negative attitude toward STIs are 10 times more likely to have the intention to use a condom than those with a positive attitude (Watsi & Tarkang, 2022). However, other studies have indicated that subjective norms and behavioral control are key factors in predicting safe sex behaviors (condom use; Isaacs et al., 2021; Wang et al., 2022).

For couples, condom use intentions and PBC intentions can be predicted by partners' condom use attitudes, subjective norms, and PBC (Isaacs et al., 2021). Power imbalances among men and women in sexual decision-making can also affect condom use (Wang et al., 2022). Women who experience intimate partner violence (IPV) are more likely to engage in risky sexual behaviors because of a lack of PBC (Porter & Mittal, 2022). Although Eaton & Stephens (2019) deemed that Black adolescent females are more likely to resist verbal sexual pressure from males when they are secure in their relationship, are motivated and feel empowered by others, or feel an adverse health outcome such as an unwanted pregnancy or an STI.

According to the CDC (2020b), health disparities exist in the incidence, prevalence, and mortality among specific population groups characterized by gender, age, race, ethnicity, income, education, social class, disability, geographic location, or sexual orientation. In many situations, studies reveal that the lack of condom use among minorities and women is often related to gender differences, poor socio-economic status, disadvantages in properly negotiating condom use, and racial disparities. Researchers

have often used critical variables such as age, race, zip code, education, employment status, income, relationship status, knowledge/understanding of STIs or STDs, number of sexual partners, and previous STI diagnoses to identify correlations to risky sexual behaviors such as engaging in sex without a condom (Hall et al., 2019; Patrao & McIntyre, 2018; Rodrigues et al., 2019).

Women and Black citizens in the US face many health disparities, including STIs (Hall et al., 2019). Twenty percent of African American females report low condom use among 18 and 24-year-olds (Carmack et al., 2018). Reported cases of Chlamydia were reported five times higher among Black females than White females (CDC, 2020b; Hall et al., 2019). Similarly, Gonorrhea cases among Black women between the ages of 20 and 24 years were reported 8.8 times higher than among White women (CDC, 2020b; Hall et al., 2019).

Literature Review Related to Key Variables and/or Concepts

This quantitative study explored the behavioral risk factors among females, ages 18 and 24, living in Peoria, Illinois that contribute to risky sexual behaviors (sex without a condom) during male and female sexual intercourse. Understanding how these behavioral risk factors and intentions affect condom use, public health professionals are better equipped to navigate the challenges of providing STI preventative health information.

This study examined attitudes, subjective norms (i.e., peer), and PBC as the independent variables of this study as they relate to condom use, the dependent variable.

Attitudes Towards Condoms

Consistent condom use is the best line of defense. It is the primary prevention method against STIs, unplanned pregnancy as well as Human Immunodeficient Virus (HIV) and acquired immunodeficiency syndrome (AIDS) (CDC, 2020a; Dai et al., 2019; Finigan-Carr et al., 2021). Condom use is typically related to an individual's positive or negative feelings toward achieving a specific action (Finigan-Carr et al., 2021). Specifically, a person's attitude toward condom use correlates to the likely consequences of behavioral beliefs (Ajzen, 1991; Ajzen, 2020). The more optimistic one views using a condom when engaging in sexual behaviors, the more likely they are to use a condom (Ajzen, 1991; Ajzen, 2020; Morales et al., 2018; Neuberger & Pabian, 2019). Healthy sex attitudes about sexual health decision-making indicate lower risk-taking when engaging in sexual activity with a partner (Saint-Eloi Cadely et al., 2020).

The TPB upholds that one's attitude is the degree to which a person holds positive or negative feelings towards a behavior (Ajzen, 1991; Neuberger & Pabian, 2019). Attitude toward using a condom is more favorable when the negative consequences (contracting an STI or unplanned pregnancy) are assessed (Catalano et al., 2017; Pablo et al., 2019). One's attitude towards condom use can vary depending on age at first sex, number of sexual partners, condom use, length of time knowing a sexual partner, relationship status, and how often one engages in sexual activity (Neuberger & Pabian, 2019; Saint-Eloi Cadely et al., 2020). Furthermore, how frequently an individual engages

in sex is shown to be related to adverse sexual health outcomes (Patrao & McIntyre, 2018).

Education level can also influence an individual's attitude toward condom use. In a study conducted by Patrao & McIntyre (2018), the researchers found that women with a higher level of education are more likely to talk to their male partners about safe sex practices and condom use (p. 325). In addition, relationship status or relationship-seeking status can also influence condom use (Hall et al., 2019). Evidence suggests that "pre-hookup" relationship intention correlates to sex without a condom and that those seeking a relationship with their "hookup" partner are at a greater risk for an STI (Hall et al., 2019). Couples in a committed relationship may choose to discontinue condoms in favor of birth control to prevent pregnancy rather than an STI (Fehr et al., 2018).

Attitudes toward condom use, subjective norms, and PBC can vary among different cultures (Dai et al., 2019; Wang et al., 2022). American and British women report better condom knowledge and have more favorable attitudes towards using a condom versus women from Chinese and Indian women. In China, families are more reluctant to discuss safe sex behaviors, which leads to a lack of sexual knowledge leading to problems such as abusive sexual activities, inappropriate sexual roles, and unsafe sexual behaviors (Wang et al., 2022). In the United Kingdom (U.K.), Norway, Spain, and Ghana, attitudes are significant predictors of condom use intentions among adolescents (McCarthy et al., 2022).

Subjective Norms

Subjective norms refer to the perceived pressure one may have to perform or not perform the behavior or action (Ajzen, 1991; Jeihooni et al., 2019). Family influence, subjective or social norms, and peers can influence risky sexual behaviors such as sex without a condom (McMann & Tout, 2020; Tseng et al., 2019). The more strongly a person feels toward others' opinions regarding sexual health behaviors, the more likely they are to use or not use a condom during sex (Je et al., 2020). In the context of sexual activity, subjective norms (or social norms) may include societal pressure to engage or not engage in sexual activity from significant others, family members, or peers (Muhammad et al., 2017).

McCarthy et al. (2022) note that prior research indicates that social norms (i.e., peer influence) impact sexual decision-making and that three different types of social norms contribute to sexual behavior outcomes. These are descriptive norms (perceptions about peers' behaviors), injunctive norms (perceptions about peers' sexual attitudes), and peer pressure. However, prior research does not describe the extent to which descriptive norms are associated with condom use behaviors (p. 158). The authors conducted a study to identify the association between condom use during a person's last heterosexual encounter and two descriptive norms among secondary school students from Australia. The researchers measured descriptive condom use norms using two items: perceptions of how many peers used condoms and descriptive norms related to condom use initiation. A total of 8263 respondents between the ages of 14 to 18 participated in the

study. Fifty-six percent of the respondents reported they had used a condom during their last sexual encounter, and 64.3% said they thought that their peers used condoms most or all the time during sex. Fifty-six percent (56%) of the respondents reported they had used a condom during their last sexual encounter, and 64.3% said they thought that their peers used condoms most or all the time during sex. Individuals who perceived that their peers used condoms were more likely to use condoms themselves. Those who did not perceive their peers' using condoms were less likely to use condoms themselves. Thus, subjective (social) norms remain an essential predictor of condom use.

Peer influence or peer pressure is a strong predictor of condom use during sex. Peers who endorse risky behaviors (i.e., not using a condom during sex) are more likely to influence their friends to engage in such risky behaviors (Muhammad et al. 2017). Females are often less likely to discuss condoms and use a condom if their male partner is older than them. Furthermore, they are also less likely to use a condom if they perceive it would negatively affect their reputation (Finnigan-Carr, 2021).

PBC

PBC refers to a person's perception of the ease or difficulty of performing that behavior (Ajzen, 1991). Some would argue that PBC has the most significant impact on sexual behavior intentions (Mpeta et al., 2021; Tseng et al., 2019). Therefore, it is strongly encouraged that females feel empowered, autonomous, and have a voice when discussing safe sex options (Tseng et al., 2019). Several problems can occur with women who lack sexual knowledge (physiological aspects, reproduction, performance, and

individual sexual behavior). These include abusive sexual activities, inappropriate sex roles, and unsafe behaviors (Wang et al., 2022).

