**WORKING PAPER**

***Exploring HPV and the HPV Vaccine: Perceptions, Behaviors, and Potential Barriers to Vaccination***

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**ABSTRACT**

 The purpose of this study was to ascertain the perceptions, behaviors to HPV Vaccination and HPV. This study is necessary in order to increase awareness of HPV, and thus, increase vaccination coverage against the alarming prevalence of cases and high mortality rates attributable to HPV infections in the country. The study aimed to qualitatively explore the perceptions and behaviors of college aged students to identify potential barriers to vaccination. IRB approval was obtained, and n=31 participants were recruited. Five focus groups were held at various locations. The audio recordings of each session were transcribed verbatim. Data analysis was grounded in theory using the Health Belief Model, a behavior change theory that focuses on individual’s susceptibility to the disease. Data reduction occurred through concept-driven coding and categorization of each focus group to eliminate repetitive data. A thematic representation of the data was encompassed into four themes: Women’s Issue, Stigma, Influences, and Communication. Results concluded that HPV and the HPV vaccine are heavily perceived as a woman’s issue. There is stigma surrounding receiving the vaccine due to its association with it being prevention for a sexually transmitted infection. Results also concluded that HPV and HPV vaccine knowledge is significantly low at Truman State University and educational programming is needed to increase student’s awareness regarding the risks of the disease and benefits of the vaccine.

**INTRODUCTION**

*Statement of the problem*

 According to the World Health Organization, the Human Papillomavirus (HPV) is the “most common viral infection of the reproductive tract” (WHO, 2017). About 79 million Americans are affected by HPV, which increases the outcomes that sexually active men and women could get infected with HPV at some point in their lifetime. HPV can lead to the development reproductive system and throat cancers in men and women. In fact, there are more than 11,000 women who get cervical cancer from HPV each year- making it by far the most common HPV-related disease. (CDC, 2015). The high mortality rate from HPV can be reduced with appropriate screening and prevention. However, only 45% of college aged women in the Midwest reported to have received the HPV vaccine, which is significantly lower than the *Healthy People 2020* coverage goal of 80% (Cohen, 2013).

*Purpose of the study*

The purpose of this study was to ascertain the perceptions, behaviors, and potential barriers to HPV vaccination and HPV among college-aged students. By identifying potential barriers and biases to vaccination, this study could offer a more holistic understanding of behavior change in regards to prevention sexually transmitted infections. This study is necessary in order to increase vaccination coverage against HPV and raise awareness of the risks that can develop from the virus.

*Significance and Justification of the Problem*

 The Center for Disease Control’s Mortality and Morbidity Report suggests that HPV completion rates are lower among populations that are known to have higher cervical cancer rates, such as those who are college student aged (CDC, 2010). This study is significant because the data collected can be used to increase vaccination coverage against HPV, and raise awareness of the benefits of vaccination and risks of HPV. The study can reveal gaps in existing research regarding the perceptions and behaviors of college students in regards to HPV and the HPV vaccine. Planning an intervention could break down barriers to vaccination and the stigma surrounding the topic of STIs, resulting in an increased amount of college students who are covered against HPV and are knowledgeable about the disease and preventive methods.

*Research Questions*

1. What are the trends in self-reported HPV vaccine doses among students?
2. What are students’ perceptions regarding the HPV vaccine?
3. What is the overall level of acceptability of HPV vaccines among students?
4. What factors determine or influence whether or not a student received the HPV vaccine?

**REVIEW OF LITERATURE**

Human Papillomavirus (HPV), the most common sexually transmitted infection, takes many forms, some of which can cause health problems including genital warts, genital cancers, and oropharyngeal cancers among women and men (Centers for Disease Control and Prevention [CDC], 2015). One factor reducing the chance of health problems associated with contracting HPV is the HPV vaccine. The vaccine is recommended for all boys and girls 11 to 12 years old and for anyone up to the age of 26 who has not already been given the three doses of HPV vaccine (CDC, 2015). A study conducted by the CDC, and published in the Journal of Infectious Diseases shows “since the vaccine was introduced in 2006, vaccine-type HPV prevalence decreased 56 percent among female teenagers 14-19 years of age” (CDC, 2013, para. 1). Yet, as the Centers for Disease Control reports, “HPV vaccine uptake in the United States remains lower than the Healthy People 2020 goal of 80% coverage” (CDC, 2015, para. 5). Despite research on the HPV vaccine by the CDC and the Advisory Committee on Immunization Practices (ACIP) among other medical organizations immunizations, rates for the HPV vaccine lag significantly.
 It is recommended the vaccine is given well before the onset of any sexual activity, or around 11-12 years, but the catch-up period for those who did not get it then, is considered 13-26 years old (CDC, 2015). In addition, the HPV vaccine uptake is much lower among 13-17 year old boys than 13-17 year old girls, even though it can be used to prevent genital and oral cancers in females as well as males. If those at college age who have yet to be exposed to some of the dangerous strains of HPV can be vaccinated before they are exposed, the potential risks of genital and oral cancers may be prevented. According to Cohen (2013), white, non-hispanic, college women were more likely to have the HPV vaccine.

