

Spring 6-12-2017

Impact of HPV Education on Knowledge, Perception, and Cultural influence among African American Parents

Christina Lattner
DePaul University, christina.lattner@gmail.com

Follow this and additional works at: https://via.library.depaul.edu/csh_etd

 Part of the [Nursing Commons](#)

Recommended Citation

Lattner, Christina, "Impact of HPV Education on Knowledge, Perception, and Cultural influence among African American Parents" (2017). *College of Science and Health Theses and Dissertations*. 211.
https://via.library.depaul.edu/csh_etd/211

This Dissertation is brought to you for free and open access by the College of Science and Health at Via Sapientiae. It has been accepted for inclusion in College of Science and Health Theses and Dissertations by an authorized administrator of Via Sapientiae. For more information, please contact digitalservices@depaul.edu.

Impact of HPV Education on Knowledge, Perception, and Cultural influence among African
American Parents

A Graduate Research Project

Presented in

Partial Fulfilment of the
Requirements for the Degree of
Doctor of Nursing Practice

June 2017

BY

Christina Lattner

School of Nursing

College of Science and Health

DePaul University

Chicago, Illinois

Table of Contents

Abstract.....	4
Introduction.....	5
Conceptual Framework	10
Review of Literature.....	12
Methodology.....	18
Results.....	26
Discussion.....	34
References.....	39
Tables	
Table 1. Evidence-based Table	47
Table 2. Study Participants Demographics.....	26
Table 3. Cultural Influence on Healthcare	27
Table 4. Provider Influence on HPV Vaccination	29
Table 5. HPV Knowledge Items: Correct responses	30
Table 6. Description of HPV Perception Pre-and Post.....	31
Table 7. Impact of HPV Education Program on Knowledge and Perception	33
Table 8. Self-reported Decision to Vaccinate Child	34
Table 9. HPV Education Program Satisfaction	35
Appendices	
Appendix A: Application of Health Belief Model	51
Appendix B: Sample Pre-Test.....	52
Appendix C: Sample Post-Test.....	56

Appendix D: Sample HPV Education Program Evaluation.....59

Appendix E: Sample HPV Education Program.....60

Appendix F: HPV Vaccine Safety Sheet.....62

Appendix G: Recruitment Handout.....63

Appendix H: Information Sheet.....64

Appendix I: DNP Project Committee.....66

Abstract

Background: Infection with human papillomavirus (HPV), the sexually transmitted virus that causes cervical and penial cancer can be prevented. An effective vaccine has been approved for both boys and girls since 2006. Despite recommendation from the Center of Disease Control, vaccination initiation and completion rates among African American adolescents in the United States are lower than average in the nation.

Objectives: The purpose of this descriptive survey study was to identify African-American parents' knowledge and perceptions of sexually transmitted HPV infection and the HPV vaccination. The secondary objective was to use a single-group pre-test post-test research design to examine the effectiveness of an HPV education program developed for African-American parents on HPV knowledge, perceptions, cultural influence and comfort level in discussing HPV with health care providers.

Methods: A descriptive, single-group pre-test post-test and HPV educational program research design was used. Pre-testing, post-testing and HPV educational program were administered face to face with a convenience sample of African American parents to assess their knowledge, perception and cultural influences toward HPV, the HPV vaccine and provider comfort. Paired t test and descriptive statistics were used to analyze data.

Results: A total of 102 African American parents participated in this study. This study found a statistically significant relationship between African American parents, cultural influence and lack of knowledge as a barrier to healthcare and the HPV vaccine using paired t-test analysis ($p = 0.001$). The cultural influence questionnaire had a mean of 14.76 (SD=1.68) indicating a strong correlation between the influence culture has with African Americans in making healthcare decisions for themselves and their children. The pre-and post-knowledge questionnaire had a mean of 4.29 (SD=2.59), the pre-and post-perception questionnaire had a mean of 2.63 (SD=1.81), indicating a positive trend in improved knowledge and perception towards the HPV vaccine after implementation of the developed HPV education program. The HPV education program had a mean of 4.78 (SD=.413) to the question that the HPV program gave motivation to parents to request the HPV vaccine for their child. These responses support a need for providers to consider the impact culture has on African American parents and the need to implement educational strategies to increase African American Parents regarding knowledge of HPV and the HPV vaccine in order to increase vaccination rates in this community.

Relevance to Clinical Practice:

Improving the knowledge of HPV infections in African American Parents can lead to improved health outcomes. Identifying educational and cultural barriers are key to improving educational interventions needed by healthcare providers in order to reach the African American parent population. Addressing noted barriers may improve the decision of African American parents to permit their children to receive and complete the much-needed HPV vaccination series.

Introduction

Background and Significance

Human papillomavirus (HPV) is the most prevalent of all sexually transmitted infections, with reports indicating nearly 80 million people are currently infected in the U.S. (Centers for Disease Control and Prevention [CDC], 2016). The virus goes undetected in a majority of cases because most people are asymptomatic. However, HPV is the most common cause of many types of cancers, including cervical cancer (CDC, 2016). Outside of education on general risk and prevention of sexually transmitted infections such as HPV, vaccination is available for protection. (CDC, 2011a). Current initiatives for Healthy People 2020 as directed by the U.S. Department of Health and Human Service include multiple objectives to increase the number of vaccinations in adolescent girls and boys.

HPV related cancers and sexual transmitted infections are considered vaccine preventable illnesses. The CDC's Advisory Committee on Immunization Practices (ACIP) currently recommends that all males and females become vaccinated with the three-dose HPV vaccine (CDC, 2011a), starting at ages 10-12. The two vaccines currently available to prevent HPV infection are Gardasil and Cervarix. Gardasil's labeled use is to protect against cancer of the cervix, vagina, and vulva in girls, and protection against warts in the anal and genital region of males ages 9-26. Cervarix is FDA approved and labeled for protection of females only against cancer of the cervix ages 10-25. (Armstrong, 2010).

Current research has determined that the use of these vaccines as part of regular vaccination, is safe and effective against cervical, anal, and oral HPV infections. Both vaccines are 100% effective in the prevention of high grade cervical intraepithelial neoplasia's and adenocarcinomas (CDC, 2013), however, vaccination rates for these viral infections in the

United States continues to remain low; especially in the African American community.

According to Pierre et al., (2014), current vaccination rates for African American adolescent girls and boys is 42% versus the national averages of the 63% Hispanic and 65% Caucasian adolescents that are vaccinated.

Persistent infection with certain strains of the human papillomavirus (HPV) is the major cause of most cases of cervical cancer. The disturbing amount of reported infections and continued low HPV vaccination rates in African American communities have prompted immediate concern within the medical community (CDC, 2016). In the U.S, cervical cancer is the 14th most common cause of cancer death among women, causing an estimated 4,000 deaths per year. (CDC, 2015). Prevention efforts centered on vaccination, early detection and treatment of precancerous lesions have the potential to drastically improve cervical cancer death rates and diagnosis' (Greathouse, 2012). CDC is partnering with cancer organizations and other stakeholders to educate and motivate parents and clinicians to vaccinate young adolescents. These collaborative efforts are critical to achieving high HPV vaccine coverage and protecting our nation's adolescents against vaccine-preventable diseases, including the cancers caused by HPV infection. (CDC, 2013).

Research completed by The National Cancer Institute (NCI), notes the correlation between HPV infections and cervical cancer as '*cancer health disparities.*' Cancer health disparities are defined as adverse differences in cancer incidence (new cases), cancer prevalence (all existing cases), cancer death (mortality), cancer survivorship, and burden of cancer or related health conditions that exist among specific population groups in the United States (NCI, 2016). The population group most affected by cervical cancer health disparities and low vaccination rates is African American women and adolescents.

African American women suffer more than twice the number of cervical cancer deaths per 100,000 population compared with Caucasian women. (Freeman & Wingrove, 2005). As with other cancers, the risk of dying from cervical cancer increases with later stages at diagnosis. Later stage of diagnosis is common among African Americans due to lack of preventive care including pap testing. Pap testing, as noted by Freeman & Wingrove (2005), state the exam is inexpensive, easily administered, effective and has proven treatment for precancerous cervical lesions. However, the advisable recommendation is not followed in African American communities due to shared characteristics of poverty, lack of insurance, distance from health care centers, fatalism concerning cancer, and a culturally driven distrust of government, healthcare systems and mainstream medicine. (Freeman & Wingrove, 2005).

Interpersonal trust between a physician and patient has been shown to be an important determinant of care. While most research on interpersonal trust has focused on Caucasian patients, views of the trustworthiness of health care are likely to differ for African Americans given the historical legacy of mistreatment at the hands of the medical profession, witness of the Tuskegee syphilis experiment, and current health disparities. (Jacobs, Rolle, Ferrans, Whitaker, & Warnecke, 2006). In a participate study done by Jacobs et al., (2006), African American respondents indicated that distrust in physicians often led them to forgo care by refusing surgery or other treatment, withdrawing from care all together, or not seeking it in the first place.

The Cervical Cancer Mortality Project (CCMP) researched by Freeman & Wingrove (2005) emphasized strongly the need for women at risk for cervical cancer to have a “medical home” which is a usual source of medical care where the patient can receive screening, counseling, experience continuity of care, and develop trusting relationships with the medical staff. According to research done by Freeman & Wingrove (2005), over 48% of African

Americans do not have a “medical home” related to cultural distrust of health care providers. Lack of trust in African American parents has helped facilitate the disparity in vaccination against HPV for African American adolescents.

Literature review has identified several barriers that affect parental decision of intention to administer HPV vaccination for their children. Barriers to the HPV vaccination by African American parents is based on the young age in which vaccination should begin, distrust in the safety of the vaccine and general lack of knowledge and perception regarding HPV infections. According to Sanders-Thompson, Arnold and Notaro (2011), studies have noted disparities in HPV awareness with lower intent to vaccinate among African Americans compared to Caucasian participants. Differences in the source of information given on HPV vaccination and concerns about vaccine side effects, including those on sexual health leave a distrust in this target population causing a decrease in vaccination completion rates. Educational interventions which are culturally appropriate should be duty and responsibility of providers when treating this high-risk group.

Problem Statement

Despite research on cervical cancer and CDC recommendations, HPV vaccination remains voluntary. It is important that African American parents are educated about HPV and the HPV vaccine so that an informed decision can be made as to whether or not to vaccinate against this virus. African-American women are often diagnosed with cervical cancer at a later stage than Caucasian women; which makes the cancer more difficult to treat along with the higher rates of dying from cervical cancer. (CDC, 2015; Markowitz et al. 2013;). Every year in the United States, an estimated 17,600 African-American women and 9,300 African-American men are diagnosed with a cancer caused by HPV. Vaccination is a significant step towards decreasing

the prevalence of disease, and therefore morbidity and mortality associated with that disease. (Sanders-Thompson, Arnold & Notaro, 2011).

Currently, no cure exists for HPV, making efforts towards prevention for both adolescent sexes essential (Janousek, 2010; Jones & Cook, 2008). Consistent with prior research, vaccination status is commonly associated with healthcare provider recommendation regardless of ethnic background. (Sanders-Thompson, Arnold & Notaro, 2011). To eliminate HPV-related cancers through vaccination, it is essential to recognize the factors involved in the knowledge, perception and cultural barriers related to HPV in African American parents. This recognition can increase African American parents' decision to permit their children to receive the HPV vaccine.

Purpose of Study

The purpose of a single-group pre-test post-test design was to examine the effectiveness of an HPV education program developed for African-American parents on knowledge, perception, and cultural influences and acceptability of HPV education program for this target population. This educational program examined HPV knowledge, perceptions, cultural influence and comfort in African American parents discussing HPV with health care providers. The information gathered plays a valuable role in improving educational interventions by healthcare providers to reach African American parents and improve parents' decision to permit their children to receive and complete the HPV vaccination series.

Research Questions

This study addressed the following research questions.

- How do cultural influences affect the decision of African-American parents to vaccinate their children and what is the level of comfort in discussing HPV and the HPV vaccine with providers.
- What is the difference in HPV knowledge and perception before and after implementation of the HPV education program in African-American parents?
- What is the parents' self-reported informed decision regarding the HPV vaccine for their children after HPV education program?
- What is the level of acceptability and satisfaction with the tailored HPV education for African-American parents?

Conceptual Framework

The conceptual framework chosen for this project is that of the health belief model (HBM), created by social psychologists Godfrey Hochbaum, Irwin Rosenstock, and Stephen Kegels while working in the U.S. Public Health Services in the 1950's. The Health Belief Model is an evidence based framework for motivating people to take positive health actions that uses the desire to avoid a negative health consequence as the key element and prime motivator for understanding health behavior. (Champion & Skinner, 2008).

