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Perceptions of Risk Associated with Unintended Pregnancy and Sexually Transmitted Infections among University Women attending Minnesota State University, Mankato

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PERCEPTIONS OF RISK ASSOCIATED WITH UNINTENDED PREGNANCY AND SEXUALLY TRANSMITTED INFECTIONS AMONG UNIVERSITY WOMEN ATTENDING MINNESEOTA STATE UNIVERSITY, MANKATO

ABSTRACT

By:

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Unintended pregnancies and sexually transmitted infections are preventable, yet there is still a high occurrence of both among university women. This study evaluated perceptions of risk associated with unintended pregnancies and sexually transmitted infections among selected university women aged 18-25. This study identified whether women's perceptions of risk affected their decision to take certain precautions to prevent pregnancies and sexually transmitted infections. This study also examined whether there was a relationship between perceptions of risk associated with unintended pregnancies and perceptions of risk associated with sexually transmitted infections and some of the variables that are associated with that relationship. This study identified whether university women used a mode of birth control, how often the method was used and their reasons for choosing methods and the factors that influence their use of birth control. Finally, the theoretical framework of the Health Belief Model was applied to this study to better understand university women's perceived risks of unintended pregnancies and sexually transmitted infections.

Data were collected using a paper survey instrument that was administered in selected classrooms at Minnesota State University, Mankato. Descriptive statistics of student demographics were computed, such as mean age, sexual orientation and sexual activity level. Linear correlations and t-tests were done using SPSS Statistical Software version 18.

This study found that women attending Minnesota State University, Mankato concepts of personal perceived risk and other women's perceived risk of both an unintended pregnancy and becoming infected with a sexually transmitted infection were not consistent. Inconsistency between beliefs and practices in regards to birth control/ protection choices were also found. A significant difference was found between the attitudes of dating and single participants toward the withdrawal method's effectiveness of preventing pregnancy, perceived risk of becoming pregnant without the use of protection/birth control and perceived risk of becoming infected with a sexually transmitted infection without protection. This study also showed that there was a lack of knowledge of HIV testing.

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Chapter One: Introduction

Centers for Disease Control and Prevention (CDC) estimates that there are 19 million new sexually transmitted infections (STIs) every year in the United States. "Sexually Transmitted Diseases cost the U.S health care system $17 billion every year and cost individuals even more in immediate and life-long health consequences" (CDC, 2011e). In 2001, approximately one-half of pregnancies in the United States were unintended (Finer & Henshaw, 2006). "Unintended pregnancy costs U.S. taxpayers roughly $11 billion each year" (Gold, 2011). The occurrence of both sexually transmitted infections and unintended pregnancies affects not only individuals, but the United States as a whole. The perception of risk of both STIs and pregnancy influences the behaviors of females when they are participating in sexual activity. With a better understanding of the perceived risk associated with both STIs and unintended pregnancies we can better understand how to control and prevent them.

Statement of the Problem

Unintended pregnancies and sexually transmitted infections are preventable, yet there is still a high occurrence of both among university females.

The purpose of my study is to evaluate perceptions of risk associated with unintended pregnancies and sexually transmitted infections among selected female students attending Minnesota State University, Mankato. This study will attempt to identify if females' perceptions of risk affect their decision to take certain precautions to prevent pregnancies and STIs. This study will also examine whether there is a relationship between perceptions of risk associated with unintended pregnancies and perceptions of risk associated with sexually transmitted infections. If a relationship is discovered, then my study will identify some of the variables that could be associated with that relationship. The theoretical framework of the Health Belief Model will be applied to this study to better understand university women's perceived risks of unintended pregnancies and sexually transmitted infections.

Significance of the Problem

"Every iteration of *Healthy People* since the series began in 1979 has set reducing unintended pregnancy as a national public health goal. In fact, the federal government recently set the goal of reducing the proportion of pregnancies that are unintended by 10% by 2020" (Gold, 2011). Safe sex and condom use has become a trending topic in the media the past few years. Information on many STIs is now readily available for public use, yet the rates of STIs and pregnancies are not drastically changing. Young adults between the ages 15-24 and females are now acquiring new STIs at the highest rates. In the United States during 2009–2010, rates of chlamydia in women increased (CDC,

2011d). Although the gonorrhea rate in men has historically been higher than the rate in women, the gonorrhea rate among women has been slightly higher than the rate among men for 9 consecutive years. "Estimates suggest that even though young people aged 15–24 represent only 25% of the sexually experienced population, they acquire nearly half of all new STDs" (CDC, 2011d). Perceptions of risk guide a person's behavior or behavior change. If health educators and other health professionals understand a person's risk perception then they may create more effective interventions and strategies.

Research Questions

The research questions of this study are:

1. Do women at Minnesota State University, Mankato perceive themselves to be at risk for unintended pregnancy?
2. Do women at Minnesota State University, Mankato perceive themselves to be at risk for sexually transmitted infections?
3. Is there a relationship between perceptions of risk for unintended pregnancies and sexually transmitted infections among university females at Minnesota State University, Mankato?
4. At Minnesota State University, Mankato, do female students (age 18-25) use a mode of birth control?
5. What are the selected female students' reasons for using birth control?

6. For the selected female students, what factors (partner preferences, religious beliefs, effectiveness, sexual orientation and relationship status) influence use of birth control and how often birth control is used?

Limitations

The limitations of this study include:

1. Information collected from the survey was self-reported.
2. Results may not be generalizable to other university populations.

Delimitations

The delimitations of this study include:

1. The time frame of the study was limited to a ten month period of time.
2. The study was limited to female university students between the ages of 18-25.
3. Survey distribution was limited to students attending class on the day the instrument was administered.
4. Information was collected from a small geographic area at a midsized Midwestern university in Minnesota.

Assumptions

The assumptions of this study include:

1. Survey participants could read and understand the survey.
2. Survey participants responded honestly, accurately, and completely.
3. Female university students have access and can afford contraceptives.

Definition of Terms

Acquired immune deficiency syndrome (AIDS):

A chronic, potentially life-threatening condition caused by the human immunodeficiency virus (HIV). By damaging the immune system, HIV interferes with your body's ability to fight the organisms that cause disease (Mayo Clinic, 2011c).

Genital Herpes:

A sexually transmitted disease (STD) caused by the herpes simplex viruses type 1 (HSV-1) or type 2 (HSV-2). Most genital herpes is caused by HSV-2. Most individuals have no or only minimal signs or symptoms from HSV-1 or HSV-2 infection (CDC, 2010).

Genital Human Papillomavirus (HPV):

Genital human papillomavirus (also called HPV) is the most common sexually transmitted infection (STI). There are more than 40 HPV types that can infect the genital areas of males and females. These HPV types can also infect the mouth and throat. Most people who become infected with HPV do not even know they have it (CDC, 2011b).

Health Belief Model:

Since the early 1950's the Health Belief Model (HBM) has been one of the most widely used conceptual frameworks in health behavior research, both to explain change and maintenance of health-related behaviors and as a guiding framework for health behavior interventions. Over the past two decades, the HBM has been expanded, compared to other frameworks, and used to support interventions to change health behavior (Champion & Skinner, 2008).

Human immunodeficiency virus (HIV):

Human immunodeficiency virus is a sexually transmitted disease. It can also be spread by contact with infected blood, or from mother to child during pregnancy, childbirth or breast-feeding. It can take years before HIV weakens your immune system before a diagnosis of AIDS (Mayo Clinic, 2011c).

Perception of Risk:

Risk is always the risk of something (technical facility, natural hazard) to someone (an individual, a group of people, society or all humankind). Moreover, that risk is perceived not solely by technical parameters and probabilistic numbers, but in our psychological, social and cultural context. Individual and social characteristics form our risk perception and influence the way we react towards risks (Schmidt, 2004).

Reportable Diseases:

Reportable diseases are diseases considered to be of great public health importance. Local, state, and national agencies (for example, county and state health departments or the U.S. Centers for Disease Control and Prevention) require that these diseases be reported when they are diagnosed by doctors or laboratories (Medline Plus, 2011).

Sexually Transmitted Infections (STI):

STIs are infections that are spread primarily through person-to-person sexual contact. There are more than 30 different sexually transmissible bacteria, viruses and parasites. Several, in particular HIV and syphilis, can also be transmitted from mother to child during pregnancy and childbirth, and through blood products and tissue transfer. STIs are caused by bacteria, viruses and parasites (World Health Organization, 2011).

Unintended Pregnancy:

An unintended pregnancy is a pregnancy that is either mistimed, unplanned, or unwanted at the time of conception (CDC, 2011f).

Chapter Two: Review of the Literature

Introduction

The purpose of this research is to evaluate perceptions of risk associated with unintended pregnancies and sexually transmitted infections among selected female students attending Minnesota State University, Mankato. This review of literature focuses upon sexually transmitted infections and unintended pregnancies and the risk perceptions associated with both. The first section of the review addresses sexual behaviors of university women. The second section addresses sexually transmitted infections in the United States. This section provides information on five specific sexually transmitted infections. The five specific sexually transmitted infections were chosen for many reasons. The first reason is to provide a broad review of literature on sexually transmitted infections. The second is to provide information on both bacterial and viral sexually transmitted infections, which also goes along with curable and incurable infections. The third reason is to provide information on reportable sexually transmitted infections and infections that do not need to be reported. The last reason is to provide information on sexually transmitted infections that are very common to women compared to sexually transmitted infections that are not as common in women. The third section discusses unintended pregnancy in the

United States. The next section discusses risk perception in health, and then focuses on risk perception involving both sexually transmitted infections and unintended pregnancy. In the final section, the Health Belief Model, used as the conceptual framework for this study, is reviewed.

Sexual Behaviors of University Female Students

Approximately 70 percent of college females report having one or more sexual partners (American College Health Association, 2011). Data from the 2008 Minnesota State University, Mankato (MSU) College Health Assessment reveal that 82 percent of college females report having one or more sexual partners. The MSU College Health Assessment also showed that only 54.4 percent of sexually active students used a condom the last time that they had vaginal intercourse. Additionally, according to this assessment at Minnesota State University, Mankato, 21.8 percent of females used withdrawal as a form of birth control to prevent pregnancy (American College Health Association, 2008).

Sexually Transmitted Infections Rates

"Reportable diseases are diseases considered to be of great public health importance (Medline Plus, 2011)." Legally health providers have a duty to report these diseases to certain agencies on the local, state and national level. Specific diseases are reportable to the Centers for Diseases Control at the national level. Physicians are required to report cases of AIDS, gonorrhea, chlamydia and

syphilis along with a list of many other diseases. All states have a "reportable diseases" list. It is the responsibility of the health care provider, not the patient, to report cases of these diseases (Medline Plus, 2011). By knowing the statistics associated with the diseases on the reportable diseases list, researchers are able to provide proper surveillance of these diseases, which can help to control any possible new outbreaks.

Sexually transmitted infections affect the young adult and female population at a higher rate than other groups. At all ages, women are more likely than men to contract genital herpes, chlamydia or gonorrhea (Guttmacher Institute, 2009). The CDC states that young people represent 25 percent of the sexually experienced population in the United States, yet they account for half of new STIs. Sexually transmitted infections can have long lasting effects for those who are infected. For example, each year untreated STIs cause at least 24,000 women in the United States to become infertile (CDC, 2011e). This study will focus on five specific sexually transmitted infections: genital herpes, human immunodeficiency virus, genital human papillomavirus, gonorrhea and chlamydia.

Genital herpes.

Genital Herpes is a sexually transmitted infection caused by the herpes simplex viruses. Most genital herpes is caused by HSV-2. HSV-1 is usually responsible for cold sores and infections of the mouth and lips. The Center for

Disease control fact sheet states that in the United States 16.2%, or about one out of six people 14-49 years of age, has genital HSV-2 infection. HSV-2 infection is more predominant in women than in men. The CDC also reports that about one out of five women aged 14-49 has HSV-2 infection compared with about one out of nine men aged 14-49 (CDC, 2010).

Transmission of HSV-1 and HSV-2 occurs when the virus is released from the sores that the virus causes. Transmission can also occur when there are no visible lesions on the infected person. HSV-1 infection of the genitals can be caused by both genital-to-genital contact and oral-to-genital contact. A high percentage of people who are infected do not realize that they have genital herpes. For others who do have symptoms, these symptoms include small blisters on the vulva, itching, fever, painful urination and swollen glands (CDC, 2010; Mayo Clinic, 2010).

Genital Herpes can be diagnosed by visual inspection if sores are present. A sample of the sore is then taken and tested. Another way of diagnosing genital herpes is by the use of a blood test. There is no cure for genital herpes, but medications can be taken to shorten and prevent outbreaks. Also, daily suppressive therapy can help reduce the likelihood of transmission to partners.

Human immunodeficiency virus (HIV).

HIV is one of the world's leading infectious killers, claiming more than 25 million lives over the past three decades (World Health Organization, 2011). Human Immunodeficiency Virus (HIV) is a sexually transmitted infection. HIV is

spread through direct contact with blood, semen, vaginal discharge, and breast milk. It can be spread during sexual contact, childbirth and the sharing of needles. There are two types of HIV, HIV-1 and HIV-2. In the United States the majority of cases are HIV-1. HIV destroys CD4 + T cells in the body, which are imperative to help the body fight the occurrence of diseases. This destruction of the immune system inhibits the body's ability to fight organisms that can cause disease. HIV can lead to acquired immune deficiency syndrome (AIDS). Many years can pass before HIV weakens the immune system to the point where AIDS occurs.

