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**Knowledge of HPV, Perception of Risk, and Intent to obtain HPV
Vaccination among sampled Male University Students at
Minnesota State University, Mankato**

Lia Lambert

Minnesota State University - Mankato

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Knowledge of HPV, Perception of Risk, and Intent to obtain HPV Vaccination among
sampled Male University Students at Minnesota State University, Mankato.

By

Lia M. Lambert

A Thesis Submitted in Partial Fulfillment of the
Requirements of the Degree of
Master of Science
In
Health Science: Community Health Education

Minnesota State University, Mankato

Mankato, MN

May 2014

Knowledge of HPV, Perception of Risk, and Intent to obtain HPV Vaccination among
selected Male University Students at Minnesota State University, Mankato

Lia Lambert

This thesis has been examined and approved by the following members of the thesis
committee.

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Abstract

Knowledge of HPV, Perception of Risk, and Intent to Obtain HPV Vaccination among sampled Male University Students at Minnesota State University, Mankato.

By Lia M. Lambert, Minnesota State University, Mankato, MN

Human papilloma virus (HPV) is the most common sexually transmitted infection (STI) in the U.S. HPV is known to cause many types of cancers such as cervical, vulvar, vaginal, penile, anal, and oropharyngeal cancers. A preventative measure, the HPV vaccine, is recommended by the Centers for Disease Control for both boys and girls. Since past prevention efforts primarily focused on female vaccination it is uncertain if males are aware of HPV, its effects and preventative measures. The purpose of this study was to determine the knowledge level of HPV, perceived risk of HPV and intent to obtain HPV vaccination among male university students. Participants ($n=361$) completed a 31-item electronic survey administered by email. Responses to knowledge-based questions indicated relatively low levels of knowledge about HPV and HPV vaccinations. Fifty percent knew that HPV was the most common STI, over half (52%) knew of the HPV association with multiple cancers, only 39% could correctly identify the virus and two-thirds of participants were unable to identify the virus strains controlled by vaccination. A significant portion of participants either agreed (54%) or strongly agreed (19%) that they were at a high risk for HPV. Most participants either agreed (49%) or strongly agreed (39%) that unprotected sexual activity put them at risk but nearly half (46%) were unaware that HPV vaccinations were available for males. Despite risk acknowledgment and over 50% vaccine awareness, 86% were not vaccinated and 65% of these participants did not plan to become vaccinated. In addition, of the 86% who were not vaccinated,

45% did not perceive themselves at risk and 47% were not aware that a vaccination existed. Only 9% were fully vaccinated against HPV with 6% reporting they had received partial vaccination. Results indicate, though male students understand the scope of HPV infection and many perceive themselves to be in a high risk group, few of them are, or intend to be, vaccinated. This is a significant issue for public health promotion. Prevention efforts should focus on promoting HPV vaccinations and increasing awareness of the long term health effects associated with HPV to the male population and parents of underage males.

Acknowledgments

I would like to express the deepest appreciation to my committee members, Dr. Dawn Larsen, Dr. Judith Luebke, and Dr. Amy Hedman. Thank you for all the guidance and encouragement you provided me as I worked to complete this project. I am truly grateful for the all advice and positive comments throughout the semesters. To my Family and Friends, thank you for all the support and determination. I cherish all the love and encouragement you gave me throughout this project and my graduate career.

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Chapter One: Introduction

Introduction

Human Papillomavirus (HPV) is one of the most common sexually transmitted diseases (Planned Parenthood, 2013). “HPV can infect the throat and the genital area; the vulva, vagina, cervix, rectum, anus, penis, or scrotum” (Planned Parenthood, 2013 “HPV vaccine,” para.1). With more than 40 different strains of HPV that specifically affect the genital area it is important to know if individuals are protecting themselves against HPV (Mayo Clinic, 2013). Vaccines can help protect against the strains of genital HPV most likely to cause genital warts or cervical cancer (Mayo Clinic, 2013). If male college students are aware of the benefits of vaccinations against HPV, they may be more likely to become vaccinated. By researching this topic among male college students I will be able to identify male college students’ knowledge and understanding of HPV as well as their perceptions of risks related to HPV and their perceived barriers to obtaining HPV vaccinations.

“GARDASIL is the only human papillomavirus (HPV) vaccine that helps protect against 4 types of HPV” (GARDASIL, 2013 “Information about GARDASIL,” para.1). In 2006, GARDASIL manufacturers introduced the first HPV vaccination for females and GARDASIL heavily promoted the vaccination for girls between ages 9 to 26 years. In 2009, GARDASIL introduced HPV vaccinations for males and little promotion was done. GARDASIL helps protect against 2 strains of HPV that cause about 75% of cervical cancer cases, and 2 more types that cause about 90% of genital warts cases (GARDASIL, 2013 “Information about GARDASIL,” para.1). Females may be more

aware of HPV and HPV vaccinations due to HPV's relationship to cervical cancer. Also women who receive routine pap tests are likely to be tested for HPV to help avoid such risks as cervical cancer.

“Focusing vaccination strategies on both genders paves the way towards eradicating cervical cancers, while also addressing the growing proportion of HPV-related diseases emerging among males” (Schwan, 2012 “HPV Vaccine: Solution and Controversy,” para.1). Targeting research efforts to the male population may provide them with encouragement to become vaccinated.

The Health Belief Model (HBM) will be used as a framework for this study. The HBM is based on the idea that value and expectancy beliefs guide behavior (Glanz, Rimer, & Viswanath, 2008). Using this model will be beneficial in identifying male college student's perceived severity of, susceptibility to, and risks for HPV. It will also help discover the perceived benefits and barriers to HPV vaccinations. The HBM model will guide this research to help identify whether or not college male students perceive themselves at risk for HPV and if they intend to receive the GARDASIL vaccination.

Problem Statement

Males who are not vaccinated against HPV may be at risk for contracting HPV. Because HPV is the most common sexually transmitted disease it is important for men as well as women to be aware of the potential benefits of vaccination and risks of not becoming vaccinated. Lack of proper education and knowledge on the risks of HPV, the benefits of HPV vaccinations and effects of not becoming vaccinated could lead to lifelong health complications from HPV.

Significance of Problem

“Approximately 79 million Americans are currently infected with HPV. About 14 million people become newly infected each year. HPV is so common that nearly all sexually-active men and women will get at least one type of HPV at some point in their lives” (Center for Disease Control [CDC], 2013) “How common is HPV and the health problems caused by HPV?,” para.1). “In the US, approximately 12,000 women and 7,000 men develop cancers caused by HPV annually” (Schwan, 2012 “HPV Vaccine: Solution and Controversy,” para.3). These statistics on HPV show the high prevalence of the virus is and why there is a need for vaccinations.

Since GARDASIL first introduced the HPV vaccination for males in 2009 it is uncertain how many males are aware that the vaccination is available. It is also uncertain if males are taking action to get vaccinated for HPV. Since HPV vaccinations in males is a recent topic within health education, there has not been much research conducted on it, thus limiting available evidence. With little published research on this topic it is important to study HPV vaccinations of males and investigate males’ perceptions of the vaccination and if they feel the need to take action to obtain HPV vaccination.