Sexual coercion tactics are coercive strategies to obtain sex from an unwilling partner (Eaton & Stephens, 2019). It can often lead to intimate partner violence (IPV), defined by physical, sexual, or psychological harm, stalking, and coercive tactics by a current or former partner or spouse (Samankasikorn et al., 2018). Studies indicate that the use of sexual coercion can affect an individual's PBC when negotiating sex among a male and female partner (Eaton & Stephens, 2019). According to Carmack et al. (2018), a woman's ability to practice safe sex behaviors using condoms can become endangered when there is an unequal power with her male partner (p. 3). Too often younger females often feel pressured or coerced into not using a condom with their male partner (Finigan-Carr, 2021; Peasant et al., 2018). However, Isaacs et al. (2021) conducted a study to understand couples' condom-use intentions and behavior among heterosexual relationships and found that PBC did not have an impact on condom use.

Condom Use

Females between the ages of 15 and 24 years are more likely to use hormonal contraceptives, such as oral contraceptives and IUDs, to prevent unplanned pregnancies. Still, they are less likely to use condoms consistently (Fairfortune et al., 2019). For example, Fairfortune et al. (2020) found that females who use birth control are less likely to use condoms. Mpeta et al. (2021) argue that this can be attributed to a lack of healthy sexual behaviors during sexual debut or adolescence (Mpeta et al., 2021).

On average, females between the ages of 15 and 24 years accumulate new sexual partners at an average rate of 0.68 partners per year (Fairfortune et al., 2019). Condom use, when used consistently, is the primary prevention method for preventing STIs, HIV/AIDS, and unplanned pregnancies (Finigan-Carr et al., 2021; Mpeta et al., 2021; Watsi & Tarkang, 2022; Yu et al., 2022). Condom negotiation is one of the strongest predictors of condom use. While men can individually decide to use a condom during sexual intercourse, a woman must negotiate condom use with her male partner (Peasant et al., 2019). Common misconceptions regarding condom use include the perception that condoms reduce sexual pleasure, the discomfort of discussing condom use with a partner, and societal pressures and norms (Alam & Alldred, 2021; Peasant et al., 2019).

Summary and Conclusions

The literature discussed in this chapter demonstrates that STIs are prevalent within the United States, with the younger demographic being of the most concern. Behavioral risk factors must be considered to determine why STI rates are so high in females, ages 18 and 24, living in Peoria, Illinois. The literature has shown that STI rates in females are higher than those of male counterparts, and there are significant disparities among ethnic backgrounds. This literature also substantiates that the TPB provides a context for understanding the different influences on one's intentions to engage (or not) in a behavior. While there are limitations to the study (i.e., participation, truthfulness, and accessibility to work with local doctors' offices, clinics, and the public health department), the need for the study far outweighs the potential limitations. Results from

this study can provide a positive impact on Walden University's goal of social change because it can lead health professionals towards solutions to reach this population of individuals where the highest rates of STIs occur based on the knowledge and understanding of the factors that influence condom use among females ages 18 and 24 living in Peoria, Illinois.

Chapter 3: Research Method

Introduction

The purpose of this quantitative study was to explore the behavioral risk factors among females ages 18 and 24 living in Peoria, Illinois, that contribute to risky sexual behaviors (sex without a condom) during male and female sexual intercourse. For this study, I used a correlational research design to study the TPB constructs (attitudes, subjective norms (i.e., peer), and PBC relative to condom use.

STI rates among females ages 18 and 24 living in Peoria, Illinois, are significantly higher than their male counterparts. STIs are the most significant public health problem in the United States (CDC, 2019). If left untreated, females are at risk for severe and long-term health consequences such as reproductive health problems, infertility, cancer, fetal and perinatal health problems, and sometimes death (Office of Disease Prevention and Health Promotion, 2019). Understanding how these behavioral risk factors and intentions affect condom use, public health professionals can be better equipped to navigate the challenges of providing STI preventative health information.

This chapter contains the quantitative research methodology related to the RQs; discusses the independent and dependent variables; defines the study's population, recruitment measures, and participation criteria; and identifies the procedures relative to sampling methods and data collection strategies.

Research Design and Rationale

This correlational study was grounded on the conceptual framework from the TPB constructs: attitudes (towards condom use), subjective norms (i.e., peer), and PBC (a person's perception of the ease or difficulty in performing that behavior; see Ajzun, 1991; Tseng et al., 2020). The research approach aligned with the purpose of this quantitative research study, which was to explore the behavioral risk factors among females ages 18 and 24 living in Peoria, Illinois, that contribute to risky sexual behaviors (sex without a condom) during male and female sexual intercourse, and fills a gap in research, because little to no research has been done as to why these STI rates are so high in Peoria, Illinois. The independent variables examined in this study were derived from the TPB constructs. They included attitudes, subjective norms, and perceived behavior. Condom use was the dependent variable used in this study.

The following RQs were addressed in this study:

RQ1: Is there a correlation between attitudes and condom use among females ages 18 and 24 living in Peoria, Illinois?

$H_1$1: There is a correlation between attitudes and condom use among females ages 18 and 24 living in Peoria, Illinois.

$H_0$1: There is no correlation between attitudes and condom use among females ages 18 and 24 living in Peoria, Illinois.

RQ2: Is there a correlation between subjective norms (i.e., peer) and condom use among females ages 18 and 24 living in Peoria, Illinois?

$H_1$2: There is a correlation between subjective norms (i.e., peer) and condom use among females ages 18 and 24 living in Peoria, Illinois.

$H_0$2: There is no correlation between subjective norms (i.e., peer) and condom use among females ages 18 and 24 living in Peoria, Illinois.

RQ3: Is there a correlation between PBC and condom use among females ages 18 and 24 living in Peoria, Illinois?

$H_1$3: There is a correlation between PBC and condom use among females ages 18 and 24 living in Peoria, Illinois.

$H_0$3: There is no correlation between PBC and condom use among females ages 18 and 24 living in Peoria, Illinois.

Correlational studies allow researchers to describe and measure the degree or relationship between two or more variables (Creswell & Creswell, 2022). A correlation between variables implies that when one variable changes in value, the other variable tends to change in a specific direction (Creswell & Creswell, 2022; Frost, 2019). This cost-efficient design provided data on the TPB constructs from a large group of subjects, which can generate hypotheses that lead to future research. Multiple participants were needed to ensure the validity of the study. The downfall to this type of design is that increasing the sample size may decrease false positives or Type I errors, which could render the study costly and delay its completion (Creswell & Creswell, 2022). Gathering this much-needed data can help the community find ways to reach individuals who test

positive one time or multiple times for STIs and develop interventional plans to encourage safe sex (i.e., using condoms).

Methodology

Population

The eligibility criteria for the study were cisgender females living in Peoria, Illinois, who were between the ages of 18 and 24 and had sex with cisgender males. According to the U.S. Census Bureau (2020), the estimated population size of Peoria, Illinois, as of July 1, 2020, was 112,644. Of these, 58.75% were White, 26.7% were Black or African American, 6.8% were Hispanic or Latino, and 6.5% were Asian. It was estimated that 51.6% were males, and 9.5% (approximately 5,654) were females between the ages of 18 and 24.

Sample and Sampling Procedure

For this study, inclusion and exclusion criteria were identified. Inclusion criteria are the key features that describe the population to answer the RQs. In contrast, exclusion criteria rule out characteristics that interfere with the study (Patino & Ferreira, 2018). Table 1 lists the inclusion and exclusion criteria used for this study.

Table 1

Inclusion and Exclusion Criteria

Inclusion criteria	Exclusion criteria
Cisgender female	Individuals under or over the ages of 18 and 24
Between the ages of 18 and 24	Having no sexual encounters with one or more cisgender male partner(s)
Living in Peoria, Illinois	Having had a sexual encounter(s) with a female partner but not a male partner
Having at least one sexual encounter with a male partner within the last year	
Acknowledging voluntary participation in the study	

For this study, a nonprobability convenience sampling method was used. A convenience sample is a method whereby the researcher announces the study, and participants self-select if they wish (Stratton, 2021). While nonprobability samples are often used in qualitative research, this type of sample is effective when understanding a small or under researched population (Mweshi & Sakyi, 2020). There are, however, drawbacks to this type of study. First, the researcher depends on individuals who choose or volunteer to participate in the research study. This bias can occur as participation depends on their interest in the research topic (Mweshi & Sakyi, 2020). However, this type of research study is popular due to the limited cost involved (Mweshi & Sakyi, 2020; Stratton, 2021).