Missouri’s HPV vaccination rates are among the lowest of all the states for girls and boys aged 13-17 years old. Furthermore, 49% or less of females in Missouri have received at least one dose of the HPV vaccine, while 29% or less of males have received one dose of the HPV vaccine (CDC, 2015). Females and males aged 13-17 in Missouri are below the national average of having at least one dose of HPV vaccine. For females the rate is at 60% while for males it is at 42% of males (CDC, 2015). These percentages being lower than the national average indicate that there is a large quantity of young adults who do not get vaccinated against HPV during the recommended ages. A possible explanation to the low coverage of the vaccine is that it is not currently a required immunization in Missouri schools, which could contribute to these low numbers (MDHSS, 2014). There is limited data regarding the HPV vaccination rates of college aged Missourians, however, according to the National College Health Assessment 45% of college aged women in the Midwest received the HPV vaccine (Cohen, 2013), which is significantly less than the target goal of 80%.

Currently, HPV “affects about 79 million Americans,” and there are “more than 11,000 women in the United States that get cervical cancer each year” (CDC, 2015). The university where the research was conducted is predominantly female, with a population of about 60.2% females enrolled (Truman State University, 2016). Considering most students are female, and women are disproportionately affected by HPV, increased campus awareness of the risks surrounding HPV and understanding potential barriers to vaccination to better promote the vaccine are crucial.

**METHODOLOGY**

*Study Sample*

 The study was conducted at a small public liberal arts in the Midwest. The demographics of the campus include 40% males and 60% females. The demographics of our study sample was 83.9% female and 16% male. A sample size of 31 students from various courses across campus with an average age of 19.7 years old participated in the study. The age of the participants range from 18 to 23 years old. The participants included 5 males and 26 females, and ranged from freshman to graduate students.

 *Data Collection Methods*

 Before data collection commenced, the study received IRB approval in April of 2016. Thirty-one participants were recruited to attend focus groups in the classrooms via convenience sampling. Professors of the various courses were emailed in advance permission to attend their classes was obtained. During the classroom visit, students were informed about the purpose of the study and distributed information slips with focus groups dates and times, as well as the researcher’s email. Interested students were asked to email the researcher specifying the focus group session they wanted to attend.

Students who identified interest in participating in the study were sent an email reminder of the session’s time and location the day it was scheduled to occur. Five focus groups were held at various classrooms on campus, and lasted an hour per session. During the sessions, participants received informed consent forms, and were asked to fill out short demographic questionnaires addressing age, gender, and year in school. These demographic questions were developed specifically to better understand the demographics of the responses that were acquired from focus groups. Additionally, the demographic questionnaire ensured the participants were in the 18-26 age range for consent, as well as under the age range of eligibility to receive the HPV vaccine. Following the debriefing and signing of the consent form and the completion of the demographic questionnaires, audio recording and the focus group session begun. The researchers developed a series of potential focus group questions, which were aimed to answer the research questions generated.

Each session was audio recorded with participant’s permission in order to facilitate the transcription process. Transcription work was divided between the two researchers, and the research advisor revised all transcripts. The transcription process involved thick descriptions, meaning all of the audio recordings were transferred verbatim to preserve raw data.