Although both men and women are affected by HPV, HPV vaccinations are not as heavily promoted within the male population (Staggers, Brann, & Maki, 2012). Because the male population is not being targeted for HPV vaccinations, many males may not be aware of the benefits of the vaccination (Staggers, Brann, & Maki, 2012). Many college students take introductory health education courses that may briefly explain some aspects of HPV, but retention of this information is unknown. By conducting research on

knowledge of the HPV vaccinations in male college students, health educators will gain insight into perceived barriers to vaccination in this population.

Purpose

The purpose of this study is to determine male university student's knowledge of HPV, perceived risk of HPV and intent to obtain HPV vaccination. With limited research conducted on the long term effects of HPV in males it is important to determine whether or not male university students are aware a vaccination exists and what their intentions are on becoming vaccinated.

Research Questions

1. Are sampled male university students aware of HPV vaccination?
2. Are sampled male university students receiving HPV vaccination?
3. What do sampled male university students perceive as benefits of receiving HPV vaccination?
4. What do sampled male university students perceive as barriers to receiving HPV vaccination?
5. Is there a difference between knowledge of HPV and awareness of the HPV vaccinations in this sample of male university students?
6. Do sampled male university students perceive themselves to be at risk for HPV?
7. Do sampled male university students intend to obtain HPV vaccinations?

Limitations

1. Participants may choose not to complete the survey.
2. Participants may be reluctant to survey questions which may limit the number of valid responses.
3. Responses from survey participants may not be representative of the entire male university student population.
4. The study used quantitative measurements which required participants to answer with options provided by the researcher.

Delimitations

1. The study sample is restricted to sampled male university students attending Minnesota State University, Mankato, in Spring Semester 2014.
2. The survey was online and was made available to participants for only one week.

Assumptions

1. Participants clearly understand survey questions.
2. Participants will identify themselves as male.

Definitions

GARDASIL- “GARDASIL is the only human papillomavirus (HPV) vaccine that helps protect against 4 types of HPV” (GARDASIL, 2013 “Information about GARDASIL,” para.1). “In boys and young men ages 9 to 26, GARDASIL helps protect against approximately 90% of genital warts cases” (GARDASIL, 2013 “Information about GARDASIL,” para.1).

HPV-“Genital human papillomavirus (also called HPV) is the most common sexually transmitted infection (STI)” (CDC, 2013 “What is Genital HPV Infection?,” para.1). “There are more than 40 types of HPV that can infect the genital areas of males and females. These HPV types can also infect the mouth and throat” (CDC, 2013 “What is Genital HPV Infection?,” para.1).

Chapter Two: Literature Review

Introduction

As college males begin their University experience and gain independence potential increase in social and sexual pressures may occur. It can be assumed that with these social and sexual pressures male college students may engage in unprotected sex and put themselves at risk for Human Papillomavirus (HPV). HPV rates are highest among adults between the ages of 18 and 28, so it is important to investigate behaviors in this age range and to determine what factors might influence them to be at such risk (McPartland, Weaver, Shu-Kuang, & Koutsky, 2005). Many male college students will take general education health courses that briefly explain the aspects of HPV, HPV vaccinations and risks associated with HPV. Although these general health courses may introduce the effects of HPV, it is unknown if male college students retain the information they received. Because HPV is the most common sexually transmitted disease it is important to determine whether or not college males are aware of HPV and HPV vaccinations.

Since, GARDASIL did not promote male HPV vaccinations as much as they did for the female population it is unknown if males are aware HPV vaccinations are available to them (Staggers, Brann, & Maki, 2012). Because HPV vaccination in the male population is a relatively new topic within the health field there has not been a lot of research conducted on this issue to date. With little research to review it is difficult to

determine if the male population perceives HPV vaccination as beneficial or if they are even aware it exists. This chapter will review literature on HPV Vaccinations with regards to the male population. This study will describe the Health Belief Model to identify research on male college students' perceived severity, benefits and barriers to HPV and HPV vaccinations. Sections of this chapter will review literature on the Health Belief Model, men's knowledge of HPV, HPV Vaccinations, perceptions of HPV and HPV vaccinations and intentions to obtain HPV vaccinations.

Health Belief Model

The Health Belief Model (HBM) is a theoretical model that attempts to explain and predict health behaviors ("Health Belief Model," 2013). This model focuses on attitudes and beliefs of individuals ("Health Belief Model," 2013). Using this model for this research will help determine beliefs male college students have with regards to HPV and HPV vaccinations.

“The HBM hypothesizes that health-related action depends upon the simultaneous occurrence of three factors: 1) The existence of sufficient motivation (or health concern) to make health issues salient or relevant 2) the belief that one is susceptible (vulnerable) to a serious health problem or to the sequelae of that illness or condition 3) The belief that following a particular health recommendation would be beneficial in reducing the perceived threat, and at a subjectively-acceptable cost” (Rosenstock, Strecher & Becker, 1988, para. 4).

Male Knowledge about HPV

HPV is considered the most common sexually transmitted disease and in most cases HPV will show no signs or symptoms. “HPV is so common that nearly all sexually-active men and women will get at least one type of HPV at some point in their lives” (CDC, 2012 “How common is HPV and the health problems caused by HPV?,” para.1). With statistics showing how prevalent HPV can be among sexually active individuals it is important to educate college males on the significance of the disease. If college males are not educated on HPV and are showing no signs or symptoms of HPV, they may not be aware they even are infected with the disease.

Research conducted on knowledge of HPV within US college females indicated out of a sample of 396 undergraduate students only 50% of participants correctly identified HPV as the most common sexually transmitted disease (Dillard & Spear, 2010). Although almost all participants stated they knew about HPV and the GARDASIL vaccination, they lacked knowledge of HPV (Dillard & Spear, 2010). The overall average score was a mere 65% on the HPV-knowledge related questions (Dillard & Spear, 2010). Between 34% and 35% of female participants indicated that male’s cannot contract HPV which in fact is not true (Dillard & Spear, 2010). Results from this study indicated that participants were aware of HPV and HPV vaccination yet lacked common knowledge of HPV (Dillard & Spear, 2010). The researchers concluded lack of knowledge and education of HPV could lead to continuation of unprotected sex and possibly spread the disease to their sexual partner(s) without even knowing it.

HPV is known to cause cervical cancer in females. Although many men may view HPV as a sexually transmitted disease that only infects females because of its relationship with women and cervical cancer, it is important for men to know that they are also at risk for developing penile, anal and throat cancers related to HPV infection. Because HPV causes serious health risks, such as cancer, it is imperative for college males to fully understand all the risks associated with HPV. A qualitative study was conducted at a Mid-Atlantic University to examine college males' perceptions of HPV vaccinations. Nineteen heterosexual college males were recruited from a lower level communications course to participate in this study. Results from the focus group discussions indicated that study subjects had many misconceptions about HPV and its risks (Staggers, Brann, & Maki, 2012). Many of the participants stated HPV was primarily a female disease and that males were only the carriers of the disease (Staggers, Brann, & Maki, 2012). Effective education on HPV can help eliminate the misconceptions of the disease (Staggers, Brann, & Maki, 2012).