The health belief model (HBM) is the primary model used in researched vaccination behavior literature. According to Schaefer (2010), particular constructs of the model including perceived susceptibility, perceived severity, perceived effectiveness of vaccines, barriers, and cues to action have been found to significantly predict influenza vaccination behavior. Therefore, literature suggests that the HBM is an appropriate model for HPV vaccine acceptability.

In this study, the four constructs of the HBM (Appendix A); perceived susceptibility, perceived severity, perceived benefits and perceived barriers guided the entire project in design, implementation and evaluation of the knowledge and perceptions of African American parents in regards to vaccinating for HPV.

The health belief model, as originally constructed is composed of six constructs that influence people's decisions about whether to take action in prevention, screening and control of the illness. (NCI, 2005, p. 13). African Americans share a unique group of cultural values and behaviors that trigger skepticism toward research participation and medical intervention, particularly among older African Americans. Historically there lies an overall distrust in the health care system, which can be attributed to awareness of past research abuses such as the US Public Health Service Tuskegee Syphilis Study or personal experiences within the health care system. (Durant, Legedza, Marcantonio, Freeman, & Landon, 2011). The HBM was applied as an evidence-based intervention framework to increase knowledge in African American parents regarding the severity of HPV infection and the perceived benefit of the HPV vaccine in efforts to increase HPV vaccination completion rates in African American adolescents.

Social psychologists behind the HBM state, "people will be ready to act on a health decision if all six of the constructs are present." (NCI, 2005). The most recent study to date by Schaefer (2010) thoroughly investigates HPV vaccine acceptability among college-aged women utilizing the HBM. Specifically, Schaefer (2010) focused on vaccinated versus non-vaccinated women's attitudes concerning HPV and the HPV vaccine. Schaefer (2010) includes all six constructs of the HBM to classify attitudes for the study: perceived susceptibility of HPV, perceived severity of HPV, perceived barriers to receiving the vaccine, perceived benefits of the vaccine, self-efficacy to actively get the vaccine, and cues to action to receive the vaccine.

In this study, perceived susceptibility focused on the belief that HPV can cause cervical cancer. Perceived severity focused on the consequences of HPV infection, perceived benefit focused on how attainment of the HPV vaccine to completion will decrease the possibility of the HPV infection and subsequently cervical cancer. Perceived barriers acknowledged the deficit in disease knowledge and perceptions regarding the HPV vaccination in the target population. The HPV education program served as a cue to action strategy to determine the modifying factors of HPV knowledge, cultural influence towards healthcare and comfort in discussing HPV with health care providers in hopes to activate the readiness of African American parents to undertake the goal and preventative health action of vaccination in their adolescent boys and girls. Applied in this systematic way, the HBM has the potential to provide a relatively comprehensive understanding influence of social, economic and environmental factors on health behaviors, knowledge and perception in this target population. (Taylor et. al, 2007)

Review of Literature

Review of Evidence

A detailed search of literature was performed to answer the question: What are barriers that effect initial HPV vaccination and vaccination completion in African American adolescents. Relevant studies related to the literature review have been summarized in Table 1. The search was performed in Current Index to Nursing Allied Health Literature (CINAHL) and PubMed of the National Library of Medicine. Search terms that were used included: “adolescents,” “young adults,” “HPV vaccine,” “HPV,” “barriers” and “African American girls.” Time frame was specified to 2008 and later as current data collection is needed to create a trend in vaccination since induction in 2006. Inclusion criteria included articles related to target populations of:

parents, underserved and disadvantaged populations, African American females and statistical data of current vaccinated individuals. Out of the 156 assessed articles, eleven were kept for inclusion in this review. The other articles were used to review the bibliographies of the already included studies. Exclusion criteria included articles that did not pertain to African Americans or African American Adolescents.

The literature review revealed a few overarching themes including prevalence of cervical cancer in African American, lack of knowledge regarding HPV risk, its association with cervical cancer, African American cultural issues and parental barriers.

Parental barriers are most cited as general lack of education regarding HPV, concern of safety of the vaccine, and knowledge deficit of the sexual activity of their children. Cultural issues according to Grace (2011), state African Americans have general distrust in healthcare partly in response to historical inequities of care and out right instances of mistreatment. This can be closely linked to the decrease numbers of HPV vaccines for African American adolescents. The review also revealed that health care providers are a crucial link in increasing awareness of HPV and promotion of vaccination.

HPV Infection and Its Association with Cervical Cancer

Human papillomavirus (HPV) is the most prevalent of all sexually transmitted infections (American Sexual Health Association, 2013), and the primary cause for high grade cervical intraepithelial neoplasia's and adenocarcinomas (CDC, 2013). Prevalence of cervical cancer in African American women remains higher than any other ethnicity group. African-American women are often diagnosed with cervical cancer at a later stage than White women; which makes the cancer more difficult to treat along with the higher rates of dying from cervical cancer (CDC, 2015; Markowitz et al., 2013). Every year in the United States, an estimated 17,600 Black

women and 9,300 Black men are diagnosed with a cancer caused by HPV. Many African American women have limited knowledge regarding the associated risk of cervical cancer.

HPV Vaccine Rate Statistical Report

Using data from the National Immunization Survey of Teens, researchers found that parental intentions to not vaccinate for HPV increased from 39.8 percent in 2008 to 43.9 percent in 2010. The most commonly cited reasons for not vaccinating were “not sexually active,” and “safety concerns/side effects.” (Darden et al., 2013). Vaccine safety concerns increased from 4.5 percent in 2008 to 16.4 percent in 2010. Niccolai, Mehta & Hadler (2011), concluded that during a two-year period, 55% of adolescent girls who initiated vaccination completed the three-dose series. Completion was significantly higher in 2009 (60%) compared to 2008 (48%; $p < 0.001$). However, numbers remained less than average for African American’s at 12%.

Barriers and Perception of HPV Vaccination

Lack of education. Parents are not aware of HPV risk and do not have enough information to make an educated decision about the HPV vaccine. Wilson, Brown, Boothe, & Harris (2013), conducted a study of forty-four women in 6 focus groups (2 African American, 2 English-speaking Caribbean, 1 Haitian, and 1 African). Thematic content analysis was used to generate common concepts and themes and to compare findings across groups. Researchers found that there was varied but limited knowledge and confusion across ethnic groups about the HPV infection and vaccine.

Sanders, Arnold & Notaro (2012), concluded in a separate study that given HPV vaccination is targeted at preadolescents or young adolescents, vaccine acceptability to parents is a central issue, and it is important to understand parental education level, safety concerns and information needs before allowing the vaccine to be refused. Using the principles defined by the

Cochrane Review of Decision Aids, Lechuga, Swain, & Weinhardt (2012) performed a qualitative study of 150 mothers from three ethnic groups: Hispanic, non-Hispanic White, and African American. The mothers answered questions regarding vaccination intention. Across the groups, 68% of Hispanic mothers, 77% of African American and 88% of non-Hispanic mothers indicated that they would likely vaccinate if decision aids (DA) were available. DA's are tools designed to help patients systematically consider the consequences (risks and benefits) of the possible outcomes of health-related decisions (O'Connor et al., 1999).

Vaccine Safety. Research has consistently indicated that a powerful predictor of vaccine acceptance is perceived vaccine safety (Lechuga, Swain, & Weinhardt, 2012). Limited information regarding side-effects leaves some mothers to believe pharmaceutical companies are hiding something (Sanders, Arnold & Notaro 2012). While the CDC (2015) states side effects from HPV vaccination include pain, redness, or swelling in the arm where the shot was given fever, headache or nausea, 37% of African American mothers expressed concerns related to menstrual cycle, fertility, weight gain or loss and the possibility of losing eye sight (Lechuga, Swain, & Weinhardt, 2012).

Lu, Kimar, Castellsague, and Giuliano (2011) conducted a systematic review and meta-analysis on the general safety and efficacy of HPV vaccines. The study concluded prophylactic HPV vaccines are safe, well tolerated, and highly efficacious in preventing persistent infections and cervical diseases associated with vaccine-HPV types among young females. In a qualitative research conducted by Waller, Marlow & Wardle (2006), twenty-four mothers of girls' ages 8 to 14 years took part in four focus groups. Discussions covered attitudes to vaccination in general, cancer vaccines, vaccines for sexually transmitted infections (STI), and the HPV vaccine. 79.2%

of mothers revealed they would initiate HPV vaccination if their health care provider would provide information and answer questions regarding risk and benefit.

Parents do not think children are sexually active. Factors associated with provider's not strongly recommending HPV vaccine to 9-year-old to 12-year-old female patients included considering it necessary to discuss sexuality before recommending HPV vaccine (Daley, Crane, & Markowitz, 2010). Surveyed pediatricians and family practice physicians reported that parents of young adolescents sometimes are upset by recommendations that their children receive vaccines against sexually transmitted infections at such a young age. (Vamos, McDermott, & Daley, 2008).

Lechuga, Swain, & Weinhardt, (2012), reported more vaccine refusals among parents of younger versus older adolescents is the fear of "introducing" sexual content to young girls. In terms of moral objections to compulsory vaccination, some conservative groups in the United States and around the world voiced a concern that vaccination may lead to sexual disinhibition (Vamos, McDermott, & Daley, 2008), however, contrary to public debate about the expressed concerns related to sexual disinhibition, the proportion of mothers who expressed vaccination would lead to early initiation of sexual intercourse or engagement in more sexual relations was uniformly low with 3% of Hispanics, 6% of African American, and 7% of non-Hispanic, (Lechuga, Swain, & Weinhardt, 2012). Parental concerns about vaccinating very young girls are because they were perceived as less likely to be sexually active (Ragin, et al, 2009). This view suggests that parents are not aware of the reasons for the targeted age groups for HPV vaccination. This suggests an opportunity for education; parents should be helped to understand that the goal is to vaccinate girls before they become sexually active in order to increase the likelihood of vaccine efficacy. (Sanders, Arnold & Notaro, 2012).

African American Cultural Influence. Knowledge of the dehumanization and exploitation of African Americans in matters of health has been transmitted through folklore and historical documentation of experimentation on these individuals. Perceptions of the inherent inferiority of blacks remains a persistent theme. (Watts, 2003). Numerous reports have argued that the Tuskegee Syphilis Study is the most important reason why many African Americans distrust the institutions of medicine and public health. (Gamble, 1997). According to Lechuga, Swain, & Weinhardt (2011), researchers have extensively studied parents' and adults' willingness to receive the HPV vaccine and have their children vaccinated. However, little has been done to understand the generalizability of findings of HPV vaccine acceptance studies to participants of diverse cultures. Therefore, clinical studies must continue to explore the extent to which multidimensional factors such as socioeconomic status, cultural beliefs, behavior, and biological variations contribute to the unequal health status of African Americans and their choice to participate in preventative medicine. (Watts, 2003).

In summary, the Evidence-table, as seen in table 1, on barriers to HPV vaccination among African Americans shows a majority of studies had a qualitative design. Qualitative studies are appropriate for answering the question: what are barriers that effect initial HPV vaccination and vaccination completion in African American adolescents. One limitation of many of the articles was the use of limited samples often in small U.S cities. Despite the limitations, the literature review provided four overarching factors that contribute to the disparity in HPV immunization among African-American adolescents. First, parent's knowledge of cervical cancer motivates a strong commitment to protect daughters from the disease. Second, limited understanding of HPV and its correlation to cervical cancer make it difficult for parents to assess the risk of infection or acknowledge the medical benefit of the vaccine to their children.

Third, parents' lack of knowledge regarding the sexual experience of adolescents weaken their ability to advocate for interventions such as the HPV vaccine to protect them. Finally, African American parents entrust healthcare providers to initiate the discussion of HPV immunization. (Hamlish, Clarke & Alexander, 2012).

Literature notes interventions need to primarily focus on increasing the educational messages about HPV and the vaccine for both parents and adolescents. The literature clearly reveals that lack of educational knowledge is one of the biggest, if not the primary reason why HPV vaccination rates are so low in the African American population. Outreach to parents by primary care providers is imperative to improve cultural barriers and increase vaccination uptake and completion. The educational message should include the strong correlation of HPV, cervical cancer and vaccination prevention.

Methods

Research Design

Research was performed using one single-group, pre-test post-test research design; self-administered on pencil-and paper. This design was appropriate to determine the differences in knowledge and perception of HPV and the HPV vaccine after implementation of an education program. The questionnaire in the pre-& post-test answered the research questions of (1) What is the difference in HPV knowledge, perception, cultural influences, and comfort discussing sexually related topics with health care providers before and after the implementation of the HPV educational program in African-American parents? and (2) What is the self-reported informed decision regarding the HPV vaccine for their children after HPV education?

