

A Multivariant Analysis of Parental and Adolescent Perceptions of HPV and the HPV Vaccine as a Determinant of Vaccine Acceptance

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Introduction/Review of Literature:

Human Papillomavirus (HPV) is the most common sexually transmitted disease in the world, infecting the skin and mucous membranes (CDCP 2014). There are over one hundred types of HPV, and it is transmitted through intimate skin to skin contact. Once the virus has been acquired, it will stay active for a person's whole lifetime (CDCP 2014). Currently, about 79 million people in the US are infected with some form of HPV and about 14 million new people are diagnosed each year. (Veins et al., 2016) HPV is the leading cause of cervical cancer, oropharyngeal cancer and anal cancer. Some people may experience no symptoms in the early stages of cervical cancer; therefore, they will be regularly tested if they have HPV. Treatments for cervical cancer include surgery, chemotherapy and radiation (M.C. Ocfemia, ET AL. 2013). Oropharyngeal cancer is cancer of the mouth and throat, being more common in those who are older. Symptoms can include sore throat, ear pains, swollen lymph nodes, pain when swallowing, weight loss and in some cases no symptoms. (CDC 2018).

Although the HPV vaccine is perceived in diverse ways, it has been proven to be effective and safe. Side effects are minor and only last for short periods of time, which includes nausea, muscle/joint pain, and fatigue or redness/swelling around the area where shot has been given (CDC 2015). These side effects are also common for any type of vaccine that one receives in general. The vaccine helps to reduce the risk of HPV associated cancers and diseases. HPV vaccination has prevented more than 90% of associated cancers from developing (CDC 2017). Studies conducted have shown that the vaccination is almost 100% effective in protecting against abnormalities in cervix cells (Cancer Council). Among young women, infections that cause most HPV-related cancers and genital warts have dropped 71% (CDC 2019). Past mistakes over-identification of HPV as a female-specific disease, has resulted in the feminization of HPV and HPV vaccines, resulting primarily in reduced protection from HPV related illnesses for males. This eventually led to delays in HPV recommendations for males, which researchers found was linked to limited data regarding HPV's role in anal cancer and genital warts (CDC 2010).

Male vaccine rates are lower than that of women. This indicates that providers should consider gender bias regarding HPV vaccination. The low HPV vaccine uptake observed is concerning because more than half of all HPV-associated cancers occur in men (Viens et al., 2016).

The vaccination is recommended for girls and boys aged 11-12, however, all people age 9-45 are eligible for the vaccination (National Institute of Health 2015). The second dose of the HPV vaccine should be given six to twelve months after the first (CDCP 2014). Boys and girls who are fifteen or older and people with immunocompromising conditions must receive three doses of the HPV vaccination. When following a three dose series for the vaccination, the second dose should be given one to two months after the first and the third dose should be given six months after the first (APS 2018). The “catch up” ages for the HPV vaccine are considered to be from the ages of 13-16 years old (L.E Marlowitz et al.). Research indicates that in most cases women/female parents are the key decision makers in whether or not their child is given the HPV vaccine (McRee et al., 2010).

Vaccination rates for HPV are still below the rates of other adolescent recommended vaccinations and below the Healthy People 2020 vaccination goal of 80% (CDC 2015). HPV vaccine coverage is especially low in the young adult population, which is shown in college students. Although awareness of the HPV vaccine is high in this population, accurate knowledge about HPV was low. In a survey conducted of a college population; 85% of participants were aware of HPV and 78% were aware that an HPV vaccine was available to them, but neither type of awareness measure was associated with behavioral intentions to get the vaccine (Christy et al. 2019). Educating young adults on why to get the vaccine is quite difficult; adolescents are less likely to initiate the HPV vaccine as age increases, with only 7% initiation after age 15 (Bednarczyk et al., 2019). Currently, 23 million young adults ages 19–26 are not HPV vaccinated. Therefore, the CDC has been prioritizing catchup vaccinations and has expanded recommendations for all young adults to age 26. Data from the surveys also showed that college students do have increased risk perceptions about HPV that affect their intentions to be vaccinated or not (Turner and Keller 2015). In order to possibly raise vaccine rates in the young adult population, colleges should work to better inform their students with health services and create a positive outlook regarding the vaccine.

At least 1 out of every 5 parents had a very negative perception of the vaccine; meaning that they: disagreed that the HPV vaccine is beneficial for their adolescent, that the vaccine is effective, protects against HPV-related cancers, or that they followed their adolescent's health-care provider's recommendation about the vaccine (ACCORDS 2020). Adolescents living with vaccine hesitant parents proved to be less than one third as likely to have received the vaccine and six times more likely to refuse the vaccine due to parental related concerns. HPV vaccine hesitancy is very prevalent nationally around the world and strongly correlates to both under vaccination and vaccine refusal.

Common misperceptions about HPV and about the vaccine prevent parents from agreeing to vaccinate their adolescents. For example, some believe that HPV vaccines have dangerous side effects, transmitting the virus and causing cervical cancer (Dana-Farber Cancer Institute 2015). These beliefs are false, as the vaccination has been tested and proven to help prevent cervical abnormalities that can develop into cancer. Another common misperception includes that HPV is rare for one to acquire, therefore, parents feel that they do not need to worry about vaccinating their children. However, HPV is the most common STI and can be passed unknowingly (Henry Ford Live Well 2017). HPV vaccination also does not promote infertility. Research has proven this misperception to be wrong. In fact, the vaccination protects women from future fertility issues that are linked to cervical cancer and is a safe way to help have a healthy baby (American Cancer Society 2018). Other common misperceptions of the vaccine are that there are treatments for HPV and that receiving the vaccine increases chances of teens becoming sexually active. However, no research links the correlation between receiving HPV vaccination and an increase in sexual activity in teens, and there is no cure or treatment for HPV (The University of Texas MD Anderson Center 2015). Parental concerns/misperceptions lead to HPV vaccine hesitancy. Based off the information being assessed, the gap in my research is how parental and adolescent education correlates to adolescents receiving the vaccine.

