

Human Papillomavirus Vaccination Rates in an Urban Obstetrics and Gynecology Clinic and Faculty Practice Population

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Citation: Victoria Timme, Divya Gowthaman, Celeste Acevedo, Alejandro Alvarez, Arisa Kapedani et al. (2024) Human Papillomavirus Vaccination Rates in an Urban Obstetrics and Gynecology Clinic and Faculty Practice Population, J Gynecology Women Health care 5: 101

Abstract

Background: Despite the ubiquitous prevalence of Human Papillomavirus (HPV) and the available primary prevention of associated cancers, HPV vaccination rates continue to lag recommended vaccinations. Discrepancies may include social media misinformation, religious beliefs, and parental concerns about promiscuity and autism.

Objective: Survey women's attitudes towards and knowledge of the HPV vaccine. Determine response to vaccination of patients' offspring and potential barriers to HPV vaccination.

Study Design: We conducted an Institutional Review Board approved cross-sectional survey between March 2020 and September 2022 at two Northwell Health obstetrics and gynecology outpatient facilities located in Queens, New York. Patients aged 18-45 presenting for new or established outpatient appointments were included. Population demographics, gynecologic/sexual history, and awareness of HPV were all stratified by vaccination status. Attitudes towards vaccination in patients' current or anticipated offspring were surveyed.

Results: 818 women enrolled in the study, of which the average age was 32.7 years. HPV vaccination rate was 38.1% amongst respondents, markedly lower than both New York State and nationwide rates (64.4% vs. 61.7%, respectively). 50.2% of women reported they were never offered the vaccine. There was a significant association between vaccination status and both race ($p<0.001$) and contraception ($p=0.002$); highest vaccination rates noted in white women and women using contraception. Vaccinated women were more likely to be aware of the vaccine's purpose ($p<0.001$). Unvaccinated women were less likely to authorize vaccination for both male ($p=0.003$) and female ($p=0.004$) offspring. 22.4% of the cohort were

open to further counseling. Level of education did not affect vaccination status ($p=0.17$).

Conclusions: Inadequate counseling and education regarding the HPV vaccination is an actionable barrier to low vaccination rates. Targeted populations should incorporate parents who are determining their child's vaccination status. Biases against the HPV vaccine continue to persist and must be individually addressed by healthcare providers, especially in minority groups.

Keywords: Human Papillomavirus; cervical cancer; vaccine; barriers; bias; gynecologic cancer; anogenital cancer; oropharyngeal cancer; primary prevention; physician counseling

List of abbreviations: HPV- Human Papillomavirus; US-United States; STI- sexually transmitted infection; IRB- Institutional Review Board

Introduction

Human papillomavirus (HPV) is associated with genital warts and cancers including oropharyngeal, cervical, vulvar, vaginal, anal, and penile. Introduced in 2006, the HPV vaccine was found to be safe and effective [1]. While initial data and marketing focused on females aged 9 to 26 years, additional data demonstrated efficacy in males. The targeted population now includes both sexes and the eligibility age range has expanded; the HPV vaccine is offered to both sexes up to age 45 [2]. With larger inclusion criteria and increased public knowledge, HPV-related diseases could be eradicated.

Despite the increasing availability and awareness, HPV vaccination rates continue to fall short compared with other recommended vaccinations. While the Healthy People 2020 goal was to vaccinate 80% of 13–15-year-olds against HPV, only 61.4% of female and 56.0% of male adolescents had received the vaccine [3]. Geographic disparities within the United States (U.S.) persist. In 2016, states with the lowest vaccination rates were likely to be conservative, racially diverse, highly religious, and with abstinence-only or entirely lacking sex education policies [4]. Discrepancies and barriers to HPV vaccination exist, including age, socioeconomic status, and racial disparities, as well as social media misinformation, religious beliefs, and parental opinions.

An increased prevalence and persistence of high-risk HPV types in Black women compared to White women continues. In 2007, the age-adjusted cervical cancer mortality rate for Black women was 4.3 per 100,000, compared to 2.2 and 3.0 for White and Hispanic women, respectively [5]. One study that interviewed ethnically diverse Black women showed most of these women did not recognize HPV as a sexually transmitted infection (STI) and learned about the vaccine from televised commercials [6]. This underscores the importance of identifying the source from which individuals obtain health care information and the recognition that cultural beliefs may vary markedly by ethnic group. One study showed no significant difference in HPV vaccine initiation and completion by race or ethnicity in women aged 18–22. However, Black, Latina and Asian women over 23 were less likely to complete the vaccine series than White women [7].

