

# *The Factors and Benefits of HPV Vaccination on Males*

Liang Yutao<sup>1,\*</sup>

<sup>1</sup>*School of Communication, The Hang Seng University of Hong Kong, Hong Kong*

*\*corresponding author email: s196159@hsu.edu.hk*

**Abstract:** A common globally infection source transmitted by sex is human papillomavirus (HPV), and vaccines are an effective means of suppression. Although men have played an essential role in HPV transmission, low vaccination intention of the male has been found. Studies of male HPV vaccination acceptance have focused on exploration variables to research predictors that influence the willingness. Most studies have involved only a few variables and lack systematic integration. The report explored cues to actions, perceived barriers, and advantages of male vaccination issues from the perspective of factors influencing male HPV vaccination by reviewing the literature. The study found that cues to actions containing the parents' attitude, the media and health care workers as the source and its narrative, the acceptance of their peers, coverage of health insurance, as well as the benefits of prevention as the primary purpose are closely associated with vaccination. Low levels of knowledge, low degree of risk perception, shame, and skepticism might interfere with male vaccination as the main blocks. This result would be conducive to the targeted promotion of HPV jab and the rise of the vaccination rate among men of the appropriate age.

**Keywords:** human papillomavirus, males, vaccination.

## **1. Introduction**

Around the world, people could be infected susceptibly by human papillomavirus (HPV) through sex [1]. According to Staggers, Brann, and Maki, in 2021, it could be transmitted and infected by men in sexual life as a significant role making themselves and their partners more susceptible to certain types of cancer [1]. Research in China has claimed that 70% of women will be diseased with HPV through their life, while about 50% of men will carry and transmit the virus [2]. So, reducing latent HPV infection in men can reduce the rate of HPV infection among women [2]. Due to young women being the targeted subjects for prevention efforts, many male youngsters have had little knowledge about this virus with its consequences and prevention strategies [3]. Recent evidence has suggested that men have low related perceptions of the HPV virus and the vaccine, with a low intention of jab injection. Pitts, Stanley, and Kim have claimed that male undergraduate has been a group that was overlooked and needed more attention for HPV prevention effort [4]. As a result, the issue of factors that predicts male behavioral intention has received considerable critical attention in recent years globally. A common strategy used to study is to explore the male perception of HPV and behaviors of related vaccines with demographic

information.

Meanwhile, research the predictors that affect the likelihood that takes action for males to get HPV jab. Another part of the discussion has been exploring effective communicative measures and communicative frameworks related to media content. For this study, it was interesting to investigate the relationship between predictors and the likelihood of injection. The contributions made should be of interest in health communication of HPV prevention and provide theoretical guidance for male HPV vaccine promotion.

Therefore, this study summarized the factors, including cues to actions and barriers and the benefits of promoting uptake. First, cues to actions included stimulus from families, media, peers, and support from the health care area. Then, knowledge level, perceived risks containing severity and susceptibility, shame, and skepticism have been narrated in the part of obstacles.

## **2. Factors**

### **2.1. Cue to Actions**

Internal or external factors have been referred in cue to actions that could trigger behavior, but in the research about injection intentions, more attention has been put on the external one [4, 6]. The part of internal cues could be symptoms of diseases that the body reacts to, such as chest pain and wheezing, which have been excluded from the review [5]. External cues, including infection of families, media content, and recommendations from trusted sources (such as parents, health care providers, television, or Internet advertising), increase vaccine acceptance [5, 6].

Subjects have often used the Internet to inform themselves on HPV-related issues or turn to healthcare providers as a source of information [7]. For Internet use, male HPV vaccine participants formed beliefs through contact-mediated information about female vaccination, and they used this knowledge to perform the intention [9]. As a result, the collaboration of families, healthcare providers, and journalists have been critical for disseminating complete and accurate information on HPV and HPV vaccines for males [7].