Sample and Setting

This study utilized a convenience sample of 102 African American parents recruited by word of mouth or sponsored community events. Inclusion criteria of the respondents was 1) African American parents ages 21 to 50; 2) mothers or fathers who have adolescent children male or female between the ages of 9 to 18 years of age. According to Emmel (2013), the sample size is an important feature of any empirical study in which the goal is to make inferences about a population from a sample. In practice, the sample size used in a study is determined based on the expense of data collection, and the need to have sufficient statistical power.

In this project, the required sample size to demonstrate statistical significant findings was recommended at 86. Thus, participant sample size of number (N=102) was sufficient to detect change in key outcome variables and provide an estimate of potential efficacy and the effect size of changes in key variables.

Instrument Design and Variables

The project questionnaire is divided into a pre- & post-test. The questionnaire testing is based on extensive literature review and previously published questionnaire conducted by Saulle (2014). In the previous published questionnaire, the highest value of Cronbach's alpha resulted on 24 items ($\alpha = 0.774$), concluding the questionnaire has very good reliability properties when used to study knowledge and perception on HPV. For this study, descriptive statistical analyses were performed using frequencies, percentages, and frequency table for categorical variables. Paired t test was used to compare pre- and post-testing answers for each participant.

Reliability analysis was tested and content validity was evaluated using Cronbach's alpha to check internal consistency and avoid misinterpretation of the results. Content validity of the investigator-developed HPV education program was established through an expert review of the

DNP Project Committee Chair who has published a study on HPV vaccination among Asian minorities. According to Tavakol & Dennick (2011), validity and reliability are two fundamental elements in the evaluation of a measurement instrument.

The pre-test contains approximately twenty questions including demographics (section 1), HPV Knowledge (section 2), Cultural Influence and Comfort in discussing HPV with health care provider, HPV and HPV vaccine perception (section 3) and finally parental report of intent to vaccinate their child (section 4). (See Appendix B). The post- test contains approximately seventeen questions including HPV Knowledge (section 1), Comfort in discussing HPV with health care provider, HPV and HPV vaccine perception (section 2), parental report of intent to vaccinate their child (section 3) and acceptability of the HPV education program developed for this target population (section 4). (See Appendix C).

Section 1. Demographics

Demographic information on the participants' age, gender, age of children and number of children was obtained along with if the parent has ever been offered the HPV vaccine for their children.

Section 2. HPV Knowledge

HPV knowledge was assessed using five items from a survey created by Gerend and Shephred (2011). HPV knowledge questions are asked by participants to respond with "(1) *True*, (2) *False*, (3) *Unsure*." The questions target on knowledge of HPV as a disease to cause cervical cancer in women and penile cancer in men and HPV as a cause of genital herpes. This section also questions knowledge of cervical pap testing. According to Assoumou, Mabika, Mbiguino, Mouallif, Khattabi, & Ennaji (2015), despite the high prevalence of cervical cancer, many studies have shown that women's knowledge about HPV, cervical cancer and cervical screening

is very low. Moreover, the uptake and success of cervical cancer screening and HPV vaccination is determined by a women's knowledge and awareness of cervical cancer. This is why current knowledge of cervical pap testing is crucial to obtain. The Cronbach's alpha coefficient for the knowledge questions was .676 in pre-testing and 6.32 in post-testing.

Section 3: Cultural influence and Comfort in discussing HPV with healthcare providers

Cultural influence was assessed by asking participants to respond with "(1) *Not at all*, (2) *Very Little*, (3) *Somewhat*, and (4) *Very Much*." These questions target the parent's cultural influence in trusting the health care system, and how comfortable they are in discussing information with healthcare providers. There were three specific questions asked regarding level of comfort. Survey questions were formatted in statements, and participants were asked to answer questions in a 4-point Likert scale whether they were *very uncomfortable* (1), *uncomfortable* (2), *comfortable* (3), or *very comfortable* (4) with each statement. As previously noted, cultural influence plays a major role in patient compliance and pursuing of medical care; especially in the African American population. Therefore, this knowledge must be obtained as a reliable indicator of needed educational intervention. The Cronbach's alpha coefficient for the three cultural questions was .290 in pre-testing and .184 in post-testing. The Cronbach's alpha coefficient for the three provider comfort questions was -.529 in pre-testing and .184 in post-testing.

Section 4: HPV and HPV Vaccine perception

HPV infection and HPV vaccine perception was assessed using seven items from a survey tool created Larson, Jarrett, Schulz, Chaudhuri, Zhou, Dube, Schuster, MacDonald, & Wilson (2015). Perception will be assessed by asking participants to respond with "(1) *Agree Strongly*, (2) *Agree Slightly*, (3) *Disagree* and (4) *Disagree Strongly*." The questions focus on the

parents' perception of HPV as a sexually transmitted infection, belief in sexual activity of adolescents, belief in prevention of HPV with use of vaccine, and overall safety of the HPV vaccine. According to Staras, Vadaparampil, Patel, & Shenkman (2014) social cognitive theory and literature suggest parents' decisions to vaccinate children is influenced by their perceptions of vaccine risks (e.g., safety, side effects, influence adolescents to have sex), vaccine benefits (e.g., prevention of cervical cancer, HPV, genital warts), and HPV-specific knowledge. The Cronbach's alpha coefficient for HPV perception questions was .430 in pre-testing and -.026 in post-testing.

Section 5: Parental intent to vaccinate child with HPV Vaccine.

This particular question was key towards noting knowledge barrier's and improvement of provider practice as parental vaccination decisions is heavily influenced by recommendations from their child's medical provider (Staras, Vadaparampil, Patel, & Shenkman, 2014). Notated in a national study, compared to no recommendation, receiving a provider recommendation increases the odds of receiving vaccination five times to one (Ylitalo, Lee & Mehta, 2013).

In the pre-test, this question notated parent's intent to vaccinate based on their current awareness and knowledge of HPV and HPV vaccine. In the post-test, this question notated the parents' intent to vaccinate based on information obtained in the cultural specific education program leading to the cue to action; vaccination. According to Champion & Skinner (2008), "cues to action refer to triggers either internally or within the environment that could potentially influence health behavior." This project determined that the specific trigger is the education provided by the health care provider.

Section 6. Education Program Evaluation for its acceptability

The HPV education program developed for the target population evaluated use of Educational Material Acceptability (EMA). EMA was originally developed to evaluate the acceptability of educational information and knowledge gained by heart failure patients (Gwadry-Sridhar, Guyatt, Arnold, Massel, Brown, & Lawrence, 2005). It was slightly modified for the use in this study. The program contains ten items used to evaluate acceptability and satisfaction with the HPV education program.

Description of HPV Educational Program

The HPV Education Program (HPVEP) was distributed in between the pre-test and post-test, allowing five to seven minutes to receive verbal education by the researcher on HPV and the HPV vaccine. Information contained in the HPVEP embodies research from previous study; Development of an HPV Educational Protocol for Adolescents, written by Wetzel, Tissot, Kollar, Hillard, Stone & Kahn (2007), and a HPV vaccine safety sheet (Appendix E) written by the CDC (2014).

According to Wetzel., et., (2007), existing educational materials about HPV and Pap tests generally consist of pamphlets or documents, most of which are available on the internet. This includes materials available on the websites of the Centers for Disease Control and Prevention, the American Social Health Association, and the American College of Obstetricians and Gynecologists. Although these materials provide basic information about HPV to large numbers of women, they are limited in that do not provide in-depth information that is individualized to African American's with specific regards to cultural and educational needs. Since cultural influence plays a large role in African American parents' decision to vaccinate this at-risk group

of adolescents, culturally appropriate educational programs are urgently needed for HPV education as this target population has a lack of trust in healthcare systems and providers.

For this project, information was taken from the CDC website, HPV curriculum developed by Planned Parenthood for parents and the American Sexual Health Association website with regards to specific information of HPV and cervical cancer rates in the African American population. Information regarding African American vaccine rates as compared to other ethnic backgrounds was also used.

The written HPVEP contained specific knowledge on (1) *What is HPV*, (2) *How is HPV screened*, (3) *Signs and symptoms of infection* (4), *Who should receive the HPV vaccine*, (4) *Appropriate age range of vaccine*, (5) *Statistical information on genital cancer in African American women and men* and (6) *Eligibility and vaccine cost*. Cultural specific information targeted the statistical rates of HPV and cervical cancer diagnosis and mortality in African American women. This information was formulated into an interactive presentation accessed using a tablet, or smart phone and given verbally by the researcher. If there was no access to the technological device, then the developed evidence-based fact sheet was the alternative format for access (Appendix D).

Description of the Intervention Procedure Data Collection

Upon receiving approval from the Institutional Review Board, and elected DNP committee, consent forms and questionnaires were distributed to the population sample. This study utilized a convenience sample of African American parents recruited by random social events, gatherings and through personal networks and contacts; not in any formal education setting. Data collection (fieldwork) was conducted in Chicago, IL at convenience with random participants. A recruitment handout (Appendix G) was used to disseminate more information on

the study in hopes to gain the number of participants needed for the target sample size.

Individuals choose to participate or not based on their own interest in the study. The researcher was present at each questionnaire distribution and explain to each participant that the questionnaires are completely anonymous, confidential and voluntary.

To ensure confidentiality during the procedure, participants, no more than two participants at a time were allowed to test at the same time. Participants were also spread apart during data collection so answers were individual and the HPV education program was presented individually to each participant. Questionnaires were returned face down and placed directly into an envelope. The process of the pre- & post questionnaire and HPV EP took approximately ten to fifteen minutes to complete. Finished questionnaires were stored in a sealed, confidential envelope, opened and viewed only by the researcher during input of data into SPSS Statistics then were destroyed.

Data Analysis

In order to perform a comparative analysis among African American parents' regarding their knowledge and perception of HPV and the HPV vaccine, the collected data was analyzed using the Statistical Package for the Social Sciences, v22 (SPSS, Inc., Chicago IL). Means, frequencies and percentages of individual values of each variable were examined. Cronbach's alpha was used to assess internal consistency of each of the scales that comprise the specific research questions. The following data was summarized: the number of participants whom (1) *attend the HPV educational program*, (2) *completed the two HPV surveys*, and (3) *completion of the HPV program for acceptability and satisfaction*. Paired t-tests were used to assess mean and standard deviation of pre- and post-HPV EP differences in knowledge of HPV and the HPV

vaccine, cultural influences, and comfort level in discussing HPV-related topics with providers. Cronbach’s alpha, $P < .05$ was used throughout to determine statistical significance.

Results

Description of Sample

A total of 102 African American parents participated in the face to face single-group pre-test post-test and HPV education program. Participants in this research survey were African American parent’s female (n=92, 91.1%) and male (n=9, 8.9%). Ages of parents were a minimum of 22 and maximum of 49 years of age, with the mean age of 35 (SD=0.28). In addition, gender of the children was girls (n=67, 66.3%) and boys (n= 34, 33.7%). Reported age of the children was a minimum of 9 and maximum of 18 years of age, with the mean 12 years of age (SD=2.46), as seen in table 2.

Table 2. Participant Demographics (N=102)

Variable	Frequency	Number (N)	Percent (%)		
Gender of Parent	Female	92	91.1		
	Male	9	8.9		
	Total	102	100		
Gender of Child	Female	67	66.3		
	Male	34	33.7		
	Total	102	100		
Variable	Number (N)	Minimum	Maximum	Mean	Std. Deviation
Age of Parent	102	22	49	35	.286
Age of Child	102	9	18	12.19	2.461

Impact of Culture on the HPV Vaccination

The first question of this research survey aimed to assess how culture influences African American parents’ decisions in healthcare. There were three specific questions asked regarding

the impact of culture on healthcare and the HPV vaccine. Survey questions were formatted in statements and participants were asked to answer questions in a 4-point Likert scale whether cultural had impact on their medical decisions, *not at all (1)*, *very little (2)*, *some (3)*, or *very much (4)* with each statement.

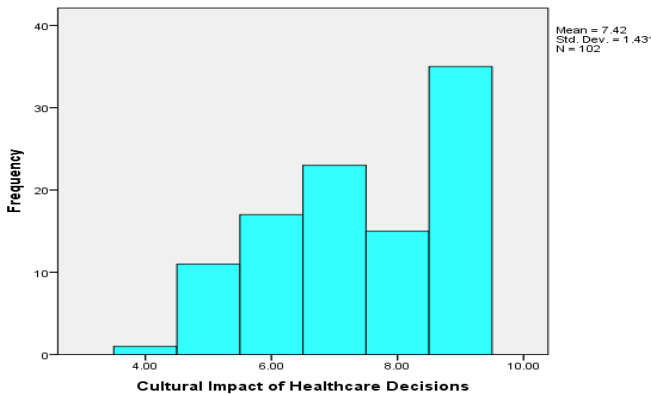
Forty-eight percent (n=49) of participants either stated ‘*some*’ or ‘*very much*’ that culture has an impact on their medical decisions, and 63% (n=61) of participants reported that fear of the healthcare system along with general mistrust prevents them from seeking care for their children. These responses indicate that many African American parents often delay seeking care for their children related to cultural mistrust.