CDC's analysis reveals that there were more than a million people—an estimated 1,106,400 adults and adolescents—living with HIV infection in the United States at the end of 2006 (CDC, 2008). The CDC not only analyzes how many people are living with HIV and know their status, it also estimates the percentage of individuals infected with HIV who were unaware of their infection. The new analysis indicates that approximately one in five people living with HIV in 2006—21 %, or 232,700 total persons—were unaware of their infections (CDC, 2008). In 2007, the CDC estimated that about 56,000 people in the United States were infected with HIV. As of December 31, 2010, a cumulative total of 9,493 persons had been diagnosed and reported with HIV infection in Minnesota. Out of those 9,493 persons, 3, 228 are known to be deceased (Minnesota HIV/AIDS Surveillance System, 2011). In Minnesota, the percentage of HIV/AIDS cases diagnosed among youth aged 13-24 has slowly increased

over the past 15 years. In Minnesota, statistics from 2008 and 2010 were combined and it was estimated that of females aged 13-24 who were HIV positive, 95 percent were infected by heterosexual sexual activity (Minnesota HIV/AIDS Surveillance System, 2011). Between 2002 and 2004, African born women accounted for the highest percentage of new infections among 13-24 year old females (Minnesota Department of Health, 2006). The number of people in MN living with HIV/AIDS has been steadily increasing at high rates since 1996 (Minnesota Department of Health, 2006). In Minnesota, the number of AIDS deaths has stayed stable since 2001.

Some people who are infected with HIV do not experience symptoms. The symptoms of HIV and AIDS vary, depending on the phase of infection. Some who are infected develop flu-like symptoms a few weeks after exposure. As the virus continues to multiply and destroy immune cells, the infected person may develop mild infections or chronic symptoms such as swollen lymph nodes, diarrhea, weight loss, fever and cough and shortness of breath (Mayo Clinic, 2011c). People living with HIV may appear and feel healthy for years after exposure. However, even if they feel healthy, the virus is still affecting their bodies. Untreated early HIV infection is also associated with many diseases including cardiovascular disease, kidney disease, liver disease, and cancer. AIDS develops when the immune system has been severely damaged. At this point the infected person is more vulnerable to opportunistic infections. HIV can be diagnosed by a variety of different laboratory tests, including blood, urine, and saliva. These tests detect HIV antibodies. It can often take up to three months

after exposure for the body to create a detectable amount of HIV antibodies, but for a small number of people detection of antibodies can take up to six months (Planned Parenthood, 2011). There is no cure for HIV/AIDS, but medications can dramatically slow the progression of the disease. These medications can limit or slow down the destruction of the immune system, improve the health of people living with HIV, and may reduce their ability to transmit HIV. When taking HIV medication the most important thing about therapy is that the infected person takes the medications everyday as prescribed. Missing doses can lead to the virus developing resistance.

Genital human papillomavirus (HPV).

Genital human papillomavirus is the most common sexually transmitted infection. The CDC reports that approximately 20 million Americans are currently infected with HPV. Another 6 million people become newly infected each year (CDC, 2011b). HPV is so common that about fifty percent of men and more than 3 out of 4 women have HPV at some point in their lives.

There are about forty different HPV types that affect the genital area. These types can also affect the mouth and throat. HPV is transmitted through genital contact and oral sex. Many people who have HPV do not know that they are infected and many times the virus clears up on its own within two years. Most people who have HPV do not have symptoms or related health problems. Some symptoms and related health problems are: genital warts, cervical cancer, other genital cancers and RRP (a condition where warts grow in the throat)

(CDC, 2011b). Each of these health problems is caused by a different type of HPV infection.

There is not a test to diagnose whether a female has HPV. There are only ways to diagnose whether someone has a HPV related health problem. Health care providers can diagnose genital warts by visual inspection. Cervical cancer can be diagnosed by screening tests. There is no cure for HPV but there are ways to treat the diseases caused by HPV.

Gonorrhea.

Gonorrhea is a very common sexually transmitted infection. The CDC estimates that each year more than 700,000 persons in the United States get new gonorrheal infections (CDC, 2011c). As is the case with other sexually transmitted infections, many cases are not reported to the CDC. In 2009, 301,174 cases of gonorrhea were reported to the CDC. Gonorrhea is caused by bacteria called Neisseria gonorrhoeae. This bacterium grows in warm moist areas of the reproductive system and also in the mouth, throat, eyes, and anus (CDC, 2011c).

Gonorrhea is transmitted during sexual contact and during childbirth. Many people who are infected do not have symptoms. Some symptoms of gonorrhea for men are painful urination, discharge from the tip of the penis, and pain or swelling in the testes. Gonorrhea can cause epididymitis, which can lead to infertility and is very painful. Some symptoms that can occur in females are increased vaginal discharge, painful urination, vaginal bleeding, abdominal pain,

and pelvic pain. Gonorrhea can also cause pelvic inflammatory disease, also called PID, in women. PID can lead to infertility, can cause pelvic pain and also increase the risk of ectopic pregnancies. If gonorrhea affects other areas besides the genitals then other symptoms can occur. Gonorrhea can affect the eyes which can cause eye pain, sensitivity to light, and discharge from the eyes. If the throat is infected a sore throat and swollen lymph nodes can occur (CDC, 2011c; Mayo, 2011b).

Gonorrhea can be diagnosed by a health care provider by taking a urine sample or by swabbing the affected area. Since gonorrhea is caused by bacteria it can be treated. Infected persons with gonorrhea are treated with antibiotics; the medication is either injected or ingested in the form of a tablet. If a mother is infected with gonorrhea the baby will receive a medication that is placed in its eyes after birth to help prevent infection. If the baby is infected, then the child will receive antibiotics (CDC, 2011c). If gonorrhea is not treated there can be very serious side effects. One of those side effects can be infertility in both males and females.

Chlamydia.

Chlamydia is the most commonly reported sexually transmitted infection. Chlamydia is a bacterial sexually transmitted infection caused by a bacterium called Chlamydia trachomatis. The CDC states that an estimated 2.9 million

infections occur annually in the United States. In 2009, 1,244,180 chlamydial infections were reported to the CDC (CDC, 2011a).

Chlamydia is transmitted during vaginal, anal or oral sex and also can be passed from mother to child during child birth. Many people who are infected never experience any signs or symptoms. Chlamydia occurs in both males and females but is more prevalent in women. If an infected person experiences symptoms, many times the symptoms are mild. Some symptoms of chlamydia are painful urination, lower abdominal pain, vaginal discharge, and discharge from the penis. Women may also experience painful sexual intercourse and men may experience testicular pain (CDC, 2011a; Mayo Clinic, 2011a).

Chlamydia can be diagnosed by either a urine test or by a health care provider taking a sample of cells from the cervix in women and the penis in men. Chlamydia can be treated with antibiotics. After antibiotic treatment, the infection usually resolves within one to two weeks. If chlamydia is not treated it can cause other health problems such as pelvic inflammatory disease, which can damage the fallopian tubes, ovaries and uterus. Another complication can be an infection in men that inflames the epididymis which may result in fever, scrotal pain and swelling. Men may also experience an infection in the prostate gland. Women may experience infertility from scarring and an obstruction in the fallopian tubes that can occur from the infection. Another condition that may occur in both males and females is Reiter's syndrome, which affects the joints, eyes and urethra. If a mother infects her child during childbirth, the newborn may experience an eye infection or pneumonia (CDC, 2011a).

Unintended Pregnancy Rates

In 2001, 49% of pregnancies in the United States were unintended (Finer & Henshaw, 2006). The unintended pregnancy rate was 51 per 1,000 women aged 15–44, meaning that 5% of this group had an unintended pregnancy. "Every iteration of Healthy People since the series began in 1979 has set reducing unintended pregnancy as a national public health goal" (Gold, 2011). In 2001, the rate of unintended pregnancy was higher among certain groups of women. Higher rates of unintended pregnancies were seen among women ages 18–24, minority women, low-income women, and less educated women, categorized as those who had not completed high school (Finer & Henshaw, 2006). A large proportion of all births, about half, involve men and women in their 20s.

In 2001, 48% of the unintended conceptions occurred when contraceptives were used, compared with 51% in 1994. Effective and properly used contraception is important in cases where a pregnancy is not wanted. Rates of unintended pregnancies could be cut in half if women were to use highly effective contraception (Finer & Henshaw, 2006). Many unintended pregnancies occur in women who did not use contraception.

Unintended pregnancies can create many different hardships for women and couples who experience them. An unintended pregnancy may limit the ability for some females to finish school, especially higher education. An unintended pregnancy may also take away the chance of having a child when a woman feels that she is ready and able to take care of the responsibilities

associated with having a child. Unintended pregnancies also affect other people in addition to the couple experiencing the pregnancy. Unintended pregnancies also pose a high financial burden on United States taxpayers. In 2001, a study from the Brookings Institution concluded that the estimated annual cost to taxpayers for providing medical services to both the mothers and children involved in unintended pregnancies ranges from $9.6 billion to $12.6 billion and averages $11.3 billion (Gold, 2011). The second study from the Guttmacher Institute estimated the proportion of unintended pregnancies ending in publicly funded births in each state in 2006. The total public cost of unintended pregnancies in 2006 was $11.1 billion. In 2006 the state of Minnesota had 46,000 unintended pregnancies which accounted for 44% of all pregnancies in MN. Of those pregnancies, 59% were publicly funded. The total public cost was $143 million and the state level public costs were $72 million dollars (Gold, 2011).

Theories Related to Perceptions of Risk

Existing models of behavioral interventions are based on various cognitive behavioral theories that assume individuals will take steps to avoid risks if they are fully informed and sufficiently motivated (Global HIV Prevention Working Group, 2008). This study will use the conceptual framework of the Health Belief Model. The model initially was developed in the 1950s, as a way to understand why the public was not utilizing a variety of health screenings and other programs

to prevent and detect diseases. It is still extensively used in many health programs and research to help predict health behaviors (Cyr, 2010). The health belief model attempts to explain individuals decisions related to health behavior change and maintenance.

The model predicts that individuals will maintain or change a health behavior based on six different constructs. “A review of forty-six studies which utilize the HBM as the health behavior framework examined the model from the standpoint of the sick-role behavior, clinic utilization and preventive health behaviors, through both prospective and retrospective examinations. The results were that perceived susceptibility was the strongest predictor for preventive health behaviors. The studies clearly support the HBM as a disease avoidance or disease protective model, as opposed to the eudemonistic appeal (Galloway, 2003).” “The key elements of this model include *individual perceptions or beliefs* influencing whether or not a health action will be taken to avoid or prevent a disease or illness” (Shanks, 2009). The first of these constructs is perceived susceptibility. This is the belief that one is susceptible to a disease or condition. This study is evaluating the perceptions of risk associated with unintended pregnancy and sexually transmitted infections. If an individual is not informed of the facts of sexually transmitted infections and/or unintended pregnancy then perceived susceptibility to either/both may be very low, which could have many different consequences. One example is a woman who is in a long term monogamous relationship who believes that she is at low risk of becoming infected with a sexually transmitted infection. Since this woman perceives that

she is at low risk of acquiring a sexually transmitted infection she neglects to use condoms with her partner.

The second construct of the health belief model is perceived susceptibility. This is the belief of how serious an individual perceives a condition or the consequences of a condition to be. An example of this is that an individual may perceive an unintended pregnancy as having severe consequences, yet a bacterial sexually transmitted infection as something that is not serious since antibiotics can be taken to cure it. The belief that a certain action will reduce the risk or minimize the consequences of a condition is the perceived benefit. Birth control is an example of a perceived benefit of both sexually transmitted infections and unintended pregnancy. If used properly, birth control greatly reduces the risk of becoming pregnant or becoming infected with a sexually transmitted infection.

Another construct of the health belief model involves perceived barriers. This construct involves personal perception of the negative aspects or barriers related to the condition. An example of a perceived barrier would be the cost of birth control to prevent unintended pregnancy and sexually transmitted infections. The fifth construct of the health belief model, cues to action, involves things, people or events that trigger a behavior change. An example of a cue to action could be a mass media campaign to get tested for HIV. The sixth construct of the health belief model is self-efficacy. This is the belief in one's ability to take actions to produce the desired outcome.

Perception of Risk in Health

Human behavior is very complex. In terms of sexually transmitted infections and unintended pregnancy prevention, human behavior will remain a critical part of prevention. The Global HIV Prevention Working Group states that to be even more effective in the 21st century, the HIV prevention effort must confront several challenges of perception (Global HIV Prevention Working Group, 2008). Many programs and prevention strategies working towards the goal of preventing sexually transmitted infections, unintended pregnancies, or both focus a portion of their efforts on understanding what the target population's perceptions of risk is. Current models of behavior interventions are often based on several cognitive behavioral theories. They are built upon the idea that individuals will avoid certain risks if they are fully aware of the risk and also motivated to avoid that risk (Global HIV Prevention Working Group, 2008).

Perceptions of risk and contraceptive choice.