Measuring perceptions and knowledge of HPV can be helpful in determining awareness levels of the HPV vaccinations. In 2005, Yale University researchers conducted research on males' perceptions and knowledge on HPV and Cervical cancer on a sample of 166 male university students. Results from this research indicated that about 54% of the participants had not heard of HPV before receiving the study recruitment letter. Only 26% of male University students sampled knew that there was a vaccination for HPV. Study results also indicated that only 9.9% of males knew that genital HPV may often show no signs or symptoms and 89% knew HPV can be sexually transmitted

even in absence of signs or symptoms (McPartland, Weaver, Shu-Kuang, & Koutsky, 2005).

HPV Vaccinations

Manufacturers of GARDASIL recommend the HPV vaccination be given to males and females between the ages of 9 and 26. It may be assumed that males of college age are far less likely to go to the doctor to receive annual physicals or keep up to date on their immunizations unless required for school or work. At annual doctor's visits it is generally unknown if physicians are recommending HPV vaccinations to college males. With little research existing on this subject matter it is uncertain where college males are receiving information about HPV and HPV vaccinations.

Research conducted at Penn State University focused on college females' knowledge and perceptions of HPV vaccinations. Out of 396 females sampled the knowledge portion of the survey found to have an average score was 65% on HPV-related facts (Dillard & Spear, 2010). The results also indicated that 34% to 35% of participant's indicated males cannot contract HPV. This study also asked college females' whether or not they believed HPV vaccinations protected against all strains of HPV and 51% stated "Yes, HPV vaccinations are almost 100% effective at protecting against all strains", which in fact is a false statement (Dillard & Spear, 2010). Ensuring correct knowledge and education on HPV vaccinations is important for both the male and female populations to fully understand the importance of prevention of HPV.

Awareness and acceptability of HPV vaccinations in males is a recent discovery within health education. Researchers who focused on HPV vaccination acceptability in

heterosexual, gay and bisexual men found there to be differences in acceptability of the HPV vaccination within the male population. Since January 2009, when HPV vaccinations within the male population were made available the findings from this study was considered rather new and recent within the health field. The authors concluded that men, of all sexual orientations may not fully understand HPV vaccination or see themselves at risk for HPV. This study indicated that gay and bisexual men were much more aware of the HPV vaccinations and were more willing to get tested or treated than heterosexual males. Heterosexual males were not as likely to be aware of the vaccination and indicated low willingness to take action of getting vaccinated (Gilbert, Brewer, Reiter, Ng, & Smith, 2010).

Male Perceptions of HPV and HPV Vaccinations

Most men who develop HPV may never develop any signs or symptoms (CDC, 2012). When a disease shows no signs or symptoms it may cause misconceptions or perceptions that the disease is not serious or assumptions that the disease cannot be transmitted. Men who show no signs or symptoms of HPV may easily transmit HPV to their partners without even knowing it (CDC, 2012). Since HPV can be very hard to diagnose and treat in males, it is important to determine if college males perceive themselves at risk for HPV and if they perceive HPV vaccinations as beneficial.

Perceived susceptibility and severity of HPV in male university students was found to be very low in a study at Yale University. Most males perceived severity of HPV infection to be more severe for females than for themselves (McPartland, Weaver, Shu-Kuang, & Koutsky, 2005). In the study subjects were asked a series of questions

related to six different sexually transmitted diseases and were asked to indicate severity levels with each one. Genital HPV was perceived to be least severe (McPartland, Weaver, Shu-Kuang, & Koutsky, 2005).

As previously mentioned, a qualitative study was conducted at a Mid-Atlantic University to examine college males' perceptions of HPV vaccinations. Focus groups were conducted to determine the perceived severity, benefits and barriers to HPV vaccinations. Results from the focus groups indicated that many college males perceived the HPV vaccinations as beneficial for both male and females in a sense that becoming vaccinated protects both partners from HPV in a relationship (Staggers, Brann, & Maki, 2012). Although they indicated perceived benefits of the vaccinations, they also perceived the vaccination to be most effective in the female population (Staggers, Brann, & Maki, 2012). Participants of the focus groups perceived female HPV to be much more severe than male HPV (Staggers, Brann, & Maki, 2012). "Findings from this study provide evidence that college males are aware of HPV, but they hold a number of misconceptions, namely, their perceived lack of susceptibility and their ignorance of the severity of health consequences associated with HPV" (Staggers, Brann, & Maki, 2012, p.33).

Male's Intentions about Vaccinations

HPV vaccination in males is a relatively new procedure within the health profession. The male vaccination was first introduced by GARDASIL in 2009. Since vaccination is fairly recent in the health field it is uncertain what college males' intentions are regarding receiving the vaccination. Based on the Health Belief Model, males will likely determine benefits and barriers to receiving the HPV vaccine.

Previous research conducted on male's perceptions of HPV vaccines found some interesting results. Research on college males' perceptions of HPV vaccines found males were likely to become vaccinated in order to prevent types of cancer caused by HPV (Staggers, Brann, & Maki, 2012). Male participants of the study thought HPV vaccines were beneficial in protecting themselves as well as their sexual partners or significant others from HPV (Staggers, Brann, & Maki, 2012).

Some barriers to receiving HPV vaccinations discussed by participants were side effects from the vaccine and effectiveness of the vaccine (Staggers, Brann, & Maki, 2012). Similar results were found in research conducted on college females' perceived barriers to HPV vaccinations. Results indicated that 46% of 396 participants felt that there hasn't been enough research done yet to justify getting vaccinated (Dillard & Spear, 2010). Another 35% felt they were not convinced that the vaccine was really effective (Dillard & Spear, 2010). Only 26% indicated they were not sexually active and thus felt the vaccine did not apply to them and 24% indicated cost related issues as barriers (Dillard & Spear, 2010). These findings indicate that appropriate education on the effectiveness of HPV vaccines is needed to help increase the vaccination rates of college students.

Another study which had significant results was a cross-sectional study done at a Northwestern University on males' and females' intentions to receive an HPV vaccine indicated that women had a significantly higher rate of intention due to HPV's direct correlation with cervical cancer (Jones & Cook, 2008). Several factors, such as previously having an STD, knowing someone who has HPV, ever having sex and having had more than five sex partners significantly increased an individual's intention to

receive HPV vaccines (Jones & Cook, 2008). Other factors such as a doctor recommending the vaccine and if the vaccine was made available to the individual at no cost also increased the intention rate to become vaccinated (Jones & Cook, 2008).

In rural Kentucky research was conducted on females between the ages of 18 and 26 years old, to provide insight on women's acceptance to receiving HPV vaccinations. This research also investigated women's risk perceptions of HPV. Participants of the research were given a voucher to receive all 3 doses of the HPV vaccine at no cost upon completion of a brief interview (Vanderpool, Casey, & Crosby, 2011). Results indicated less than 50% of these participants obtained the first dose of the GARADSIL vaccine (Vanderpool, Casey, & Crosby, 2011). Findings from this research indicated effective knowledge and education is needed in order for individuals to take the initiative to become vaccinated. Offering vaccines free of charge did not significantly improve vaccination rates amongst the sample population, but appropriate education and promotion may help increase vaccination rates amongst males.