In the study survey, scores marked by each participant related to culture displayed ranges between a minimum score of three and a maximum of twelve. Individual scores of six and under showed culture has a minimum impact on health decisions, while scores of seven and higher indicate culture has a predominant influence on healthcare decisions. The mean reported by this sample was 7.42 (SD= 1.43), indicating that culture has a great impact on their healthcare decision as seen in table 3 and graph 1.

Table 3. Cultural Influence on Healthcare

Knowledge Variables	Very Much % (N)	Some % (N)	Very Little % (N)
How much does culture influence your medical decisions?	48% (n=49)	29.4% (n= 30)	22.5% (n=23)
As an African American do you have issues trusting medical providers?	64.7% (n=66)	30.4% (n= 31)	4.9% (n=5)
Do you think fear and trust issues of the healthcare system prevents you from seeking medical care?	61.8% (n=63)	33.3% (n= 34)	4.9% (n=5)

Graph 1. Histogram of Cultural Impact.



Provider Influence on HPV Vaccination

The second clinical question for this research study aimed to assess the comfort level of African American parents regarding discussing HPV infections and the HPV vaccine with providers. There were three specific questions asked regarding level of comfort. Survey questions were formatted in statements, and participants were asked to answer questions in a 4-point Likert scale rather they were *very uncomfortable* (1), *uncomfortable* (2), *comfortable* (3), or *very comfortable* (4) with each statement. Scores marked by each participant related to provider influence displayed ranges between a minimum score of three and a maximum of twelve.

Out of the three questions specific to provider comfort, ninety-seven percent (n=99) of participants either stated they were *comfortable* or *very comfortable* in having the provider discuss HPV infections and the HPV vaccine with themselves and their children, and only two percent (n=3), stated they were *uncomfortable*. Individual scores of six and under showed parents are *uncomfortable* allowing providers to discuss HPV and the HPV vaccine with their child, indicate parents are *comfortable* allowing the conversation to take place with provider assistance. The responses, as seen in table 4, the mean of provider influence on HPV vaccination

was 7.38 (SD=1.08), indicating parents are comfortable allowing the conversation to take place with provider assistance.

Table 4. Provider Influence on HPV vaccination.

Knowledge Variables	Uncomfortable % (N)	Comfortable % (N)	Very Comfortable % (N)
Are you comfortable with your provider helping you discuss HPV and the HPV vaccine with your child?	2.9% (n=3)	63.7% (n= 65)	33.3 (n=34)
Do you feel comfortable discussing HPV and the vaccine with your health care provider?	2.9% (n=3)	62.7% (n= 64)	32.4% (n=33)
Do you feel comfortable discussing HPV and the HPV vaccine with your child?	59.8% (n=61)	40.2% (n= 41)	n/a

Level of Knowledge Pre-and Post-testing

Knowledge about HPV was assessed using five questions on the study survey. Participants were asked to complete the 5-item scale measuring general knowledge about HPV. The participants answered “*true*”, “*false*” and “*unsure*” to these items. The total number of correct answers were scored. The range of the total amount of correct answers by the participants was between 1 and 5, where a higher number indicates a higher level of knowledge and a lower number implies less knowledge. The mean score for correct answers pre-testing was 1.29 (SD= 1.03), indicating that the number of participants who accurately answered the knowledge questions was very low. Post-testing the mean was 3.86 (SD=.345), indicating an improvement in knowledge after the educational program. Table 5 shows the specific number of individuals who got the answers correct and the number of individuals who got answers incorrect

Table 5. HPV Knowledge Items: Correct responses

Knowledge Item	% Correct response Pre-Testing	% Correct response Post-Testing
You have heard of HPV?	23.5%	100%
Only adult women can get HPV?	0%	86.3%
HPV infections can cause Genital Herpes which leads to Cervical Cancer?	35.3%	100%
Pap Smear testing may indicate infection of HPV or presence of Cervical Cancer cells?	59.8%	100%
HPV is a common Sexually Transmitted Infection?	10.8%	100%

Description of HPV Perception Pre-and Post

Perception regarding HPV was assessed using seven questions on the study survey. Participants were asked to complete the 4-item scale measuring perceived susceptibility to HPV vaccine related issues, perceived uncertainty regarding HPV vaccine related risk, perceived benefit of vaccination and perceived barrier obtaining vaccination. In regarding perceived susceptibility, the participants answered 1) *Agree Strongly*, (2) *Agree Slightly*, (3) *Disagree* and (4) *Disagree Strongly*” to these items. Total score ranges from 2 to 8, where the lower the score, the more susceptibility is involved. Pre-testing susceptibility mean was 1.80 (SD=1.37) and post-testing after educational program mean was 6.95 (SD=0.60), indicating improved susceptibility to age, sexual activity and safety of HPV vaccine.

In regarding perceived benefit, the participants answered (1) *Strongly Effective* (2) *Slightly Effective*, and (3) *Non-Effective*. Total score ranges from 1 to 3 where the lower the score, indicated a less perceived benefit of HPV vaccine to prevent HPV related cancer. Pre-testing perceived effectiveness of HPV vaccine had a mean of 1.39 (SD=0.49), post-testing effectiveness had a mean 2.55 (SD=0.60), indicating improved perception of effectiveness of HPV vaccine.

In regarding perceived barrier finding clinic or provider to offer of HPV vaccine the participants answered (1) *Very Hard*, (2) *Slightly Hard*, (3) *Slightly Easy* and (4) *Very Easy* to these items. Total score ranges from 2 to 8, where the lower the score, the larger the barrier. Pre-testing perceived barrier finding clinic or provider to offer of HPV vaccine had a mean of 2.77 (SD=1.06), post-testing perceived barrier had a mean 3.90 (SD=0.43), indicating improved perception of barriers of finding clinic or provider to offer of HPV vaccine.

In regarding perceived uncertainty concerning cost and lack of information regarding HPV vaccine, the participants answered (1) *Agree Strongly*, (2) *Agree Slightly*, (3) *Disagree* and (4) *Disagree Strongly*” to these items. Pre-testing perceived uncertainty concerning cost and lack of information regarding HPV vaccine had a mean of 3.41 (SD=1.47), post-testing perceived uncertainty concerning cost and lack of information regarding HPV vaccine had a mean 6.06 (SD=0.78), indicating improved perceived uncertainty concerning cost and lack of information regarding HPV vaccine, as seen in table 6.

Table 6. Description of HPV Perception Pre-and Post

Knowledge Item	Pre-Testing Mean & Standard Deviation	Post- Testing Mean & Standard Deviation
Perceived Susceptibility	Mean 1.80 (SD=1.57)	Mean 6.95 (SD=0.60)
Perceived Benefit	Mean 1.39 (SD=.490)	Mean 2.55 (SD=.606)
Perceived Barrier	Mean 2.77 (SD=1.06)	Mean 3.90 (SD=.433)
Perceived Uncertainty	Mean 3.41 (SD=1.47)	Mean 6.06 (SD=.786)

Impact of HPV Education Program on Knowledge and Perception

Paired t-test were used to determine differences in participants' knowledge and perception of HPV and the HPV vaccine before and after the implemented HPV education program. In the study survey, as seen in table 7, scores marked by each participant (N=102) related to knowledge of HPV and the HPV vaccine displayed ranges between a minimum score of seven and a maximum score of fifteen. Individual scores of ten or higher in the knowledge pre-test, mean 1.29 (SD=1.03) indicated limited knowledge of HPV and the HPV vaccine. Scores of six or lower on the knowledge post-test, mean 3.86 (SD=.345) indicated gained knowledge of HPV and the HPV vaccine after the HPV education program. This response indicates that although many participants had limited knowledge in the pre-test, exposure to education on HPV and the HPV vaccine by the HPV Education Program has significant influence, $t(101) = 23.13, p < .000$ (two-tailed).

To further assess the essential components of perception regarding HPV as an infection and the HPV vaccine, participants were asked seven specific questions regarding their perception of the availability, effectiveness and cost of the HPV vaccine. Scores marked by each participant related to perception displayed ranges between a minimum score of nine and a maximum of twenty-one. Individual scores of fourteen or less on the perception pre-test, mean 9.38 (SD=2.71), indicated an inaccurate perception of HPV as an infection and the HPV vaccines effectiveness, availability and cost. Individual survey scores of fifteen or higher on the perception post-test, mean 19.57 (SD=1.23), indicated acquired accurate perception of HPV as an infection and the HPV vaccines effectiveness, availability and cost after the HPV education program. These responses indicate that although many participants had inaccurate perceptions in

the pre-test, exposure to education regarding HPV and the HPV vaccine by the HPV Education Program has significant influence, $t(101) = -33.36, p < .000$ (two-tailed).

Table 7. Impact of HPV Education Program on Knowledge and Perception

Variable	Number (N)	Mean (SD)	t (df)	Sig. (2-tailed)
Pre-Knowledge	102	1.29 (1.03)	23.13 (101)	p=0.000**
Post-Knowledge	102	3.86 (.345)		
Pre-Perception	102	9.38 (2.71)	-33.36(101)	p=0.000**
Post-Perception	102	19.57 (1.23)		

****P<.001**

Self-Reported Decision to Vaccinate After HPV Education Program

The third question of this research was focused on the self-reported decision of the parent to vaccinate their child. The question was asked in the pre-test and post-test to determine if the patient would choose to vaccinate based on their current knowledge and perception of HPV and the HPV vaccine, versus the gained knowledge and perception of HPV and the HPV vaccine after implementation on the HPV program. Survey questions were formatted in statements, and participants were asked to answer questions with either *yes (1)*, *no (2)*, or *unsure (3)*.

Of the 102 participants, 72.5% (n=74) responded *no (2)* in the pre-test they would not make the decision to allow their child to be vaccinated based on their current knowledge and perception of HPV and the HPV vaccine. Post-test, after the implementation of the HPV education program, 79.4% (n=81) of participants responded *yes (1)*, they would make a decision to vaccinate their children with the HPV vaccine. These responses indicate that although the majority responded with 'no' initially, provided education can increase knowledge and perception in parents leading to increased vaccination rates. Results can be seen in table 8.

Table 8. Self-reported Decision to Vaccinate Child (N=102)

Knowledge Variables	Yes % (N)	No % (N)	Unsure % (N)
Do you think you will make the decision to allow your child to get the HPV vaccine based on your current knowledge about the infection? (Pre-test)	0% (n=0)	72.5% (n= 74)	27.5% (n=28)
Do you think you will make the decision to allow your child to get the HPV vaccine based on your NEW knowledge about the infection? (Post-test)	79.4% n=81)	11.8% (n=12)	8.8% (n=9)

Satisfaction of the HPV Education Program

Effectiveness of presented education and satisfaction were measured with a HPV education program evaluation. Evaluation survey questions were formatted in statements, and participants were asked to answer questions in a 5-point Likert scale whether they *strongly disagreed* (1), *disagreed* (2), *neutral* (3) *agreed* (4), or *strongly agreed* (5) with each statement. As seen in table 8, there were three specific questions asked regarding if the education program helped explain HPV and the HPV vaccine and if education program gave strong reasons why a parent should vaccinate their child.

Out of 10 questions, participants could score a minimum of ten or maximum of 50 regarding their overall satisfaction. Of 102 participants, 63.7% (n=65) participants *agreed* and 36.3% (n=37) *strongly agreed* that the HPV education program helped them understand HPV and the HPV vaccine. 90.2% (n=92) strongly agreed that the HPV education program gave strong reasons why a child should be vaccinated, and 78.4% (n= 80) *strongly agreed* that the educational program motivated them to request the HPV vaccine for their child, mean 14.04 (SD= .762).

As seen in table 9, there were three specific questions asked regarding if the education program helped explain HPV and the HPV vaccine and if education program gave strong reasons why a parent should vaccinate their child.