We are in the depths of the epidemic of both unintended pregnancy and sexually transmitted infections, so contraceptive options that provide dual protection are ideal. However, the contraceptives which have the highest rates of preventing pregnancy under typical use conditions provide little if any protection against sexually transmitted infections. On the other hand, barrier contraceptive methods which have the highest rates of reducing the risk of many sexually transmitted infections are associated with relatively higher pregnancy rates for most users.

Influence of perceptions of risk on condom use.

Many different factors influence condom use for the prevention of sexually transmitted infections; one of these factors is perceived risk. Understanding how both risk for unwanted pregnancy and sexually transmitted infections and social factors are associated with contraceptive method use is critical to reducing the large numbers of unintended pregnancies and the transmission of STIs in the United States. In one study who had 53 male and female respondents between the age of 18-25, respondent's expressed that even though that they were equally at risk of both unintended pregnancy and sexually transmitted infections, they were less concerned about becoming infected with a sexually transmitted infection than an unplanned pregnancy (Visser, 2005). 'Heterosexual young adults' decisions to use condoms or the pill depends on partner type and risk perception (Visser, 2005). Participants of the study noted that the risk of transmission of a sexually transmitted infection from an infected partner is not dependent on time compared with the risk of unplanned pregnancy which varies depending on the menstrual cycle.

Perceptions of risk influenced by relationships.

Condom use is influenced by the relationship between sexual partners. (Visser, 2005). "The fact that condom use involves two people means that it is important to consider the relationship between sexual partners, gendered power relations, and the way in which feelings of love or trust may affect perceptions of risk and intentions for condom use (Visser, 2005)." Perceptions of risk toward

sexually transmitted infections seem to diminish the longer a person is in a relationship with a partner. Female participants in the study suggested that men appear to be prepared to cope with what they perceive incorrectly as a low risk of consequences in regards to sexually transmitted infections. Even though men know the risks associated with sexually transmitted infections they refuse to act accordingly. The study stated that the longer a person is in a relationship, the main concern becomes preventing pregnancy (Visser, 2005). Steady, or supposed monogamous, relationships may promote a false sense of security among many women who may incorrectly believe their partners are also monogamous (Roberts & Kennedy, 2006).

Another study focused on consistency between sexual partners, administered one on one interview with heterosexual couples in separate rooms but simultaneously (Harvey, S.M., Bird, S.T., Henderson, J.T., Beckman, L.J., Huszti, H.C., 2004). This study found that women had a misperception of risky behaviors among their male partners. With that finding from the study, one of their conclusions is that to prevent transmission of sexually transmitted infections prevention strategies need to address women's misperceptions about their partner's risky behaviors. They also found a significant consistency between men's perceptions and their partners' report of sex with someone else. Males had a high conditional probability of being able to correctly identify whether their female partners had not had sex with someone else and also a high probability of correctly identifying when she had. However, when the male partners reported whether they had sex with someone else the conditional probability that the

female partner knew or suspected that he had was fairly low. The study showed that many women were unaware of the risk behavior of their male partners (Harvey et al., 2004). Women often do not perceive themselves at risk for becoming infected with a sexually transmitted infection, including HIV, if they are monogamous (Roberts & Kennedy, 2006).

Another study, (Roberts & Kennedy, 2006) determined contributing factors that lead to risk taking sexual behavior among young multiethnic college women. Older students in advanced grades who had steady partners, in the study, used substances, such as drugs and alcohol, less and had decreased sexual risk. However, they were more likely to experience partner resistance to condoms, which then canceled out any reduced risk they previously had. The study found that despite knowing the elevated risks, 52% of participants used drugs and alcohol during sex (Roberts & Kennedy, 2006).

Related to the young multiethnic college women's perceived risk, 16% rated themselves high risk, 35% moderate, and 49% rated themselves at low risk accordingly. These rates of perceived risk were much lower than their actual sexual behavior risk, the reliability coefficient was .75. The study pointed out a tendency of these young multiethnic college women to focus on their "future risk" and not think on their present risks. The study also indicated that these same women were failing to protect themselves in their current sexual situations. "Prevention strategies should focus on counseling college women about their current and genuine risk for STIs (Roberts & Kennedy, 2006)." Another contradiction the study found was that many women had reported that they had

high levels of control over their sexual behaviors, yet more than half were having unprotected sex.

Perceptions of risk influenced by social factors.

Social factors play a role on perceptions of risk for certain groups. In the study (Visser, 2005) which had 53 male and female respondents between the ages of 18-25, respondents expressed greater concern about pregnancy than STIs. They stated that sexually transmitted infections were conditions that could stay confidential, where only the infected person had to know unless they chose to disclose their status to others. Pregnancy, on the other hand, is usually a condition that is much harder, if sometimes not even possible, to hide. Given the discrepancy between STI risk perception and STI risk concern, attention was given during this study to reasons for low levels of concern about sexually transmitted infections. Respondents who took part in the study explained that the lack of concern about sexually transmitted infections was influenced by the idea that sexually transmitted infections are easy to treat and would not cause any disruption to their lives. They perceived that STIs only had minor consequences, where on the other hand major consequences were perceived with unintended pregnancy. One participant stated, “Obviously pregnancy is a long term thing. Like STIs most of the time you can take something for it and get over it whereas a child is something for the rest of your life.” Another participant talked about the lack of immediate consequence with STDs. Paul, “But that difference, that time lag- it’s not like you wake up the next morning and your

dick's dropping off." Max: "Well if you heard stories like that you'd go 'What! No way am I going to have sex without a condom (Visser, 2005)."

Recommendations from studies on perceptions of risk of sexually transmitted infections and unintended pregnancy.

A recommendation from the global HIV prevention working group is to ground the AIDS response in Human Rights. The working group believes that all countries should have in place strong and well enforced laws that would prohibit discrimination of individuals on the basis of either real or perceived HIV status or of membership in a population at elevated risk of HIV infection (Global HIV Prevention Working Group, 2008). Making HIV a topic that is can be safely discussed enables individuals to perceive and understand their own risk (Global HIV Prevention Working Group, 2008).

Summary

Individuals generally assess the risks and benefits associated with a contraceptive method and select a method that offers the most personal and health benefits, but also possess the least risk of unwanted side effects and consequences. Sexual risk which includes both real and perceived risk for unwanted pregnancy and sexually transmitted infections, is determined by selection of partner(s), relationship dynamics, and sexual behavior, as well as life

stage. Real and perceived risk for unintended pregnancy and sexually transmitted infections influence contraceptive choice. Decisions regarding contraceptive use are guided by a person's view of the consequences and other perceptions of risk that are dictated by social factors such as the social environment, religious upbringing and the expectations of their partners, peers, or family members.

Chapter Three: Method

Introduction

This chapter describes the methods used in this study to explore the following questions:

1. Do women at Minnesota State University, Mankato perceive themselves to be at risk for unintended pregnancy?
2. Do women at Minnesota State University, Mankato perceive themselves to be at risk for sexually transmitted infections?
3. Is there a relationship between perception of risk for unintended pregnancies and sexually transmitted infections among university females at Minnesota State University, Mankato?
4. At Minnesota State University, Mankato, do female students (age 18-25) use a mode of birth control?
5. What are the selected female students' reasons for using birth control?
6. For the selected female students, what factors (partner preferences, religious beliefs, effectiveness, sexual orientation and relationship status) influence use of birth control and how often birth control is used?

This chapter will also discuss how research participants were selected and how the findings were used to answer the research questions concerning perceptions of risk associated with sexually transmitted infections and unintended pregnancy among university women. This chapter continues by discussing the survey instrument used to collect data as well as procedural information such as when, where and how data was collected.

Participants

This study used a sample of female students between the ages of 18 and 25 who were attending Minnesota State University, Mankato. The sample population included a diverse background of students who varied in age, ethnicity, religion and socioeconomic status. Data were collected from a convenience sample of classrooms on campus. Professors from the Health Science department and Sociology and Corrections department were asked, by email (see Appendix C), if survey instruments could be administered in their classrooms. Permission to enter different levels of classes, from 100 level classes to graduate classes was granted. Next a schedule was created with all of the classroom times and places noted. After receiving approval from Minnesota State University, Mankato Institutional Review Board, emails were sent (see Appendix D) to professors to confirm that it would still be possible to administer the survey instrument in their classes. The classroom times and

places were also confirmed. The classroom script was also attached with the email so that professors would know the process by which the survey would be administered in their classes. The study was approved by the Institutional Review Board at Minnesota State University, Mankato on April 11th 2012.

Instrument Development

A 25 question cross-sectional survey was developed, to identify the perceptions of risk of sexually transmitted infections and unintended pregnancy in university women. The instrument was a combination of an already established survey (Sevcik, 2009) and original questions that were created to measure each of the research questions. After the survey instrument was complete, seven campus professors, in health science and sociology and corrections, were invited to review the instrument to ensure content validity (see Appendix B). All seven professors responded and provided valuable feedback and assurance of validity.

The instrument used in this study was comprised of 25 questions. The first 4 questions of the survey focused on collecting demographics of the study population. Participants were asked to identify their age, gender, sexual orientation, and relationship status. It was important to identify the current sexual behaviors and risks for unintended pregnancy and sexually transmitted infections of university women, so participants were asked to identify the last time they engaged in vaginal sexual intercourse.

To answer research questions one: *Do women at Minnesota State University, Mankato perceive themselves to be at risk for unintended pregnancy?* Participants were asked to identify (using a likert scale) how likely they were to become pregnant in the next year. Participants were also asked to identify (using a likert scale) how likely they were to become pregnant in the next year if they did not use birth control. Participants were also asked to rank their risk of unintended pregnancy compared to the average female university student aged 18-25. To do this, participants were asked to identify how likely the average female university student, aged 18-25 in the United States, was to become pregnant during the next year if she did not use birth control.

To answer the question: *Do women at Minnesota State University, Mankato perceive themselves to be at risk for sexually transmitted infections?* Participants were asked (using a likert scale) their likelihood of becoming infected with a sexually transmitted infection. Participants were then asked their likelihood (using a likert scale) of becoming infected with a sexually transmitted infection if they did not use birth control. Participants were asked to rank their risk of becoming infected with a sexually transmitted infection compared to the average female university student aged 18-25. To do this participants were asked to identify how likely the average female university student, aged 18-25 in the United States, was to become infected with a sexually transmitted infection during the next year if she did not use birth control. Another way that women's perception of risk of sexually transmitted infections was identified was by asking

participants if they had ever been tested for sexually transmitted infections including HIV and also if they had ever tested positive for a sexually transmitted infection. This was an important question to ask for many reasons. One reason is that this question provided insight into if they are using birth control or did in the past; it also provided insight on if they perceived themselves to be at risk of becoming infected with a sexually transmitted infection in the past. This question also provided insight to perception of risk associated with becoming infected with a sexually transmitted infection. Even if participants had not tested positive for an infection if they had previously been tested then they may have believed they were at risk of being infected.

To answer the question: *Is there a relationship between perception of risk for unintended pregnancies and sexually transmitted infections among university females at Minnesota State University, Mankato?* Information from the two previous research questions was analyzed to decipher whether there was a relationship between unintended pregnancy and sexually transmitted infections.

To answer the question: *At Minnesota State University, Mankato, do female students (age 18-25) use a mode of birth control?* Participants were asked how often they and their partner/s use some kind of protection/birth control during sex. They were provided with options ranging from never to absolutely always in twenty five percent increments. Participants were also asked if they had ever been pregnant. This was an important question to ask for many reasons. This question provided insight into if they were using birth control or did

in the past. It also provided insight on if they had perceived themselves to be at risk of becoming pregnant in the past. Participants were also asked to identify which form of birth control they were currently using. They were provided with a list of different types of birth control which included an 'other' option.

To answer the question: *What are the selected female students' reasons for using birth control?* A series of questions were asked on the survey starting with how likely participants and their partners were to use multiple methods of protection/birth control to prevent pregnancy and sexually transmitted infections. I also asked participants why they use birth control and provided them with options such as to prevent unintended or unwanted pregnancy, prevent sexually transmitted infections, balance hormones/clearer skin, have never used birth control methods, and an 'other' option was included.

To answer the question: *For the selected female students, what factors (partner preferences, religious beliefs, effectiveness, sexual orientation and relationship status) influence use of birth control and how often birth control is used?* Participants were asked a series of questions (using a likert scale) asking what was the most important factor in their choice of birth control. Two of the questions started with the different factors partner preference and religious beliefs are the most important factor in my choice of protection/birth control. Using a likert scale, participants were also asked their belief of how effective birth control is in preventing pregnancy and also preventing becoming infected with a sexually transmitted infection. Separate likert scales for several forms of birth control including hormonal contraceptive methods (birth control pills, vaginal ring,

patch, shot, and implant), intrauterine Device (IUD), condoms, fertility awareness methods, and withdrawal were provided. Data were also collected (using a likert scale) on perceptions of effectiveness of birth control by asking a more general question about reduction of risk for both pregnancy and sexually transmitted infections. Data were also analyzed from the survey based on relationship status and sexual orientation.