A G* Power analysis was conducted to determine the sample size (see Faul et al., 2009). Specifically, a two-tailed *priori* sample size calculator chose the appropriate

sample size. This power analysis type determines whether a sample is statistically significant and large enough to prevent erroneous conclusions (Lakens, 2022). Cohen (1977) described power as the likelihood of rejecting the null hypothesis (i.e., achieving a statistically significant result).

When performing hypotheses tests, there are four possible outcomes. A false positive or Type I error is determined by the alpha (α) level. In this case, a test yields as significant result, even when the hypothesis is true. A false negative or Type II error that is determined by beta (β) level, or 1 -power. This type of test yields a nonsignificant result, even when the hypothesis is true (determined by 1-α). In this case, the test yields a nonsignificant result when the null hypothesis is true. Lastly, a true positive is determined by 1-β. This test yields a significant result when the alternative hypothesis is true (p. 4).

Table 2 depicts a *priori* power analysis and sample size calculation to achieve a minimum number of study participants.

Table 2

Power Analysis and Sample Size Calculation

Parameters	Parameter values
Tails	two
Correlation ρ H1	.3
Probability level	0.05
Desired statistical power	0.8
Correlation ρ H0	0
Recommended minimum sample size	84

Procedures for Recruitment, Participation, and Data Collection

As noted in Chapter 1, a cisgender female describes a person whose gender identity aligns with the sex they were assigned at birth (see Wamsley, 2021). For example, a cisgender female is a person who was born female and identifies as such. The same would apply to a cisgender male (a person who was born a male and identifies as a male). The beginning of the survey (Appendix C) included six screening questions. These are as follows:

1. Were you born female, and do you identify as a female?
2. Have you ever had sex with someone who was born male and identified as a male?
3. Are you between the ages of 18 and 24? If so, please enter your age provided in the box below.

4. Do you live in Peoria, Illinois? If so, please enter your zip code in the box provided below.
5. In the past year, have you had sex with a male partner?
6. In the past year, have you used a condom with a male partner?

This study used a snowball sample using social media as the primary method of communication. An announcement was posted on Facebook with information regarding the survey. The announcement included a hyperlink that redirected the participant to SurveyMonkey to complete the consent form and subsequent survey. There was also an option on Facebook to share the information with friends. In addition, several community organizations agreed to repost the announcement on their Facebook sites, including the survey link and a QR code.

Participation

Before the participants began the survey, they completed a consent form that provided information such as confidentiality and the study purpose. The survey included parameters set so that if the respondent did not meet the inclusion criteria for the study, they were redirected to a page thanking them for their time. The inclusion criteria for this study included the following technology:

1. A mobile phone, tablet, or computer with internet access or Wi-Fi and the ability to scan a QR code from the flyer.
2. If completing the survey using the online link, a mobile phone, tablet, or computer with internet access or Wi-Fi.

Individuals who met the abovementioned criterion reviewed the consent page with the understanding that they were participating in a research study and gave their consent by checking a box. Upon completing the survey, the participants were thanked for their time and provided contact information should they have any questions. Furthermore, a statement included where they could find the survey results.

Data Collection

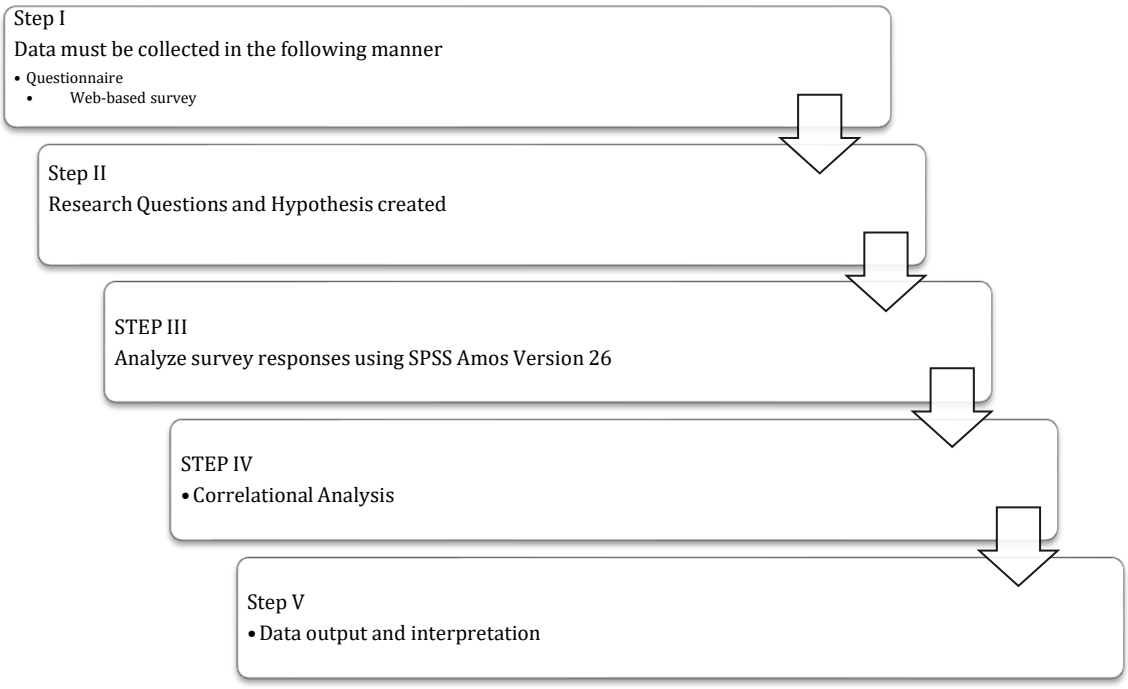
Data from 85 participants were collected via an online survey via Survey Monkey. SurveyMonkey provided a convenient way to collect data due to the low-cost data and the rapid response rate. Additionally, data could be quickly downloaded and imported directly to analytical software, eliminating the need to enter data manually, which can cause errors. The strength of using SurveyMonkey is that it is quick to complete and convenient, and an individual can take the survey from their phone or tablet. On average, the survey took approximately 5 to 7 minutes (Singh & Sagar, 2021).

The survey contained 24 items to assess eligibility, attitudes towards condom use, subjective norms (i.e., peer), and PBC. Study participants were informed that they could leave the survey at any time and that their responses were anonymous. Upon completion of the survey, the data were downloaded and exported to Statistical Package for Social Sciences (SPSS) Statistics Version 25.0. All surveys and data are currently stored in a password-protected storage device. I am the only person with access to the data. After 5 years, the storage device will be destroyed and shredded. Figure 3 represents the data analysis plan.

Data Analysis Plan

Figure 3

Data Analysis Plan



The software used for the data analysis plan was SPSS Amos Version 26. Data errors can still occur despite the best implementation of error-preventing research strategies (Van den Broeck et al., 2005). Data cleaning and screening were used in this research study to prevent this. Using SPSS, a frequency distribution was run to determine if the data fell within the expected range. For example, all ratings should fall within the 5-point Likert scale. There were no outliers identified within the data. Pearson's correlation coefficient was also used to answer the research study questions and hypotheses. A correlation coefficient of 0.00 means no relationship exists between the two variables. A

correlation coefficient of ± .01-.09 means there is a weak association between the two variables, a correlation coefficient of ± .10 -.29 means there is a moderate association between the two variables, and a correlation coefficient of ± .30 -.99 means there is a strong association between the two variables. A correlation coefficient of ± 1.00 represents a perfect or strongest association between the two variables (Schober, et al., 2018). Table 3 outlines the guidelines for interpreting the strength of associations for Pearson's *r*.