Table 9. HPV Education Program Satisfaction

Variables	Strongly Agreed % (N)	Agreed % (N)	Disagreed/Strongly Disagreed, Neutral % (N)	Mean	Standard Deviation	<i>p</i>
**The information in the educational program helped me to better understand HPV and the HPV vaccine?	36.3% (n=37)	63.7% (n=65)	0%	4.36	.483	< 0.5
The size of the written material was large enough for easy reading.	92.2% (n=94)	7.8% (n=8)	0%	4.92	.270	< 0.5
The educational program answered questions I had regarding HPV and the HPV vaccine.	1% (n=1)	99% (n=101)	0%	4.01	0.99	< 0.5
The information in the educational program was easy for me to understand.	0%	100% (n=102)	0%	4.00	0.99	< 0.5
The educational program clearly explained signs and symptoms of HPV.	0%	92.2% (n=94)	7.8% (n=8)	3.92	.270	< 0.5
**The educational program gave strong reasons why I should vaccinate my child.	90.2% (92)	9.8% (n=10)	0%	4.90	.299	< 0.5
The educational program maintained my interest.	1% (n=1)	76.5% (n=78)	22.5% (n=23)	3.78	.437	< 0.5
The educational program was an effective way to receive this information on HPV and the HPV vaccine.	84.3% (n=86)	15.7% (n=16)	0%	4.84	.335	< 0.5
The educational program provider was knowledgeable about HPV and the HPV vaccine.	87.3% (n=89)	12.7% (n=13)	0%	4.87	.335	< 0.5
**The educational program gave me motivation to request the HPV vaccine for my Child.	78.4% (n=80)	21.6% (n=22)	0%	4.78	.413	< 0.5
**Three specific questions regarding if the education program helped explain and gave strong reasons why a parent should vaccinate their child.						

Discussion

Epidemiological research consistently shows that among adolescents, greater HPV prevalence is observed among low-income and minority populations; particularly African American adolescents relative to other ethnic/racial groups. Prevention strategies directed at African American adolescents are urgently needed to reduce this marked and persistent health disparity. The conceptual framework used for this project was created by social psychologists

Godfrey Hochbaum, Irwin Rosenstock, and Stephen Kegels (1950) and titled “The Health Belief Model.” The Health Belief Model (HBM), is an evidence based framework for motivating people to take positive health actions. The HBM uses the desire to avoid a negative health consequence as the key element and prime motivator for understanding health behavior. (Champion & Skinner, 2008).

The HBM was applied to this project as an evidence-based intervention to increase knowledge in African American parents. This framework seen in Appendix A, suggests that improvement of knowledge regarding the severity of HPV infection and the perceived benefit of the HPV vaccine can increase HPV vaccination completion rates in African American adolescents. Research questions focused on assessing African American parents’ knowledge and perceived attitudes toward the HPV vaccine along with their comfort in discussing this topic with healthcare providers. Empirical literature suggests that while there is a positive association between providers' recommendation and uptake of HPV vaccine across ethnic groups (white, African American, and Hispanic), the association is strongest for African Americans (DiClemente, Murray, Graham, & Still, 2015). Therefore, this project also examined African American parents self-reported decision to vaccinate their child with the HPV vaccine after culturally appropriate education and recommendation were given from the healthcare provider.

The results of this study discovered out of the majority of African American parents participating in this present study, had never heard of the HPV vaccine. They also have never had the vaccination offered by their healthcare provider in a primary clinic visit. This concludes that parents are significantly lacking in knowledge of the HPV vaccine, leading to decreased vaccinations rates in their children. When assessing African American parents and the perception of HPV and the HPV vaccine during the pre-test, most questions were answered

negatively. Almost half of parents surveyed could not accurately identify HPV as a sexually transmitted disease and answered that they felt only women can contract the HPV virus. The perception questions suggested a need for more education on the severity of HPV in order for parents to understand the benefit of receiving the HPV vaccine.

While assessing culture and its effect on healthcare, it was determined that many of African American parents often delay treatment or recommendations due to ingrained cultural beliefs. It is important to note that despite having these beliefs, the beliefs are not ineradicable and can be changed with education. Project research showed that prior to receiving education on HPV and the HPV vaccine attitudes towards the HPV vaccine were negative as many of the participants stated they would not vaccinate their child. After educational intervention only a few would not vaccinate. The results from surveyed parents in this project match findings of the evidence-based literature review. African American parents are not fully aware of HPV, its health consequences or the lifelong benefit from the HPV vaccine. This project demonstrated that healthcare providers are the ideal candidates to promote positive attitudes toward vaccination and educate adolescents and their parents on HPV and the HPV vaccine.

Limitations

As with all research, this study has limitations that should be addressed in future research. First, the principal dependent variable in this study was parents' intention to vaccinate their children after intervention of the educational program rather than actual vaccination behavior. Future research should examine the effectiveness of an educational program intervention using actual vaccination behavior as the outcome measure. Second, Cronbach alpha of reliability was low in areas of provider comfort and cultural influence. This can be attributed to the small number of questions in the pre-and post-survey for each category. According to Tavakol &

Dennick (2011), if the items in a test are correlated to each other, the value of alpha is increased. However, a high coefficient alpha does not always mean a high degree of internal consistency. This is because alpha is also affected by the length of the test. If the test length is too short, the value of alpha is reduced. For future research, the testing scale can be increased in number of variables.

The third limitation to this study were the participants being a convenience sample. According to Burns & Grove (2009), the most obvious criticism about convenience sampling is sampling bias and that the sample is not representative of the entire population which is a threat to the validity of the data. Future studies should expand to a larger participant group with random sampling to capture more community representation.

Nursing Implications

According to Sherman, Patel, Cohen & Moss (2017), practice nurses especially Advance practice nurses are a key source of both information and advice for patients about HPV infection, vaccination and testing. They are also likely to be a source of support for women who are distressed by the diagnosis of HPV and abnormal cervical smear results. This project can be used to note the improvement of knowledge and perception of HPV and the HPV vaccine in parents with the implementation of education by providers. Increasing African American parents' awareness in HPV and understanding their cultural influence can help increase vaccination uptakes.

Direction for Future Studies

Growing literature suggests that some providers, especially pediatricians, find the interpersonal environment to be challenging when it comes to talking about HPV vaccination. (Haelle,2015). Since adolescents are commonly treated by pediatricians, future studies should

expand research to pediatric practices to determine the comfort level of pediatric providers discussing sexual behavior of young children with parents. Discomfort talking about sex appears to be a more salient factor than safety concerns about the vaccine. (Haelle, 2015).

Conclusion

This study found that there is significant lack of knowledge and inaccurate perception of the HPV virus and HPV vaccine in African American parents. Parents attitudes and perceptions toward the HPV vaccine were positive after educational intervention, however some additional effort toward removing cultural barriers in this population need to be addressed. Given the association between HPV vaccination acceptance and individual knowledge, attitudes and beliefs, finding effective HPV vaccination educational interventions is essential to reducing HPV-associated morbidity and mortality. (Fu, Bonhomme, Cooper, Joseph, & Zimet, 2014). The results of this study suggested a great need for the development of a cultural based educational program to increase African American parents' knowledge and vaccine perception in order to improved safety and increase uptake of the HPV vaccination in African American adolescents.

References

- American Sexual Health Association. (2016). *American sexual health association: Overview and fast facts*. Retrieved from <http://www.ashastd.org/std-sti/hpv/overview-and-fast-facts.html>
- Armstrong, E. (2010). Prophylaxis of cervical cancer and related cervical disease: A review of the cost-effectiveness of vaccination against oncogenic HPV types. *Journal of Managed Care Pharmacology, 16*(30), 217-230. Doi: pmd: 20331326
- Assoumou, S. Z., Mabika, B. M., Mbiguino, A. N., Mouallif, M., Khattabi, A., & Ennaji, M. M. (2015). Awareness and knowledge regarding of cervical cancer, Pap smear screening and human papillomavirus infection in Gabonese women. *BMC Women's Health, 15*(37), <http://doi.org/10.1186/s12905-015-0193-2>
- Burns, N., & Grove, S. K. (2009). *Practice of nursing research: Appraisal, Synthesis, and Generation of Evidence* (6th ed.). St. Louis: Elsevier/Saunders.
- Centers for Disease Control and Prevention. (2011a). Recommendations on the use of quadrivalent human papillomavirus vaccine in Males-Advisory Committee on Immunization Practices (ACIP), 2011. *Morbidity and Mortality Weekly Report, 60*(50), 1705-1708.
- Centers for Disease Control and Prevention. (2012). Human Papillomavirus–Associated Cancers, United States, 2004–2008. *Morbidity and Mortality Weekly Report, 61*(15), 258-261.
- Centers for Disease Control and Prevention. (2014). National Immunization Survey-Teen (NIS-Teen). *Morbidity and Mortality Weekly Report, 64*(29), 784-792.

- Centers for Disease Control and Prevention and National Cancer Institute (2015). *United States cancer statistics: 1999–2012 incidence and mortality web-based report*. Department of Health and Human Services. Retrieved from: <https://nccd.cdc.gov/uscs/>
- Champion, V. L., & Skinner, C. S. (2008). The health belief model. In Glanz, K., Rimer, B.K., & Viswanath K, Eds. (4th ed). *Health Behavior and Health Education: Theory, Research, and Practice*. San Francisco: Jossey-Bass. pp. 45-65.
- Daley, M. F., Crane, L.A., & Markowitz, L.E. (2010). Human papillomavirus vaccination practices: A survey of US physicians 18 months after licensure. *Journal of Pediatrics*, 126(3), 425-33. Doi: 10.1542/peds.2009-3500
- DiClemente, R. J., Murray, C. C., Graham, T., & Still, J. (2015). Overcoming barriers to HPV vaccination: A randomized clinical trial of a culturally-tailored, media intervention among African American girls. *Human Vaccines & Immunotherapeutics*, 11(12), 2883–2894. <http://doi.org/10.1080/21645515.2015.1070996>
- Durant, R. W., Legedza, A. T., Marcantonio, E. R., Freeman, M. B., & Landon, B. E. (2011). Different Types of Distrust in Clinical Research Among Whites and African Americans. *Journal of the National Medical Association*, 103(2), 123–130.
- Emmel, N. (2013). *Sampling and choosing cases in qualitative research: A realist approach*. London: Sage.
- Freeman, H.P., & Wingrove, B.K. (2005). Excess cervical cancer mortality: A marker for low access to health care in poor communities. *National Cancer Institute, Center to Reduce Cancer Health Disparities*. NIH Pub. No. 05–5282. Rockville, MD.

- Fu, L. Y., Bonhomme, L.-A., Cooper, S. C., Joseph, J. G., & Zimet, G. D. (2014). Educational interventions to increase HPV vaccination acceptance: A systematic review. *Vaccine, 32(17)*, 1901–1920. <http://doi.org/10.1016/j.vaccine.2014.01.091>
- Gamble, V. N. (1997). Under the shadow of Tuskegee: African Americans and health care. *American Journal of Public Health, 87(11)*, 1773-1778.
- Gelman, A., Nikolajski, C., Bimla-Schwarz, E., & Borrero, S. (2011). Racial disparities in awareness of the human papillomavirus. *Journal of Women's Health, 20(8)*, 1165–1173. Doi: 10.1089/jwh.2010.2617
- Grace, D. L. (2011). *Overcoming barriers in treating African-Americans*. Retrieved from: http://www.cccity.com/aoa/healthwatch/jan_11/print3.pdf
- Greathouse, R.J. (2012). Barriers to cervical cancer screening among enrollees in Georgia's women's health Medicaid program: A qualitative analysis. Retrieved November 6, 2016, from <http://pid.emory.edu/ark:/25593/bt3kn>
- Gwadry-Sridhar, F., Guyatt, G. H., Arnold, J. M., Massel, D., Brown, J., Nadeau, L., & Lawrence, S. (2005). Instruments to measure acceptability of information and acquisition of knowledge in patients with heart failure. *European Journal of Heart Failure, 5(6)*, 783-91.
- Haelle, T. (2015). Doctors, Not Parents, Are the Biggest Obstacle to The HPV Vaccine. Retrieved from: <http://www.npr.org/sections/health-shots/2015/10/22/450827102/doctors-not-parents-are-the-biggest-obstacle-to-the-hpv-vaccine>
- Hamlisch, T., Clarke, L., & Alexander, K. A. (2012). Barriers to HPV immunization for African American adolescent females. *Vaccine, 30(45)*, 6472-6476.

Doi: 10.1016/j.vaccine.2012.07.085

Harper S, & Lynch J. (2010). Methods for measuring cancer disparities: Using data relevant to Healthy People 2010 cancer-related objectives. *NCI Cancer Surveillance Monograph Series*, Number 6. NIH Publication No. 05-5777. National Cancer Institute. Bethesda, MD.

Jacobs, E. A., Rolle, I., Ferrans, C. E., Whitaker, E. E., & Warnecke, R. B. (2006).

Understanding African Americans' views of the trustworthiness of physicians. *Journal of General Internal Medicine*, 21(6), 642–647. <http://doi.org/10.1111/j.1525-1497.2006.00485.x>

Janousek, J. (2010). *Knowledge, attitudes, beliefs, and predictors of acceptance of the human papillomavirus vaccination of college women at a Midwest Lutheran university: A quantitative study*. (Publication No. AAT 3409387). Retrieved from http://wp.cune.edu/jenniferjanousek/files/2012/04/Microsoft-Word-JJanousekDissertation_6_22_2010Final.pdf

Jones, M. & Cook, R. (2008). Intent to receive an HPV vaccine among university men and women and implications for vaccine administration. *Journal of American College Health*, 57(1), 23-32.