Potential risks of the survey instrument were that participants experienced discomfort answering some of the questions due to their sexual nature. To minimize any risk to the research participants each survey was distributed in an unmarked envelope. Participants received the unmarked envelope and then were instructed that while they were taking the survey to use the envelope to shield their answers. After participants finished their surveys, they put the surveys back into the unmarked envelopes and then dropped that envelope off into a box in the front of the classroom. The survey instrument mentioned that none of the participant's answers would be released and that names were not recorded, the survey was anonymous. The consent form also warned of these risks and listed that participation was voluntary.

This study was to examine perceptions of risk associated with unintended pregnancy and sexually transmitted infections among university women, to do this and answer the study's research questions, questions about sexual activity had to be asked. A number of procedures and approvals needed to be followed prior to administering the survey instrument at Minnesota State University,

Mankato. Approval was obtained from the Institutional Review Board (IRB) at Minnesota State University, Mankato to perform the study (see Appendix E). Approval was granted April 11th 2012.

Data Analysis

Data were collected using a paper survey instrument that was administered in selected classrooms at Minnesota State University, Mankato. Descriptive statistics of student demographics were computed, such as mean age, sexual orientation and sexual activity level. Linear correlations and t-tests were done using SPSS Statistical Software version 18.

Chapter Four: Analysis

Introduction

The purpose of this study was to evaluate perceptions of risk associated with unintended pregnancies and sexually transmitted infections among selected female students attending a midsized Midwestern University. This study identified whether females' perceptions of risk affect their decision to take certain precautions to prevent pregnancies and sexually transmitted infections. This study also examined whether there was a relationship between perceptions of risk associated with unintended pregnancies compared with perceptions of risk associated with sexually transmitted infections. The theoretical framework of the Health Belief Model was applied to this study to better understand university women's perceived risks of unintended pregnancies and sexually transmitted infections.

In this chapter survey results will be discussed, including demographics of the surveyed female university students. Participants' responses to questions related to perceptions of risk associated with unintended pregnancy and sexually transmitted infections, birth control use and factors that influence birth control use are also discussed. The relationship between the questions asked on the survey instrument and how they answer the research questions will also be discussed.

Data were cleaned when participants choose more than one option per question. The statistically lower option was always chosen when participant's circled more than one number, for example, if both the numbers 4 and 5 were marked, a 4 was entered for data analysis.

The overall response rate for women at a midsized Midwestern University aged 18-25 was n=328. Six surveys were eliminated from analysis due to participants being over the age of 25. Participants provided consent by completing the survey instrument. Responses from the remaining 322 participants were coded and entered into a database compiled using SPSS Statistical Software program version 18.

Demographics

The sample was comprised of 322 female students at a midsized Midwestern University. The mean age of the sample was $\bar{x}$=19.94 (1.698). The sexual orientation distribution of the sample was 295 (91.6%) exclusively heterosexual, 13 (4%) predominantly heterosexual, only incidentally homosexual, three (0.9%) predominantly heterosexual, but more than incidentally homosexual, seven (2.2%) equally heterosexual and homosexual, two (0.6%) exclusively homosexual, and one (0.3%) who identified as non-sexual. The relationship status distribution of the sample was 122 (37.9%) dating, five (1.6%) married, 129 (40.1%) single, 57 (17.7%) in a serious monogamous relationship, seven

(2.2%) engaged and one (0.3%) stated other. The person who stated 'other' commented that her relationship was complicated.

The prevalence of vaginal sexual intercourse among the sample population was 151 (46.9%) reported engaging in vaginal sexual intercourse within the last seven days, 58 (18.0%) reported engaging in vaginal sexual intercourse within the last 30 days, 36 (11.2%) reported engaging in vaginal sexual intercourse within the last 6 months, seven (2.2%) reported engaging in vaginal sexual intercourse within the last 12 months, 12 (3.7%) reported engaging in vaginal sexual intercourse more than 12 months ago and 57 (17.7%) reported never engaging in vaginal sexual intercourse. Fifteen (4.7%) of participants reported having been pregnant before. Eighteen (5.6%) of participants indicated that they had tested positive for a sexually transmitted infection. However, when participants were asked if they had ever been tested for a sexually transmitted infection, not including HIV, only 166 (51.6%) reported ever being tested. Only 95 (29.7%) participants reported being tested for HIV with 59 (18.3%) stating that they were not sure if they had been tested for HIV before (See Table 4.1 for Demographic Data).

Table 4.1

Demographic Data of Participants

Variable	*n*	*Valid %*
Sexual Orientation		
Exclusively heterosexual	295	91.6%
Predominantly heterosexual, only incidentally homosexual	13	4.0%
Predominantly heterosexual, but more than incidentally homosexual	3	0.9%
Equally heterosexual and homosexual	7	2.2%
Exclusively homosexual	2	0.6%
Non sexual	1	0.3%
Relationship Status		
Dating	122	37.9%
Married	5	1.6%
Single	129	40.1%
Serious monogamous relationship	57	17.7%
Engaged	7	2.2%
Other	1	0.3%
Vaginal Sexual Intercourse		
Within the last 7 days	151	46.9%
Within the last 30 days	58	18%
Within the last 6 months	36	11.2%
Within the last 12 months	7	2.2%
More than 12 months ago	12	3.7%
Never	57	17.7%

Survey Findings

The participants in this study answered 25 questions pertaining to their sexual behaviors and perceptions of risk associated with unintended pregnancy and sexually transmitted infections.

Analysis

Do women at Minnesota State University, Mankato perceive themselves to be at risk for unintended pregnancy?

In order to assess women's perceived risk of unintended pregnancy; participants were asked "W*hat is the likelihood that you or your partner will become pregnant in the next year*?" Three hundred and seventeen participants answered this question. Two hundred and thirty nine (74.2%) participants reported that they believed that they were *very unlikely* to become pregnant within the next year. Fifty two (16.1%) participants identified that they were *somewhat unlikely* to become pregnant within the next year. Nineteen (5.9%) participants answered *neutral* to becoming pregnant within the next year. Five (1.6%) participants reported that they believed they were *somewhat likely* to become pregnant in the next year. Two (0.6%) participants identified being *very likely* to become pregnant within the next year (See Table 4.2)

Table 4.2
Perceptions of Risk of Unintended Pregnancy

	n	Valid %
Likelihood to become pregnant within the next year		
Very unlikely	239	74.2%
Somewhat unlikely	52	16.1%
Neutral	19	5.9%
Somewhat likely	5	1.6%
Very likely	2	0.6%
Likelihood to become pregnant within the next year without birth control		
Very unlikely	17	5.3%
Somewhat unlikely	9	2.8%
Neutral	27	8.4%
Somewhat likely	107	33.2%
Very likely	151	46.9%

To assess women's perceived risk of an unintended pregnancy, participants were asked "*If you or your partner did not use protection/birth control, how likely do you think it is that you or your partner would become pregnant during the next year?"* Three hundred and eleven participants answered this question. Seventeen (5.3%) participants identified that they were *very unlikely* to become pregnant, 9 (2.8%) participants identified that they were *somewhat unlikely* to become pregnant, 27 (8.4%) participants identified being *neutral,* 107 (33.2%) participants identified being *somewhat likely* to become pregnant and 151 (46.9%) participants identified being *very likely* to become pregnant (See Table 4.3).

Participant's attitudes towards birth control reducing their risk of becoming pregnant were assessed through the statement *"Using protection/birth control reduces my risk of getting pregnant".* Seven (2.2%) participants strongly disagreed that using birth control reduced their risk of becoming pregnant. Four (1.2%) participants disagreed that using birth control reduced their risk of becoming pregnant. Four (1.2%) were unsure if using birth control reduced their risk of becoming pregnant. Ninety eight (30.4%) participants agreed that using birth control reduced their risk of becoming pregnant and 207 (64.3%) participants strongly agreed that using birth control reduced their risk of becoming pregnant.

Data were analyzed using the Pearson Correlation Coefficient. A correlation between the questions, *if you or your partner did not use*

protection/birth control, how likely do you think it is that you or your partner would become pregnant during the next year? and the statement "*Using protection/birth control reduces my risk of getting pregnant"* showed a significant positive correlation between perceived risk of getting pregnant without protection and perceived effectiveness of birth control at reducing the risk of getting pregnant r = .414 p = .000 n = 322. Participants who indicated that they were very likely or somewhat likely to become pregnant within the next year without protection/ birth control also indicated that using birth control reduced their risk of becoming pregnant. The majority 305 (95.3%) agreed or strongly agreed that using birth control reduced their risk of becoming pregnant. Eighty percent of participants stated that they believe that they were very likely or somewhat likely to become pregnant in the next year if they did not use a method of birth control. The correlation between vaginal sexual intercourse and the statement "*Using protection/birth control reduces my risk of getting pregnant"* was not significant.

Do women at Minnesota State University, Mankato perceive themselves to be at risk for sexually transmitted infections?

In order to assess women's perceived risk of becoming infected with a sexually transmitted infection, participants were asked "W*hat is the likelihood that you or your partner will become infected with a sexually transmitted infection*?" Three hundred and fifteen participants answered this question. Two hundred

and seven (64.3%) reported that they were *very unlikely* to become infected with a sexually transmitted infection. Fifty eight (18.0%) identified that they were *somewhat unlikely* to become infected with a sexually transmitted infection. Thirty three (10.2%) answered *neutral* to becoming infected with a sexually transmitted infection. Thirteen (4.0%) identified being *somewhat likely* to become infected with a sexually transmitted infection and 4 (1.2%) identified being *very likely* to become infected with a sexually transmitted infection (See Table 4.3).

To assess women's perceived risk of becoming infected with a sexually transmitted infection, participants were asked "*If you or your partner were not to use protection/birth control, how likely do you think it is that you would acquire a sexually transmitted infection during the next year*?" Three hundred and thirteen participants answered this question. One hundred and thirty (40.4%) identified that they were *very unlikely* to become infected with a sexually transmitted infection, 44 (13.7%) identified that they were *somewhat unlikely* to become infected with a sexually transmitted infection, 47 (14.6%) identified being *neutral*, 60 (18.6%) identified being *somewhat likely* to become infected with a sexually transmitted infection and 32 (9.9%) identified being *very likely* to become infected with a sexually transmitted infection (See Table 4.3).

Table 4.3

Perceptions of Risk of Sexually Transmitted Infections

	n	*Valid %*
Likelihood to become infected with a sexually transmitted infection		
Very unlikely	207	64.3%
Somewhat unlikely	58	18.0%
Neutral	33	10.2%
Somewhat likely	13	4.0%
Very likely	4	1.2%
Likelihood to become infected with a sexually transmitted infection if participants did not use birth control		
Very unlikely	130	40.4%
Somewhat unlikely	44	13.7%
Neutral	47	14.6%
Somewhat likely	60	18.6%
Very likely	32	9.9%

Participant's attitudes towards birth control reducing their risk of becoming infected with a sexually transmitted infection were assessed through the statement "*Using protection/birth control reduces my risk of getting a sexually transmitted infection."* Twenty eight (8.7%) participants *strongly disagreed* that using birth control reduced their risk of getting a sexually transmitted infection. Thirty (9.3%) participants *disagreed* that using birth control reduced their risk of becoming pregnant. Eighteen (5.6%) were *unsure* if using birth control reduced their risk of getting a sexually transmitted infection. One hundred and fifty four (47.8%) participants *agreed* that using birth control reduced their risk of getting a sexually transmitted infection and 85 (26.4%) participants *strongly agreed* that using birth control reduced their risk of getting a sexually transmitted infection.

Data were analyzed using the Pearson Correlation Coefficient. A correlation between the question, "*If you or your partner did not use protection/birth control, how likely do you think it is that you or your partner would become infected with a sexually transmitted infection during the next year?"* and the statement "*Using protection/birth control reduces my risk of getting a sexually transmitted infection* showed" revealed a positive significant correlation between perceived risk of becoming infected with a sexually transmitted infection without protection and perceived effectiveness of birth control at reducing the risk of becoming infected with a sexually transmitted infection with protection $r = .614$ $p = .000$ $n = 322$. Participants who indicated that they were very unlikely or somewhat unlikely to become pregnant within the next year without protection/

birth control also indicated that using birth control reduced their risk of becoming infected with a sexually transmitted infection. Two hundred and thirty nine participants *agreed or strongly agreed* that using birth control reduced their risk of becoming infected with a sexually transmitted infection. One hundred and seventy four (54.1%) participants stated that they believe that they were *very unlikely* or somewhat unlikely to become infected with a sexually transmitted infection in the next year if they did not use a method of birth control.

The correlation between *vaginal sexual intercourse* and the statement "*Using protection/birth control reduces my risk of getting a sexually transmitted infection"* was not significant.

Is there a relationship among perceptions of risk for unintended pregnancy and sexually transmitted infections among university females at Minnesota State University Mankato?

In order to determine this relationship, data were analyzed using the Pearson Correlation Coefficient. A significant positive correlation between the question *"If the average female university student, aged 18-25 in the United States, did not use protection/birth control, how likely do you think it is that she would acquire a sexually transmitted infection during the next year?" and "If the average female university student, aged 18-25 in the United States, did not use*

birth control, how likely do you think it is that she would become pregnant during the next year?" was found, r= .148 p=.009 n=315.

A significant negative correlation was found between *"What is the likelihood that you or your partner will become pregnant in the next year?" and "If you or your partner were not to use protection/birth control, how likely do you think it is that you would acquire a sexually transmitted infection during the next year?",* r= -.114 p=.044 n= 310.