Predominant parental concerns about HPV vaccination include potentially increasing sexual activity in children and adolescents, religious justifications, and vaccination side effects [8]. Social media platforms have become a rampant source for rapid spread of misinformation. Despite decreased adverse events following HPV vaccination from 2015 to 2018, safety concerns among parents increased by approximately 80% [8]. This reflects the increased influence of social media on patient decision-making. Exposure to anti-vaccine content was positively correlated with HPV vaccine hesitancy [9]. Multiple studies have shown that the HPV vaccine does not alter age of coitarche, number of sexual partners or rates of unprotected intercourse among young adults [10]. Provider and staff education is critical, with increased HPV vaccination rates noted in departments after in-person education sessions [11].

HPV vaccine acceptance may be attributed to the lack of mandates for school entry in most states compared with mandated vaccines. The Vaccines for Children program can offset the cost of vaccination in minors; the same cannot be said for adults who

are eligible for vaccination. In a study surveying uninsured, low-income, minority, and immigrant women, most parents did not know where their children could be vaccinated [12].

A key factor is the parental role in determining a child's vaccination status. Parental consent is required for minors and parental opinion may influence medical decision-making regardless of age. Parents who did not receive a healthcare provider recommendation were twice as likely to report that they did not intend to vaccinate their child [13]. HPV vaccination coverage was lower when parents had concerns about side effects or viewed their child's physician to be unreliable [14]. Male adolescents are less likely to be vaccinated than females when parental hesitancy is a contributing factor [14]. The reason for this gender discrepancy is unclear but may reflect lack of awareness of male eligibility for vaccination or knowledge that vaccination prevents oropharyngeal and penile cancers. Conversely, discussions between mothers and sons regarding STIs or condom usage were associated with HPV vaccine initiation [15].

To better elucidate individuals' hesitancy or outright rejection towards the HPV vaccine, our study aims to explore these biases further and assess the HPV vaccination rates in an urban New York obstetrics and gynecology population. We chose a targeted population with the goal of devising individualized implementation strategies within our practices to potentially increase vaccination rates. We hypothesized that our clinic populations will have low baseline knowledge about Pap smears, HPV, and the HPV vaccine. We also hypothesized that patients are inadequately counseled regarding the vaccine. Lastly, we hypothesized that our patients are under-vaccinated and likewise under-vaccinating their offspring.

Materials and Methods

An Institutional Review Board (IRB) approved survey was conducted to assess participants' background knowledge regarding HPV and its vaccine, personal vaccination history, and their intent to vaccinate their children. The survey, in English and Spanish, included 28 short response and multiple-choice questions, requiring 5-10 minutes to complete. Example questions included "Did you receive the HPV vaccine?" and "If you refused the vaccine, why?" Patients were not offered incentives for survey completion.

Inclusion criteria included women aged 18-45 from two Northwell obstetrics/gynecology clinics affiliated with Long Island Jewish Medical Center between March 2020 and September 2022. Patients were voluntarily recruited and signed informed consent. The surveys were administered and collected by IRB-approved study personnel. RedCap was used for data collection and processing.

Demographic data was analyzed using descriptive statistics. Outcomes were compared using inferential statistics including the Mann-Whitney U-test, chi-squared test, and Fisher's exact test. All analyses were conducted using SAS, release 3.8 Enterprise Edition.

Results

818 patients met inclusion criteria. 78.9% were established patients. Table 1 details demographic characteristics; the average age was 32.7 years. Participants over 31 years had the lowest vaccination rates ($p < 0.001$). However, age was not associated with reported HPV vaccine awareness ($p = 0.46$). Of the participants, 39.8% identified as white, 27.5% as Black, 19.2% as Hispanic, and 17.4% as Asian. In terms of previous schooling, 93.0% completed high school, 65.1% completed college, and 27.1% completed a graduate degree. Level of education did not affect vaccination status ($p = 0.17$).