Kahn, J.A., Lan, D., Kahn, R.S. (2007). Sociodemographic factors associated with high risk human papillomavirus infection. *Obstetrics and Gynecology*, 110(1), 87-95.

PMID:17601901; <http://dx.doi.org/10.1097/01.AOG.0000266984.23445.9c>

Larson, H. J., Jarrett, C., Schulz, S. W., Chaudhuri, M., Zhou, Y., Dube, E., ... Wilson, R. (2015). Measuring vaccine hesitancy: The development of a survey tool. *Vaccine*, 33(34), 4165-4175.

- Lechuga, J., Swain, G. R., & Weinhardt, L. S. (2011). The cross-cultural variation of predictors of human papillomavirus vaccination intentions. *Journal of Women's Health, 20*(2), 225–230. <http://doi.org/10.1089/jwh.2010.1993>
- Lechuga, J., Swain, G., & Weinhardt, L. S. (2012). Perceived need for a parental decision aid for the HPV vaccine: Content and format preferences. *Health Promotion Practice, 13*(2), 214–221. <http://doi.org/10.1177/1524839910388622>
- Losby, J., & Wetmore, A. (2012). *CDC coffee break: Using Likert scales in evaluation survey work*. Retrieved from: https://www.cdc.gov/dhdsp/pubs/docs/cb_february_14_2012.pdf
- Lu, B., Kimar, A., Castellsague, X., & Giuliano, A. R. (2011). Efficacy and safety of prophylactic vaccines against cervical HPV infection and disease among women: A systematic review and meta-analysis. *BioMed Central Infectious Disease, 11*(13), 1-16. Doi: 10.1186/1471-2334-11-13
- Markowitz, L.E., Hariri, S., Lin, C., Dunne, E. F., Steinau, M., McQuillan, G., & Unger, E. R. (2013). Reduction in human papillomavirus (HPV) prevalence among young women following HPV vaccine introduction in the United States, National Health and Nutrition Examination Surveys, 2003-2010. *The Journal of Infectious Diseases, 208*(3), 385-393. Doi:10.1093/infdis/jit192
- National Cancer Institute (NCI). (2005, September). *Theory at a glance: A guide for health promotion practice* [pdf]. Retrieved from <http://www.cancer.gov/cancertopics/cancerlibrary/theory.pdf>
- National Cancer Institute (NCI). (2016). *Cancer Health Disparities*. Retrieved from: <https://www.cancer.gov/about-nci/organization/crchd/cancer-health-disparities-fact-sheet>.

- Niccolai, L. M., Mehta, N. R., & Hadler, J. L. (2011). Racial/ethnic and poverty disparities in human papillomavirus vaccination completion. *American Journal of Preventative Medicine, 41*(4), 428-433. Doi: 10.1016/j.amepre.2011.06.032.
- O'Connor, A.M., Drake, E.R., Fiset, V., Graham, I.D., Laupacis, A., & Tugwell, P. (1999). The Ottawa patient decision aids. *Effective Clinical Practice, 2*(4), 163-70.
- Paszat, L. (2012). Social determinants of health associated with cervical cancer screening among women living in developing countries: A scoping review. *Archives of Gynecology and Obstetrics, 286*(6), 1487-1505.
- Pierre, J., Clark, J.A., Mercilus, G., Wilbur, M., Figaro, J., & Perkins, R. (2014). Racial and ethnic differences in HPV knowledge, attitudes, and vaccination rates among low-income African-American, Haitian, Latina, and Caucasian young adult women. *Journal of Pediatric and Adolescent Gynecology, 27*(2), 83-92. doi: 10.1016/j.jpag.2013.08.011.
- Ragin, C. C., Edwards, R. P., Jones, J., Thurman, N. E., Hagan, K. L., Jones, E. A., ... Taioli, E. (2009). Knowledge about human papillomavirus and the HPV vaccine – a survey of the general population. *Infectious Agents and Cancer, 4*(Supp 1), S10. Retrieved from: <http://doi.org/10.1186/1750-9378-4-S1-S10>
- Reiter, P. L., Stubbs, B., Panozzo, C. A., Whitesell, D., & Brewer, N. T. (2011). HPV and HPV vaccine education intervention: Effects on parents, healthcare staff, and school staff. *Cancer Epidemiology, Biomarkers & Prevention, 20*(11), 2354–2361. <http://doi.org/10.1158/1055-9965.EPI-11-0562>
- Sanders -Thompson, V. L., Arnold, L. D., & Notaro, S. R. (2011). African American parents' attitudes toward HPV vaccination. *Ethnicity & Disease, 21*(3), 335–341.

- Sanders-Thompson, V. L., Arnold, L. D., & Notaro, S. R. (2012). African American parents' HPV vaccination intent and concerns. *Journal of Health Care for the Poor and Underserved, 23*(1), 290–301. <http://doi.org/10.1353/hpu.2012.0007>
- Saulle, R. (2014). Validation of a questionnaire for young women to assess knowledge, attitudes and behaviors towards cervical screening and vaccination against HPV in Italy. *Epidemiology Biostatistics and Public Health, 11*(2), 1-12. DOI: 10.2427/8913
- Sherman, S., Patel, H., Cohen, C. R., & Moss, E. L. (2017). Human papillomavirus. *Nursing in Practice (87)*. Retrieved from: <http://www.nursinginpractice.com/article/human-papillomavirus>
- Smith, J. S., Cates, J. R., Brewer, N. T., & Fazekas, K. I. (2009). Racial differences in HPV knowledge, HPV vaccine acceptability, and related beliefs among rural, southern women. *Journal of Rural Health, 25*(1), 93-7. doi: 10.1111/j.1748-0361.2009.00204.x
- Staras, S. A. S., Vadaparampil, S. T., Patel, R. P., & Shenkman, E. A. (2014). Parent perceptions important for HPV vaccine initiation among low income adolescent girls. *Vaccine, 32*(46), 6163–6169. <http://doi.org/10.1016/j.vaccine.2014.08.054>
- Tavakol, M., & Dennick, R. (2011). Making sense of Cronbach's alpha. *International Journal of Medical Education, 2011*(2), 53-55. DOI: 10.5116/ijme.4dfb.8dfd
- Taylor, D., Bury, M., Campling, N., Carter, S., Garfield, S., & Newbould, J. (2007). *A Review of the use of the Health Belief Model (HBM), the Theory of Reasoned Action (TRA), the Theory of Planned Behavior (TPB) and the Trans-Theoretical Model (TTM) to study and predict health related behavior change. National Institute for Health and Clinical Excellence*. Retrieved from:

http://www2.warwick.ac.uk/fac/med/study/ugr/mbchb/phase1_08/semester2/healthpsychology/nice-doh_draft_review_of_health_behaviour_theories.pdf.

- Waller, J., Marlow, L.A., & Wardle, J. (2006). Mothers' attitudes towards preventing cervical cancer through human papillomavirus vaccination: A qualitative study. *Cancer, Epidemiology, & Biomarkers Prevention*, *15*(7), 1257-61.
- Watts, R. (2003). Race consciousness and the health of African Americans. *Online Journal of Issues in Nursing*, *8*(1), 3. Retrieved from: <http://www.nursingworld.org/MainMenuCategories/ANAMarketplace/ANAPeriodicals/OJIN/TableofContents/Volume82003/No1Jan2003/RaceandHealth.aspx>
- Westra, T.A. (2013). Inclusion of the benefits of enhanced cross-protection against cervical cancer and prevention of genital warts in the cost-effectiveness analysis of human papillomavirus vaccination in the Netherlands. *BMC Infectious Disease* *13*(75), doi: 10.1186/1471-2334-13-75.
- Wilson, R., Brown, D. R., Boothe, M.A., & Harris, C. E. (2013). Knowledge and acceptability of the HPV vaccine among ethnically diverse black women. *Journal of Immigration and Minority Health*, *15*(4), 747-57.
- Wetzel, C., Tissot, A., Kollar, L. M., Hillard, P. A., Stone, R., & Kahn, J. A. (2007). Development of an HPV educational protocol for adolescents. *Journal of Pediatric and Adolescent Gynecology*, *20*(5), 281–287. <http://doi.org/10.1016/j.jpag.2006.1>
- Ylitalo, K. R., Lee, H., Mehta, N. K. (2013). Health care provider recommendation, human papillomavirus vaccination, and race/ethnicity in the US National Immunization Survey. *American Journal of Public Health*, *103*(1), 164-169.

Table 1. Evidence-based Table on knowledge levels and attitudes of African American parents regarding the HPV and the HPV vaccine

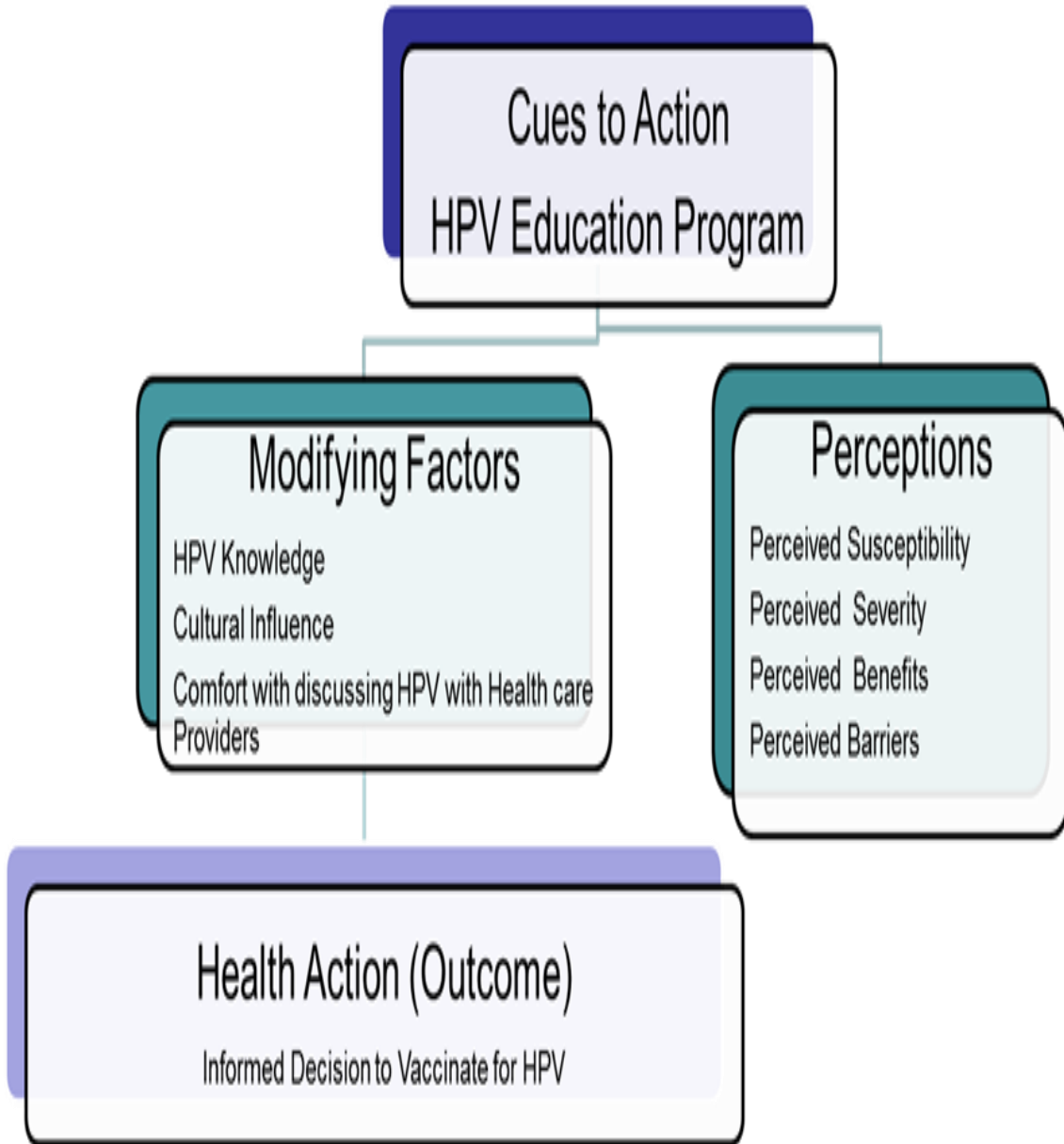
Author & Year of Publication	Study Design	Data Collection	Analysis	Conclusion
Armstrong, E. (2010).	Descriptive design with literature review to determine cost effectiveness of vaccination based on U.S. data	Survey on vaccinated women age 12. Catch-up vaccination in females 24 to 26 years of age	Cost-effectiveness ratios(ICERs), typically in units of quality-adjusted life expectancy (quality-adjusted life years [QALYs] gained).	HPV vaccination can be cost-effective. HPV vaccination to be highly efficacious and potentially lifesaving if administered to females naive or unexposed to vaccine HPV types.
Gelman, A., Nikolajski, C., Bimla-Schwarz, E., & Borrero, S (2011).	Descriptive using multivariable logistic regression model to determine the independent effect of race/ethnicity on HPV awareness	Survey. Demographic and clinical characteristic were compared by race/ethnicity	Bivariate and multivariable analyses. White women were more likely to have heard of HPV with 89% compared to 62% of Hispanic women, 75% of black women. (p<0.001).	Hispanic and black women have significantly lower levels of HPV awareness than white women.
Greathouse, R.J. (2012).	Descriptive. Explore the barriers that inhibit low income, uninsured or underinsured women from accessing cervical cancer	25 interview transcripts of African American and Caucasian women with cervical pre-cancer or invasive cervical cancer	Utilized qualitative methods, namely in-depth interviews, and qualitative data analysis.	Three key factors were identified that influenced cervical cancer screening behaviors: 1. Education about HPV. 2.HPV vaccine.