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| **Research Questions** | Potential Focus Group Questions |
| **What are students’ perceptions regarding the HPV vaccine?** | Can you describe a specific time you had exposure to HPV, or the HPV vaccine? Tell us what you have heard about HPV and/or the vaccine.  |
| **Why or why not have students gotten the full number of doses of the HPV vaccine?** | What barriers do you think some college students face to getting the vaccine?Who do you think the vaccine is marketed to? |
| **What is the overall acceptance of HPV vaccines of students?** | Tell us about an experience you or a friend has had with HPV, or the HPV vaccine. |
| **What factors determine whether or not a student has received the HPV vaccine?** | How/where/when did you learn about HPV and/or the HPV vaccine?What are some reasons people choose to get the vaccine? |

*Analysis Techniques*

Audio recordings were transcribed verbatim, and any participant identifiers were removed. Initial analysis of data including the journaling experiences after each focus group session. Secondary analysis was grounded in theory, and focused on content driven coding and categorization for each focus group, which ultimately, led to theme generation. To begin, this process involved data reduction through coding of each focus group to eliminate repetitive or irrelevant data. Secondly, the process of categorization removed repeated codes, and combined similar codes across all focus groups. This arrived at the study’s theme development, which are thematic representations of findings, using four themes, that are supported by evidence from the data set.

The Health Belief Model (HBM) was the theory utilized to guide this study. Health motivation is at the center of the HBM, it theorizes that people’s readiness to act on a behavior change is influenced by whether or not they feel they are susceptible to the disease (Rimer & Glanz, 2005). The Health Belief Model is intrinsic to the study. By discussing students’ perceived benefits and barriers to receiving the vaccine, and perceived seriousness and susceptibility of the disease, the findings will be tailored to highlight specific barriers and lack of knowledge surrounding vaccination which in turn could be used to better communicate why one should get the HPV vaccine in an intervention setting.

*Credibility, Consistency, and Transferability*

To establish credibility, we ensured the study was grounded in theory (HBM) to confirm our findings. Consistency was addressed by tailoring our focus group questions at each session, while ensuring they answered our research questions. Transferability was apparent through our data analysis methods, as we provided thick description, with verbatim reporting which translated to precise documentation of what participants were voicing during the focus groups sessions.

**RESULTS**

Four themes were developed to encompass the data set as follows: Women’s Issue, Stigma, Influences, and Communication.

**Women’s Issue:** HPV and the HPV vaccine were found to be a woman’s concern and responsibility. From a female participant, *“I think of it as a women’s issue because the first thing that comes to my mind is cervical cancer.”* It is perceived women’s responsibility to engage and initiate conversations regarding HPV and the HPV vaccine. As reported by participants, there are assumptions that HPV and the HPV vaccine is a concern that women should have to take care of on their own, and thus, it should be a conversation that occurs between a mother and a daughter. This belief is echoed though the voice of a male participant, *“It seems like this is more of a girl… or I don’t know, a woman thing to talk to their mothers about”.*

Overall, there seems to be a general misconception that males are not affected by HPV. Many participants were not aware that the HPV vaccine was inclusive to males, “*really everyone that I’ve heard who’s gotten it [the vaccine] has been like a girl”, female participant.* These perceptions may derive from a greater social normative behavior in which *“There’s a general disposition in this culture to put issues of responsibility and sex on women”, female participant.*

**Stigma:** There are various stigmas associated with HPV, and getting the HPV vaccine. A predominant one was the stigma surrounding sexually transmitted diseases, like HPV. The association of HPV to sexual activity caused participants to voice this as a deterrent to getting the vaccine. The barriers were identified as fear of assumptions made about non-monogamy, and the idea of vaccination against HPV being regarded as a “non-masculine” behavior. A quote by a male participant voices concern in that “there is a certain stigma about getting the HPV vaccine because usually you are supposed to get it when you are going to be sexually active.”

Additionally, the stigma surrounding being sexually active seemed to deter participants from engaging in preventive methods: *“it's kind of similar to birth control…if you're on birth control… it could be for a whole bunch of different things but they automatically assume that it's because you're sexually active.”, female participant.* Some participants expressed stigma as a deterrent in the sense that people could assume the participant is exploring sexual activity or seeing multiple sexual partners. For example, from a female participant, *“I think in my mom’s mind, it [the vaccine] would just give me like one more reason to want to explore sexual activity”.* From another female’s perspective, *“I think some people sometimes associate it [the vaccine] with having sex with multiple partners”.* Another stigma association identified gender expectations as a deterrent to getting the HPV vaccine, as getting vaccinated against the disease is regarded as a behavior that is “non-masculine”. From a male’s perspective, *“It is not as masculine for some guys to think “oh I got to get a vaccine for HPV”.*
**Influences:** Parents, peers, and physicians were identified as influencers in getting the HPV vaccine. Participants expressed that parents can be both a negative and positive influence for getting the HPV vaccine. Especially because the vaccine is recommended for preteens and expected to be received before sexual activity, many times the decision to receive or not receive the vaccine may be left to the parents’ decision altogether.