Table 1: Participant demographic characteristics and HPV vaccination status

Vaccination Status	Total (No., %)	Vaccinated (No., %)	Unvaccinated (No., %)	p-value
Age (years) (n=765) ^a				p<0.001
18-20	30 (3.92%)	20 (66.67%)	10 (33.33%)	
21-25	117 (15.29%)	68 (58.12%)	49 (41.88%)	
26-30	141 (18.43%)	84 (59.57%)	57 (40.43%)	
31+	477 (62.35%)	120 (25.16%)	357 (74.84%)	
Race (n=761)				p<0.001
Asian	133 (17.48%)	38 (28.57%)	95 (71.43%)	
Black	209 (27.46%)	73 (34.93%)	136 (65.07%)	
White	303 (39.82%)	150 (49.50%)	153 (50.50%)	
Other ^b	116 (15.24%)	30 (25.86%)	86 (74.14%)	
Ethnicity (n=761)				p=0.29
Hispanic	146 (19.2%)	50 (34.25%)	96 (65.75%)	
Non-Hispanic	615 (80.8%)	240 (39.02%)	375 (60.98%)	
Highest Level of Schooling (n=764)				p=0.17
Grade School	29 (3.67%)	8 (27.59%)	21 (72.41%)	
High School	110 (13.91%)	34 (30.91%)	76 (69.09%)	
College Degree	411 (51.96%)	167 (40.63%)	244 (59.37%)	
Graduate Degree	214 (27.05%)	84 (39.25%)	130 (60.75%)	

^aNot all participants opted to answer the survey in its entirety, therefore response rate noted for individual survey items

^b“Other” specified races included Hispanic, Latin, Guyanese, South American, Cuban, Dominican, and multiple races

A sub-analysis was performed to characterize participant demographics stratified by history of abnormal Pap smear (Table 2). 28.9% of respondents reported a previous abnormal Pap smear, of which 35.5% were vaccinated. There was a significant association between race and vaccination status, with highest vaccination rates among white women (p<0.001). History of an abnormal Pap smear was not significantly associated with HPV vaccination status (p=0.37) (Table 3).

Table 2: Participant demographic characteristics based on history of abnormal Pap smear

Pap smear history	Total (No., %)	History of abnormal Pap (No., %)	Pap smears reported normal (No., %)	p-value
Age (years) (n=802)				p<0.001
18-20	32 (3.99%)	0 (0.00%)	32 (100.00%)	
21-25	122 (15.21%)	18 (14.75%)	104 (85.25%)	
26-30	146 (18.20%)	38 (26.03%)	108 (73.97%)	
31+	502 (62.59%)	176 (35.06%)	326 (64.94%)	
Race (n=794)				p<0.001
Asian	142 (17.88%)	20 (14.08%)	122 (85.92%)	

Black	214 (26.95%)	70 (32.71%)	144 (67.29%)	
White	319 (40.18%)	104 (32.60%)	215 (67.40%)	
Other	119 (14.99%)	35 (29.41%)	84 (70.59%)	
Ethnicity (n=796)				p=0.010
Hispanic	154 (19.35%)	58 (37.66%)	96 (62.34%)	
Non-Hispanic	642 (80.65%)	174 (27.10%)	468 (72.90%)	
Highest Level of Schooling (n=798)				p=0.24
Grade School	29 (3.63%)	8 (27.59%)	21 (72.41%)	
High School	110 (13.78%)	24 (21.82%)	86 (78.18%)	
College Degree	431 (54.01%)	122 (28.31%)	309 (71.69%)	
Graduate Degree	228 (28.57%)	74 (32.46%)	154 (67.54%)	

Table 3: Participant gynecologic history and HPV vaccination status

Vaccination Status	Vaccinated (No., %)	Unvaccinated (No., %)	p-value
Sexually active (n=764)			p=0.30
Yes	255 (38.93%)	400 (61.07%)	
No	29 (35.80%)	52 (64.20%)	
Prefer not to answer	7 (25.00%)	21 (75.00%)	
Number of Lifetime Partners (n=664)			p=0.004
1-5	57 (42.86%)	76 (57.14%)	
6+	38 (55.07%)	31 (44.93%)	
Prefer not to answer	162 (35.06%)	300 (64.94%)	
Contraception Method (n=759)			p=0.002
None	96 (32.76%)	197 (67.24%)	
Condoms	83 (38.79%)	131 (61.21%)	
Pill	58 (55.77%)	46 (44.23%)	
IUD	30 (35.71%)	54 (64.29%)	
Othera	24 (37.50%)	40 (62.50%)	
History of STI (n=764)			p=0.20
Yes	51 (44.35%)	64 (55.65%)	
No	234 (37.74%)	386 (62.26%)	
Prefer not to answer	8 (27.59%)	21 (72.41%)	
History of Pap smear (n=763)			p=0.10
Yes	250 (37.20%)	422 (62.80%)	
No	42 (46.15%)	49 (53.85%)	
History of abnormal Pap smear (n=761)			p=0.37