#### **2.1.1. Families**

Studies have shown that family, especially parental attitudes influence young men's vaccination intentions. Reno et al. found that hesitant parents may negatively influence male willingness to vaccinate; this reluctance is mainly due to what parents think of as the low self-efficacy of vaccines [3]. Suppose parents believe that they cannot act by taking HPV jab for their sons, for example, lacking time and having psychological resistance [3]. In that case, they tend to affect their adolescent sons' beliefs either [3]. Another reason for parents who do not agree to vaccinate their sons in adolescent age leaving a noteworthy number of college-age men unvaccinated was a lack of awareness of the vaccine, so they had low HPV severity and susceptibility in their sons. [1, 3]. This kind of parents has presented a unique but common challenge to healthcare providers when recommending HPV vaccines [6]. As a result, eliminating parental hesitation on male HPV vaccines could increase their use among adolescents and public health [3].

#### **2.1.2. Media**

Media have been an essential clue as to a source of HPV vaccine-associated material and following

decisions, affecting individuals' knowledge of HPV and HPV vaccine, perceived susceptibility and severity, and subjective norms [8]. As Perez et al. found, a description of the safety and efficacy of vaccines with associated benefit risks can inform audience opinion [8]. In Kelli et al.'s study, male immunization rates were higher than those mentioned in the literature around 2017. They believed that this might be because of the increased media marketing in the geographic area where the survey was conducted [11]. The media has been considered the giant compelling vaccination clue other than doctor's and peer advice [11].

Reading harmful content about the HPV vaccine made people more likely to believe that the vaccine is dangerous, have more undesirable attitudes about the HPV vaccine, and are less likely to uptake it [8]. Therefore, public attitudes and beliefs could be influenced by both the content and tone of the media. From the perspective of tone, the high prevalence of HPV in the coverage could increase male vaccination rates [8]. According to health belief theories, when individuals feel vulnerable to disease, they are more likely to take specific preventive measures [8]. If the media show the prevalence of HPV to the audience, it will positively affect the uptaking rate. However, if the media characterize human papillomavirus as inevitable, it may hinder male vaccination [8]. From the angle of content, in recent years, there has been surprisingly little news coverage of the national awareness, approval, and promotion of vaccines for boys and men in the United States [1]. In addition, a Canadian study suggested that most of the articles mentioned that girls are qualified to get the HPV jabs. In contrast, only half mentioned men are also eligible for vaccination. Most of the articles will HPV associated with cervical cancer. Few have pointed out that HPV is associated with other HPV cancer and genital warts that men may be involved in [8]. As a result, the public may not know how important it is for men to have HPV, and men could get HPV vaccines. While it is essential to disseminate information about the benefits and risks of vaccines for men's health, the media did not seem to meet this requirement. One conceivable strategy for rising public awareness is to publicize the number of new HPV cases per year and the approximate mortality rate from the disease through the media. [10]

### **2.1.3. Peer Acceptance**

Peer education and peer certification among young people are essential variables in health promotion campaigns [10]. Peer behavior, perception of peer vaccination norms, and inoculation self-efficacy from friends also increased vaccine reception among young adult males [3].

### **2.1.4. Health Care Support**

Health professionals have played a key role in health promotion because prime care physicians were continuously the first level of contact with people suffer from HPV. Doctors in these private practices could inform those who need and are at risk about getting immunized [2]. In Kelli et al.'s study, most men who reported vaccination said they had access to doctors and suggested that health care providers could inform qualified patients of the importance of vaccination to prevent diseases such as anogenital cancer and head or neck cancer [11]. On the one hand, the healthcare workers can reach out to other cues for actions, such as the teenagers' parents, to get their sons vaccinated. On the other hand, they have had the advantage of communicating directly with the male population suitable for injection. College-age men claimed that they were less embarrassed to talk to their doctors about HPV than their parents [7]. Moreover, public health nurses can inform patients and parents about the importance of understanding HPV [11].

The way healthcare workers communicate has been a factor affecting intention. Although provider

advice is a significant trigger in HPV vaccination compliance, studies have shown that providers were often unsuccessful to communicate effectively about the HPV vaccine [6]. An approach based on the "information deficit model," which holds that resistance to a recommendation is due to insufficient knowledge, was usually ineffective for hesitant parents and may even lead to "attitudinal polarization" that intensifies their opposition to vaccines [6]. According to the research of Reno et al., brief motivational techniques, including brief strategies and micro-skills, can rapidly and effortlessly arouse and strengthen parents' motivation and self-efficacy to accept vaccines for sons to play a better role in transmission [6]. It only addresses parents' specific concerns, focuses on solutions, and involves parents who hesitate to get vaccinated without making them feel attacked [6]. Since targeted dissemination of information was of great significance to health campaign practitioners, practitioners designed persuasive messages and conducted supplementary research to explore the best type of message for male college students that could positively affect willingness to vaccinate males [1].