Summary

There is limited research on HPV vaccinations within the male population since the vaccinations' recent development by GARDASIL in 2009. Previous research conducted of HPV has indicated many misconceptions and misperceptions of HPV and HPV vaccinations. Education and knowledge on HPV plays a significant role in the intention of receiving HPV vaccinations. It is important to recognize benefits and barriers to obtaining HPV vaccinations to increase vaccination rates.

Chapter Three: Research Methodology

Introduction

The research design and methods for this research were intended to collect data regarding perceptions, knowledge of HPV and HPV vaccinations and intent to obtain HPV vaccination among male university students. Description of the research design, participants, survey instrument and data collection methods will be discussed in this chapter. Data collection was contingent on IRB approval. See Appendix A for approval letter.

Research Design

A descriptive research design was used to collect quantitative data using a survey from a sample of male university students between the ages of 18 and 24 years and older than 24 enrolled at Minnesota State University, Mankato during the spring semester of 2014. This research design was selected to determine perceptions, knowledge on HPV and HPV Vaccinations and intent to obtain HPV vaccination among male university students. Students were asked to complete the voluntary questionnaire in an effort to answer the following research questions.

1. Are sampled male university students aware of HPV vaccination?
2. Are sampled male university students receiving HPV vaccination?
3. What do sampled male university students perceive as benefits of receiving HPV vaccination?

4. What do sampled male university students perceive as barriers to receiving HPV vaccination?
5. Is there a difference between knowledge of HPV and awareness of the HPV vaccinations in this sample of male university students?
6. Do sampled male university students perceive themselves to be risk for HPV?
7. Do sampled male university students intend to obtain HPV vaccinations?

Participants

Participants were male university students enrolled at Minnesota State University, Mankato during spring semester of 2014. Participants voluntarily completed the survey online. No incentives were given to incentivize male college students to participate in the survey.

Instrument

The testing instrument developed for this study was a 31-item survey that included a demographic segment and items used to assess knowledge of HPV, perceptions of risk and intent to obtain HPV vaccination. Survey questions were developed by the researcher. The survey questions were evaluated by the MSU,M thesis faculty committee, professional health educators and chair of the health science department for content validity ($n=8$).

The survey consisted of four sections which focused on different variables of the research. The first section included three questions that measured participants' demographic characteristics. The second section consisted of eight questions related to knowledge of HPV and HPV vaccinations. The third section provided statements about

HPV to be answered on a Likert scale with four response options ranging from “strongly disagree” to “strongly agree”. This section measured perceptions and beliefs about HPV and HPV vaccinations. The last section provided questions with regards to awareness of the HPV vaccination, benefits of the vaccination and intention to receiving the vaccination. Please see Appendix C for a copy of the survey used.

Data Collection

Surveys were distributed via email to male university students on February 24th, 2014. The Registrar’s Office and Information Technology Services (ITS) at Minnesota State University, Mankato provided the researcher with an email list with a total of 6,700 male university students attending Minnesota State University, Mankato during spring semester 2014. Participants were required to be 18 years of age or older in order to participate in this research. Students were asked to voluntarily participate in the survey and were informed of the purpose of the research and potential risks of participating in the survey before information was collected. Students were informed their responses would remain confidential and the survey information would be used for research purposes only. See Appendix B for consent letter.

Data Analysis

Data were collected in spring semester 2014. The data collected were entered and analyzed by Qualtrics™. Knowledge of HPV, perceptions of risk and intent to obtain HPV vaccination were measured through descriptive statistics. Qualtrics™ produced frequency distributions of the responses for all items. Data were entered into a SPSS

spreadsheet for t-test analyses on HPV knowledge and its relationship to awareness of HPV.

Chapter Four: Results and Discussion

Introduction

The purpose of this research was to determine knowledge of HPV, perception of risk and intent to access vaccination among selected male university students at Minnesota State University, Mankato. Data for this study were collected through Qualtrics™, a professional online survey software system. A 31-item survey was used to assess knowledge of HPV, perception of risk and intent to access vaccination among male university students. The survey was administered via email to 6,700 Minnesota State University, Mankato male students. This chapter will discuss results obtained from the data analysis in correspondence to each research question.

Participants

Participants included a sample size of 367 undergraduate and graduate male students enrolled in spring 2014 classes at Minnesota State University Mankato. School e-mail addresses were provided by request through the university Registrar's Office. Participants voluntarily completed the online survey. Participants included males university students who were eighteen years of age and older. No incentives were provided for participation and completion of the online survey.

Demographic Results

The demographic results of this research are presented in Table 1. The study sample consisted of (367) male university students. The race distribution of this sample was comprised of 80% Caucasian ($n=288$), 4% African American ($n=16$), 3% Hispanic ($n=9$), 7% Asian or Pacific Islander ($n=26$), 1% American Indian/Alaskan Native/Native American ($n=2$), 1% Biracial/Multicultural ($n=5$) and 4% of participants indicated 'Other' ($n=13$). Responses indicated as 'Other' included individuals who were African, Middle Eastern, Norwegian/German and Libyan. Among the participants 17% indicated they were freshmen in college ($n=60$), 17% were sophomores ($n=61$), 19% were juniors ($n=69$), 24% were seniors ($n=88$) and 23% were graduate students ($n=82$).

Research Questions and Results

Research Question 1: Are selected male university students aware of the HPV vaccinations? Descriptive data analysis was used to determine if male university students were aware of HPV vaccinations or not. The frequency distribution and percentages for research question one are presented in Table 4.2. Question 13 on the survey instrument was used to answer research question one. A total of 326 participants answered question 13. Of those 326 participants 54% ($n=176$) indicated they were aware of male HPV vaccinations and 46% ($n=150$) indicated they were unaware of HPV vaccinations for males. Question 14 on the survey instrument asked where participants first learned about the availability of the HPV vaccination. Nearly half of all participants 48% ($n=159$) indicated they were not previously aware of HPV vaccinations prior to taking the survey. Ten percent of participants ($n=33$) indicated doctor's visits, 5% ($n=17$)

university courses, 5% ($n=18$) high school courses, 7% ($n=23$) friends, family & peers, 18% ($n=60$) media and 6% ($n=20$) indicated 'Other'. Participants who selected 'Other' as a response were asked to please specify their answer. Responses to 'Other' included learning about the availability of HPV vaccinations through radio, own personal internet searches, having a career in the medical field and being in the Military and Army.

Table 4.1

Demographic characteristics of Minnesota State University, Mankato sampled male students

Characteristic	n	%
Gender		
Male	367	100.0
Age		
18	16	4.4
19	55	15.2
20	40	11.0
21	45	12.4
22	40	11.0
23	31	8.6
24	23	6.4
Older than 24	111	31.0
Total	361	100.0
Year in School		
Freshman	60	17.0

Table 4.1 Continued

Demographic characteristics of Minnesota State University, Mankato sampled male students

Characteristic	n	%
Sophomore	61	17.0
Junior	69	19.0
Senior	88	24.0
Graduate Student	82	23.0
Total	360	100.0
Race		
Caucasian/White	288	80.0
African American	16	4.0
Hispanic or Latino	9	3.0
Asian or Pacific Islander	26	7.0
American Indian/Alaskan Native/Native American	2	1.0
Biracial/Multicultural	5	1.0
Other	13	4.0
Total	359	100.0

Table 4.2

Frequency distributions (n) and percentages (%) for awareness of HPV vaccinations in sampled male university students.