Yes	77 (35.48%)	140 (64.52%)	
No	212 (38.97%)	332 (61.03%)	
History of HPV (n=762)			p>0.99
Yes	58 (38.16%)	94 (61.84%)	
No	233 (38.20%)	377 (61.80%)	
HPV vaccine ever offered (n=761)			p<0.001
Yes	290 (76.52%)	89 (23.48%)	
No	1 (0.26%)	381 (99.74%)	

³Other contraceptive options included: Nexplanon implant, Depo-Provera, Nuvaring, patch, tubal/salpingectomy, partner vasectomy, otherwise unspecified.

Gynecologic history and level of sexual activity were compared based on HPV vaccination status (Table 3). 85% were currently sexually active. 69.8% preferred to not disclose the number of lifetime partners. 39% were not using any form of contraception. The most popular contraceptive methods were condoms (28.5%), oral contraceptive pills (13.2%), and intrauterine devices (11.3%). 15% reported previous STI. 20.1% reported testing positive for HPV, while 12% reported never having a Pap smear.

Knowledge about HPV was assessed (Table 4). 75.3% reported hearing about the HPV vaccine and were more likely to be vaccinated (p<0.001). 46.4% self-reported knowledge of the type of cancer the HPV vaccine protects against, however only 29.7% were able to correctly specify in short response format. Similarly, with a multiple-choice selection, 27.4% of patients were able to correctly specify at least one type of cancer associated with HPV. Notably, 50.2% of participants reported they had never been offered the HPV vaccine. 78.5% reported vaccination counseling was under five minutes. Of those offered the vaccine, 41.8% were from an obstetrician-gynecologist rather than a pediatrician or primary care provider.

Table 4: Participant knowledge about HPV and vaccination status

Vaccination Status	Vaccinated (No., %)	Unvaccinated (No., %)	p-value
Do you know what type of cancer the Pap smear screens for? (n=764)			p<0.001
Yes	189 (43.95%)	241 (56.05%)	
No	103 (30.84%)	231 (69.16%)	
Have you ever heard of the HPV vaccine? (n=765)			p<0.001
Yes	279 (48.35%)	298 (51.65%)	
No	13 (6.91%)	175 (93.09%)	
Do you know which type of cancer the HPV vaccine protects against? (n=761)			p<0.001
Yes	170 (48.43%)	181 (51.57%)	
No	122 (29.76%)	288 (70.24%)	

Table 5: Participant attitudes on HPV vaccine in offspring and personal vaccination status

Vaccination Status	Vaccinated (No., %)	Unvaccinated (No., %)	p-value
If you have or were to have a female child, would you give them the HPV vaccine? (n=682)			p=0.004
Yes	155 (42.35%)	211 (57.65%)	
No	100 (31.65%)	216 (68.35%)	
If you have or were to have a male child, would you give them the HPV vaccine? (n=676)			p=0.003
Yes	149 (42.82%)	199 (57.18%)	
No	104 (31.71%)	224 (68.29%)	

Our overall HPV vaccination rate was 38.1%. Within the vaccinated cohort, the majority received the vaccine from ages 13-19 (51.6%). Unvaccinated women were likely to be non-white ($p<0.001$), not using contraception ($p=0.002$), and unaware of the vaccine's purpose or disease prevention ($p<0.001$). Patient characteristics not associated with vaccination status included sexual activity ($p=0.30$), history of STI ($p=0.20$), and history of HPV ($p>0.99$). Participants reporting a higher number of lifetime sexual partners were more likely to be vaccinated ($p=0.004$). The most common reasons for vaccine refusal included lack of knowledge about the vaccine (32.5%), perceived low risk of HPV exposure (16.2%), and concerns about ineligibility based on age (11.1%). Other reasons included need for parental consent (9.6%), fear of injection (7.4%), religious reasons (3.0%), cost of injection (1.5%), and belief the vaccine caused autism (1.5%).