Table 3

Guidelines for Interpreting Strength of Associations for Pearson's r

Strength of association	Pearson's *r*
None	0.00
Weak association	± .01-.09
Moderate association	± .10-.29
Evident of a strong association	± .30-.99
Perfect association, strongest possible	± 1.00

Instrumentation and Operationalization of Constructs

A survey instrument (Appendix A) was developed based on the operationalization of the TPB constructs (Ajzen, 1991). The survey instrument measured the predictive TPB variables, attitudes, subjective norms (peer), and PBC. The questions were adapted from two published standardized scales: the Condom-Use Self-Efficacy scale (CUSES) (Appendix B) and the Multidimensional Condom Attitudes Scale (MCAS; Helweg-Larsen & Collins, 1994) (Appendix C). Permission to use these survey scales was granted through the University of North Carolina at Chapel Hill Center for AIDS research (CFAR) and is funded by the National Institute of Health (NIH).

The CUSES scale was used to assess condom use self-efficacy to purchase, apply, and remove condoms as well as negotiate condom use with a partner (Brafford & Beck, 1991). The survey included 26 questions using a 5-point Likert-scale item with responses ranging from *strongly agree* to *strongly disagree*. A higher score indicated a higher self-efficacy towards condom use. The CESUS uses Cronbach's alpha value of 0.094 and has

an internal consistency of a .05 level of significance (Bradford & Beck, 1991; Forsyth et al., 1997). This survey instrument also correlates well with the MCAS scale (r=.51, p<.001). The MCAS scale was developed to measure attitudes towards condoms as a method of birth control to determine barriers to contraceptive methods (Brown, 1984). The operationalizations of the variables included are as follows:

To assess attitudes toward condom use, questions were modified from the CUSU and MCAS survey. There are five questions the participant answered using a five-point Likert scale ranging from strongly agree to strongly disagree. The responses were coded as 5 (*strongly agree*), 4 (*agree*), 3 (*neutral*), 2 (*disagree*), and 1 (*strongly disagree*). For these questions, an aggregated scale from 5-25 was used with one being less likely to use a condom and 25 more likely to use a condom.

1. Condoms are safe and easy to use.
2. I would be willing to try a condom, even if I have never used one before.
3. I intend to use condoms regardless of whether I am in a committed relationship or not.
4. I am not embarrassed to ask my partner to use a condom.
5. Condoms reduce the pleasure of sex.

Questions were modified from the CUSU and MCAS surveys to assess subjective (peer) norms toward condom use. There were five questions the participant answered using a five-point Likert scale ranging from strongly agree to strongly disagree. The responses were coded as 5 (*strongly agree*), 4 (*agree*), 3 (*neutral*), 2 (*disagree*), and 1

(*strongly disagree*). Scores ranged from 5 to 25. The lower the number, the more peer norms have a more significant influence towards not using condoms.

1. Most of my friends practice safe sex, which includes using condoms during sex.
2. My friends have encouraged me to use condoms when I have sex.
3. I discuss condom use with my close friends.
4. If my friends knew I was using condoms during sex, they would approve.
5. The opinion of my friends concerning condom use is important to me in my decision to use a condom when having sex.

The CUSU and MCAS survey questions were modified to assess PBC. There were five questions the participant answered using a five-point Likert scale ranging from strongly agree to strongly disagree. The responses were coded as 5 (*strongly agree*), 4 (*agree*), 3 (*neutral*), 2 (*disagree*), and 1 (*strongly disagree*). Scores ranged from 5 to 25. The lower number suggests that perceived behavior control negatively influences condom use.

1. When it comes to making decisions about condom use, I feel in control.
2. My partner pressures me not to use condoms when we have sex.
3. Asking my partner to wear a condom during sex would make them think I am having sex with other people.
4. My sexual partner is likely to stop having sex with me if I ask him to wear a condom.

5. I can say no to sex without a condom, even if it is someone I have already had sex with.

Access to Instruments

Data from 85 participants were collected via an online survey via Survey Monkey. An online survey such as SurveyMonkey provides a convenient way to collect data due to the low-cost data. Table 4 represents the guidelines for interpreting strength of associations for Pearson's *r*.

Table 4

Guidelines for Interpreting Strength of Associations for Pearson's r

Strength of association	Pearson's *r*
None	0.00
Weak association	± .01-.09
Moderate association	± .10-.29
Evident of a strong association	± .30-.99
Perfect association, strongest possible	± 1.00

Threats to Validity

With the availability and ease of using online surveys, researchers can conduct research more quickly, with the potential for robust outcomes (Ball, 2019; Singh & Sagar, 2021). While convenient, these surveys can potentially reach complex or vulnerable populations and threaten the study's validity (Ballard et al., 2019).

Threats to external validity included the limitation of the study, which only surveyed females between 18 and 24 living in Peoria, Illinois. These parameters could be limited, and the data may not fully represent an entire population, for instance, all the females ages 18 and 24 living in Peoria County, Illinois. Additionally, threats to external validity can occur for individuals who do not have access to a computer or who do not visit any of the clinics where the flyers are being distributed.

Another validity threat is using an online survey such as Survey Monkey. For instance, everyone who meets the criterion should take the survey only once. The participant must be truthful and not complete the survey more than once. SurveyMonkey allows collectors to ensure the survey is not sent more than once. Collector survey options are customizable so that researchers can set parameters that affect who can access the survey, how many times an individual can take the survey, and what the respondent sees when they complete the survey while automatically detecting multiple attempts from the same (SurveyMonkey, 2003).

Self-reporting regarding how an individual sees themselves is beneficial because it allows researchers to obtain information about one's thoughts and feelings. However, bias can occur when individuals are asked to measure their attitudes and behaviors. Social desirability bias is a bias that occurs when participants respond based on how they want to be perceived rather than how they think they will behave (Adams & McGuire, 2023). This type of bias can lead to inaccurate data. One way to minimize this bias is to ensure the responses remain anonymous. Another way that bias can occur when conducting the

research study is bias from individuals who lack internet access or do not have a way to take the survey electronically.

Additionally, the survey implies that an individual understands what an STI is and whether they have had an STI. To reduce these potential biases', organizations distributing the QR code link (flyer) will have paper copies of the survey so that anyone who meets the criteria can take the survey. There will also be definitions of different types of STIs so that individuals have a clear picture of what an STI is.

Ethical Procedures

Since human participants were used in this research study, a Walden University Institutional Review Board (IRB) application was prepared. I completed the Citi Program training (ID: 4068854) to conduct human research. Walden University's IRB approved the study on August 14, 2023 (IRB No. 08-14-23-0144429). The data collected were confidential, and no identifiers were linked to survey responses. An individual had the right to stop the survey at any time if they choose. Specific information such as names, addresses, birth dates, telephone numbers, email addresses, and other identifiers will not be solicited. The survey data will be collected via SurveyMonkey, and the data analysis was conducted using SPSS on this learner's home computer. The data will be kept for 5 years and then permanently deleted.

Summary

This chapter outlines the proposed research methodology for this quantitative research study. The chapter describes the research design and rationale, the population for

the study, and identifies the procedures and strategies used. This chapter also outlined the recruitment procedures, data collection strategies, potential bias, the data analysis plan, and instrumentation and operationalization of constructs. Lastly, the chapter outlined access to the survey instrument, the data analysis plan, and threats to internal and external validity. Also outlined were the ethical procedures and steps to obtain Walden University's permission to conduct the study through the IRB process.

Chapter 4: Results

Introduction

In this quantitative study, I explored the behavioral risk factors among females, ages 18 and 24, living in Peoria, Illinois, that contribute to risky sexual behaviors (sex without a condom) during male and female sexual intercourse. Chapter 4 contains the study's statistical findings, including the study's purpose, a restatement of the RQs, an overview of the study population, descriptive statistics of the variables, and correlational analyses using the TPB constructs. In addition, this chapter addresses the data collection process, the evaluation of the statistical assumptions of the study, and the interpretations of the correlational analysis, with a summary provided. Tables were created to illustrate the variables. This chapter ends with a summary and transitions to Chapter 5. The following RQs and hypotheses were analyzed using SPSS statical software v. 27.