Health care providers need to be aware of current guidelines and the role the HPV vaccine plays in preventing and reducing the problem of HPV infection [11]. They also need to educate auxiliary staff about the importance of the HPV vaccine and the potential to reduce disease morbidity by updating the vaccine [11].

Some of the literature also discussed the cost of vaccines and the importance of health insurance associated with them. Vaccination falls under preventive health care, and health insurance plays an indispensable role in access to such services [11]. The most prominent finding was that the requirement to complete three vaccinations at a fixed cost deterred uninsured men [1]. Since the vaccine was expensive and required three doses may cause inconvenience to some extent, this finding is not surprising [11]. Many studies have supported the correlation between insurance and healthcare service utilization [11]. In a study by Fonteno et al. on-vaccination intentions of university men, 83% of men who received the vaccine have reported having health insurance [12]. Some know about HPV and its jab, but unvaccinated men were aware of self-pay costs and health insurance coverage [12]. For example, they mentioned that they had not been vaccinated because the university's insurance did not cover HPV vaccination after asking [12]. Therefore, it can be speculated that the failure to start or complete the HPV vaccine is due to a lack of health care or that the HPV vaccine is not covered by health insurance.

In terms of the general deficiency of awareness and knowledge of HPV among men and the possibility to improve HPV prevention efforts, university health centers and university campuses could be excellent spots for providing students with HPV education, recognition, and related services [12]. Since many vaccine-age men are still on campus, studies have found that good doctoral relationships in universities can also reduce embarrassment, improve students' understanding of the temporary side effects of HPV vaccination, and increase their likelihood of choosing to be vaccinated [10]. Therefore, HPV vaccination for young people should be included in university health services, as Reno et al. found that on-campus HPV vaccination promoted vaccination and the willingness of undergraduate students to be vaccinated [10].

Fontenot et al. suggested that HPV shot should be encouraged as part of routine package of vaccination, not just for those who currently believe they are at stake or appear to be at stake of HPV infection due to their sexual history [12]. Efforts to raise awareness of HPV and vaccines must continue, and HPV vaccination must be offered to all patients as part of routine health care insurance, regardless of gender or sexually risky behavior [12].

## 2.2. Barriers

Obstacles can vary. Staggers et al. indicated that college men are aware of HPV [1]. However, they hold some misapprehensions about their perceived low susceptibility and their ignorance about the severity of HPV-related health outcomes [1]. These misunderstandings may prevent college students from vaccinating.

### 2.2.1. Knowledge Level

The most persistent barrier to HPV prevention in men has lacked knowledge and awareness. Due to the lack of HPV health information for men, there was a widespread false belief that HPV infection does not have negative impact on men; HPV is a disease for women, and only women could get HPV jabs [3]. "I do not know what is HPV " and "it can only turn into a woman's cancer" were common phrases among participants in related qualitative research [12]. This could make sense that majority of college men have heard of HPV, but they perhaps know little in details [3].

For young adult men, vaccine acceptance was associated with cognitive levels, including knowledge of HPV and its vaccine. A 2018 study in Hong Kong confirmed that when men are ignorant of HPV and its susceptibility, they are less motivated to get vaccinated [10]. Some common misunderstandings among respondents include the belief that HPV can be controlled with antibiotics, HPV is recently discovered, inherited, incurable, lethal, and does not cause anal and penile cancer [10]. Also, lacking awareness and knowledge were the most significant categories in Fontenot et al.'s study. Many subjects acknowledged that they had never heard of HPV, were uninformed of the HPV vaccine, and did not know its existence [12]. Although the Food and Drug Administration has approved HPV vaccines for men since 2009 in the USA, many people have long argued that the vaccine is not suitable for men who expressed confusion as to whether men should be vaccinated, with some suggesting that the vaccine is not suitable for men [29]. There has been a disconnect between men's knowledge of HPV and the actual situation globally, which was due to a lack of knowledge [10].