Attitudes towards the HPV vaccine regarding participants' current or anticipated offspring were assessed (Table 5). Unvaccinated women were less likely to authorize vaccination for both their male ($p=0.003$) and female ($p=0.004$) offspring. The most common reasons cited were "I'm not sure at this time" (41.1% in female offspring, 36.9% in male offspring) and "I don't know enough about it to decide" (33.3% in female offspring, 38.0% in male offspring). Hesitations included "I understand to give the vaccine before exposure, but I believe before puberty is a bit much," "I'm not sure how effective it is since I did receive the vaccine and still have an abnormal Pap smear," and "Our lifestyle doesn't make this risk so prevalent." After the survey, 22.4% of the cohort (176/818) were open to further counseling or discussion and 87.1% were unvaccinated (153/818).

Comments

Principal Findings

Despite New York state having higher HPV vaccination rates, there was a notable discrepancy between our cohort and statewide HPV vaccination rates (38.1% vs. 64.4%) [16].

Racial minority groups were less likely to be vaccinated, with lower rates in Black (34.9%) and Asian (28.6%) compared to White women (49.5%). Racial differences in awareness and knowledge of the HPV vaccine persist, with non-Hispanic Blacks and Hispanics significantly less likely to be aware of the vaccine [17]. Participants with history of an abnormal Pap smear in our study were more likely to be Black or Hispanic. Individuals from minority groups are more likely to report increased trust in family, religious organizations, and media, and mistrust of health care providers is associated with decreased vaccination [18]. Focus groups assessing Black parents' hesitancy towards the HPV vaccine showed a theme of lack of trust in health care providers, pharmaceutical companies, and the government, with reference made to numerous examples of medical exploitation and discrimination such as the Tuskegee experiments [19]. Communication strategies and education around HPV should be culturally sensitive and targeted to individual concerns, necessitating a rapport of trust between provider and patient. Our study population resides in a northeast-

ern urban region of the U.S, while Black women in rural areas have higher rates of cervical cancer mortality than urban counterparts [20]. Our findings corroborate those of a systematic review which demonstrated that lower HPV vaccination rates among racial/ethnic minorities were related to both lack of provider recommendation and inadequate knowledge or awareness of the vaccine [21].

Results in the Context of What is Known

The HPV vaccine is available up to age 45. Older age was associated with decreased vaccination rates in our population. Previous data has reflected that HPV vaccination is more effective in decreasing Cervical Intraepithelial Neoplasia 2/3+ incidence when initiated at a younger age, presumably prior to exposure [22]. While all participants were under 45 years of age, 11.1% reported they were unable to get the vaccine because they were too old. This finding underscores the need to educate patients that HPV vaccination extends beyond adolescence.

Interestingly, level of schooling/education was not associated with vaccination status or history of abnormal Pap smear in our cohort. One study demonstrated no difference in HPV vaccination rates among women of varying educational levels [23]. Contradictory data has suggested parents with higher levels of education were less likely to initiate vaccination in their children [24]. Our study found increased HPV vaccination rates among individuals with increased awareness and knowledge of the vaccine and disease; this may offer new insight to previous conflicting data in that generalized education level may not be as pertinent as specific education about HPV in predicting vaccination rates.

Shockingly, there was overwhelming lack of healthcare provider counseling and inadequate patient knowledge of the vaccine. Only 50% reported ever being offered the HPV vaccine, and 75% reported counseling was less than five minutes. Providers are less likely to recommend the HPV vaccine when they are uncomfortable with the topic, perceive parental hesitancy, believe patients to be low risk, as well as if patients are younger, male, and from racial/ethnic minority groups [25]. It is not surprising that only 75% of participants reported any awareness of the vaccine. Patients unaware of the HPV vaccine, the cancers it prevents, or the type of cancer the Pap smear screens for were significantly more likely to be unvaccinated ($p < 0.001$ for all).

Most participants' previous gynecologic history was not associated with HPV vaccination status, including sexual activity, history of STI, and history of abnormal Pap smear or HPV. Notably, vaccinated women were more likely to be using contraception. These findings bolster previous data that demonstrates HPV vaccination is not associated with high-risk sexual behavior [8, 9]. One study demonstrated increased condom usage among vaccinated individuals, which may reflect superior sex education and knowledge among those vaccinated [26]. Vaccinated women reported a higher number of lifetime sexual partners; 69.6% of participants opted not to disclose number of partners, which may skew this finding.