Methods:

A diverse sample of parents along with their adolescents is required for this experiment. These participants were given the survey through email and there were also paper copies

available. I plan on recruiting parents and students from Briarcliff High school, Sleepy Hollow High School and others as I can. Parents may be any age; however, they must have an adolescent in the age group of 9-17. This is because at the age of 9, a child is eligible to receive the HPV vaccination. The maximum age is 17 in this study because at 18 the adolescent is considered an adult. Although, in NYS younger adolescents can get the vaccine without consent. I have put together a survey, with the help of my mentor containing questions about age, race/ethnicity, and questions assessing knowledge on the HPV vaccine and whether a child has received a vaccine recommendation, etc.

The participants will be required to fill out and submit the survey once done. The study will be conducted through a survey that can be filled out by hand or through a secure link in an email. We will get the adult emails through the schools. Both the parent and adolescent surveys will be given in English. For the consenting process, participants will be given an information sheet that describes the study. Consent forms will be emailed to the adolescents, which must be filled out by a parent and returned in order for them to participate as well. It can be done electronically or manually. I will know who consented once they email/hand back the signed papers (their survey will still remain anonymous). Once the parent signs the form, I will then email the adolescent the link to the survey through their email. There will be lines that are labelled for parent name and signature, and a line for adolescent name so who the form pertains to is identifiable, since the last name may be different. For the surveys being filled out by hand, there will be a packet containing the survey, a letter about the study, an information sheet and a consent form. A waiver of consent will be requested, as this study being an anonymous study is exempt. For all schools that I plan on including in the study, the same recruitment process will be used.

Frequency analyses will be used to describe demographic and knowledge, attitudes, beliefs and behaviors. We will then use chi square tests and regression analyses, as applicable, to assess the relationship between demographic variables and HPV disease and vaccination knowledge, attitudes, beliefs and previous HPV vaccination.

Results

The majority of the 38 participants in this study identified as white (87%); Black/African American (4%) and Asian (9%) were the second most common race, but still made up only a small percentage of about 13%. Most parents (65%) who took the survey had male adolescents in between the ages of 14 to 17. Approximately three quarters of adolescents (72%) were reported to have received the HPV vaccination by 13 years of age. Of those adolescents who have not received the vaccination, it was split evenly regarding whether or not, parents plan for their adolescents to get vaccinated in the future.

Almost 90% of participants were under commercial insurance, while just over 10% had some type of public insurance. Most (86%) parents were aware of the correlation between HPV and cervical cancer. Both parents (93%) and adolescents (80%) believed that HPV vaccination was safe and effective in protecting from associated cancers, only a small percentage (6-8%) of participants had a negative view towards the HPV vaccine. About 20% of adults were not confident in HPV's protection against infections. Adolescents and parents seemed to be moderately informed about HPV, the vaccine and disease prevention; about 90% of adult participants were college graduates.

Out of the 5 adolescents that took the survey, only one of them has not received the HPV vaccine and does not intend to in the future due to his/her belief that he/she is not at risk from HPV, there are negative side effects of the vaccine, the vaccine isn't effective, and it is high cost. Diversity among the students was low, as all of them identified as white.

The strongest self-reported reason correlating to whether a child has been or will be HPV vaccinated seemed to correlate to whether the parent approved of receiving the vaccination or not, with a recommendation from a healthcare provider/pediatrician coming in second. Adolescents who have not been vaccinated, either believe that it has negative side effects or does not truly work.

Discussion

Limitations in this study included the fact that there was a limited pool of participants. The Briarcliff High School population has a total of 560 students and around 400 families, which limits the pool for parents. It would have been ideal to receive over 300 responses, with at least

150 males and 150 females. There was not a variety of people from different backgrounds in the school where I collected data from. Because data collected was self-reported, there was potential for social desirability bias as participants may have provided answers, they perceived as favorable to the researchers. Due to controversy around the need for the HPV vaccination in particular, there may have been low trust levels among parents regarding the reliability of a teenager to conduct a study on HPV. These surveys were sent out through email, which may have ultimately come across as spam in parents' inboxes. Therefore, the emails may have been lost quickly or simply ignored. Another factor that should be considered is skepticism around vaccinations and medicine among people of color. Research indicates that the Black and Hispanic community are less inclined to take vaccines than any other racial groups due to racism rooted in the healthcare system.

Future research should examine the information parents need in order to make an informed decision about their child receiving the HPV vaccine, along with optimal sources to distribute this information in multiple communities of various ethnic and socioeconomic realities.

Conclusion

Based on one's ethnicity and level of education, HPV has been perceived in different ways, some of which encourage its uptake while others could potentially deter its acceptability. The willingness to be vaccinated is affected by one's background in science, which is why school-based health education is so important for young people and explains why most parents who attended university had a positive view on HPV and the vaccine, while those who did not attend held skeptical views. Adolescents' race/ethnicity and health care plan remain important factors affecting vaccination uptake. This is because cultural norms and their upbringing affect one's perceptions on healthcare and therefore their views around vaccinations. Parental perception regarding benefits of vaccine and their sources of information were the strongest direct positive predictors of parental intention to vaccinate their children with the HPV vaccine. Upon receiving a recommendation from a trusted healthcare provider, patients are more likely to have confidence in any sort of vaccine provided or medication prescribed for that matter.

Perceived benefits, such as learning the HPV vaccine is tested and proven to be safe enhanced parents' acceptability of it.

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