RQs and Hypotheses

RQ1: Is there a correlation between attitudes and condom use among females ages 18 and 24 living in Peoria, Illinois?

$H_1$1: There is a correlation exists between attitudes and condom use among females ages 18 and 24 living in Peoria, Illinois.

$H_0$1: There is no correlation between attitudes and condom use among females ages 18 and 24 living in Peoria, Illinois.

RQ2: Is there a correlation between subjective norms (i.e., peer) and condom use among females ages 18 and 24 living in Peoria, Illinois?

$H_1$2: There is a correlation between subjective norms (i.e., peer) and condom use among females ages 18 and 24 living in Peoria, Illinois.

$H_0$2: There is no correlation between subjective norms (i.e., peer) and condom use among females ages 18 and 24 living in Peoria, Illinois.

RQ3: Is there a correlation between PBC and condom use among females ages 18 and 24 living in Peoria, Illinois?

$H_1$3: There is a correlation between PBC and condom use among females ages 18 and 24 living in Peoria, Illinois.

$H_0$3: There is no correlation between PBC and condom use among females ages 18 and 24 living in Peoria, Illinois.

Data Collection

The online survey was opened on August 18, 2023, and closed on September 18, 2023. The data collection process did not deviate from the original plan presented in Chapter 3; however, one question was added to the survey to define the dependent variable (condom use). The question stated, “In the past year, have you used a condom with a male partner?” The participants were then instructed to choose “yes” or “no.”

As noted in Chapter 3, primary data collection consisted of a survey announcement on social media (Appendix D) with a link to the survey study. This study used a snowball effect, and the participants were asked to share the announcement on their social media pages. A snowball effect is considered a viable method of recruitment in research when the study participants are not easily accessible or unknown to the

researcher (Leighton et al., 2021). The survey announcement was also shared with local community organizations, who posted it on their Facebook group pages.

The survey was distributed via SurveyMonkey, and a setting within the platform was turned on to allow "anonymous responses" to ensure survey responses were confidential with no personal identifiers attached to their answers. While participants could share the announcement, sharing the link did not affect the anonymity of the survey responses. However, the survey could not be sent to individuals via Facebook Messenger as it could compromise the anonymity of the survey respondents (see SurveyMonkey, 2023). A setting within the survey was set up to track IP addresses to ensure that individuals did not complete the survey multiple times from the same IP address. Within 16 days of posting the announcement and survey link, 115 individuals responded.

Descriptive Analysis of Participant Demographics

A *priori* power analysis and sample size calculation were used, and the recommended minimum sample size was 84 participants. As noted above, 115 participants completed the survey. Of those participants, a total of 92 participants met the study eligibility criteria and responded to all questions. Frequency tables were created to obtain descriptive statistics, allowing me to summarize the data.

Table 5 shows the descriptive characteristics of the dependent variable (condom use). This question was used to determine if participants had sex with a male partner in the past year. Of the 92 participants in this study, 60.9% *(n* = 56) stated they had used a

condom in the past year, and 39.1% *(n* = 36) responded that they had not used a condom in the past year.

Table 5

Descriptive Characteristics of Condom Use Within the Past Year

Measure	Frequency	Percent
Yes	56	60.9%
No	36	39.1%

The participants' ages ranged from 18 to 24 years, with a mean age of 22.14 + 1.059 and a median age of 23 (see Table 5). Of the 92 respondents, 1.1% (*n* = 1) were 18 years old, 6.5% (*n* = 6) were 19 years old, 14.1% (*n* = 13) were 20 years old, 4.3% (*n* = 4) were 21 years old, 13.0% (*n* = 12) were 22 years old, 51.1% (*n* = 47) were 23 years old, and 9.8% (*n* = 9) were 24 years old. Table 6 outlines the descriptive characteristics of age of participants and Table 7 outlines the descriptive characteristics of age distribution of participants.

Table 6

Descriptive Characteristics of Age of Participants

N	Valid	92
	Missing	0
Mean		22.14
Std. error of mean		.157
Median		23.00
Mode		23
Std. deviation		1.509
Range		6
Minimum		18

Table 7

Descriptive Characteristics of Age Distribution of Participants

Measure	Frequency	Percent
18	1	1.1%
19	6	6.5%
20	13	14.1%
21	4	4.3%
22	12	13.0%
23	47	51.1%
24	9	9.8%

Results

The survey data were imported and analyzed using SPSS v. 27. The data analysis for this study included descriptive statistics of the population based on age, bivariate correlations, and the formation of tables as they related to the independent variables: attitudes, norms (peer), and perceived condom use. Data for the variables were checked for missing values; those missing values were excluded from the study. The data included demographic information, past condom use, and responses from each question using a 5-point Likert scale adapted from the CUSES and the MCAS. The coding mimicked the coding variables outlined in the instrumentation and operationalization section of Chapter 3. The survey contained 21 questions: six preliminary questions and five questions for each TPB construct: attitudes, norms (peer), and perceived behavior control. This section outlines the statistical analysis and correlational results for each hypothesis.

Statistical Analysis

Data analysis was performed using IBM SPSS statistics V. 27 for Windows. A Pearson correlational analysis was calculated for each of the independent variables (attitudes, norms [peer]), and PBC and the dependent variable (condom use).

Results of Hypothesis Testing

RQ1

Is there a correlation between attitudes and condom use among females ages 18 and 24 living in Peoria, Illinois?

Hypothesis 1

$H_1$1: There is a correlation between attitudes and condom use among females ages 18 and 24 living in Peoria, Illinois.

$H_0$1: There is no correlation between attitudes and condom use among females ages 18 and 24 living in Peoria, Illinois.

A Pearson correlation was performed to test the hypotheses to calculate attitudes and condom use. The results of this correlational analysis showed that there was a significant, strong positive correlation between attitudes and condom use, $r = .550$ ($p = <.001$). Therefore, I rejected the null hypothesis stating no correlation exists between attitudes and condom use, and accepted the alternative hypothesis stating there is a correlation between attitudes and condom use. Table 8 outlines the Pearson correlation for attitudes and condom use.

Table 8

Pearson Correlation – Attitudes Towards Condom Use

		Attitudes mean	Condom use
Attitudes mean	Pearson correlation	1	.550**
	Sig. (2-tailed)		<.001
	N	92	92
Condom use	Pearson correlation	.550**	1
	Sig. (2-tailed)	<.001	
	N	92	92

** Correlation is significant at the 0.01 level (2-tailed).

RQ2

Is there a correlation between norms (peer) and condom use among females ages 18 and 24 living in Peoria, Illinois?

Hypothesis 2

$H_1$2: There is a correlation between norms (peer) and condom use among females ages 18 and 24 living in Peoria, Illinois.

$H_0$2: There is no correlation between norms (peer) and condom use among females ages 18 and 24 living in Peoria, Illinois.

A Pearson correlation test was performed to calculate subjective norms (i.e., peer) and condom use to test the hypotheses. Results of this correlational analysis showed that while there is a correlation between subjective norms (i.e., peer) and condom use, r = -.211 (p = <.043), the coefficient is negative, thus leading to greater independence between the two variables. As the response to the peer norms became more negative, so did the likelihood of the respondent indicating that they would use a condom increased. Therefore, I accepted the null hypothesis, stating no correlation exists between subjective norms (i.e., peer) and condom use. Table 9 outlines the Pearson correlation for norms (peer) and condom use.

Table 9

Pearson Correlation – Norms (Peer) Towards Condom Use

		Norms (peer) mean	Condom use
Norms (peer) mean	Pearson correlation	1	-.211*
	Sig. (2-tailed)		.043
	N	92	92
Condom use	Pearson correlation	-.211*	1
	Sig. (2-tailed)	.043	
	N	92	92

* Correlation is significant at the 0.05 level (2-tailed).

RQ3

Is there a correlation between perceived behavior control and condom use among females ages 18 and 24 living in Peoria, Illinois?

Hypothesis 3

$H_1$3: There is a correlation between perceived behavior control and condom use among females ages 18 and 24 living in Peoria, Illinois.

$H_0$3: There is no correlation between perceived behavior control and condom use among females ages 18 and 24 living in Peoria, Illinois. Table 10 outlines the Pearson correlation for PBC and condom use.