Some participants suggested their physicians played a large role in their or their parents’ decision to get the vaccine, seeing as physicians are regarded as trusted in the field. Parents and physicians seem to play a more authoritative role when influencing decision-making. A female focus group participant said, *“my mom didn’t really talk to me about it she was just like ‘you are getting this shot’... I didn’t think much about it because I was like ‘ok my mom said so.’”* In regards to physicians, from a female participant on her experience of getting the vaccine, *“we just went to the doctor and I got the shot and the doctor didn’t even talk to me about what it was”.* Meanwhile, peers seem to provide a positive support system as it was identified by multiple participants that “it’d be easy” to start these potentially difficult conversations. From a male participant on peers, *“I’d probably prefer to be able to talk to some of my peers [about HPV]”.*

**Communication:** Communication concerning the HPV vaccine was found to encompass marketing of the vaccine, a lack of conversation about HPV and the vaccine, and a taboo societal view of the meaning of sex, in regards to the serious aspects of sex (like STIs). To echo a female participant’s perspective, *“we don’t really talk about serious parts of it [sex]”.*

 Initial marketing of the HPV vaccine was targeted at women to prevent cervical cancer, this focus gave many participants the impression of HPV being only a women’s issue. To reiterate this idea a female participant expressed, *“I feel like it was mostly targeted towards women”.* Additionally, from another female participant, *“Most of my guy friends didn’t know that they were supposed to get it [HPV vaccine]”.*

The lack of conversation regarding HPV may be caused by the stigma and aversion to talking about one’s sex life, vaccines, and health status in general. Talking about sex is taboo, and often time an uncomfortable topic, therefore communication about serious aspects of sex is scarce in society which causes a general lack of conversation regarding the important topic. A female participants spoke regarding communication and said, *“for me it’s just been the thing that nobody wants to talk about - the vaccines you’ve gotten...It’s just been one of those topics that people kind of tend to stay away from.”* All of these factors contribute to low HPV vaccination coverage rates, ultimately highlighting that *“Even though it’s [HPV] so prevalent, it’s still taboo”, female participant.*

**CONCLUSIONS**

* HPV and HPV vaccine knowledge is low at Truman State University
* HPV and the HPV vaccine are heavily perceived as a woman’s issue and responsibility
* HPV vaccine marketing techniques lack inclusivity of males
* There is a lack of conversation and level of comfort when discussing the topic of HPV and the HPV vaccine
* Sex and the serious aspects, such as HPV and the vaccine, are perceived as taboo topics among college aged individuals
* HPV vaccine educational programming at Truman State University is needed in order to increase student’s awareness and knowledge regarding the vaccine
* Due to HPV being an STI, the act of receiving the HPV vaccine seems to be stigmatized among college aged individuals
* Physicians, parents, and peers play significant roles in a patient’s decision making process of whether or not to obtain the HPV vaccine

*Limitations*

 The study observed limitations that could have influenced results. Waiting for IRB approval and waiting for additional IRB approval to expand the study beyond the original scope (only health and exercise science students) reduced time for the study to take place and therefore the number of focus groups and participants involved. Transcribing focus groups took longer than anticipated, slowed down the research study process, and decrease the amount of time available for more focus groups and more participants. The ratio of male (16.1%) to female participants (83.9%) could have provided limited feedback from a male’s perspective about the vaccine. There were disproportionately more lower classmen than upperclassmen in the study as well; giving rise to different possible perspectives not as strongly represented in the study as people a few years younger. The topic explored in this study is a sensitive one; people may not feel comfortable talking in a social setting about the vaccines they have received, sexually transmitted infections such as HPV, or sex-related topics in general. The HPV vaccine being so intimately tied to the sensitive topic of sex had not been anticipated but could not have necessarily been avoided.

*Recommendations*

 Future research, should aim to obtain a more balanced perspective from both males and females. It is recommended that future research delve into the *Women’s Issue* theme from a male participant perspective only. In this way, potential gender constructs that could be influencing the decision-making process that goes into whether one gets the HPV vaccine or not could be addressed. Similarly, it would be beneficial to analyze the Influences theme effect on decision making in order to highlight potential external barriers affecting coverage against the disease. From a health communication theme, it would be interesting to explore the evolution of marketing of the HPV vaccine through time and analyze trends in coverage among the population to identify successful campaigns.

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