	screening services.			3. Link between HPV and cervical cancer.
Markowitz, L.E., Hariri, S., Lin, C., Dunne, E.F., Steinau, M., McQuillan, G., & Unger, E. R. (2013).	Descriptive with focus on reduction in the prevalence of HPV types targeted by the quadrivalent HPV vaccine.	Analyzed HPV prevalence data from the vaccine era (2007-2010).	Among females aged 14-19 years, the vaccine-type HPV prevalence (HPV-6, -11, -16, or -18) decreased from 11.5%. 95% confidence interval [CI].	Within 4 years of vaccine introduction, the vaccine-type HPV prevalence decreased among females aged 14-19. Estimated vaccine effectiveness was high.
Paszat, L. (2012).	Descriptive. To identify social determinants of health (SDH) associated with cervical screening for women living in middle and low-income.	Literature review located original research articles on SDH associated with cervical cancer screening.	A number of factors influence access along the pathway to cervical cancer screening.	Cervical cancer screening among women living in middle and low-income is influenced by the interaction among several different SDH.
Ragin, C. C., Edwards, R. P., Jones, J., Thurman, N. E., Hagan, K. L., Jones, E. A., Taioli, E. (2009).	Randomized survey study to note the importance of the general population education on HPV and the HPV vaccine in order to make a decision whether or not to vaccinate against the virus.	Random pre- and post-survey's.	Comparisons of continuous variables were performed using the two-sample t-test. A p-value < 0.05 was considered statistically significant.	Increased knowledge of HPV and the HPV vaccine could result in a likely choice of HPV vaccination.
Sanders-Thompson, V. L., Arnold,	Descriptive, Self-administered	Parental attitudes toward youth	Differences were assessed with t-tests	There is a need for continued HPV promotion

<p>L. D., & Notaro, S. R. (2011).</p>	<p>surveys that assessed factors that may influence HPV vaccination behavior:</p>	<p>sexuality, HPV knowledge; awareness; HPV Vaccination Attitudes.</p>	<p>(mean responses, e.g. age and medical mistrust score) and Chi-Square (categorical variables.)</p>	<p>and education efforts in the African American community.</p>
<p>Smith, J.S., Cates, J.R., Brewer, N.T., & Fazekas, K.I. (2009).</p>	<p>Descriptive surveys to identify racial differences in knowledge and attitudes about HPV, cervical cancer, and the HPV vaccine</p>	<p>Interviewed women (91 black and 47 white) in rural area of the Southern United States in 2006.</p>	<p>More white respondents had heard of HPV than had black respondents (57% vs 24%, $P < .001$) and whites had higher HPV knowledge (42% vs 29% correct responses, $P < .05$).</p>	<p>Black and white respondents had different awareness, knowledge, and beliefs related to the HPV vaccine.</p>
<p>Tiro, J.A., Meissner, H. I., Kobrin, S., & Chollette, V. (2007).</p>	<p>Relational study that aims to assess factors associated with U.S. women's awareness of HPV and knowledge about its link to cervical cancer.</p>	<p>Analyzed cross-sectional data from women ages 18 to 75 years old.</p>	<p>Knowledge about HPV among U.S. women ages 18 to 75 years old was relatively low; 40% of women ($n = 1,248$)</p>	<p>Awareness about HPV among U.S. women is low.</p>
<p>Thomas, L.T., Strickland, O. L., DiClemente, Higgins, M., Williams, B., & Hickey, K. (2013).</p>	<p>Descriptive study of the correlates of refusal and acceptance of human papillomavirus (HPV) vaccination by rural parents of preadolescent</p>	<p>Cross-sectional study was implemented during the school years 2009–2011 in elementary and middle schools.</p>	<p>Parental HPV Survey, was validated by using 28 Likert scale coded responses.</p>	<p>Perceived vulnerability 40.4% (SD = 31.4), perceived severity 45.6 (SD = 29.1), perceived benefits 43.8 (SD = 24.9), and perceived barriers 32.9 (SD = 23.7).</p>

	and adolescent children.			
Westra, T.A. (2013).	An analytical comparison of two vaccines in terms of cost-effectiveness and the benefits of cross-protection from cervical cancer.	Model was used to estimate the difference in future costs and health effects of HPV-vaccines separately.	Data was analyzed using means, standard deviations, frequencies, and percentages.	Use of the bivalent HPV vaccine appears to be most effective and cost-effective. Including the benefits of prevention against genital warts.

Appendix A: Application of Health Belief Model in this study



Appendix B: Sample Pre- Test

Pre-HPV Education Program Questionnaire

Section 1: Demographics

Pre-HPV Education Program Questionnaire

SPSS Code Number: _____

Directions: Please answer the following questions.

1. Do you have children between ages 9-18 Yes____ No____
2. Please indicate the age of **all** your children. _____ years old
3. What is your Gender? (Check one) Male _____ Female _____
4. What is your age? _____
5. Have you ever been offered the HPV vaccine for your child(ren) Check one
Yes ____ No _____ Unsure _____

Section 2: HPV Knowledge (5 items)

Directions: Please circle the corresponding number to your answer to the question.

Question	True	False	Unsure
You have heard of HPV?	1	2	3
Only Adult Women can get HPV?	1	2	3
HPV infections can cause Genital Herpes which leads to Cervical Cancer?	1	2	3
Pap smear testing may indicate infection of HPV or presence of Cervical Cancer cells?	1	2	3
HPV is a common Sexually Transmitted Infection?	1	2	3

Section 3: Cultural influence and comfort discussing HPV with providers (6 items)

Directions: Please circle the corresponding number to your answer

Question	Not at all	Very Little	Some	Very Much
How much does culture influence your medical decisions?	1	2	3	4
As an African American do you have fears and trust issues related to medical treatment and procedures?	1	2	3	4
Do you think fear and trust issues of the healthcare system prevents you from seeking care for yourself or your child?	1	2	3	4
	Very Uncomfortable	Uncomfortable	Comfortable	Very Comfortable
Do you feel comfortable discussing HPV and the HPV vaccine with your child?	1	2	3	4
Do you feel comfortable discussing HPV And the vaccine with your health care provider?	1	2	3	4
Would you feel comfortable if your provider helped you discuss HPV, and sexually transmitted infections with your child?	1	2	3	4

Section 4: HPV Perception (7 items)

Directions: Please circle the corresponding number to your answer.

Questions	Agree Strongly	Agree Slightly	Disagree Slightly	Disagree Strongly
Is a 12-year-old child too young for a vaccine for a sexually transmitted Infection like HPV?	1	2	3	4
If a teenager gets the HPV vaccine he or she may be more likely to have sex?	1	2	3	4
The HPV vaccine is unsafe?	1	2	3	4

Directions: Please circle the corresponding number to your answer.

Question	Strongly Effective	Slightly Effective	Non-Effective
The HPV vaccine is effective in preventing Cervical Cancer & Genital Herpes	1	2	3

Directions: Please circle the corresponding number to your answer.

Question	Very Hard	Slightly Hard	Slightly Easy	Very Easy
How hard do you think it would be to find a clinic that gives you easy access to the HPV vaccine?	1	2	3	4

Directions: Please circle the corresponding number to your answer.

Questions	Agree Strongly	Agree Slightly	Disagree Slightly	Disagree Strongly
I am concerned that the HPV vaccine cost more than I can pay.	1	2	3	4
I don't have enough information about the HPV vaccine to decide whether to give it to my child.	1	2	3	4

Section 5: Parental Report of the HPV Vaccines for their Child.

Do you think you will make the decision to allow your child to get the HPV vaccine based on your current knowledge about the infection?

(Circle answer)

Yes

No

Unsure

Appendix C: Sample post-test

SPSS Code Number: _____

Section 1: HPV Knowledge (5 items)

Directions: Please circle the corresponding number to your answer to the question.

Question	True	False	Unsure
You have heard of HPV?	1	2	3
Only Adult Women can get HPV?	1	2	3
HPV can cause genital herpes?	1	2	3
An abnormal Pap test may indicate HPV?	1	2	3
HPV is the most common sexually Transmitted infection in the U.S?	1	2	3

Section 2: Cultural influence and comfort discussing HPV with providers (3 items)

Directions: Please circle the corresponding number to your answer

	Very Uncomfortable	Uncomfortable	Comfortable	Very Comfortable
Do you feel comfortable discussing HPV and the HPV vaccine with your child?	1	2	3	4
Do you feel comfortable discussing HPV And the vaccine with your health care provider?	1	2	3	4
Would you feel comfortable if your provider helped you discuss HPV, and sexually transmitted infections with your child?	1	2	3	4

Section 3: HPV Perception (7 items)

Directions: Please circle the corresponding number to your answer.

Questions	Agree Strongly	Agree Slightly	Disagree Slightly	Disagree Strongly
Is a 12-year-old child too young for a vaccine for a sexually transmitted Infection like HPV?	1	2	3	4
If a teenager gets the HPV vaccine he or she may be more likely to have sex?	1	2	3	4
The HPV vaccine is unsafe?	1	2	3	4

Directions: Please circle the corresponding number to your answer.

Question	Strongly Effective	Slightly Effective	Non-Effective
The HPV vaccine is effective in preventing Cervical Cancer & Genital Herpes ?	1	2	3

Directions: Please circle the corresponding number to your answer.

Question	Very Hard	Slightly Hard	Slightly Easy	Very Easy
How hard do you think it would be to find a clinic that gives you easy access to the HPV vaccine?	1	2	3	4

Directions: Please circle the corresponding number to your answer.

Questions	Agree Strongly	Agree Slightly	Disagree Slightly	Disagree Strongly
I am concerned that the HPV vaccine cost more than I can pay.	1	2	3	4
I don't have enough information about the HPV vaccine to decide whether to give it to my child.	1	2	3	4

Section 4: Parental Report of the HPV Vaccines for their Child.

Do you think you will make the informed decision to allow your child to get the HPV vaccine based on your **NEW** knowledge about the infection?

(Circle answer)

Yes

No

Unsure

Appendix D: The HPV Educational Program Evaluation

Questions	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
The information in the educational program helped me to better understand HPV and the HPV vaccine?	1	2	3	4	5
The size of the written material was large enough for easy reading.	1	2	3	4	5
The educational program answered questions I had regarding HPV and the HPV vaccine.	1	2	3	4	5
The information in the educational program was easy for me to understand.	1	2	3	4	5
The educational program clearly explained signs and symptoms of HPV.	1	2	3	4	5
The educational program gave strong reasons why I should vaccinate my child.	1	2	3	4	5
The educational program maintained my interest.	1	2	3	4	5
The educational program was an effective way to receive this information on HPV and the HPV vaccine.	1	2	3	4	5
The educational program provider was knowledgeable about HPV and the HPV vaccine.	1	2	3	4	5
The educational program gave me motivation to request the HPV vaccine for my Child.	1	2	3	4	5

Please provide any suggestions or feedback on how I can improve the educational program.

Thank you for your time!

Appendix E: HPV Education Program (HPVEP)

HPV Education Program

Christina Lattner MSN Ed., AGNP-C, ANP-BC, APRN 2016-2017 DePaul University-Doctoral Candidate

What is HPV???

HPV stands for Human Papillomavirus.

HPV is the most common sexually transmitted infection (STI). HPV is so common that nearly all sexually active men and women get it at some point in their lives. There are many different types of HPV. HPV can lead to Cervical cancer in females; penile and anal cancers in males. Both male and females can get oral cancers from the virus.