Aware of HPV Vaccinations	Male University Students	
	<i>n</i>	%
Yes	176	54%
No	150	46%
Total	326	100%

Research Question 2: Are sampled male university students receiving the HPV vaccinations? Descriptive data analysis was used to determine if male university students are receiving HPV vaccinations. Question 20 on the survey was associated with research question two. Question 20 on the survey instrument asked participants whether or not they were vaccinated against HPV. It also revealed whether participants completed all 3 or only partial dosages of the vaccination. Only 9% ($n=28$) of participants indicated they had received all 3 dosages of the HPV vaccination and 6% ($n=18$) had received partial dosage of the vaccination. A majority of participants 86% ($n=280$) indicated they had not received the HPV vaccination.

Research Question 3: What do sampled male university students perceive as benefits of receiving HPV vaccinations? Descriptive data analysis was used to determine what male university students perceive as benefits to receiving HPV vaccinations. The frequency distributions and percentages are provided in Table 3.

Questions 15 through 19 on the survey instrument described what perceived benefits male university students believe they have on receiving the HPV vaccinations. *Likert* type questions were used to determine perceived benefits (Strongly Disagree-Strongly Agree). A total of 45% ($n=146$) of participants agreed and 32% ($n=103$) strongly agreed that a benefit to becoming vaccinated is that it protects them and their sexual partners from HPV. Forty-one percent of participants ($n=131$) agreed and 20% strongly agreed ($n=66$) that becoming vaccinated protects them against certain cancers linked to HPV.

Table 4.3

Frequency distribution(n) and percentages(%) for perceived benefits of HPV vaccinations in sampled male university students.

Statement	Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree	Total
	Disagree			Agree		
	%(n)	%(n)	%(n)	%(n)	%(n)	%(n)
I believe HPV vaccinations are beneficial to the male population.	4(13)	2(6)	28(91)	41(136)	25(84)	100(330)
A benefit to becoming vaccinated is that it will protect me and my sexual partners against HPV.	3(10)	2(7)	18(58)	45(146)	32(103)	100(324)

Table 4.3 Continued

Frequency distribution(n) and percentages(%) for perceived benefits of HPV vaccinations in sampled male university students.

Statement	Strongly Disagree	Unsure	Agree	Strongly	Total
	Disagree			Agree	
	%(n)	%(n)	%(n)	%(n)	%(n)
Becoming vaccinated will protect me against certain cancers related to HPV.	4(12)	5(15)	30(99)	41(134)	20(66) 100(326)
I do not feel there are any benefits to becoming vaccinated.	28(92)	44(144)	22(71)	3(10)	3(9) 100(326)
I believe HPV vaccinations are only beneficial for females.	23(76)	38(123)	31(101)	6(18)	2(6) 100(324)

Research Question 4: What do sampled male university students perceive as barriers to receiving HPV vaccinations? Descriptive analysis was used to determine what male university students perceive as barriers to receiving HPV vaccinations. Question 21 on the survey instrument asked male university students who previously noted on the survey that they were not currently vaccinated for HPV about reasons they were not vaccinated yet. The respondents were asked to select all options that applied to them. Nearly half of the respondents at 45% ($n=121$) indicated they do not see themselves at risk for HPV and 47% ($n=126$) were not aware a vaccinated as reasons to why they are currently not vaccinated. Eight percent of participants ($n=21$) indicated lack of insurance as a barrier and 11% for both insurance coverage ($n=29$) and cost of vaccination ($n=30$) were listed as barriers. Fourteen percent ($n=38$) indicated a concern for potential side effects from vaccination as a barrier. Eighteen percent ($n=49$) choose 'Other' as a response and were asked to please specify their answer. 'Other' responses included time constraint of vaccination, they are older than the indicated age range for vaccination, are married, are not sexually active, are in monogamous relationships, unaware of locations that offer vaccinations, are gay, haven't thought too seriously about vaccination and are too lazy to get vaccination were listed as barriers.

Research Question 5: Is there a difference between knowledge of HPV and awareness of the HPV vaccinations in this sample of male university students? To determine differences in HPV knowledge between those who are aware of HPV and those who are not aware of HPV, Levene's Test for Equality of Variances was used. The T-test demonstrated statistically significant differences in HPV knowledge based on awareness of HPV vaccinations. The questions related to knowledge of HPV were

measured by correct responses to 8-multiple choice questions (questions 5-12 on survey instrument). The knowledge based questions scoring was coded as 0=incorrect answer and 1=correct answer. To determine awareness of HPV vaccinations Question 13 on the survey asked participants if they were currently aware of HPV vaccinations and respondents indicated yes or no. Those who indicated they were aware of HPV vaccinations scored a mean of 4.87 correct responses on the knowledge based questions. Those who indicated they were not previously aware of HPV vaccinations scored a mean of 3.71 correct responses on the knowledge based questions. The results determined that those who indicated they were aware of HPV vaccinations had significantly higher levels of knowledge compared to those reporting no previous awareness. The standard deviation for individuals who were aware of HPV was 1.4 and 1.58 for those unaware of HPV ($t(303)=6.785, p <.05$). Those who indicated they were aware of HPV scored higher on the knowledge based questions.

Research Question 6: Do sampled male university students perceive themselves at risk for HPV? Descriptive and frequency analysis was used to determine if male university students perceived themselves at risk for HPV. Frequency distributions and percentages are presented in Table 4. Survey items 26 through 31 helped determine if male university students perceived themselves to be at risk for HPV. These survey items were measured on a 5-point *Likert* scale ranging from strongly disagree to strongly agree. Fifty-four percent ($n=167$) of participants agreed and 19% ($n=60$) strongly agree that since they were a college student they were considered to be a population at high risk for HPV. 49% ($n=152$) of male university students agreed and 39% strongly agreed that engaging in unprotected sex puts them at risk for contacting HPV. A total of 40% of

males disagreed and 9% strongly disagreed that engaging in protected sex does not put them at risk for contracting HPV. These results indicated that many male university students perceived their population to be at high risk for HPV and are aware of the risks of engaging in unprotected and protected sex.

Table 4.4

Frequency distribution(n) and percentages(%) for perceived risk of HPV in sampled male university students.

Statement	Strongly Disagree	Unsure	Agree	Strongly	Total	
	Disagree			Agree		
	%(n)	%(n)	%(n)	%(n)	%(n)	
If I am vaccinated I am not at risk for contracting HPV.	10(30)	32(98)	37(115)	18(55)	3(9)	100(307)
Since I am a college student I am a population highly At risk for HPV.	5(15)	5(15)	17(54)	54(167)	19(60)	100(310)
If I engage in unprotected sex I am at risk for contracting HPV.	2(5)	2(5)	9(27)	49(152)	39(119)	100(308)

4.4 Table Continued

Frequency Distribution(n) and percentages(%) for perceived risk of HPV in male university students.