A Pearson correlation test was performed to calculate PBC and condom use. This correlational analysis showed little correlation between the two variables, $r = .014$ ($p = .896$). As discussed in Chapter 3, a correlation coefficient of $\pm$ .10-.29 means a weak

association between the variables (see Table 3). Furthermore, the *p*-value is below the significance threshold ($p < 0.5$). While I rejected the null hypothesis, I cannot accept the alternative hypothesis because the correlation is too weak. Table 10 outlines the Pearson correlation for PBC and condom use.

Table 10

Pearson Correlation – PBC and Condom Use

		PBC (peer) mean	Condom use
PBC mean	Pearson correlation	1	.014
	Sig. (2-tailed)		.896
	N	92	92
Condom use	Pearson correlation	.014	1
	Sig. (2-tailed)	.896	
	N	92	92

Summary

Chapter 4 summarized the statistical analysis of this quantitative research study that addressed behavioral risk factors among females ages 18 and 24 living in Peoria, Illinois, that contribute to risky sexual behaviors (sex without a condom) during male and female sexual intercourse. Data were collected by administering an online survey via SurveyMonkey using a snowball sample using social media posts. The responses reviewed were analyzed using SPSS statistical software v. 27.

For RQ1, hypothesis testing was performed using a Person correlational analysis to determine if there was a correlation between attitudes and condom use. The results of

the data analysis showed a strong, positive correlation between attitudes and condom use, $r = .550$ ($p = <.001$). Therefore, I rejected the null hypothesis and accepted the alternative hypothesis.

For RQ2, hypothesis testing was performed using a Pearson correlational analysis to determine if there was a correlation between norms (peer) and condom use. Results of this analysis showed that while there is a correlation between norms (peer) and condom use, $r = -.211$ ($p = <.043$), the coefficient is negative, thus leading to a greater independence between the two variables. Therefore, I accepted the null hypothesis, stating no correlation exists between norms (peer) and condom use.

For RQ3, hypotheses testing was performed using a Pearson correlation test to calculate PBC and condom use. The results of this analysis showed that there is very little correlation between the two variables, $r = .014$ ($p = .896$). Therefore, I could not accept or reject the null hypothesis because the correlation was too weak.

Chapter 5 continues with a detailed analysis of the findings and interpretations, study limitations, implications, and practice recommendations.

Chapter 5: Discussion, Conclusions, and Recommendations

Introduction

This quantitative study was performed to explore the behavioral risk factors among females ages 18 and 24 living in Peoria, Illinois, that contribute to risky sexual behaviors (sex without a condom) during male and female sexual intercourse. I sought to understand how behavioral risk factors and TPB constructs affect condom use so that medical and healthcare professionals are better equipped to navigate the challenges of providing STI preventative health information. The statistical analysis found that of the three TPB constructs, attitudes, norms (peer), and PBC, attitudes strongly correlated with condom use. There was no correlation between subjective norms (peer) and condom use, and I was unable to accept or reject the null hypothesis for PBC because the correlation was too weak.

Chapter 5 highlights the interpretation of the findings for each TPB construct: attitudes, subjective norms (peer), and perceived behavior control towards condom use, the limitations/barriers to the study, implications for social change, and recommendations for future research.

Interpretation of Findings

In this quantitative study, I explored the behavioral risk factors among females, ages 18 and 24, living in Peoria, Illinois that contribute to risky sexual behaviors (sex without a condom) during male and female sexual intercourse. This correlational study was grounded on the conceptual framework using the TPB constructs: attitudes (towards

condom use), subjective norms (i.e., peer), and PBC (a person's perception of the ease or difficulty in performing that behavior) towards condom use (see Ajzun, 1991). This framework has been primarily used to understand, predict, and change risky sexual behaviors (i.e., condom use) in at-risk populations (Aziz et al., 2021; Lee, 2022; McCarthy et al., 2021; Watsi & Tarkang, 2022).

While the results of this study indicated a strong correlation between attitudes towards condom use, subjective norms (peer) and PBC were inconsistent with previous literature that used the TPB constructs to identify condom use predictors (see Eaton & Stephens, 2019; Grisby, 2018; Marcinkowski et al., 2021; Mpeta et al., 2021; Neuberger & Pabian, 2019). Although there was no correlation in this present study between subjective norms (peer) and PBC, that is not an indication that subjective norms and PBC do not impact condom use intentions.

Attitudes Towards Condom Use

Previous literature has suggested that attitudes can predict condom use intentions (Appiah et al., 2017; Eaton & Stephens, 2019; Grisby, 2018; Neuberger & Pabian, 2019; Wfatsi & Tarkang, 2022). Participants were asked to respond to five items adapted from the CUSES and the CUS surveys to determine if a correlation exists between attitudes and condom use. Regarding survey questions based on attitudes towards condom use, participant responses depicted a robust positive correlation between attitudes and condom use $r = +.793$ (p-value <0.001). Of the 92 participants, 60.9% stated they had used a condom in the past year. When asked about attitudes towards condom use, two-thirds

(83.7%) had a positive attitude towards condoms and felt that they would use one if they were not in a committed relationship. More than half (67.35%) of the participants felt that condoms did not reduce the pleasure of sex.

These results are consistent with previous studies that established that attitudes toward condom use have a strong correlation to condom use behaviors (Cadely et al., 2020; Watsi & Tarkang, 2022). Stephanou et al. (2022) determined that of the TPB constructs, attitudes were the primary correlation between condom use intentions. For implications to social change, this may mean that when promoting safe sex behaviors (i.e., condom use), an emphasis should be placed on healthy attitudes and emotions toward condom use and not just a means to prevent STIs and pregnancy.

Subjective Norms (Peer)

Most empirical evidence has suggested that subjective norms (peer) are indicative of safe sex behaviors (Ajzen, 2020; Isaacs et al., 2021; Jeihooni et al., 2019; Wang et al., 2022). Participants were asked to respond to five items adapted from the CUSES and the CUS surveys to determine if a correlation exists between subjective norms (i.e., peer) and condom use. The results of this study illustrated a negative correlation between subjective norms (i.e., peer) and condom use, $r = -.211$ ($p = <.043$). When asked if participants thought their friends used condoms, half (57%) responded that they did not know if their peers practiced safe sex, and less than one-third (28.3%) felt their friends would approve of them using condoms themselves.

While these results dispute prior research (see Je et al., 2020; McCarthy et al., 2022), indicating that a person is likelier to mimic what their peers are doing regarding condom use, other norms, such as familial and societal, were not considered in this study. Masonbrink et al. (2023) discovered that while subjective norms were the most identifiable barriers to contraceptive use, peer norms were not as significant. Instead, participants were more concerned with their partner's opinion on using contraception. Additionally, participants were worried about community judgment in seeking contraception (i.e., condoms) at community health centers and local retailers.

Studies indicate that STIs are influenced by societal norms at the individual, interpersonal, and community-level factors (National Academies of Sciences, Engineering, and Medicine, 2021). For implications towards social change, STI interventions that target factors from all societal norms and delivery systems (i.e., schools, clinics, places of worship, etc.) should be considered to strengthen the influence on preventing STIs and condomless sex.

Relationship status should also be considered, as their partner's condom use intentions can influence people in relationships (Stephanon et al., 2022). In adolescents, peer norms are more consistent with condom use behaviors (Mpeta et al., 2021; Watsi & Tarkang, 2022), but for young adults (18+), relationship status should be considered when developing STI intervention programs.

PBC

PBC refers to a person's perception of the ease or difficulty of performing a behavior (Ajzen, 1991). Some would argue that PBC significantly impacts sexual behavior intentions (Mpeta et al., 2021; Tseng et al., 2019). Participants were asked to respond to five items adapted from the CUSES and the CUS surveys to determine if a correlation exists between PBC and condom use. The results of this study found little correlation between the two variables, $r = .014$ ($p = < .896$). When asked if the research participants felt as if they were in control of condom use decisions, more than 70.6% stated that they felt in control of condom use decision making. However, more than half (63.0%) of the study participants said that if they were to ask their partner to use a condom, their partner would think they were having sex with other people.

