

Human Papillomavirus (HPV) and HPV Vaccine Knowledge, Attitudes, and Uptake in Pre-Professional Pharmacy Students

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BACKGROUND

Human Papillomavirus (HPV) is a highly prevalent sexually transmitted virus that can cause genital warts and several types of cancers such as of the cervix, vagina, vulva, penis, anus, rectum and oropharynx.¹ Each year 32,500 women and men are diagnosed with a cancer caused by HPV infection and an additional 700,000 women are diagnosed with cervical precancers.² The American Council on Immunization Practices (ACIP) recommends initiation of the HPV vaccination series at ages 11-12 years, however, vaccine initiation can occur early as age 9. Vaccination is recommended for females through age 26 years and for males through age 21 years who were not adequately vaccinated previously.³ Despite these recommendations, HPV vaccine coverage remains low.⁴ Provider recommendation is consistently the most effective method for increasing vaccination rates.⁵ Factors associated with decreased provider recommendations include practice specialty, lack of awareness of the potential effectiveness of the vaccine to prevent anal, oropharyngeal, vulvar, and vaginal cancers, hesitation to discuss sexual health-related issues with patients, and perceptions that patient is at low risk.^{6,7} Little is known about pharmacy students; knowledge, attitude, uptake of the HPV vaccine, many of whom are in the first generation of the targeted age group to receive the vaccine which they will now be expected to recommend to their patients.

OBJECTIVES

The purpose of this study was to examine HPV and HPV vaccine knowledge, attitudes, and uptake in pre-professional pharmacy students to inform educational efforts to prepare students to be effective partners in initiatives to increase vaccine uptake and completion.

METHODS

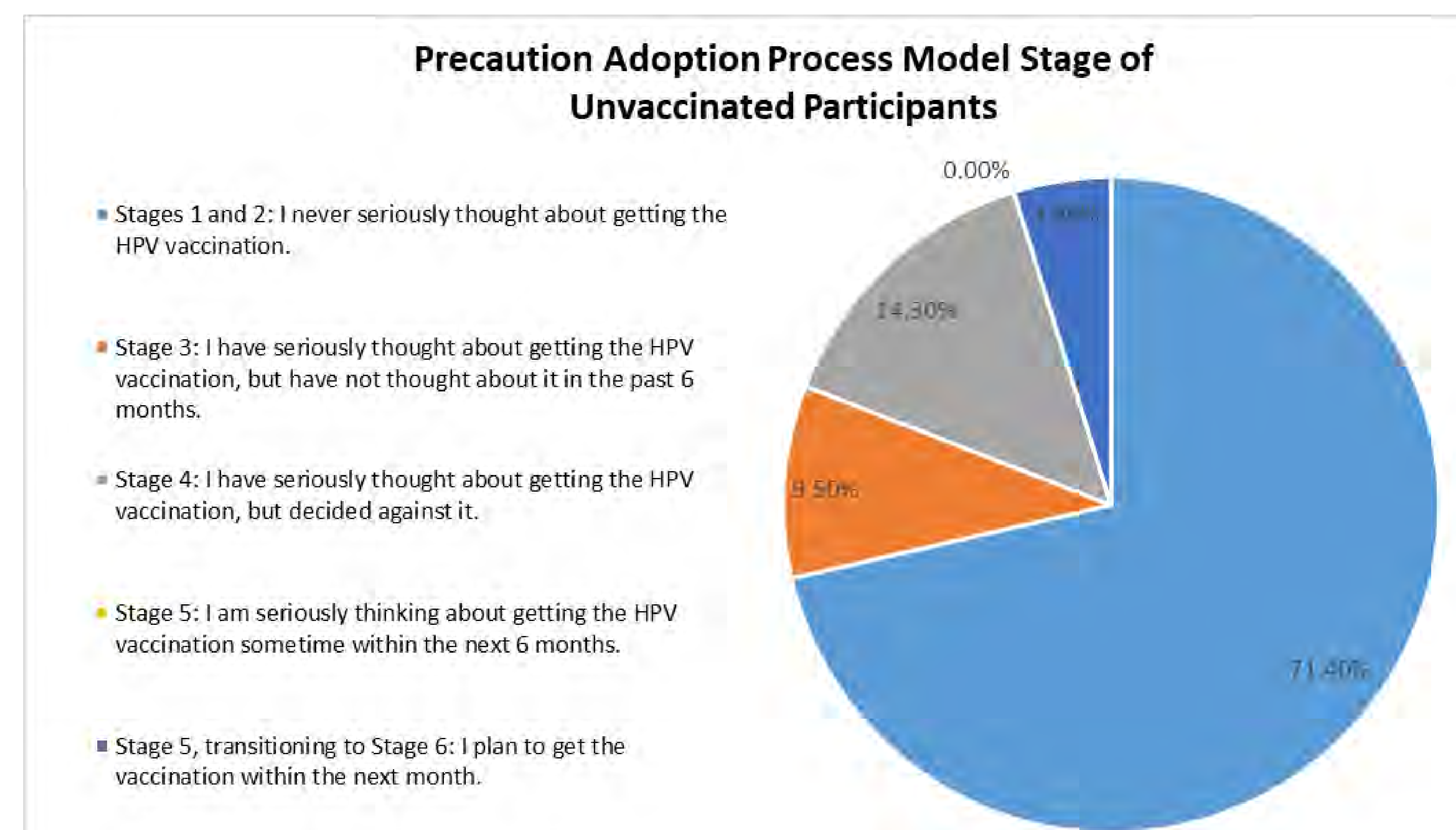
A cross-sectional online survey assessed students' knowledge, attitudes, and perceptions related to HPV and HPV vaccinations. The Precaution Adoption Process Model (PAPM) is a stage-based model that can guide tailored interventions to increase vaccine uptake. Survey items assessed students' HPV vaccination status and intentions to determine where they currently were in the PAPM stage model. The survey was distributed via email to pre-pharmacy students at a public university in the southeast and remained available for approximately one month. Analyses were conducted using SPSS (version 22.0). Descriptive statistics were utilized to characterize the sample. A logistic regression model was developed to examine factors associated with vaccination status. Approval by the Institutional Review Board was granted prior to the initiation of the study. Informed consent was provided by participants prior to survey initiation.