At Minnesota State University, Mankato, do female students (aged 18-25) use a mode of birth control?

To assess participant's frequency of birth control, participants were asked *"How often do you or your partner use some kind of protection/birth control during sex?"* The question asked how often participants use some kind of birth control during sex. Three hundred and fifteen participants answered the question. Twelve (3.7%) reported *never* using protection during sex. Eleven (3.4%) participants indicated using birth control *25% of the time* during sex. Ten (3.1%) participants answered using birth control *50% of the time* during sex. Thirty four (10.6%) participants indicated using birth control *75% of the time* during sex. Two hundred and thirteen (66.1%) participants indicated using birth control *absolutely always* during sex. Research data were cleaned on this question due to the fact that 35 virgins (10.9%) answered this question and

indicated that they did not know how to answer this question. Participants who indicated that they were virgins were not sure if they were supposed to state what they intended to do in the future or if they should mark never since they have never had sex. A virgin category was created on this question to clear up confusion (See Figure 4.1).

To assess which forms of birth control women were currently using, participants were asked to "*please check all that apply: My partner or I currently use the following method(s) of protection/birth control*." One hundred and ninety eight (61.5%) participants indicated using a form of hormonal contraceptive methods such as birth control pills, vaginal ring, patch, shot and implant. Seven (2.2%) participants indicated using an intrauterine device known as an IUD. One hundred and ninety one (59.3%) of participants reported using condoms. Five (1.6%) participants indicated using fertility awareness methods. Sixty six (20.5%) participants reported using withdrawal as a form of birth control. Twenty five (7.8%) participants indicated that they did not use a form of birth control. Seventeen (5.3%) participants indicated using other forms of birth control such as not applicable; I don't have a partner, don't have sex, abstinence and never had sex (See Table 4.4).

Figure 4.1

Frequency of use of birth control methods during sex

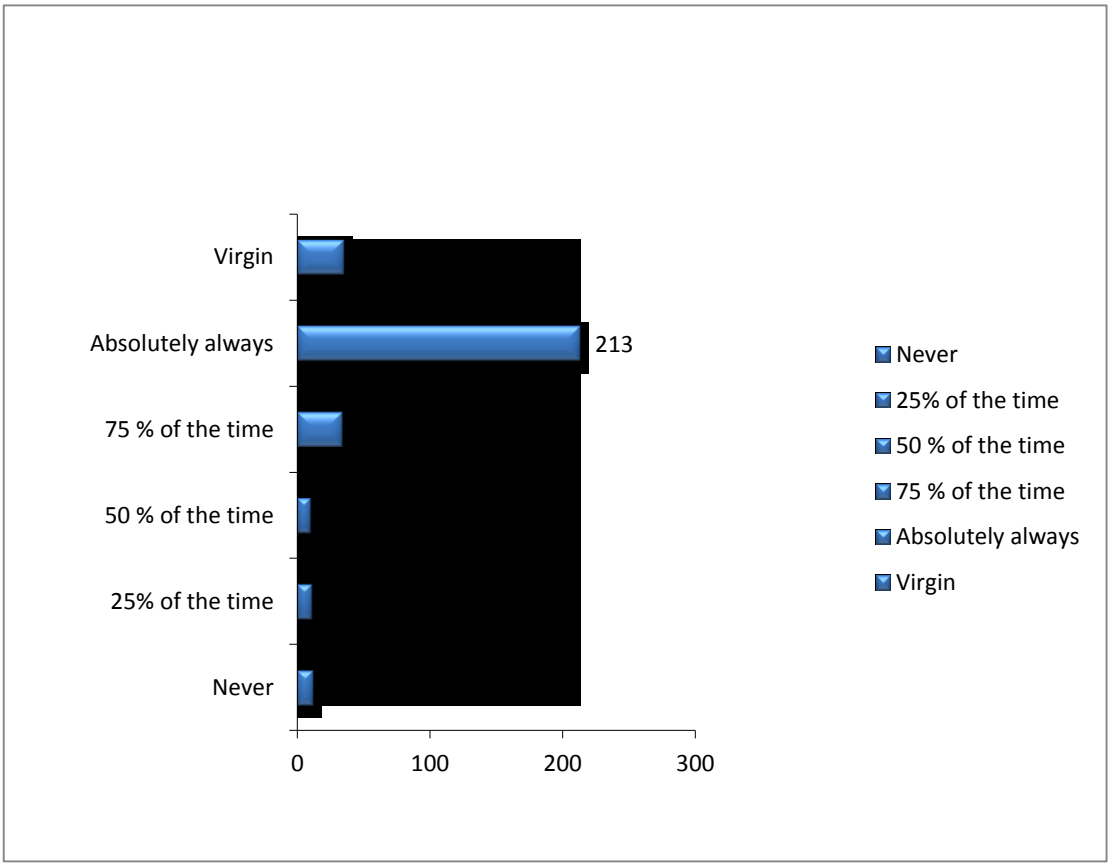

Table 4.4

Modes of birth control used by participants

	Yes	Valid %
Hormonal contraceptive methods	198	61.5%
Intrauterine device (IUD)	7	2.2%
Condom	191	59.3%
Fertility awareness methods	5	1.6%
Withdrawal	66	20.5%
None	25	7.8%
Other	17	5.3%

What are the selected students' reasons for using birth control?

To assess women's reasons for using birth control, participants were asked "*Please check all that apply: My partner or I use/used protection/birth control methods to:"* participants were then presented with 5 options. For this question participants were told to check all that applied. Two hundred and sixty five (82.3%) participants reported that they used birth control to prevent unintended or unwanted pregnancy. One hundred and thirty nine (43.2%) participants reported using birth control to prevent sexually transmitted infections. Ninety five (29.5%) participants indicated using birth control to balance hormones/ clearer skin. Twenty seven (8.4%) participants indicated never using birth control. Ten (3.1%) participants indicated using birth control for other reasons such as heavy periods, regulate periods, not applicable, I don't need it b/c I don't have sex, not sexually active and cramps (control) (See Figure 4.2).

In order to assess how likely women were to use multiple methods of birth control to prevent both pregnancy and sexually transmitted infections, this question was asked: "*How likely are you or your partner to use multiple methods of protection/birth control to prevent pregnancy and sexually transmitted infections? (Ex. Using a condom and birth control pills)."* Fifty five (17.1%) participants reported being *very unlikely* to use multiple methods of birth control, to prevent both pregnancy and sexually transmitted infections. Twenty eight (8.7%) participants reported being *somewhat unlikely* to use multiple methods of birth control to prevent both pregnancy and sexually transmitted infections.

Thirty eight (11.8%) participants reported being *neutral* to using multiple methods of birth control to prevent both pregnancy and sexually transmitted infections. Fifty eight (18.0%) participants reported being *somewhat likely* to use multiple methods of birth control to prevent both pregnancy and sexually transmitted infections. One hundred and thirty three (41.3%) participants reported being *very likely* to use multiple methods of birth control to prevent both pregnancy and sexually transmitted infections (See Table 4.5).

Figure 4.2

Participants' reasons for using birth control

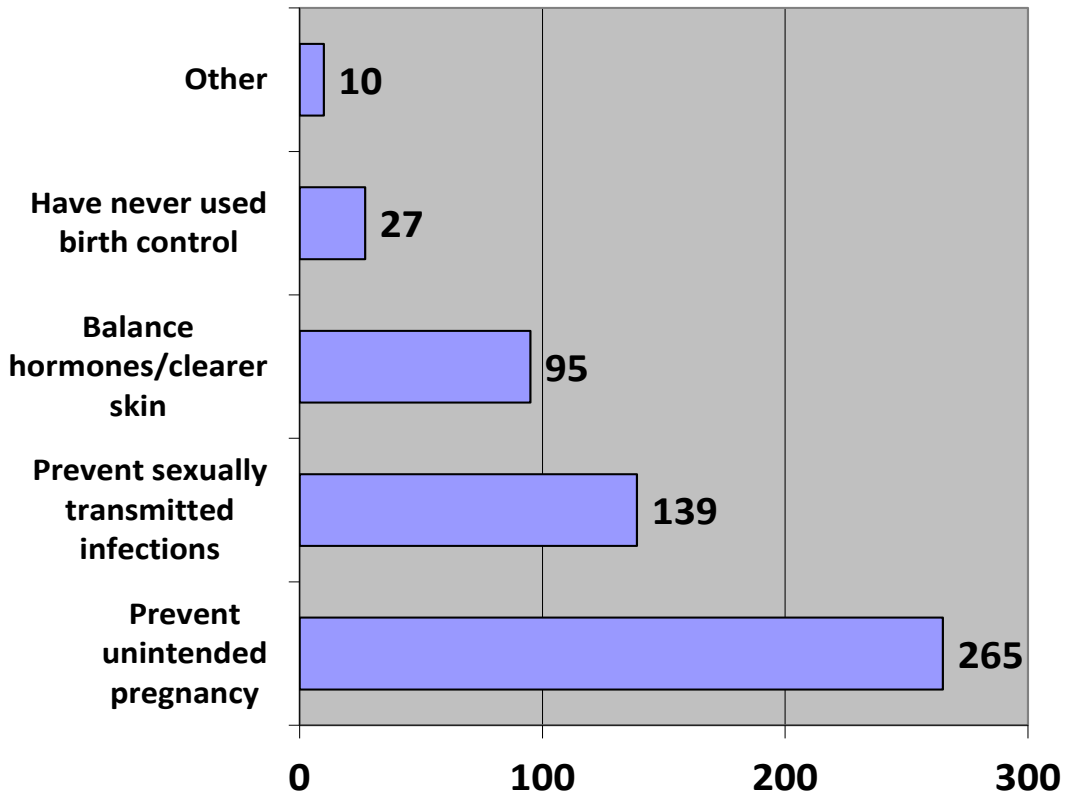

Table 4.5

Likelihood of participants to use multiple methods of birth control to prevent pregnancy and sexually transmitted infections

	n	Valid %
Very unlikely	55	17.1%
Somewhat unlikely	28	8.7%
Neutral	38	11.8%
Somewhat likely	58	18.0%
Very likely	133	41.3%

For the selected female students, what factors (partner preference, religious beliefs, effectiveness, sexual orientation and relationship status) influence use of birth control and how often birth control is used?

To assess whether women's partners preference influenced use of birth control participants were asked to respond to this statement: "*My partner's preference of protection/birth control is the most important factor in my choice of protection/birth control*." Three hundred and fourteen participants answered this question. Fifty four (16.8%) participants stated that they *strongly disagreed* that their partner's preference was the most important factor in their choice of birth control. One hundred and twenty six (39.1%) participants stated that they *disagreed*, 39 (12.1%) participants stated that they were unsure, 72 (22.4%) participants *agreed* and 23 (7.1%) participants stated that they *strongly agreed* that their partner's preference was the most important factor in their choice of birth control.

To assess whether women's religious beliefs influenced use of birth control participants were asked to respond to this statement: *"My religious beliefs are the most important factor in my choice of protection/birth control."* All 322 participants answered this question. One hundred and one (31.4%) participants *strongly disagreed* that their religious beliefs were the most important factor in their choice of birth control. One hundred and fifteen (35.7%) participants reported that they *disagreed*, 49 (15.2%) participants stated that they were *unsure*, 33 (10.2%) participants reported that they *agreed* and 24 (7.5%)

participants reported that they *strongly agreed* that their religious beliefs were the most important factor in their birth control methods. (See Table 4.6)

Table 4.6

Most Important Factors in Participants Choice of Birth Control

	Yes	**Valid %**
Partners Preference		
Strongly disagree	54	16.8%
Disagree	126	39.1%
Unsure	39	12.1%
Agree	72	22.4%
Strongly agree	23	7.1%
Religious Beliefs		
Strongly disagree	101	31.4%
Disagree	115	35.7%
Unsure	49	15.2%
Agree	33	10.2%
Strongly Agree	24	7.5%

In order to assess whether women's perceptions of effectiveness of certain birth control methods influenced their use of birth control, participants were asked to *indicate how effective they believed each method of birth control to be at preventing pregnancy.* Five (1.6%) participants responded that hormonal contraceptive methods were *very uneffective* at preventing pregnancy. Three (0.9%) participants stated *somewhat uneffective*, one of the participants who mentioned hormonal contraceptives being somewhat uneffective stated on the survey that they had become pregnant on the pill. Eight (2.5%) participants reported *neutral*, 95 (29.5%) participants reported *somewhat effective* and 203 (63%) participants reported that hormonal contraceptive methods were *very effective*. Data were cleaned in regards to this question. One participant circled two answers: "very effective" and "somewhat effective", data were cleaned and the participant's answer was coded as somewhat effective.

Participants were then asked about the effectiveness of the intrauterine device (IUD) to prevent pregnancy. Six (1.9%) participants responded *very uneffective* at preventing pregnancy, five (1.6%) participants stated *somewhat uneffective*, 65 (20.2%) participants reported *neutral*, 107 (33.2%) participants reported *somewhat effective* and 132 (41%) participants reported that intrauterine devices were *very effective*.