These results highlight that just because an individual feels in control of sexual decision making does not mean that they feel confident that a partner would trust them if they asked them to wear a condom, which could potentially put the individual at risk. As noted in Chapter 3, it is essential that females feel empowered, are autonomous, and have a voice during condom negotiation (Tseng et al., 2020). Prior studies noted that intimate partner violence can impact condom use (Eaton & Stephens, 2019; Finigan-Carr et al., 2021; Peasant et al., 2018). Therefore, a woman's ability to practice safe sex behaviors using condoms can become endangered when there is an unequal power with her male partner. Too often, younger females feel pressured or coerced into not using a condom with their male partner (Finigan-Carr et al., 2021; Peasant et al., 2018).

For implications of social change, relationship status should be taken into consideration, as females who are in a relationship may not feel comfortable discussing condom use with their partner. This can lead to volitional control in a relationship such as gender/power imbalances and intimate partner violence. Healthy relationships should be emphasized in the development of interventional programs as well as stressing the importance of having a “voice” in sexual decision-making. Consideration should be made toward gender/power imbalances and intimate partner violence when developing interventional and educational materials with an emphasis on feeling safe when in a relationship or causal sexual encounter. These interventions impact social change through female empowerment and feeling in control of sexual decision-making. This can lead to increased condom use and decreased STI rates.

Limitations of the Study

As noted in Chapter 1, some limitations affected this study. These included but were not limited to the following:

1. The study addressed cisgender females ages 18 and 24 living in Peoria, Illinois, who have had sex with cisgender males within the past year and did not include the LGBTQ+ community, nor did it address anal and oral sex.
2. The study met the minimum requirement of 84 participants, but a larger sample size may have changed the study's results.
3. Response bias could have impacted the truthfulness of the participants' responses, which could have affected the validity of the survey responses.

4. While mitigations were in place within the survey, duplicate responses could have existed if an individual took the survey more than once using a different domain.
5. Some individuals may still have a lack of knowledge regarding what an STI is and the best way to prevent STIs (condom use).
6. While "cisgender" was defined at the beginning of the survey, an individual may not have fully read or comprehended what the term cisgender meant. Subsequently, an individual may have responded outside the parameters of cisgender male and cisgender female.
7. One would assume that if individuals had a positive attitude towards condoms, STI rates among females ages 18 and 24 living in Peoria, Illinois, would decline. However, this study was based on self-reported sexual risk behaviors and attitudes towards condom use. Therefore, reporting bias could have factored into the results of this study; participants may have had a healthy attitude towards condom use, but it may not have reflected the participant's intention to use a condom.

Recommendations

The results of this study quantitative study found that of the TPB constructs, attitudes had the strongest correlation to condom use. This current study was limited to cisgender females who engaged in vaginal sex with cisgender males. This study did not take into consideration anal and oral sex. Future studies should include all sexually active

genders and nonbinary persons as well as the LBTQ+ community who engage in vaginal, anal, and oral sex. This study could be further explored through qualitative research to obtain a better understanding of safe sex practices and behaviors among young adults. Small groups and interviews should be conducted to explore lived experiences affecting condom use and condom use negotiations. This type of setting may help to reduce response bias, which can happen in online surveys. Small groups and interviews could provide a safe space for participants to feel comfortable sharing their experiences.

Additionally, before conducting qualitative interviews, participants should be given a thorough explanation of the following: (a) what an STI is, (b) how an STI is contracted, (c) what a condom is, and (d) how STIs can be prevented. This study's sampling method was limited to snowball sampling, and participants were asked to complete an anonymous online survey. I recommend that participants be recruited through various recruitment methods and not just limited to social media. One such way is to review STI data from healthcare organizations and invite those individuals who have tested positive for at least one STI.

Researchers have often used critical variables such as age, race, zip code, education, employment status, income, relationship status, knowledge/understanding of STIs, number of sexual partners, and previous STI diagnoses to identify correlations to risky sexual behaviors such as engaging in sex without a condom (Hall et al., 2019; Rodrigues et al., 2019). New 2022 STI data released by the Peoria City/County Health Department showed that while chlamydia and gonorrhea rates decreased overall within

the past year, STI rates within Peoria County, Illinois, are still ranked among the top counties nationwide (Deacon, 2023). Factors attributing to these high STI rates include social determinants of health such as poverty, racism, education, and access to care. Those individuals living in zip codes 61603, 61604, and 61605 accounted for 66% of chlamydia cases and 75% of all gonorrhea cases, with the combined population for these zip codes alone making up 33% of the total population within Peoria County, Illinois. Among the $N = 92$ participants who responded to the online survey, 18% of the respondents self-reported living in the three abovementioned zip codes. This study used a *priori* power analysis and sample size calculation to achieve a minimum number of study participants. Future studies should consider expanding the number of participants to obtain a larger population of individuals within zip codes 61603, 61604, and 61605. This study could also broaden the geographical location to include all of Peoria County, Illinois, providing a larger sample size. A larger sample size could also assist in expanding on the gap in the literature that seeks to exist regarding why STI rates in Peoria, Illinois, continue to rise among young persons, particularly females aged 18 and 24 living in Peoria County, Illinois.

Implications for Positive Social Change

In this study, I looked at factors that contribute to elevated STI rates among females ages 18 and 24 living in Peoria, Illinois, who have sex with a male partner. The results of this research study showed that there is a correlation between attitudes and condom use. To my knowledge, there has been little research that speaks to explain the

reasons STI rates are so high amongst this population. Thus, community health organizations, healthcare organizations, and healthcare providers should invest in creating interventional programs to meet the needs of young adults who are no longer receiving sexual education within a school setting. Peoria, Illinois, is fortunate to have the Carle Health Hult Center for Healthy Living. Health education specialists develop and deliver preventative health education for youth and provide some adult education. I recommend that health educators collaborate with community organizations and healthcare systems develop an action plan to reduce STI rates. Stakeholders should develop and deliver STI prevention/educational materials that are universal regardless of where an individual seeks STI testing, treatment and/or counseling. In the medical setting, healthcare providers could refer patients who present with STI symptoms or who test positive for an STI to community health workers or health educators to provide STI-preventative counseling in a one-on-one setting.

The CDC's (2019) sexual surveillance data showed that there are higher rates of reported STIs among some racial and minority ethnic groups, leading to healthcare disparities. This research study helps to promote social change by identifying factors contributing to high rates of STIs so that interventions can occur to reduce these rates. The results of this study showed that attitudes can affect condom use. Building upon these data, healthcare providers and healthcare clinics should consider STI counseling at every visit, regardless of gender or gender identity. Promoting healthy attitudes toward

condom use can lead to better health outcomes as well as prevent future healthcare expenditures for individuals who were not treated for STIs.

Community engagement to promote condom use can also help promote social change. Communities with elevated STI rates should consider “Get Yourself Tested” (GYT) events. These events are offered at several high schools in Peoria, Illinois, where STIs are most prevalent. However, these events are not open to individuals who no longer attend high school or have graduated. Therefore, communities should consider creating adult GYT events to provide STI testing and counseling and distribute free condoms. These events could be held at various locations, including community events throughout the year.

This study's results can potentially promote change at the state level. On January 1, 2021, Illinois revised the State Employees Group Insurance Act (1971/2021), allowing women to receive birth control from a licensed pharmacist without visiting a doctor. The bill authorizes pharmacists who undergo training to dispense hormonal birth control provided they have standing orders from physicians or the director of local health departments. Individuals who receive Illinois Medicaid or Medicare benefits are covered to receive free female contraception. Private healthcare insurance companies have until 2023 to cover pharmacist-direct-dispensed birth control coverage (Vinicky, 2022) in communities where healthcare disparities are prevalent. Given the breakthrough of providing access to contraception from a trained pharmacist, state legislatures should

consider providing free STI contraception (condoms) from a pharmacist or wherever condoms are sold.