Clinical Implications

While HPV vaccination rates in our survey population (38.1%) were similar to rates within the abnormal Pap smear subgroup (35.5%), older age was noted to be associated with increased abnormal Pap rates. This finding highlights the importance of early and frequent counseling on the HPV vaccine with patients and parents. A recent study demonstrated that earlier HPV vaccination was associated with a reduction in invasive cervical cancer, and no cases of invasive cancer were recorded in patients immunized at age 12 or 13, while women immunized from age 14 to 22 demonstrated a reduced incidence compared to all unvaccinated patients [27]. Many women do not establish care with an obstetrician-gynecologist until late adolescence or early adulthood and the role of the pediatrician and/or primary care provider in increasing HPV vaccine awareness must be emphasized. A unique barrier faced by pediatricians is parental vaccine hesitancy, which must be incorporated into physician training. In one study, approximately one-third of pediatric providers reported a sizeable number of HPV vaccine-hesitant parents in their practice [28]. Those providers reported least confidence in responding to parents' religious beliefs and concerns. 11.9% of our participants reported

never receiving a Pap smear, although only 4% are not yet eligible based on age. This may reflect lack of knowledge regarding cervical cancer screening, lack of follow-up, or inadequate screening by health care providers.

As we hypothesized, unvaccinated women were less likely to approve of HPV vaccination for current or anticipated offspring. Despite decreased HPV vaccination rates in males nationwide, our study did not find a notable gender difference in parental intent to vaccinate (53.6% female vs. 51.5% male). As the survey question made it apparent that vaccination is available to both sexes, we speculate whether this finding may partially be attributed to increasing parental awareness of male eligibility. In general, the most popular reasons for refusing vaccination were uncertainty and lack of knowledge. This is encouraging considering previous research has suggested that parents who receive health care provider recommendation for the HPV vaccine are more likely to be certain of their decision [29]. Compared to hesitant parents, unsure parents were more likely to be non-White and living below the poverty level [30]. Once again, the importance of adequate counseling and education of patients cannot be understated.

Research Implications

Our data should be utilized to create methods such as an educational patient handout to increase patient knowledge of the HPV vaccine. The information can be provided in the waiting room to all patients at every visit to allow time for reading and development of questions to be discussed with the provider, with the hope that increased exposure promotes increased vaccination. The realistic time constraints of medical appointments are problematic. Provider-based education sessions should also be implemented, which can offer information regarding the vaccine as well as simulated opportunities to practice counseling, particularly in a vaccine-hesitant patient. An additional study could stratify our patient responses based on when the survey was completed to assess for major differences in attitudes towards vaccination during and immediately following the COVID-19 pandemic. Social media could be utilized in a positive way to spread awareness of and accurate information regarding the HPV vaccine. Lastly, future studies could elucidate participant ethnic backgrounds within racial groups, particularly among Black patients, to assess specific vaccination barriers.

Strengths and Limitations

A notable strength to our study is the diversity of our clinic population. Although geographically limited, it was a large sample size with a diverse population in terms of race, ethnicity, age, and level of schooling. As many of our patients were introduced to the topic via our survey, this may facilitate future discussions regarding the HPV vaccine and promote increased vaccination. An interesting caveat is that our data was compiled from March 2020 to September 2022 during the height of and immediately following the COVID-19 pandemic. This may offer some insight into how attitudes towards vaccination were inevitably altered by a global pandemic.

Our study is limited by its design as a prospective survey, as we were unable to assess if the survey impacted knowledge of or attitudes towards the HPV vaccine. Participation rate in the survey was not obtained, so non-response bias cannot be ruled out. We did not investigate whether the survey itself had any outcome on our HPV vaccination rates. Further demographic data could have been assessed, such as socioeconomic status, health insurance, political standpoints, or religion. No adjustments for multiple comparisons were made in our sub-group analysis investigating patients with a history of abnormal Pap smear. Our study did not assess initiation versus completion of the vaccine series. Time constraints at appointments may have limited patient ability or comfort to discuss the survey with their provider. We surveyed patients about their male offspring but were unable to assess the male perspective.

Conclusions

Our data demonstrates that a concerted effort from all health care providers is essential to increase HPV vaccination rates. Since the vaccine's introduction, new challenges include social media misinformation, the growing anti-vaccine movement, and mistrust in provider counseling. Racial disparities remain in HPV vaccination rates as well as higher rates of cervical cancer incidence and mortality among Black women [5]. Our approach to promoting vaccination must remain up to date and culturally sensitive. We should remain aware of current common perceptions about the vaccine and be prepared to address them on an individualized level.

Acknowledgments

The authors would like to thank all the patients who participated in our study. The authors report no conflict of interest. There were no funding sources utilized in this study.

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