Statement	Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree	Total
	Disagree			Agree		
	%(n)	%(n)	%(n)	%(n)	%(n)	%(n)
If I am not vaccinated I am at risk for contracting HPV.	5(14)	7(20)	17(52)	50(153)	21(64)	100(303)
If I engage in protected sex I am not at risk for contracting HPV:	9(28)	40(123)	31(96)	16(50)	3(10)	100(307)
If my partner and/or I use a condom that will protect me against HPV:	7(22)	30(92)	34(103)	25(76)	3(10)	100(303)

Research Question 7: Do sampled male university students intend to obtain HPV vaccinations? Descriptive data analysis was used to determine if male university students who are not currently vaccinated intend to obtain the HPV vaccination. The frequency distribution and percentages for research question seven are presented in Table 5. Questions 22 through 24 on the survey instrument helped to determine whether or not

male university students intend to become vaccinated. Respondents who previously noted they were not vaccinated against HPV were asked to answer these 3 survey items. A total of 282 male university students responded to the three survey items. Thirty-two percent ($n=90$) of participants indicated they were not hesitant to become vaccinated and 19% ($n=55$) were somewhat hesitant. When asked “How likely are you to obtain the HPV vaccination?” 35% ($n=100$) said not likely and 17% ($n=47$) were somewhat likely to obtain vaccination. Survey item 24 asked participants when they plan on becoming vaccinated. Twenty-four percent ($n=67$) indicated within a year and 65% ($n=183$) said they do not plan to become vaccinated. These results indicated that majority of male university students who are not previously vaccinated do not plan or intend to become vaccinated for HPV.

Table 4.5

Frequency distributions(n) and percentages(%) for intent to obtain HPV vaccine among male university students.

Statement	n	%
How hesitant are you to becoming vaccinated?		
Not hesitant:	90	32
Somewhat hesitant:	55	19
Unsure:	91	32
Hesitant:	33	12
Very hesitant:	14	5
Total:	283	100

Table 4.5 Continued

Frequency distributions(n) and percentages(%) for intent to obtain HPV vaccine among male university students.

Statement	<i>n</i>	%
How likely are you to obtain the HPV vaccination?		
Not likely:	100	35
Somewhat likely:	47	17
Unsure:	90	32
Very likely:	25	9
Certain I will become vaccinated in the near future:	20	7
Total:	282	100
I plan on becoming vaccinated:		
Within 3 months:	15	5
Within 6 months:	17	6
Within a year:	67	24
I do not plan on becoming vaccinated:	183	65
Total:	282	100

Discussion:

The purpose of this study was to determine knowledge of HPV, perception of risk and intent to access vaccination among selected male university students at Minnesota State University, Mankato. This research looked at male university students' beliefs and perceptions of HPV vaccinations. A total of 367 male university undergraduate and graduate students participated in this study.

Results from this study showed that many males were not aware of HPV prior to completing the survey instrument. A significant difference was found in this study between being aware of HPV vaccinations and actual knowledge of HPV. This study also determined perceived risks and barriers to HPV vaccinations. Many males indicated they did not feel they were at risk for HPV as being a barrier to becoming vaccinated. Most males agreed that since they are college students they are a population highly at risk for HPV. Overall, this study indicated that many male university students are not currently vaccinated for HPV and a majority of those male do not intend on becoming vaccinated in the future.

Chapter Five: Summary, Conclusion, and Future Recommendation.

Introduction

Males who are not vaccinated against HPV may be at risk for contracting HPV. Because HPV is the most common sexually transmitted disease it is important for men as well as women to be aware of the potential benefits of vaccination and risks of not getting vaccinated. Lack of proper education and knowledge on the risk of HPV and the benefits of HPV vaccinations could lead to lifelong health complications from HPV. HPV rates are highest among adults between the ages of 18 and 28, so it is important to investigate behaviors in this age range and to determine what factors might influence them to be at such risk (McPartland, Weaver, Shu-Kuang, & Koutsky , 2005). This chapter will discuss the summary, conclusions and future recommendations of my research on HPV with selected male university students.

Summary

In this study, consisting primarily of Caucasian male University students, participants were asked about their knowledge, perceptions and awareness of HPV and HPV vaccinations. Data for this study were collected through a 31-item survey to assess the knowledge, perception of risk and intent to obtain vaccination. The survey was administered by email, to a sample of 6,700 male students attending Minnesota State University Mankato. A total of 367 male university students participated in the study. The survey was made available online for 1 week during the time frame of Monday February 24th, 2014 through Monday March 3rd, 2014.

Participants were asked 8-multiple choice questions to assess their knowledge of HPV and HPV vaccinations. Awareness of HPV vaccinations was measured by one question asking participants if they were previously aware of HPV vaccinations prior to participating in the survey. Responses were indicated as yes or no. Of 326 participants 54% (n=176) indicated yes they were aware of male HPV vaccinations and 46% (n=150) indicated not they were not aware of HPV vaccinations in males. The 8-knowledge based questions and the 1-awareness of HPV vaccinations question were analyzed using Levene's Test for Equality of Means to determine any differences in knowledge of HPV and awareness of HPV vaccinations. Out of a total of 8 those who indicated they were aware of HPV vaccinations scored a mean of 4.87 correct responses on the knowledge based questions. Those who indicated they were not previously aware of HPV vaccinations scored a mean of 3.71 correct responses on the knowledge based questions out of 8.

This study also determined perceived risk of HPV. To determine perceived risk of HPV participants were asked 6-survey questions that provided 5-point *Likert* responses ranging from Strongly Disagree to Strongly Agree. When determining perceived benefits of HPV vaccinations participants were also asked questions that provided 5-point *Likert* responses ranging from Strongly Disagree to Strongly Agree. A total of 40% of males disagreed and 9% strongly disagreed that engaging in protected sex does not put them at risk for contracting HPV.

To determine whether or not participants were vaccinated against HPV they were asked one question asking if they were currently vaccinated; responses included fully vaccinated, partially vaccinated or not vaccinated. Participants were then asked if they

were likely to obtain the HPV vaccination if they previously indicated they were not vaccinated included 5-point *Likert* responses ranging from “Not Likely” to “Certain I will become vaccinated”. Participants were also asked if they were how hesitant they are to becoming vaccinated and responses included “Not hesitant”, “Somewhat hesitant”, “Unsure”, “Hesitant” and “Very Hesitant”. The last question that determined intent to obtain vaccination asked participants when they plan on becoming vaccinated. Responses included “Within 3 months”, “Within 6 months”, “Within 1 year” and “I do not plan on becoming vaccinated”. Of participants who indicated they were not currently vaccinated for HPV 24% (n=67) indicated they plan on becoming vaccinated within a year and 65% (n=183) said they do not plan on becoming vaccinated.

Perceived barriers to the receiving HPV vaccinations were measured by one survey question asking participants who previously indicated they were not currently vaccinated to select what factors they may find as barriers. Barriers that were provided included Insurance, Cost of Vaccination, Was not aware vaccine existed, Do not see myself at risk for HPV, I do not agree with vaccination, lack of insurance, I am concerned about the potential side effects of HPV and Other(if selected ‘Other’ they were asked to specify their response). Participants were asked to select all factors that applied to them. Nearly half of the respondents at 45% (n=121) indicated they do not see themselves at risk for HPV and 47% (n=126) were not aware a vaccinated as being barriers to becoming vaccinated. 8% (n=21) indicated lack of insurance as a barrier and 11% for both insurance coverage (n=29) and cost of vaccination (n=30) were listed as barriers.