Conclusion

As noted in Chapter 1, little to no published data or research studies exist to understand why STIs are so high among females aged 18 and 24 living in Peoria, Illinois. Furthermore, no research exists to understand these individuals and beliefs that can be impacted by culture, socioeconomics, and social norms, influencing an individual's ability and willingness to engage in behavioral change. This study found that of the three TPB constructs attitudes, subjective norms (peer), and PBC, attitudes toward condoms contributed to increased condom use. The study suggests that the more positive a person's attitude is towards condoms, the more likely the individual is to use one during sex. The study contributes to positive social change by identifying factors contributing to elevated STIs among females ages 18 and 24 living in Peoria, Illinois, to assist community health leaders and healthcare providers in developing culturally tailored STI prevention programs specific to this population.

This chapter highlighted the interpretation of findings found in Chapter 4, discussed the study's limitations and implications for social change, and provided recommendations for future research to reduce STI rates, which are so high among females ages 18 and 24 living in Peoria, Illinois.

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Appendix A: Condom Use Survey

Preliminary Questions:

1. Were you born female, and do you identify as a female?
2. Have you ever had sex with someone who was born male and identifies as a male?
3. Are you between the ages of 18 and 24? If so, please enter your age provided in the box below.
4. Do you live in Peoria, Illinois? If so, please enter your zip code in the box provided below.
5. In the past year, have you had sex with a male partner?
6. In the past year, have you used a condom with a male partner?

Note: The term "partner" is used to represent a cisgender male (defined as an individual who was born a male and identifies as a male) who you are having sex with, regardless of whether you are in a relationship or not.

Please rate your questions using the following:

Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree

You also have the option to skip a question, or you may leave the survey at any time.

Attitudes towards Condom Use:

1) In my opinion, condoms are too much trouble.
2) I would be willing to try a condom, even if I have never used one before.
3) I intend to use condoms regardless of whether I am in a committed relationship or not.
4) I am not embarrassed to ask my partner to use a condom.
5) Condoms reduce the pleasure of sex.

Subjective Norms: (Peer)

1) Most of my friends practice safe sex, which includes using condoms during sex.
2) My friends have encouraged me to use condoms when I have sex.
3) I discuss condom use with my close friends.
4) If my friends knew I was using condoms during sex, they would approve.
5) My friends use condoms when having sex.

Perceived Behavioral Control

1) When it comes to making decisions about condom use, I feel in control.
2) My partner pressures me not to use condoms when we have sex.
3) Asking my partner to wear a condom during sex would make them think I am having sex with other people.

4) My sexual partner is likely to stop having sex with me if I ask him to wear a condom.
5) I am not able to control whether my partner wears a condom during sex.

Appendix B: Condom Self-Efficacy Scale (CUSES)

UNC CFAR Social and Behavioral Science Research Core
SABI Database

INSTRUMENT TITLE: *Condom Self-Efficacy Scale (CUSES)*

SOURCE ARTICLE: 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.

RESPONSE OPTIONS:
1. Strongly agree (Always) 2. Agree {Often) 3. Undecided 4. Disagree (Seldom) 5. Strongly disagree (Never)

SURVEY ITEMS:

1. I feel confident in my ability to put a condom on myself or my partner. _____
2. I feel confident I could purchase condoms without feeling embarrassed._____
3. I feel confident I could remember to carry a condom with me should I need one._____
4. I feel confident in my ability to discuss condom usage with any partner I might have. _____
5. I feel confident in my ability to suggest using condoms with a new partner. _____
6. I feel confident I could suggest using a condom without my partner feeling "diseased". _____
7. I feel confident in my own or my partner's ability to maintain an erection while using a condom. _____
8. I would feel embarrassed to put a condom on myself or my partner. _____
9. If I were to suggest using a condom to a partner, I would feel afraid that he or she would reject me. _____
10. If I were unsure of my partner's feelings about using condoms, I would not suggest using one. _____
11. I feel confident in my ability to use a condom correctly. _____
12. I would feel comfortable discussing condom use with a potential sexual partner before we ever had any sexual contact (e.g. hugging, kissing, caressing, etc.) ____
13. I feel confident in my ability to persuade a partner to accept using a condom when we have intercourse. _____
14. I feel confident I could gracefully remove and dispose of a condom when we have intercourse. _____

Appendix C: Condom Attitudes Scale (MCAS)

UNC CFAR Social and Behavioral Science Research Core
SABI Database

INSTRUMENT TITLE: *The UCLA Multidimensional Condom Attitudes Scale (MCAS)*

SOURCE ARTICLE: Helweg-Larsen, M. & Collins, B.E. (1994). The UCLA multidimensional condom attitudes scale: Documenting the complex determinants of condom use in college students. *Health Psychology*, 13(3), 224-237.

RESPONSE OPTIONS: Scale ranging from *strongly disagree* (1) to *strongly agree* (7) regarding intention and condom attitudes and past condom use

PARTICIPANT INSTRUCTIONS: *Please respond to all questions even if you are not sexually active or have never used (or had a partner who used) condoms. In such cases indicate how you think you would feel in such a situation.*

SURVEY ITEMS:

Reliability and Effectiveness

1. Condoms are an effective method of birth control.
   or
   Condoms are an effective method of preventing the spread of AIDS and other sexually transmitted diseases.
2. The condom is a highly satisfactory form of contraception.
3. I think condoms are an excellent means of contraception.
4. Condoms are unreliable.
5. Condoms do not offer reliable protection.

Pleasure

6. The use of condoms can make sex more stimulating.
7. Condoms ruin the sex act.
8. Condoms are uncomfortable for both partners.
9. Condoms are a lot of fun.
10. Use of a condom is an interruption of foreplay.

Identity Stigma

11. Men who suggest using a condom are really boring.

TERMS OF USE:
Individuals may use this information for research or educational purposes only and may not use this information for commercial purposes. When using this instrument, please cite:

Helweg-Larsen, M. & Collins, B.E. (1994). The UCLA multidimensional condom attitudes scale: Documenting the complex determinants of condom use in college students. Health Psychology, 13(3), 224-237.

When presenting results using any survey information you obtained from the SABI, please acknowledge the University of North Carolina at Chapel Hill Center for AIDS Research (CFAR), an NIH funded program P30 AI50410.

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12. If a couple is about to have sex and the man suggests using a condom, it is less likely that they will have sex.
13. Women think men who use condoms are jerks.
14. A woman who suggests using a condom does not trust her partner.
15. People who suggest condom use are a little bit geeky.

Embarrassment About Negotiation and Use

16. When I suggest using a condom I am almost always embarrassed.
17. It is really hard to bring up the issue of using condoms to my partner.
18. It is easy to suggest to my partner that we use a condom.
19. I'm comfortable talking about condoms with my partner.
20. I never know what to say when my partner and I need to talk about condoms or other protection.

Embarrassment About Purchase

21. It is very embarrassing to buy condoms.
22. When I need condoms I often dread having to get them.
23. I don't think that buying condoms is awkward.
24. It would be embarrassing to be seen buying condoms in a store.
25. I always feel really uncomfortable when I buy condoms.

NOTES ON SCORING:
These items should be reverse scored: 1, 2, 3, 5, 6, 7, 8, 11, 13, 14, 16, 17, 18, 22, 23, 24, 25.

While scoring, it is not recommended to average across all 25 items. Rather, authors recommend scoring within each MCAS factor, identified below:

Reliability and Effectiveness: 4, 6, 9, 14, 20
Pleasure: 2, 8, 15, 19, 25
Identity Stigma: 3, 13, 18, 22, 24
Embarrassment about negotiation and use: 1, 7, 12, 16, 21
Embarrassment about purchase: 5, 10, 11, 17, 23

Helweg-Larsen, M. & Collins, B.E. (1994). The UCLA multidimensional condom attitudes scale: Documenting the complex determinants of condom use in college students. Health Psychology, 13(3), 224-237.

Appendix D: Social Media Post

Volunteers Needed!!

If you are a sexually active female between the ages of 18 and 24 and live in Peoria, Illinois, please consider clicking on the link below to participate in this research survey.

Your help is needed to better serve the community in understanding what behaviors (i.e., having sex without a condom) contribute to sexually transmitted infections (STIs) among females ages 18 and 24 who live in Peoria, Illinois.

The survey is anonymous, and no personal information such as your name, address, email, or phone number will be asked.