RESULTS

A total of 52 pre-professional pharmacy students completed the survey. **HPV & HPV Vaccine Knowledge/Awareness:** Responses indicated that most students knew that HPV can cause cervical cancer (94.2%), penile cancer (71.2%), and anal cancer (69.2%). They were also aware that HPV is sexually transmitted (92.3%), can be transmitted even when asymptomatic (94.2%), and infects both men and women (94.2%). Students reported their healthcare provider (53.8%), school (59.6%), the internet (34.6%), TV (30.8%), and their family (30.8%) as common sources of information about HPV. Few students felt they were at risk for getting HPV (17.0%).

HPV Vaccine Attitudes: Students reported some agreement that the vaccine has significant side effects (19.2%) and is likely to cause health problems (14.9%), but most agreed it was safe (61.7%) and is an effective way to prevent HPV infection (70.2%). However, 14.9% thought they could get HPV from the vaccine and 21.3% were concerned their family would find out if they got the HPV vaccine.

HPV Vaccine Uptake: HPV vaccine uptake was reported by **48.9%** of the respondents. Of those who indicated that they had received the vaccine, only 57.7% were certain they had completed the series. Of those who had remaining shots to finish the series, 36.4% said they were unlikely or very unlikely to finish the series. Participants who were not vaccinated were asked to indicate their thoughts about getting vaccinated to determine which stage of the PAPM they were in at that point in time. The percent of participants in each stage indicated that most unvaccinated students were in the earliest of the model's stages as described in the figure below.



RESULTS

The logistic regression analysis indicated that reliance on parents when making medical decisions was the only significant predictor of vaccination status, with students who reported stronger agreement to the statement 'I rely on my parents when making a medical decision' were more likely to be vaccinated (OR=4.88 95%CI=1.41-16.93).

CONCLUSIONS

Pharmacists can serve an important role in improving HPV vaccination coverage. Healthcare provider recommendation is one of the most important predictors of HPV vaccination and current CDC guidance calls for a personalized recommendation from the provider to the patient.⁸ To date, this has included a statement such as "I vaccinated my child/grandchild." However, providers being trained now could report that they have been vaccinated themselves. Thus, provider's personal experiences with the vaccine may influence their recommendation. This study indicates that only half of pre-pharmacy students completed the HPV vaccine and most of the unvaccinated students have not thought about getting vaccinated. Recommended interventions for individuals in stages 1 and 2 of the PAPM are informational campaigns to raise awareness of the risks and benefits of vaccination.

The results of this study indicate pharmacy students must be educated about the safety and efficacy of the vaccine, as well as HPV risk factors. Efforts to increase vaccination coverage in pre-professional students are warranted in order to prepare them to make effective recommendations as healthcare providers.

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