Each year in the United States, about 17,600 women get cancer that is linked with HPV; around 9,300 men each year get cancer caused by HPV infection, and the most common are cancers of the back of throat, tongue, and tonsils. There are vaccines that can prevent infection of the most common types of HPV in both males and females.

How is HPV found?

HPV is found during routine Pap testing. The Pap test (or Pap smear) looks for pre-cancers, cell changes on the cervix that might become cervical cancer if they are not treated appropriately. Women should start getting regular Pap tests at age 21 by their Doctors. There is no testing for penile, anal or oral cancers; therefore, screening and vaccination is needed.

Who should get the HPV Vaccine???

The HPV vaccine is recommended for preteen boys and girls so they are protected before ever being exposed to the virus. The HPV vaccine is given in 3 shots. The second shot is given 1 or 2

months after the first shot. Then a third shot is given 6 months after the first shot. The CDC recommends receiving the full HPV vaccine series.

Signs and Symptoms of HPV



People get HPV from another person during sexual activity.; from having vaginal and/or anal sex. Men and women can also get HPV from having oral and other sex play. A person can get HPV even if their partner (straight or same-sex) doesn't have any signs or symptoms of HPV infection.

Genital warts usually appear as a small bump or groups of bumps in the genital area. They can be small or large, raised or flat, or shaped like a cauliflower; or no symptoms. A healthcare provider can usually diagnose warts by looking at the genital area.

Cervical cancer usually does not have symptoms until it is too late and very serious.

Black women are often diagnosed with cervical cancer at a later stage than White women; which makes the cancer more difficult to treat along with the higher rates of dying from cervical cancer.

Early detection from screening can prevent death.

Appendix E: HPV Education Program (HPVEP)

Appendix E: HPV Education Program (HPVEP)

Is my child too young to get a vaccine for sexually transmitted infections??

The HPV vaccine is recommended for preteen boys and girls at age 11 or 12 so they are protected before ever being exposed to the virus. Ideally females should get the vaccine before they become sexually active and exposed to HPV.

The HPV vaccine also produces a better immune response during the preteen years. Older teens are less

likely to get health check-ups than preteens. So, if your teen or pre-teen hasn't gotten the vaccine yet, talk to their doctor or nurse about getting it for them as soon as possible.

Can I afford the Vaccine???

The Vaccines for Children (VFC) program helps families of eligible children who might not otherwise have access to vaccines. Children younger than 19 years of age are eligible for VFC vaccines if they are Medicaid-eligible, or have no



"Let's protect our children from preventable infections"

health insurance. VFC vaccines cannot be denied to an eligible child if a family can't afford the fee. The vaccine is also covered under regular scheduled immunizations

References and information

Creator

Christina Lattner MSN Ed., AGNP-C, ANP-BC, APRN

Information retrieved from:

1. Centers for Disease Control and Prevention. (2014). National Immunization Survey-Teen (NIS-Teen). Morbidity and Mortality Weekly Report, 64(29), 784-792. (<http://www.cdc.gov/hpv/parents/index.html>)
2. Planned Parenthood. (2016). Human Papillomavirus (HPV). <https://www.plannedparenthood.org/learn/stds-hiv-safer-sex/hpv>
3. American Sexual Health Association. (2016). American sexual health association: Overview and fast facts. Retrieved from <http://www.ashastd.org/std-sti/hpv/overview-and-fast-facts.html>

Image

1. Information for Little Flowers Early Childhood & Development. (2016). "Children at the Little Flowers Child Development Center romp on the playground." Baltimore, MD.

Appendix F: Vaccine Safety Sheet

| ADOLESCENT VACCINE SAFETY |
INFORMATION FOR PARENTS



What Parents Should Know About HPV Vaccine Safety and Effectiveness

Last updated: JUNE 2014

HPV vaccines prevent cancer

About 14 million people, including teens, become infected with human papillomavirus (HPV) each year. When HPV infections persist, people are at risk for cancer. Every year, approximately 17,600 women and 9,300 men are affected by cancers caused by HPV. HPV vaccination could prevent many of these cancers.

HPV vaccines are safe

There are two vaccines licensed by the Food and Drug Administration (FDA) and recommended by CDC to protect against HPV-related illness. All vaccines used in the United States are required to go through extensive safety testing before they are licensed by FDA. Once in use, they are continually monitored for safety and effectiveness.

Numerous research studies have been conducted to make sure HPV vaccines were safe both before and after the vaccines were licensed. No serious safety concerns have been confirmed in the large safety studies that have been done since HPV vaccine became available in 2006. CDC and FDA have reviewed the safety information available to them for both HPV vaccines and have determined that they are both safe.

The HPV vaccine is made from one protein from the HPV virus that is not infectious (cannot cause HPV infection) and non-oncogenic (does not cause cancer).

HPV vaccines work

The HPV vaccine works extremely well. In the four years after the vaccine was recommended in 2006, the amount of HPV infections in teen girls decreased by 56%. Research has also shown that fewer teens are getting genital warts since HPV vaccines have been in use. In other countries such as Australia, research shows that HPV vaccine has already decreased the amount of pre-cancer of the cervix in women, and genital warts have decreased dramatically in both young women and men.

HPV vaccines provide long-lasting protection

Data from clinical trials and ongoing research tell us that the protection provided by HPV vaccine is long-lasting. Currently, it is known that HPV vaccine works in the body for at least 10 years without becoming less effective. Data suggest that the protection provided by the vaccine will continue beyond 10 years.

HPV vaccine is recommended and safe for boys

One HPV vaccine (Gardasil) is recommended for boys. This vaccine can help prevent boys from getting infected with the HPV-types that can cause cancers of the mouth/throat, penis and anus as well as genital warts.

Like any vaccine or medicine, HPV vaccines might cause side effects

HPV vaccines occasionally cause adverse reactions. The most commonly reported symptoms among females and males are similar, including injection-site reactions (such as pain, redness, or swelling in the area of the upper arm where the vaccine is given), dizziness, fainting, nausea, and headache.

Brief fainting spells and related symptoms can happen after many medical procedures, including vaccination. Fainting after getting a shot is more common among adolescents. Sitting or lying down for about 15 minutes after a vaccination can help prevent fainting and injuries that can be caused by falls.

When fainting was found to happen after vaccination, FDA changed prescribing information to include information about preventing falls and possible injuries from fainting after vaccination. CDC consistently reminds doctors and nurses to share this information with all their patients. Tell the doctor or nurse if your child feels dizzy, faint, or light-headed.

HPV vaccines don't negatively affect fertility

There is no evidence to suggest that HPV vaccine causes fertility problems. However, not getting HPV vaccine leaves people vulnerable to HPV cancers. If persistent high-risk HPV infection in a woman leads to cervical cancer, the treatment of cervical cancer (hysterectomy, chemotherapy, or radiation, for example) could leave a woman unable to have children. Treatment for cervical pre-cancer could put a woman at risk for problems with her cervix, which could cause preterm delivery or other problems.

How can I get help paying for these vaccines?

The Vaccines for Children (VFC) program provides vaccines for children ages 18 years and younger, who are not insured, Medicaid-eligible, American Indian or Alaska Native. You can find out more about the VFC program by going online to www.cdc.gov and typing VFC in the search box.

DISTRIBUTED BY:
Christina Lattner MSN Ed., AGNP-C, ANP-BC, APRN
DePaul University
Doctoral Candidate



U.S. Department of
Health and Human Services
Centers for Disease
Control and Prevention

Appendix G: Recruitment Handout

RESEARCH PARTICIPANTS NEEDED

Are you an African- American Parent with an Adolescent daughter or son ages 9-18????

Have you heard of the HPV virus?

Do you know that a vaccine is available to offer protection to your child?



I am conducting a research study on the awareness, knowledge and perception of HPV and the HPV vaccine for African American parents in the Chicago area.

If you are an African- American Parent ages 18-50 and have an adolescent daughter or son ages 9-18 I am requesting your assistance.

****Participants will be asked to complete a 5-minute pre-test, listen to a 7-minute education program, complete a 5-minute post-test and complete a 6-minute evaluation on the education received. All information given is confidential****



Your information can help shape how Doctors and Nurses increase knowledge surrounding HPV and the HPV vaccine in hopes to get our children’s vaccination rates as high as other ethnic groups in the United States.



If you are interested in participating in this free study, quick study

Please contact me at the information listed to the right!

Christina Lattner MSN Ed., AGNP-C, ANP-BC, APRN
 Doctorate Student at DePaul University
 313-622-4499
 Email: clattner@depaul.edu

Appendix H: Information SheetINFORMATION SHEET FOR PARTICIPATION IN RESEARCH STUDY

Research Title: Impact of the HPV Education on Knowledge, Perception, and Cultural influence among African-American Parents

Principal Investigator: Christina Lattner DNP post- graduate student t- School of Nursing

Institution: DePaul University, USA

Faculty Advisor: Dr. Young-Me Lee PhD - School of Nursing

Research Team: N/A

Collaborators: N/A

We are conducting a research study because we are trying to learn more about Human papillomavirus (HPV) and HPV vaccine knowledge and perception of African American Parents. The study's purpose is to examine what is the common knowledge and perception of HPV and the HPV vaccine in African American Parents. The primary goal of research is to obtain your general knowledge of HPV and the HPV vaccine and providing you with a short educational program on HPV and the HPV vaccine. After this information, we want to see if the information provided increases your decision to seek additional information from your doctor regarding vaccinating your child against the HPV virus.

We are asking you to be in the research because you are an African American parent ages 21-50 with an adolescent male of female child between the ages of 9-18. If you agree to be in this study, you will be asked to fill out a pre-test questionnaire, listen to a seven-minute education program on HPV, complete a post-test questionnaire and complete a survey on the information given in the educational program.

The pre- & post-test questionnaire will include questions about HPV Knowledge, Cultural Influence and Comfort in discussing HPV with your doctor, and your perception of the HPV vaccine. We will also collect some personal information about you such as your age, your children's age, how many children you have and if you have ever been offered the HPV vaccine. If there is a question you do not want to answer, you may skip it.

This study will take about twenty minutes of your time. Five minutes for the pre-test, five minutes for the post-test, and seven minutes for the education program. Research data collected from you will be 'anonymous' meaning no one will know your answers. Completed questionnaires will be stored in a sealed, confidential envelope, opened and viewed only by the Principal Investigator (myself) during input of data into a computer statistics program.

Your participation is voluntary, which means you can choose not to participate. You can withdraw your participation at any time prior to submitting your survey. If you change your mind while

answering the survey, you may simply leave the blank survey on the table. Once you submit your responses, we will be unable to remove your data later from the study because all data is anonymous and we will not know which data belongs to you. There will be no negative consequences if you decide not to participate.

If you have questions, concerns, or complaints about this study or you want to get additional information or provide input about this research, please contact Christina Lattner MSN Ed., AGNP-C, ANP-BC, APRN at (773)-325-7116 or by email at clattner@depaul.edu.

If you have questions about your rights as a research subject, you may contact Susan Loess-Perez, DePaul University's Director of Research Compliance, in the Office of Research Services at 312-362-7593 or by email at sloesspe@depaul.edu. You may also contact DePaul's Office of Research Services if:

- Your questions, concerns, or complaints are not being answered by the research team.
- You cannot reach the research team.
- You want to talk to someone besides the research team.

You may keep this information for your records. If you would like a copy of this information emailed to you, please write an email address below.

Thank you for your time,

***Christina Lattner MSN Ed., AGNP-C, ANP-BC, APRN
Principal Investigator- DePaul University
DNP Post-Graduate Student***

Enter the following information ONLY if you want a copy of this Information Sheet.

Email Address: _____

Date: _____

Appendix I: DNP Project Committee

**DePaul University
School of Nursing
Doctor of Nursing Practice Program (DNP)
DNP Project
Request Form for Appointment of Doctoral Committee**

Date 3/31/2017

Student Name (s): **Christina Lattner**

DNP Project Topic: **Impact of HPV Education on Knowledge, Perception, and Cultural influence among African-American Parents**

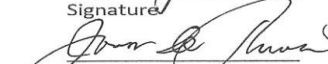
Please appoint the following faculty members to the Doctoral committee for the above name student. Each of these faculty members has been contacted by the student (s) and signatures indicate agreement and willingness to serve on this committee. By signing this form, the committee member verifies that no conflict of interest exists.

Dr. Young Me Lee
Name of the DNP Committee Chair


Signature

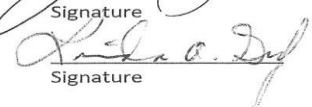
4/03/2017
Date

Dr. Joseph Tariman
Name of the DNP Committee Member


Signature

4-1-2017
Date

Dr. Linda Graf
Name of the DNP Committee Member


Signature

4/1/2017
Date