

Predictors of Human Papillomavirus (HPV) Vaccine Uptake Among Young Rural Women

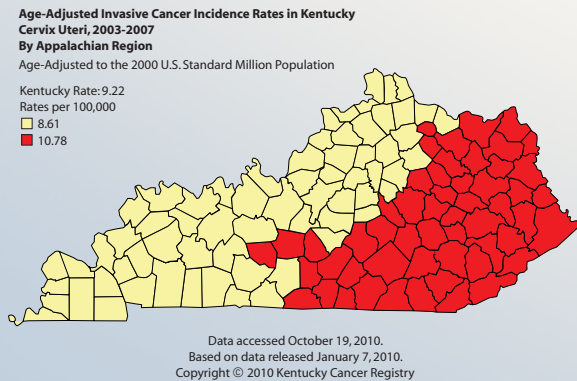
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Background

Appalachia Kentucky is recognized for increased cervical cancer incidence, morbidity and mortality and lower rates of Pap testing. The region is also noted for a physical and socio-cultural environment (e.g., geographic isolation, lower socioeconomic status) which may preclude positive health outcomes. Understanding the normative influences predicting uptake of the Human Papillomavirus (HPV) vaccine uptake is warranted among this population.



Purpose

To identify normative influences predicting uptake of Gardasil offered for free to rural Appalachian women 18-26 years of age. Many women over the age of 18 are no longer eligible for childhood vaccine programs, are often uninsured, and have not been the primary focus of HPV-related pharmaceutical marketing campaigns.

Methods

Young women, ages 18-26, were recruited from health clinics and community colleges in rural Southeastern, Kentucky (N=495). After completing a brief questionnaire, women received a free voucher for HPV vaccination. Whether women redeemed the voucher for the initial dose of vaccine served as the study outcome variable. Hierarchical logistic regression was used to estimate the influence of four normative influences (health care providers, friends, mothers, and fathers) on the outcome variable.

Results

Just over one-quarter of the sample (25.9%) received dose 1. Average age was 21.6 years (SD=2.5). The majority of study participants were primarily white (98.0%). Uptake was much higher in the clinic-recruited sample (45.1%) than the college sample (6.9%) (Table 1).

Table 1. Bivariate Associations Between Predictor Variables and Uptake of HPV Vaccination (Dose 1) Among Young Rural Women (N =495)

Predictors	% Vaccinated	PR ¹	95% CI ²	P value
Recruitment Site				
Clinic (n = 247)	45.1	6.58	4.08 – 10.63	.0001
Community College (248)	6.9			
Had sex at least once in the past 12 months				
No (77)	23.4	.89	.57 - 1.37	.59
Yes (418)	26.3			
Had sex with 2 or more partners past 12 months				
No (426)	24.4	1.45	.99- 2.05	.07
Yes (69)	34.8			
Friend or family member diagnosed with cervical cancer				
No (307)	25.4	.95	.70 – 1.30	.77
Yes (188)	26.6			
Ever had a Pap test				
No (67)	11.9	2.35	1.21 – 4.90	.005
Yes (427)	28.1			
Ever had an abnormal Pap test				
No (376)	22.3	1.67	1.24 – 2.25	.001
Yes (118)	37.3			
Currently using hormonal contraceptives				
No (242)	31.0	1.47	1.08 - 1.99	.012
Yes (251)	21.1			
<u>Normative Influences</u>				
A health care provider has suggested that I be vaccinated				
Not indicated (297)	20.5	1.66	1.23 – 2.23	.001
Yes (197)	34.0			
Friends would “definitely want me” to be vaccinated				
Not indicated (297)	19.2	1.88	1.39 – 2.53	.0001
Yes (197)	36.0			
Mother would “definitely want me” to be vaccinated				
Not indicated (202)	17.3	1.83	1.30 – 2.59	.0001
Yes (293)	31.7			
Father would “definitely want me” to be vaccinated				
Not indicated (255)	18.4	1.83	1.34 – 2.51	.0001
Yes (240)	33.8			

1 Prevalence ratio, 2 Confidence interval

In controlled analyses, 3 of the 4 normative influences (health care providers, friends, and fathers) retained significance as did current use of hormonal contraceptives and ever having an abnormal Pap test (Table 2). The influence of mothers did not retain significance (P=.46). Interaction effects occurred between recruitment site (clinic vs. college) and all three of the normative influences retaining multivariate significance with uptake. Each effect indicated that the obtained association only applied to women recruited from clinics.

Table 2. Significant Multivariate Associations Between Assessed Predictors and HPV Vaccine Uptake Among Young Rural Women (N =495)

Predictor	AOR ¹	95% CI ²	P value
Currently using hormonal contraceptives	1.56	1.03 – 2.39	.038
Ever had an abnormal Pap test	1.77	1.12 – 2.82	.015
Health care provider suggested I be vaccinated	1.64	1.07 – 2.51	.024
Friends would “definitely want me” to be vaccinated	1.64	1.03 – 2.63	.036
Father would “definitely want me” to be vaccinated	1.61	1.01 – 2.57	.046

1 Adjusted odds ratio -- adjusted for the influence of all other variables in the model
2 Confidence interval

Conclusions

Our prospective findings suggest that at least three modifiable factors may increase HPV vaccine initiation: paternal endorsement of the HPV vaccine, health care provider endorsement, and peer norms. Key recommendations include featuring father-daughter and peer-to-peer relationships in social marketing programs designed to promote HPV vaccine uptake among young Appalachian women and securing health care provider endorsements of the HPV vaccine. Our findings also suggest that altering these three factors to improve uptake may need to occur in harmony with efforts to make the vaccine easy and convenient to obtain.

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