In addition, subjects knew little about the effectiveness or price of the HPV vaccine. For example, they did not know that the vaccine was given three times or the preferred age range for vaccination [10]. In a study by Cheung et al., 45% of men believed that the vaccine prevented genital warts, penile and anal cancers, and other diareases than genital warts [10]. Another survey in China also showed that male college students' awareness of HPV was not high, so the male vaccination rate for HPV vaccine was generally low [13]. Inadequate knowledge about HPV may prevent men from taking actions to minimize their risk of contracting or transmitting infection. A better understanding of the HPV vaccine will enable men to make better decisions based on their susceptibility and infectivity. The more questions about HPV and its vaccine knowledge applicants could answer correctly, the more likely they were to be vaccinated [1]. Therefore, awareness alone was not enough, and accurate information is necessary, especially in improving awareness of HPV susceptibility and severity among college males [11].

Because male college students' cognition of HPV and HPV vaccine has been related to their vaccination willingness, it is necessary to improve their awareness and prevention awareness, to improve the HPV vaccine vaccination rate [13]. Furthermore, in HPV health education and publicity, women were often the main target of publicity, thus neglecting male influencing factors, resulting in low awareness of HPV among men [13]. So, providers working in university health departments can raise awareness of HPV during routine and occasional clinic visits [11]. This could be done during annual medical check-ups, screening for sexually transmitted infections, or when a student's vaccination record is reviewed

[11].

### 2.2.2. Perception of Risk

Perceived risks include men's perception of HPV susceptibility and their perception of HPV severity [7]. Males were more likely to perform vaccination activity if they believed they had a medium to very high possibility of HPV infection and that HPV could harm their health [10].

Men have had low susceptibility misconceptions about HPV, making them think they are not primarily agents responsible for preventing HPV. For example, most male participants believed that HPV was a trouble experienced by women and that men were the only the virus carriers [1]. Many male participants did not believe they were at risk of HPV infection and therefore did not feel it was necessary to be vaccinated [12]. Some people said that it is not necessary to do so because they used a condom, their girlfriend is a virgin or vaccinated, the virus itself is not worth attention, so they do not have to worry about it, not aware that they have the risk of certain cancers (for example, the penis, throat, mouth, and anus) and genital warts [1, 12]. In Cheung et al.'s study, 35.6% of the participants thought HPV was highly or very contagious, but only 8.0% thought they had a high or very high chance of contracting HPV in the future [10].

The reduction in men's perception of susceptibility also reflected the problem that young people had underestimation on their risk of getting HPV infection because they do not engage in behaviors associated with sexually transmitted diseases (e.g., injecting drugs, risky sexual behaviors) [7]. However, people at low risk of other sexually transmitted infections (HIV) were in high-risk groups for HPV infection [7].

It is crucial to educate men about HPV and their overall susceptibility to HPV infection to make informed decisions about vaccination. Emphasizing the risks of HPV prevention messages targeted at males can motivate them to form information-seeking behavior and HPV prevention behavior [7]. Messages about HPV protection could contain a vital susceptibility component to reinforce men's determination to engage in self-defensive behaviors [7].

### 2.2.3. Stigma & Shame

Mental and psychological barriers, perceived side effects, and embarrassment have been associated with vaccine acceptance.

The stigma associated with sexually transmitted disease (STDS) and STD prevention exists, creating additional vaccination barriers [3]. Stigma has been defined as "a deeply suspicious attribute," a label that connects people with undesirable characteristics; that is, people with STIs are often labeled with negative social identities [13]. Closely related to stigma, shame is a negative emotion that results from an individual's failure to meet personal or social standards and expectations [13]. Although Yang et al. suggested that only women carry a higher sense of shame and seem particularly motivated to hide an HPV diagnosis as a form of maintaining an image with close social ties, this was also found in men [8]. The common reflection on male HPV vaccination were "HPV vaccination is embarrassing", "HPV vaccination means promiscuity" and "men generally disagree with HPV vaccination" [3, 10, 13]. It can also be shown in communication with others, among whom there are some major cues agents. If someone thinks it might be awkward to tell a friend about the HPV vaccine or go to the hospital and talk about HPV, perceive HPV vaccination as embarrassing and stigmatizing, this may be a barrier to accept the vaccine [3].