Conclusion

Based upon data collected in this study it was concluded that male university students have rudimentary knowledge on HPV and HPV vaccinations. The knowledge based questions determined that 52% ($n=184$) of male university students are aware that HPV can cause throat, cervical and anal cancers. Although more than half of participants indicated HPV can cause throat, cervical and anal cancers only 39% ($n=132$) were able to properly identify which strains of HPV the GARDASIL vaccination protects against. When asked how many doses of the vaccination are required to ensure proper protection against HPV only 35% ($n=114$) of participants correctly identified 3. Fifty percent ($n=175$) of participants properly stated HPV as the most common sexually transmitted disease. Previous research conducted on college females indicated out of a sample of 396 undergraduate students only 50% of participants correctly identified HPV as the most common sexually transmitted disease (Dillard & Spear, 2010). Although this previous study was conducted on females its results are a mere imagine of this research. The similarities this research and previous research display are that both males and females are unaware that HPV is the most common sexually transmitted infection. Overall, this portion of the research indicated, that male university students have some knowledge on HPV but lower levels of knowledge on HPV vaccinations.

Based upon data collected this sample of male university students perceive themselves as a population highly at risk for HPV. Fifty-four percent ($n=167$) of

participants agreed and 19% ($n=60$) strongly agreed that as college students they are at high risk for contracting HPV. When asked if engaging in unprotected sex put them at risk for HPV, 49% of participants agreed ($n=152$) and 39% ($n=119$) strongly agreed. Forty-six percent ($n=150$) or nearly half of the participants in this study stated that they were unaware of HPV vaccinations for the male population. Also, study findings indicated that this sample of male university students perceive themselves as a population at risk for HPV and engaging in unprotected sex puts them at risk for HPV. Perceived benefits of receiving HPV vaccinations were also measured in this study. Forty-five percent ($n=146$) agreed and 32% ($n=103$) strongly agreed that a benefit to becoming vaccinated is that it protects them and their sexual partners from HPV. Forty-one percent ($n=131$) agreed and 20% strongly agreed ($n=66$) that becoming vaccinated protects them against certain cancers linked to HPV. These results indicated that male university student do perceive obtaining the HPV vaccination as beneficial for protecting themselves and their sexual partners from HPV and for protecting themselves against certain cancers linked to HPV. Previous research conducted at a Mid-Atlantic university examined college males' perceptions of HPV vaccinations. This research indicated similar results with respect to male's perceived benefits of HPV vaccination. This previously conducted study indicated that male participants felt HPV vaccines were beneficial in protecting themselves as well as their sexual partners or significant others from HPV (Staggers, Brann, & Maki, 2012).

Additionally, this study investigated if sampled male university students were aware of HPV vaccinations. When asked if they were aware of HPV vaccinations 54% ($n=176$) indicated yes and 46% ($n=150$) indicated no. The survey responses demonstrate

that many male university students are unaware of the availability of HPV vaccinations for the male population.

Furthermore, this study determined whether or not male university students were vaccinated against HPV. The survey results suggested that 86% ($n=280$) were not vaccinated and of those 86%, 65% ($n=183$) do not plan on becoming vaccinated. Also, among those 86% who were not vaccinated 45% ($n=121$) of participants do not perceive themselves at risk for contracting HPV and 47% ($n=126$) were not previously aware a vaccination existed. Only 9% ($n=28$) of participants were fully vaccinated against HPV and 6% ($n=18$) have received partial dosages of the vaccination. From these findings it can be concluded that many male university students are not vaccinated and do not intend on obtaining the HPV vaccination. These findings also indicated that this sample of male university students do not perceive themselves at risk for HPV and that awareness levels of HPV vaccinations in males is fairly low.

Finally, data collected in this study determined that there was a statistically significant difference between knowledge of HPV and awareness of HPV vaccinations. Participants who indicated previous awareness of HPV vaccinations had more correct responses to the knowledge-based questions. Those participants who indicated they were not previously aware of HPV vaccinations had a lower mean score of correct responses to the knowledge-based questions. These findings indicated that individuals who were aware of HPV vaccinations typically had more knowledge of HPV and those who were not aware a vaccination existed had lower knowledge levels on HPV.

Future Recommendations for Health Education Practice

Based upon the findings of this research following are several recommendations for health education practice. Education on HPV and HPV vaccinations should begin prior to high school and college entrance. Health educators must emphasize that HPV is the number one sexually transmitted disease, explain how HPV can be transmitted and describe what long term health effects are associated with the disease. Educating males on HPV and HPV vaccinations prior to adolescence would be ideal for effective understanding of the disease and vaccination before they are exposed to HPV. It is unlikely that the topic of HPV will be discussed prior to high school or college entrance because of its relation to sex, but statistics have demonstrated that HPV is prevalent in those who are in high school and college.

Other prevention efforts should focus on promoting HPV vaccinations to the male populations and parents of underage males. Because the HPV vaccinations are effective at preventing HPV strains 6, 11, 16 and 18 it is important for this population to be adequately educated on the comprehensiveness of the vaccination. Appropriate promotion of the vaccination to the male population may result in an increase in the rate of males vaccinated for HPV.

Recommendations for Further Research

Based upon this study, the following recommendations for further research are suggested. Data for this study was collected online with a 1 week time frame to complete the survey. Future efforts may look at extending the time frame to increase the sample

size. Incentives were not offered to participants for completing the survey. A way to increase response rate may be to provide an incentive for completing the survey.

Further research should look at determining participants' relationship status, such as monogamous relationships, married or single. Relationship status could have been related to their perceived risk of HPV. Additionally, including both males and females as participants could be beneficial in determining if there are any statistically significant differences by gender for HPV knowledge. Understanding what both males and females know and how they perceive HPV and the vaccinations may be beneficial in determining risk factors related to HPV.

Furthermore, other research efforts on HPV may look at collecting qualitative data. Based off of students' interests and responses to the e-mailed consent letter, it would seem appropriate to ask more qualitative questions. Qualitative responses would provide the study with more in-depth answers and understandings as to why participants responded way they did.

Finally, further research might consider sexual behaviors and relationship factors as related to HPV knowledge and perceptions. Understanding what an individual's sexual relationship behaviors are could help determine potential reasons for perception of risk for HPV. Prevention and education are essential in reducing the prevalence of HPV and can be accomplished by further research.

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Appendices

Appendix A: Copy of Institutional Review Board (IRB) Approval Letter

February 20, 2014

Dear Dawn Larsen:

Re: IRB Proposal entitled "[573479-4] Knowledge of HPV, Perception of Risk, and Intent to access HPV Vaccination among selected Male University Students at Minnesota State University, Mankato."
Review Level: Level [I]

Please correct the IRBNet ID number on your consent form. It should be 573479 not 57349. In addition, please do not forget to add the date for your survey into the body of your consent form. The date is blank now. Your IRB Proposal has been approved as of February 20, 2014. On behalf of the Minnesota State University, Mankato IRB, 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.

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 irb@mnsu.edu or 507-389-5102.

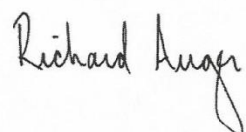
Cordially,

A handwritten signature in cursive script, appearing to read "Mary Hadley".