Participants were also asked about the *effectiveness of condoms* to prevent pregnancy. Three (0.9%) participants responded *very uneffective* at preventing pregnancy, 12 (3.7%) participants stated *somewhat uneffective*, 42

(13%) participants reported *neutral,* 193 (59.9%) participants reported *somewhat effective* and 68 (21.1%) participants reported that condoms were *very effective* at preventing pregnancy.

Participants were then asked to identify their beliefs about the *effectiveness of fertility awareness methods* to prevent pregnancy. Twenty nine (9%) participants responded *very uneffective* at preventing pregnancy, 79 (24.5%) participants stated *somewhat uneffective*, 113 (35.1%) participants reported *neutral*, 75 (23.3%) participants reported *somewhat effective* and 20 (6.2%) participants reported that fertility awareness methods were *very effective* at preventing pregnancy.

Participants were asked to state how *effective they believed the withdrawal method* was at preventing a pregnancy. One hundred and twenty nine (40.1%) participants responded *very uneffective* at preventing pregnancy, 88 (27.3%) participants stated *somewhat uneffective*, 46 (14.3%) participants reported *neutra*l, 28 (8.7%) participants reported *somewhat effective* and 27 (8.4%) participants reported that the withdrawal method was *very effective* at preventing pregnancy (See Table 4.7).

In order to assess whether women's perceptions of effectiveness of certain birth control methods influenced their use of birth control, participants were asked *to indicate how effective they believed each method of birth control to be at preventing the participant from becoming infected with a sexually*

transmitted infection. Two hundred and eighteen (67.7%) participants responded that hormonal contraceptive methods were *very uneffective* at preventing a sexually transmitted infection, 36 (11.2%) participants stated *somewhat uneffective*, 27 (8.4%) participants reported *neutral*, 22 (6.8%) participants reported *somewhat effective* and 12 (3.7%) participants reported that hormonal contraceptive methods were *very effective*.

Participants were then asked about the *effectiveness of intrauterine device (IUD)* to prevent a sexually transmitted infection. One hundred and eighty three (56.8%) participants responded *very uneffective* at preventing a sexually transmitted infection, 42 (13%) participants stated *somewhat uneffective*, 63 (19.6%) participants reported *neutral,* 17 (5.3%) participants reported *somewhat effective* and nine (2.8%) participants reported that intrauterine devices were *very effective*.

Participants were also asked about the *effectiveness of condoms* to prevent a sexually transmitted infection. Five (1.6%) participants responded *very uneffective* at preventing a sexually transmitted infection, 16 (5%) participants stated *somewhat uneffective,* 21 (6.5%) participants reported neutral, 152 (47.2%) participants reported somewhat effective and 121 (37.6%) participants reported that condoms were *very effective* at preventing a sexually transmitted infection.

Participants were then asked to identify their belief about *the effectiveness of fertility awareness methods* to prevent a sexually transmitted infection. One hundred and sixty six (51.6%) participants responded *very uneffective* at preventing a sexually transmitted infection, 33 (10.2%) participants stated *somewhat uneffective*, 80 (24.8%) participants reported *neutral*, 23 (7.1%) participants reported *somewhat effective* and 13 (4%) participants reported that fertility awareness methods were *very effective* at preventing a sexually transmitted infection.

Participants were asked to state how *effective they believed the withdrawal method* was at preventing a sexually transmitted infection. Two hundred and fifty (77.6%) participants responded *very uneffective* at preventing a sexually transmitted infection, 15 (4.7%) participants stated *somewhat uneffective*, 19 (5.9%) participants reported *neutral,* 12 (3.7%) participants reported *somewhat effective* and 20 (6.2%) participants reported that the withdrawal method was *very effective* at preventing a sexually transmitted infection (See Table 4.8).

Table 4.7

Effectiveness to prevent pregnancy

	Very Uneffective	Somewhat Uneffective	Neutral	Somewhat Effective	Very Effective
Hormonal Contraceptive Methods	5 (1.6%)	3 (0.9%)	8 (2.5%)	95 (29.5%)	203 (63%)
Intrauterine Device	6 (1.9%)	5 (1.6%)	65 (20.2%)	107 (33.2%)	132 (41%)
Condom	3 (0.9%)	12 (3.7%)	42 (13%)	193 (59.9%)	68 (21.1%)
Fertility Awareness Methods	29 (9%)	79 (24.5%)	113 (35.1%)	75 (23.3%)	20 (6.2%)
Withdrawal	129 (40.1%)	88 (27.3%)	46 (14.3%)	28 (8.7%)	27 (8.4%)

Table 4.8

Effectiveness to prevent a sexually transmitted infection

	Very Uneffective	Somewhat Uneffective	Neutral	Somewhat Effective	Very Effective
Hormonal Contraceptive Methods	218 (67.7%)	36 (11.2%)	27 (8.4%)	22 (6.8%)	12 (3.7%)
Intrauterine Device	183 (56.8%)	42 (13%)	63 (19.6%)	17 (5.3%)	9 (2.8%)
Condom	5 (1.6%)	16 (5%)	21 (6.5%)	152 (47.2%)	121 (37.6%)
Fertility Awareness Methods	166 (51.6%)	33 (10.2%)	80 (24.8%)	23 (7.1%)	13 (4%)
Withdrawal	250 (77.6%)	15 (4.7%)	19 (5.9%)	12 (3.7%)	20 (6.2%)

The correlation between *sexual orientation* and its influence on birth control and how often it was used was not significant. The correlation between *relationship status* and its influence on birth control and how often it was used was also not significant.

To test whether relationship status affected attitudes of study participants in regards to perceived risk of pregnancy and sexually transmitted infections a t-test was conducted involving single and dating study participants. The t-test shows significant differences in three areas between dating and single participants. T-tests show significant differences in attitudes toward the withdrawal method's effectiveness of preventing pregnancy t= 2.014 p= .045 df= 242.49, perceived risk of becoming pregnant without the use of protection/birth control t= 2.789 p= .006 df= 229.606 and perceived risk of becoming infected with a sexually transmitted infection without protection t= -7.211 p= .000 df= 241.94.

When participants were asked to rate how effective they thought the withdrawal method would be in preventing them from becoming pregnant, significance in answers between participants who identified as single or dating was found. A likert scale of five options was used to answer this question. The number one was used to indicate very uneffective and a five indicated very effective. Dating participants had a mean of 2.43 (1.36) whereas single participants had a mean of 2.10 (1.23).

Participants were also asked if they or their partner did not use protection/birth control, how likely they were to become pregnant during the next year. Significance in answers between participants who identified as single or dating was found. To answer this question a likert scale of 1-5 was used. One was very unlikely and a 5 was very likely. Dating participants had a mean of 4.29 (0.96) whereas single participants had a mean of 3.98 (1.19).

When participants were asked if they or their partner did not use protection/birth control, how likely they were to acquire a sexually transmitted infection during the next year, significance in answers between participants who identified as single or dating was found. To answer this question a likert scale of 1-5 was used. One was very unlikely and a 5 was very likely. Dating participants had a mean of 2.09 (1.33) whereas single participants had a mean of 3.33 (1.35).

Table 4.9

Dating and Single Participants' Perceived Risk of Unintended Pregnancy and Sexually Transmitted Infections

	Dating Mean (SD)	Single Mean (SD)	P
Rate how effective you think the withdrawal method would be in preventing you from becoming pregnant.	2.43 (1.36)	2.10 (1.23)	.045
If you or your partner did not use protection/birth control, how likely do you think it is that you would become pregnant during the next year?	4.29 (0.96)	3.98 (1.19)	.006
If you or your partner were not to use protection/ birth control, how likely do you think it is that you would acquire a sexually transmitted infection during the next year?	2.09 (1.33)	3.33 (1.35)	.000

Summary

The focus of this study was to evaluate perceptions of risk associated with unintended pregnancies and sexually transmitted infections among selected female students attending Minnesota State University, Mankato. This study also examined whether women's perceptions of risk affect their decision to take certain precautions to prevent pregnancies and sexually transmitted infections.

Data analysis indicates that women at Minnesota State University, Mankato believe that they are unlikely to get pregnant within the next year. Over 90 % (90.3%) perceive themselves to be very unlikely or somewhat unlikely to become pregnant within the next year.

Data analysis indicates that women at Minnesota State University, Mankato believe that they are unlikely to become infected with a sexually transmitted infection within the next year. Most participants (82.3%) believe that they are very unlikely or somewhat likely to become infected within the next year.

This study examined participant's decision to use a form of birth control. Data analysis indicated that the top four modes of birth control to be used by participants were hormonal contraceptive methods (61.5%), condoms (59.3%), withdrawal (20.5%) and none (7.8%). The majority (82.3%) of participants are using a form of birth control to prevent pregnancy and 43.2% of participants are using a form of birth control to prevent becoming infected with a sexually transmitted infection.

Data analysis indicated that participants believed that the most effective forms of birth control to prevent pregnancy are hormonal contraceptive methods (63%), intrauterine device (41%) and condoms (21.1%). Participants indicated that they believed that the least effective methods of birth control to prevent pregnancy are withdrawal (40.1%), fertility awareness methods (9%) and intrauterine device (1.9%).

Data analysis indicated that participants believed that the most effective forms of birth control to prevent becoming infected with a sexually transmitted infection are condoms (37.6%), withdrawal (6.2%) and fertility awareness methods (4%). Participants indicated that they believed that the contraceptive method least likely to prevent becoming infected with a sexually transmitted infection are withdrawal (77.6%), hormonal contraceptive methods (67.7%) and intrauterine device (56.8%).

Data analysis also indicated that relationship status affected attitudes of our participants in regards to perceived risk of pregnancy and sexually transmitted infections. T-test shows significant differences in three areas between dating and single participants. T-tests show significant differences in attitudes toward the withdrawal method's effectiveness of preventing pregnancy $t= 2.014$ $p= .045$ $df= 242.49$, perceived risk of pregnancy without protection $t= 2.789$ $p= .006$ $df= 229.606$ and perceived risk of becoming infected with a sexually transmitted infection without protection $t= -7.211$ $p= .000$ $df= 241.94$.

Chapter Five: Discussions, Conclusions and Recommendations

Introduction

"Every iteration of *Healthy People* since the series began in 1979 has set reducing unintended pregnancy as a national public health goal. In fact, the federal government recently set the goal of reducing the proportion of pregnancies that are unintended by 10% by 2020" (Gold, 2011). Safe sex and condom use has become a trending topic in the media the past few years. Information on many sexually transmitted infections is now readily available for public use, yet the rates of sexually transmitted infections and pregnancies are not drastically changing. Young adults between the ages 15-24 and female are now acquiring new sexually transmitted infections at the highest rates. In the United States during 2009–2010, rates of chlamydia in women increased (CDC, 2011d). Although the gonorrhea rate in men has historically been higher than the rate in women, the gonorrhea rate among women has been slightly higher than the rate among men for 9 consecutive years. "Estimates suggest that even though young people aged 15–24 years represent only 25% of the sexually experienced population, they acquire nearly half of all new STDs" (CDC, 2011d).

Perceptions of risk guide a person's behavior or behavior change. If health educators and other health professionals understand a person's risk perception then they may create more effective interventions and strategies.

Unintended pregnancies and sexually transmitted infections are preventable, yet there is still a high occurrence of both among university females. The purpose of my study was to evaluate perceptions of risk associated with unintended pregnancies and sexually transmitted infections among selected female students attending Minnesota State University, Mankato. This study identified whether females' perceptions of risk affected their decision to take certain precautions to prevent pregnancies and sexually transmitted infections. This study also examined whether there was a relationship between perceptions of risk associated with unintended pregnancies and perceptions of risk associated with sexually transmitted infections. After a relationship was discovered, this study identified some of the variables that were associated with that relationship. The theoretical framework of the Health Belief Model was also applied to this study to better understand university women's perceived risks of unintended pregnancies and sexually transmitted infections.

The review of literature focus upon sexually transmitted infections and unintended pregnancies and the risk perceptions associated with both. The first section of the review addressed sexual behaviors of university women. The second section addressed sexually transmitted infections in the United States. This section provided information on five specific sexually transmitted infections. The five specific sexually transmitted infections were chosen for many reasons.

The first reason was to provide a broad review of literature on sexually transmitted infections. Second was to provide information on both bacterial and viral sexually transmitted infections, which are associated with curable and incurable infections. The third reason was to provide information on reportable sexually transmitted infections and infections that do not need to be reported. The final reason was to provide information on sexually transmitted infections that are very common to women compared to sexually transmitted infections that are not as common. The third section discussed unintended pregnancy in the United States. The next section discussed risk perception in health, and then focused on risk perception in both sexually transmitted infections and unintended pregnancy. In the final section, the Health Belief Model that was used as the conceptual framework for this study was reviewed.

Study Procedures

The survey instrument used to collect data was administered in classrooms in the Health Science and Sociology department Friday April 13th 2012 through Wednesday April 18th 2012. The survey instrument was a combination of an established survey (Sevcik, 2009) and original questions I created to measure each of the research questions. The survey instrument consisted of 25 questions regarding demographics, perceptions of risk of pregnancy and sexually transmitted infections, birth control methods used and variable affecting birth control method choice (See Appendix A).