Although most studies have shown a negative correlation between shame and vaccination intention, some scholars have also shown that there is a positive relationship between shame and uptaking intention,



which may indicate that there may be a favorable implication in shame because it will not lead to complete desolation and lack of inclination to perform [8]. Whether or not HPV and its vaccine were depicted as sexually transmitting and stigmatized in the dissemination of information does affect young people's willingness to get vaccinated.

#### **2.2.4. Skepticism**

Doubts about the vaccine also got in the way, with some men claiming that their biggest obstacle was their doubts about the HPV vaccine [3]. Male suspicion involved three dimensions: efficacy, motivation, and side effects. They questioned whether the vaccine was effective in men, for example, considering whether it affected men and how effective and to what extent it protected them [3]. Others questioned the motives behind the vaccine push, arguing that the government is controlling the issue and that the HPV epidemic is just a great fright approach to persuade everybody vaccinated to make pharmaceutical companies earn more money [3]. In addition, college men seemed less willing to receive vaccines if they trust having negative effects, and they interrogated the value of vaccines compared to the side effects [1]. The common perception of side effects was that the vaccine exposes the person to infection, so the vaccine itself can be harmful or has been reported to have terrible side effects. Most vaccines are not trusted and are considered very risky [1,12].

### **3. Benefit**

If male undergraduates will have a better understanding of the benefits of HPV vaccination beyond perceived barriers, they would be more likely to be vaccinated [10]. In general, the benefits can be divided into direct and indirect. The straight benefits of HPV vaccination in men contained the prevention of genital warts, anal, genital cancers, and head, neck, and throat cancers, and subsidiary benefits include reduced spread of HPV types that can lead to cervical cancer in partners [3, 10]. The potential to protect future female sexual partners positively impacted the uptake of vaccines by young adult men and their folks' decision on their sons [3]. Prevention has been one of the enormous merits of HPV vaccination.

#### **3.1. Prevention**

Prevention has focused on the human papillomavirus and its adverse health effects and extends in two directions: prevention of cervical cancer and interruption of HPV transmission. Concerning cervical cancer, participants noted that the benefits of relationship-based mutual protection were universal because it is suitable for both men and women, as shown by Margaret et al.'s study, where men said that sex puts women at risk of cervical cancer and men could get jabs to protect not only themselves but also the people they have sex with [1, 10]. Protecting future wives and children empathized many applicants [10]. The prevention of HPV transmission was also emphasized, with a positive effect on male acceptance if men are made aware that men transmit it much faster than women and that vaccination will reduce its rate [10]. This was related to a new health belief on a social level.

#### **3.2. Social Benefits**

Health beliefs related to social benefits have significant potential on this topic. A new benefit emerging is that college men recognize is that the potential for broader social benefits of HPV prevention is doing justice in the world, which beyond the protection of self and others [10]. In this context, men may change their willingness to be vaccinated if they realize that HPV vaccination could abate the proportion of

groups who are infected and those who are not, reduce the overall incidence and address a big problem in today's society [10]

#### 4. Conclusions

In this study, we found that the factors affecting male vaccination involve some critical sources of behavior, such as parents, health care workers, and media, and contain varying degrees of direct and indirect benefits. Barriers remained an essential part of male vaccination rates, involving low susceptibility and severity due to inadequate knowledge and shame and suspicion from self. The limitation of this review is that it only discussed the main variables and ignores some controversial factors, such as self-efficacy and vaccination cost. The former cannot be determined whether it was always related to vaccination willingness, while the latter cannot exclude the complex practical policies of different countries and regions. In addition, in the discussion on media, the main research source was traditional media, which may ignore some changes in the new media era. When family acts as cue to action, there may have a difference between adult male and adolescences, but this paper have not deliberated it in depth. Future studies could involve more in-depth discussions on various aspects to clarify the mechanism and correlation of the influence of various factors. In addition, case studies are needed to provide lessons on increasing men's perceived benefits of HPV vaccination through practical measures, reducing barriers, and motivating them to act.

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