Mary Hadley, Ph.D.
IRB Coordinator

A handwritten signature in cursive script, appearing to read "Sarah Sifers".

Sarah Sifers, 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, Mankato IRB's records.

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Appendix B: Consent Letter to Participants in Research Study

Title: Health Science Graduate Student Survey

Dear Student,

My name is Lia Lambert and I am a graduate student in the Health Science Department at Minnesota State University, Mankato currently working on my thesis. My research is titled, “Knowledge of HPV, Perception of Risk, and Intent to access HPV Vaccination among selected Male University students at Minnesota State University, Mankato.” HPV is defined as the human papilloma virus which is a sexually transmitted infection. This research will attempt to identify males’ perceptions of perceived risk of HPV, knowledge of HPV and HPV vaccinations and whether or not males intend to access vaccination.

You are invited to participate in this research study which will be supervised by Dr. Dawn Larsen. This survey assesses perceptions and beliefs associated with HPV and HPV vaccinations. You will be asked questions about your knowledge of HPV and the risks perceived. The survey should take about 5-10 minutes to complete and will only be open for 1 week. You will not state your name at any point on this survey. The information you provide will be anonymous and can be viewed only by authorized research staff members. The survey link is provided below. You will receive a reminder email in a few days. The survey will only be available until 3/3/14.

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

Minnesota State University, Mankato. By completing this questionnaire, you agree to participate in this research and state that you are at least 18 years of age. Please be aware that whenever one works with the internet and/or email there is always a risk for compromising privacy, confidentiality, and/or anonymity. 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 research are less than minimal and are no more than are experienced in daily life. Participating in this study will help evaluate knowledge of HPV, perceptions of perceived risk and the intent to access vaccination.

If you wish to provide us with documentation of your agreement to participate, please print a copy of the consent form, sign it and send to Dawn Larsen at Highland Center North 202 Mankato, MN 56001. However, please be advised that you do not have to sign and return the consent form. Please do whatever you feel is best .If you have any questions regarding the research, please contact me via email at lia.lambert@mnsu.edu or Dr. Larsen at dawn.larsen@mnsu.edu. If you have any questions or concerns regarding participant's rights or research related injuries please contact the Associate Vice President of Research and Dean of Graduate Studies Dr. Barry Ries at barry.ries@mnsu.edu and mention research IRBNet ID 573479. If you would like more information about privacy risks posed by online surveys, please contact the Minnesota State University, Mankato Information Technology Help Desk (507-389-6654) and ask to speak to the Information Security Manager.

To access the survey please click the following link www.hpvsurvey.com

Please print a copy of this page for your future reference.

Sincerely,

Lia Lambert

Appendix C: Copy Of Survey

Knowledge of HPV, Perception of Risk, and Intent to access HPV Vaccination among selected Male University Students at Minnesota State University, Mankato.

Question 1

What is your sex?

- Male
- Female (If checked survey will end)

Question 2

How old are you?

- 18
- 19
- 20
- 21
- 22
- 23
- 24
- Older than 24

Question 3

What year in school are you?

- Freshman
- Sophomore
- Junior
- Senior
- Graduate student

Questions 4

What is your race?

- Caucasian/White
- African American
- Hispanic or Latino
- Asian or Pacific Islander
- American Indian/Alaskan Native/Native American
- Biracial/Multicultural
- Other ___ Please specify

Question 5

HPV can cause which type(s) of cancer?

- A. Cancer of the penis
- B. Cancer of the anus
- C. Cancer of the cervix
- D. Cancer of the throat
- E. None of the above
- F. All of the above

Question 6

What is the most common sexually transmitted disease?

- A. Syphilis
- B. Gonorrhea
- C. HPV
- D. Chlamydia
- E. None of the above

Question 7

HPV vaccinations are effective in

- A. Male
- B. Females
- C. Both Male and Females

Question 8

HPV vaccinations protect individuals against what strains of HPV?

- A. 6 and 11
- B. 16 and 18
- C. Both A and B
- D. All strains of HPV

Question 9

How many doses of the HPV vaccination GARDASIL are required to ensure full protection against HPV?

- A. 1
- B. 2
- C. 3
- D. 4

Question 10

HPV can be transmitted by

- A. Genital to genital contact
- B. Unprotected sex
- C. Oral sex
- D. Protected sex
- E. A and B
- F. All of the above

Question 11

HPV can cause

- A. Warts in the throat
- B. Genital Warts
- C. Herpes
- D. Both B and C
- E. All of the above
- F. None of the above

Question 12

HPV can be transmitted only when no signs and symptoms are present

- True
- False

Question 13

Are you aware that HPV Vaccinations are available to the male population?

- Yes (If Yes please answer question 14)
- No (If No please skip to question 15)

Questions 14

How did you first learn about the availability of HPV Vaccinations in males?

- I was not previously aware of HPV vaccinations in males until taking this survey.
- Doctor's visit
- University courses
- High School Courses
- Friends, Family or Peers
- Other_____Please specify
- Media

Please read the statements below and indicate your level of agreement for each.

<u>Statements</u>	<u>Strongly Disagree</u>	<u>Disagree</u>	<u>Unsure</u>	<u>Agree</u>	<u>Strongly Agree</u>
15. I believe HPV vaccinations are beneficial to the male population					
16. A benefit to becoming vaccinated is that it will protect me and my sexual partners against HPV					
17. Becoming vaccinated will protect me against certain cancers related to HPV					
18. I do not feel there are any benefits to becoming vaccinated					
19. I believe HPV Vaccinations are only beneficial for females					

Question 20

Are you vaccinated against HPV?

- Yes I have completed all required dosages (If yes please skip to question 25)
- Yes I have completed partial dosages (If yes partial please skip to question 25)
- No (If no continue to question 21)

Question 21

If you are not currently vaccinated what are some reasons you are not vaccinated yet?

(Select all that apply)

- Insurance Coverage
- Cost of vaccine
- Was not aware a vaccine existed
- Do not see myself at risk for contracting HPV
- Other
- I do not agree with vaccination
- Lack of insurance
- I am concerned about potential side effects from vaccine

Question 22

How hesitant are you to becoming vaccinated?

- Not hesitant
- Somewhat hesitant
- Unsure
- Hesitant
- Very hesitant

Question 23

How likely are you to obtain the HPV vaccination?

- Not likely
- Somewhat likely
- Unsure
- Very likely
- Certain I will become vaccinated in the near future

Question 24

I plan on becoming vaccinated

- Within 3 months
- Within 6 months
- Within a year
- I do not plan on becoming vaccinated

Please check the box you feel most appropriately applies with how you feel with the statements provided on the right-hand column.

<u>Statements</u>	<u>Strongly Disagree</u>	<u>Disagree</u>	<u>Neutral</u>	<u>Agree</u>	<u>Strongly Agree</u>
25. HPV Vaccinations are beneficial for males.					
26. If I am vaccinated I am not at risk for contracting HPV					
27. Since I am a college student I am a population highly at risk for HPV					
28. If I engage in unprotected sex I am at risk for contracting HPV					
29. If I am not vaccinated I am at risk for contracting HPV					
30. If I engage in protected sex I am not at risk for contracting HPV					
31. If my partner and/or I use a condom that will protect me against HPV					