Discussion/ Conclusions

The purpose of this study was to evaluate perceptions of risk associated with unintended pregnancies and sexually transmitted infections among selected women students aged 18-25 attending Minnesota State University, Mankato. This study identified if females' perceptions of risk affected their decision to take certain precautions to prevent pregnancies and sexually transmitted infections. The majority of the participants in this study were exclusively heterosexual females who were sexually active, with a mean age of 19.94 (1.698). When analyzing my data, I was surprised by the amount of females (17.7%) who identified as never having vaginal sexual intercourse; I had assumed that a high majority of study participants would be sexually active. The relationship status distribution of the sample was 122 (37.9%) dating, five (1.6%) married, 129 (40.1%) single, 57 (17.7%) in a serious monogamous relationship, seven (2.2%) engaged and one (0.3%) stated other.

Fifteen (4.7%) participants reported having been pregnant before, this would have been an interesting question to ask further questions on. I would like to have known if these pregnancies were unintended or planned. It would have also been interesting to ask participants how many times they had been pregnant before. Eighteen (5.6%) of participants indicated that they had tested positive for a sexually transmitted infection. However, when participants were asked if they had ever been tested for a sexually transmitted infection, not including HIV, only 166 (51.6%) reported ever being tested. The fact that only 51.6% of the study participants had been tested for a sexually transmitted infection was quite

surprising to me. On campus alone, there are many campaigns that raise awareness of the benefits of knowing your status and encourage students to get tested. Only 95 (29.7%) participants reported being tested for HIV with 59 (18.3%) stating that they were not sure if they had been tested for HIV before. This study showed that there was a lack of knowledge surrounding HIV testing. Some commentary that was written on surveys included, “Maybe during a physical?” “When I donate blood they look for that, don’t they?” The fact that people are not even sure of the basic knowledge behind being tested for HIV was quite surprising. In Mankato, Minnesota there are a variety of places that administer both anonymous and confidential testing for sexually transmitted infections including HIV. If people do not know their status, they could be spreading sexually transmitted infections without their knowledge.

In regards to perceptions of risk of unintended pregnancy, this study showed that 90.3% of participants currently think they are very unlikely or somewhat unlikely to become pregnant. When participants were asked their likelihood of becoming pregnant if they were not to use protection during the next year 80.1% believed that they were very likely or somewhat likely to become pregnant if they did not use birth control. Participants where then asked if the average female university student did not use protection how likely they believed she was to become pregnant during the next year. Ninety two percent of participants indicated that an average university female was somewhat likely or very likely to become pregnant without the use of birth control. This indicates a difference of 12.4% amongst participants, when determining their perception of

risk of becoming pregnant compared to the average university female. Ninety four percent of participants agreed or strongly agreed that using birth control reduced their risk of becoming pregnant.

When looking at perceptions of risk of becoming infected with a sexually transmitted infection, 82.3% of participants indicated that they currently believe that they are very unlikely or somewhat unlikely to become infected with a sexually transmitted infection. Participants were then asked what their likelihood of becoming infected with a sexually transmitted infection during the next year would be if they did not use protection, only 28.5% indicated that they were somewhat likely or very likely to become infected. Whereas 54.1% of participants believed that even without protection they were very unlikely or somewhat unlikely to become infected with a sexually transmitted infection. Participants were then asked how likely the average university female, if she did not use protection, would be to acquire a sexually transmitted infection during the next year. Most participants (87.6%) stated that they believed the average female university student would be very likely or somewhat likely to become infected with a sexually transmitted infection if she did not use a form of protection. This indicates a difference of 59.1% amongst participants, when determining their perception of risk of becoming infected with a sexually transmitted infection compared to the average university female. When participants were asked if using protection reduces their risk of becoming infected with a sexually transmitted infection 74.2% of participants stated that they agreed or strongly agreed. This shows that participants understand that not

using protection increases the likelihood of a person becoming infected with a sexually transmitted infection; they just don't believe that it would happen to them.

This study examined participant's decision to use a form of birth control. The top four modes of birth control to be used by participants were hormonal contraceptive methods (61.5%), condoms (59.3%), withdrawal (20.5%) and none (7.8%). The majority 82.3% of participants are using a form of birth control to prevent pregnancy followed by 43.2% of participants using a form of birth control to prevent becoming infected with a sexually transmitted infection. This is a difference of 39.1%. This goes along with the fact that only 28.5% of participants believed that they were somewhat likely or very likely to become infected with a sexually transmitted infection if they did not use protection.

This study examined whether selected factors such as effectiveness influenced the use of birth control. Data indicated that participants believed that the most effective forms of birth control to prevent pregnancy are hormonal contraceptive methods (63%), intrauterine device (41%) and condoms (21.1%). Participants indicated that they believed that the least effective methods of birth control to prevent pregnancy are withdrawal (40.1%), fertility awareness methods (9%) and intrauterine device (1.9%). The fact that 40.1% of participants mentioned that withdrawal was very uneffective towards preventing pregnancy was very interesting to me. The majority (82.3%) of participants is using a form of birth control to prevent pregnancy with 20.5% of participants using withdrawal

as a form of birth control; this shows that participants' practices and beliefs are not consistent.

Data analysis indicated that participants believed that the most effective forms of birth control to prevent becoming infected with a sexually transmitted infection are condoms, withdrawal and fertility awareness methods. The majority of participants (84.8%) indicated that condoms were very effective or somewhat effective at preventing them from becoming infected with a sexually transmitted infection, 9.9% stated that withdrawal was very effective or somewhat effective and then 11.1% stated that fertility awareness methods were very effective or somewhat effective at preventing a sexually transmitted infection. Participants indicated that they believed that the least effective methods of birth control to prevent becoming infected with a sexually transmitted infection are withdrawal (77.6%), hormonal contraceptive methods (67.7%) and intrauterine device (56.8%).

A significant difference was found in this study between the attitudes of dating and single participants toward the withdrawal method's effectiveness of preventing pregnancy, perceived risk of becoming pregnant without the use of protection/birth control and perceived risk of becoming infected with a sexually transmitted infection without protection. When asked how effective they believed the withdrawal method was at preventing them from becoming pregnant, dating participants had a mean of 2.43 (1.36) whereas single participants had a mean of 2.10 (1.23). This indicated that participants who were dating believed that

withdrawal was more effective at preventing pregnancy then the single participants. Participants were also asked if they or their partner did not use protection/birth control, how likely they were to become pregnant during the next year. Dating participants had a mean of 4.29 (0.96) whereas single participants had a mean of 3.98 (1.19). This indicated that dating participants believed they were much more likely than the single participants to become pregnant without the use of protection/birth control. Yet when participants were asked if they or their partner did not use protection/birth control, how likely they were to acquire a sexually transmitted infection during the next year, dating participants had a mean of 2.09 (1.33) whereas single participants had a mean of 3.33 (1.35). This indicated that single participants believed that they were significantly more likely to become infected without the use of protection than dating participants. In the review of literature, Roberts and Kennedy (2006) stated that steady, or supposed monogamous, relationships may promote a false sense of security among many women who may incorrectly believe their partners are also monogamous.

Recommendations

This study taught me many things about proper ways to accomplish research. Along with learning many things about research procedures I also learned many things about the topics of unintended pregnancy, sexually transmitted infections and perceptions of risk. I would like to share some recommendations, based on the information I have gained.

Recommendations for health educators and medical professionals

I recommend that health educators and medical professionals advocate to people who are sexually active about the many medical and emotional reasons to use birth control every time they participate in sexual activity. In my study, 23.9% of study participants who were sexually active did not use birth control every time they had sex. This can lead to many sexually transmitted infections and also an unintended pregnancy.

I also recommend that health educators educate the public on the withdrawal method. In my study 20.5% of participants used withdrawal as a form of birth control. Withdrawal does not protect from sexually transmitted infections and is not a reliable source of birth control. "As many as 22 out of 100 women who practice the withdrawal method for one year will get pregnant (Mayo Clinic, 2012)."

Another recommendation for health educators and medical professionals is to educate the public on the importance of being tested for sexually transmitted infections. If the public is not knowledgeable about their status then they may not take extra precautions to protect their partners. In my study, participants were asked if they had ever been tested for a sexually transmitted infection, not including HIV, only 166 (51.6%) reported ever being tested. Only 95 (29.7%) participants reported being tested for HIV with 59 (18.3%) stating that they were not sure if they had been tested for HIV before. Another aspect of this is to educate the public on sexually transmitted infections so then they are more knowledgeable and have the proper information on how they are spread to

others. With proper knowledge, this may lessen the amount of discrimination associated with people who have/had a sexually transmitted infection.

I recommend that health educators and medical professionals educate women about the many advantages of having open conversations with their partners about sex, sexually transmitted infections, and unintended pregnancy. My study showed that women who were in relationships perceived their risk of becoming infected with a sexually transmitted infection as low. In my review of literature, it was seen that women did not have a great understanding of the sexual behavior of their male partners. With women have incorrect perceptions of the sexual behaviors of their male partners they may not protect themselves accordingly.

I believe that health educators need to design strategies for prevention of both unintended pregnancies and sexually transmitted infections that showcase that both of these can happen to many different people. This study showed an inconsistency amongst women's beliefs, knowledge and practices. Many participants were knowledgeable of the consequences surrounding unprotected sex yet they did not believe that those consequences would happen to them. Somehow we need to help people understand that these consequences do not just happen to everybody else, or that only some sort of person receives those consequences. If you do certain actions no matter who you are, you are putting yourself at risk.

Recommendations for further study

Further studies involving participants who identify within different relationship statuses should be fulfilled. Significant differences were seen between dating and single participants in this study, in regards to perceptions of risk of unintended pregnancies and sexually transmitted infections. Looking into this on a larger spectrum could bring about more useful information that could help shape how we as health educators tailor our programs towards prevention of sexually transmitted infections and unintended pregnancy.

In the future, studies should be done that would examine the emotional aspects of sexual behaviors. “The fact that condom use involves two people means that it is important to consider the relationship between sexual partners, gendered power relations, and the way in which feelings of love or trust may affect perceptions of risk and intentions for condom use (Visser, 2005).” Understanding that will help us identify and create strategic preventative programs that will address these so that using protection becomes a habit devoid of other variables besides the intent of protecting yourself and your partner. Recently having unprotected sex with a partner has been seen as a way of showing trust, love or even just showing that you really like that person. Protecting yourself and being able to have open conversations about sexual behaviors would be a better way of showing trust, love or the fact that you really like someone.

This study should be extended to include women and men aged 15-24. “Estimates suggest that even though young people aged 15–24 years represent

only 25% of the sexually experienced population, they acquire nearly half of all new STDs" (CDC, 2011d). Targeting this population will be crucial in preventing the occurrence of future infections and unintended pregnancies.

Knowledge test of men and women during adolescents should also be done for the fact that they are learning information whether accurate or not that may be forming their perceptions of risk for when they are sexually active. When the majority of them become sexually active, if they aren't already, they will have the proper and accurate information to take proper precautions.

Further studies involving participants of different races/ cultures should also be done. An understanding of the current cultural influences on perceptions of risk of sexually transmitted infections and unintended pregnancy would be very beneficial when tailoring programs. Looking into this on a larger spectrum could bring about more useful information that could help shape how we as health educators tailor our programs towards prevention of sexually transmitted infections and unintended pregnancy.

Studies on societal factors should also be examined. In the review of the literature on these topics, I noticed many studies that showed people were more concerned with an unintended pregnancy for the social aspects of it. Sexually transmitted infections can usually be hidden, where pregnancy cannot always be hidden. This aspect alone influences young adults perceptions of risk towards unintended pregnancy and sexually transmitted infections.

Further study should be done on the influences of partner preferences towards birth control methods used. In the review of literature, a study done by

Roberts and Kennedy (2006) showed that older students in advanced grades who had steady partners, used substances less and had decreased sexual risk. However, they were more likely to experience partner resistance to condoms, which then canceled out any reduced risk they previously had. This study showed that 29.5% of participants stated that they agreed or strongly agreed that partner preference was the most important factor in their choice of birth control. Further studies to investigate whether practice and beliefs are consistent on this topic are needed. Also it is important to target men so that they are knowledgeable on the topic of birth control methods as well.

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APPENDICES

APPENDIX A

INSTRUMENT

Participation in this project is voluntary and you have the right to stop at any time. Your decision whether or not to participant will not affect your relationship with Minnesota State University, Mankato. This questionnaire asks questions about your sexual activity. Please answer each question honestly, based on what you think and feel. None of your answers will be released and no names will be recorded, this survey will be anonymous. The risks of participating in this study are less than minimal, although possible discomfort answering survey questions may occur. By completing this questionnaire, you agree to participate in this study and state that you are at least 18 years of age. There are no direct benefits to you as a result of your participation in this research.

1. **Age: _____**

2. **Gender:** Male _____ Female _____ Other _____

3. **Relationship status:**
   a. Dating
   b. Married
   c. Single
   d. Serious monogamous relationship
   e. Engaged
   f. Other: _____

4. **Sexual Orientation:**
   a. Exclusively heterosexual
   b. Predominantly heterosexual, only incidental homosexual
   c. Predominantly heterosexual, but more than incidentally homosexual
   d. Equally heterosexual and homosexual
   e. Predominantly homosexual, but more than incidentally heterosexual

f. Predominantly homosexual, only incidentally heterosexual
g. Exclusively homosexual
h. Non sexual

5. The last time you engaged in penile to vaginal sexual intercourse was: (choose one)

a. Within the last 7 days
b. Within the last 30 days
c. Within the last 6 months
d. Within the last 12 months
e. More than 12 months ago
f. Never

6. How often do you and your partner use some kind of protection/birth control during sex?

a. Never
b. 25% of the time
c. 50% of the time
d. 75% of the time
e. Absolutely always

7. Please check all that apply: My partner or I currently use the following method(s) of protection/birth control:

a. Hormonal contraceptive methods (Birth control pills, Vaginal ring, Patch, Shot, Implant)
b. Intrauterine Device (IUD)
c. Condom
d. Fertility awareness methods
e. Withdrawal

f. None

g. Other: _____

8. How likely are you or your partner to use multiple methods of protection/birth control to prevent pregnancy and sexually transmitted infections? (Ex. Using a condom and birth control pills).

a. Very Unlikely b. Somewhat Unlikely c. Neutral d. Somewhat Likely e. Very Likely

9. Please check all that apply: My partner or I use/used protection/birth control methods to:

a. Prevent unintended or unwanted pregnancy

b. Prevent sexually transmitted infections

c. Balance hormones/ clearer skin

d. Have never used birth control methods

e. Other: _____

10. My partner's preference of protection/birth control is the most important factor in my choice of protection/birth control.

a. Strongly Disagree b. Disagree c. Unsure d. Agree e. Strongly Agree

11. My religious beliefs are the most important factor in my choice of protection/birth control.

a. Strongly Disagree b. Disagree c. Unsure d. Agree
e. Strongly Agree

12. What is the likelihood that you or your partner will become pregnant in the next year?

a. Very Unlikely b. Somewhat Unlikely c. Neutral d. Somewhat Likely
e. Very Likely

13. Using protection/birth control reduces my risk of getting pregnant.

a. Strongly Disagree b. Disagree c. Unsure d. Agree
e. Strongly Agree

14. Different forms of protection/birth control vary in how effective or ineffective they are in preventing pregnancy. For each form of protection listed below, please rate how effective you think they would be in preventing you from becoming pregnant.

a. **Hormonal contraceptive methods (Birth control pills, Vaginal ring, Patch, Shot, Implant)**

i. Very Uneffective ii. Somewhat Uneffective iii. Neutral iv. Somewhat Effective v. Very Effective

b. **Intrauterine Device (IUD)**

i. Very Uneffective ii. Somewhat Uneffective iii. Neutral iv. Somewhat Effective v. Very Effective

c. **Condom**

i. Very Uneffective ii. Somewhat Uneffective iii. Neutral iv. Somewhat Effective v. Very Effective

d. **Fertility awareness methods**

i. Very Uneffective ii. Somewhat Uneffective iii. Neutral iv. Somewhat Effective v. Very Effective

e. **Withdrawal**

i. Very Uneffective ii. Somewhat Uneffective iii. Neutral iv. Somewhat Effective v. Very Effective

15. If you or your partner did not use protection/birth control, how likely do you think it is that you or your partner would become pregnant during the next year?

a. Very Unlikely b. Somewhat Unlikely c. Neutral d. Somewhat Likely e. Very Likely

16. If the average female university student, aged 18-25 in the United States, did not use birth control, how likely do you think it is that she would become pregnant during the next year?

a. Very Unlikely b. Somewhat Unlikely c. Neutral d. Somewhat Likely e. Very Likely

17. Have you ever been pregnant before?

a. Yes

b. No

18. What is the likelihood that you or your partner will become infected with a sexually transmitted infection?

19.

a. Very Unlikely b. Somewhat Unlikely c. Neutral d. Somewhat Likely e. Very Likely

20. Using protection/birth control reduces my risk of getting a sexually transmitted infection.

a. Strongly Disagree b. Disagree c. Unsure d. Agree e. Strongly Agree

21. Different forms of protection/birth control vary in how effective or ineffective they are in preventing sexually transmitted infections. For each form of protection/birth control listed below, please rate how effective you think they would be in preventing you from becoming infected with a sexually transmitted infection.

a. **Hormonal contraceptive methods (Birth control pills, Vaginal ring, Patch, Shot, Implant)**

i. Very Uneffective ii. Somewhat Uneffective iii. Neutral iv. Somewhat Effective v. Very Effective

b. **Intrauterine Device (IUD)**

i. Very Uneffective ii. Somewhat Uneffective iii. Neutral iv. Somewhat Effective v. Very Effective

c. **Condom**

i. Very Uneffective ii. Somewhat Uneffective iii. Neutral iv. Somewhat Effective v. Very Effective

d. **Fertility awareness methods**

i. Very Uneffective ii. Somewhat Uneffective iii. Neutral iv. Somewhat Effective v. Very Effective

e. **Withdrawal**

i. Very Uneffective ii. Somewhat Uneffective iii. Neutral iv. Somewhat Effective v. Very Effective

22. If you or your partner were not to use protection/birth control, how likely do you think it is that you would acquire a sexually transmitted infection during the next year?

a. Very Unlikely b. Somewhat Unlikely c. Neutral d. Somewhat Likely e. Very Likely

23. If the average female university student, aged 18-25 in the United States, did not use protection/birth control, how likely do you think it is that she would acquire a sexually transmitted infection during the next year?

a. Very Unlikely b. Somewhat Unlikely c. Neutral d. Somewhat Likely e. Very Likely

24. Have you ever been tested for sexually transmitted infections (excluding HIV)?

a. Yes
b. No
c. Don't know

25. How many times have you been tested for HIV?

_____ number of times or please check here if not sure _____

26. Have you ever tested positive for a sexually transmitted infection (including HIV)?

a. Yes
b. No

Thank you for your time! This completes the survey!

APPENDIX B

LETTER TO PROFESSORS

REVIEW OF SURVEY INSTRUMENT

Dear Professor,

My name is Jessica Seide and I am a graduate student in the Community Health Educator program here at Minnesota State University, Mankato. I am currently working on my thesis titled, “Perceptions of Risk Associated with Unintended Pregnancy and Sexually Transmitted Infections among University women attending Minnesota State University, Mankato.” I was wondering if you would be willing to review my survey and research questions to ensure validity and appropriateness for the target population (university women, ages 18-25).

The purpose of my study is to evaluate perceptions of risk associated with unintended pregnancies and sexually transmitted infections among selected female students. My research questions are listed below and my survey instrument is attached. I am hoping you would be willing to look over my survey and research questions by Friday, February 17th. Any feedback you are willing to provide is greatly appreciated.

Thank you for your time!

Sincerely,

Jessica Seide

The research questions of my study are:

1. Do women at Minnesota State University, Mankato perceive themselves to be at risk for unintended pregnancy?
2. Do women at Minnesota State University, Mankato perceive themselves to be at risk for sexually transmitted infections?
3. Is there a difference among perceptions of risk for unintended pregnancies and sexually transmitted infections among university females at Minnesota State University, Mankato?
4. At Minnesota State University, Mankato, do female students (age 18-25) use a mode of birth control?
5. What are the selected female student's reasons for using birth control?
6. What factors (partner preferences, religious beliefs, effectiveness, sexual orientation and relationship status) influence use of birth control and how often birth control is used?

APPENDIX C

LETTER TO PROFESSORS

PERMISSION TO ADMINISTER SURVEY INSTRUMENT

Dear Professor,

My name is Jessica Seide and I am a graduate student in the Community Health Educator program here at Minnesota State University, Mankato. I am currently working on my thesis titled, “Perceptions of Risk Associated with Unintended Pregnancy and Sexually Transmitted Infections among University women attending Minnesota State University, Mankato.” The purpose of my study is to evaluate perceptions of risk associated with unintended pregnancies and sexually transmitted infections among selected female students aged 18-25. I would like to administer a paper survey instrument in classrooms to gather my research and I was wondering if I could administer my survey in your classroom/s. The survey would take approximately 5-10 minutes to complete. The time period to administer the survey would be March 19th - April 6th 2012, pending IRB approval. I would greatly appreciate the opportunity to survey your students, please let me know if this would be possible.

Thank you for your time!

Sincerely,

Jessica Seide

APPENDIX D

LETTER TO PROFESSORS

CONFIRMATION OF ENTRY INTO CLASSROOMS

Dear Professor,

My name is Jessica Seide and I am a graduate student in the Community Health Education program here at Minnesota State University, Mankato. I am currently working on my thesis titled, “Perceptions of Risk Associated with Unintended Pregnancy and Sexually Transmitted Infections among University women attending Minnesota State University, Mankato.” I contacted you a couple of weeks ago to ask permission to administer my survey instrument in your classrooms, pending IRB approval. I recently received IRB approval which has moved my dates to administer my survey to this week. I wanted to confirm that it is still possible for me to administer my survey in your classrooms. I have you listed as teaching these classes (list classes, dates and times). Please let me know if it is possible for me to still come to your classrooms. If some classrooms are unavailable please let me know which ones are still available. The survey would take approximately 5-10 minutes to complete. I would greatly appreciate the opportunity to survey your students. Sorry for the inconvenience of the date changes.

Thank you for your time!

Sincerely,

Jessica Seide

APPENDIX E

INSTITUTIONAL REVIEW BOARD FOR MINNESOTA STATE UNIVERSITY, MANKATO APPROVAL LETTER

MINNESOTA STATE UNIVERSITY
MANKATO

April 11, 2012

Dear Dawn Larsen:

Re: IRB Proposal entitled "[321206-2] Jessica Seide- Perceptions of Risk Associated with Unintended Pregnancy and Sexually Transmitted Infections among University women attending Minnesota State University, Mankato."
Review Level: Level //

Your IRB Proposal has been approved as of April 11, 2012. On behalf of the Minnesota State University, I wish you success with your study. Remember that you must seek approval for any changes in your study, its design, funding source, consent process, or any part of the study that may affect participants in the study. Should any of the participants in your study suffer a research-related injury or other harmful outcome, you are required to report them to the IRB as soon as possible.

The approval of your study is for one calendar year from the approval date. When you complete your data collection or should you discontinue your study, you must notify the IRB. Please include your log number with any correspondence with the IRB.

This approval is considered final when the full IRB approves the monthly decisions and active log. The IRB reserves the right to review each study as part of its continuing review process. Continuing reviews are usually scheduled. However, under some conditions the IRB may choose not to announce a continuing review. If you have any questions, feel free to contact me at patricia.hargrove@mnsu.edu or 507-389-1415.

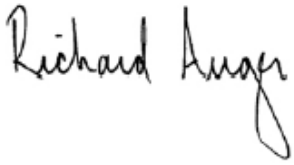
Sincerely,

Patricia Hargrove

Patricia Hargrove, Ph.D.
IRB Coordinator

Mary Hadley

Mary Hadley, Ph.D.
IRB Co-Chair



Richard Auger, Ph.D.
IRB Co-Chair

This letter has been electronically signed in accordance with all applicable regulations, and a copy is retained within Minnesota State University's records.

APPENDIX F

RESEARCH DISCLAIMER LETTER

Dear Student,

I am a graduate student at Minnesota State University, Mankato currently working on my thesis. My study is titled, “Perceptions of Risk Associated with Unintended Pregnancy and Sexually Transmitted Infections among University women attending Minnesota State University, Mankato.” This study will attempt to identify if females’ perceptions of risk affect their decision to take certain precautions to prevent pregnancy and sexually transmitted infections. This survey assesses perceptions of risk associated with unintended pregnancies and sexually transmitted infections. You will be asked questions about your sexual activity and the risks perceived. All of your information will be kept private. You will not state your name at any point on this survey, so information will be anonymous. It can be viewed only by authorized research staff members. The survey takes about 5- 10 minutes to complete.

The research will be supervised by Dr. Dawn Larsen. You can contact Dr. Larsen at 507-389-2113 or by email **m-dawn.larsen@mnsu.edu** about any concerns you have about this project. You may contact the Minnesota State University, Mankato Institutional Review Board Administrator, Dr. Barry Ries, at 389-2321 or barry.ries@mnsu.edu with any questions about research with human participants at Minnesota State University, Mankato.

Participation in this project is voluntary and you have the right to stop at any time. Your decision whether or not to participant will not affect your relationship with

Minnesota State University, Mankato. By completing this questionnaire, you agree to participate in this study and state that you are at least 18 years of age. There are no direct benefits to you as a result of your participation in this research. None of your answers will be released and no names will be recorded. The risks of participating in this study are less than minimal, although possible discomfort answering survey questions may occur. Participating in this study will help evaluate perceptions of risk associated with unintended pregnancies and sexually transmitted infections.

If you are concerned about your mental health after answering the questions, you can contact the Minnesota State University, Mankato Counseling Center. They are located at 245 Centennial Student Union Minnesota State University, Mankato Mankato, MN 56001 or by phone at 507-389-1455. You can also contact Minnesota State University, Mankato Student Health Services. They are located at 21 Carkoski Commons Minnesota State University, Mankato Mankato, MN 56001 or by phone at 507-389-6276.

MSU IRB LOG #: 321206-2 **Date of MSU IRB approval: April 11, 2012**

Sincerely,

Jessica Seide

Contact:

Dr. Dawn Larsen

Phone: 507-389-2113

m-dawn.larsen@mnsu.edu