

# Decision-making process of families about human papillomavirus vaccination of adolescent daughters: a qualitative study of Hong Kong Chinese families

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## KEY MESSAGES

- Social influences significantly affect the decision-making process of parents and adolescent girls about human papillomavirus (HPV) vaccination.
- Governmental involvement and recommendations from trusted healthcare professionals are important facilitators of decisions about HPV vaccination.
- Doubts about the necessity, safety, efficacy, and particularly the high cost of vaccination are major barriers to HPV vaccination. Vaccination costs contribute to inequalities in women's health, especially among lower socioeconomic groups.
- The government should subsidise a school-based HPV vaccination programme if high coverage is desired.
- Future HPV vaccination programmes should focus on the necessity of early vaccination and provide unbiased information about safety and efficacy.

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## Introduction

Human papillomavirus (HPV) vaccination became available in the private sector in 2006 in Hong Kong. Promotion of HPV vaccination occurs mainly through advertising from the pharmaceutical industry. By 2012, only about 7% to 9% of teenage girls had received HPV vaccination.<sup>1,2</sup> Barriers against vaccination include worry about potential side effects, doubts about effectiveness, and high cost of HPV vaccination; facilitators of vaccination are perceived high risk of cervical cancer and recommendations from healthcare professionals. Nonetheless, two recent studies have reported that HPV vaccination uptake is more likely in girls with advantageous sociodemographic characteristics, such as being locally born and having mothers educated to a tertiary level or above,<sup>2</sup> whereas the principal barrier against HPV vaccination uptake was the financial cost.<sup>1</sup> The present study aimed to identify the underlying barriers and facilitators about HPV vaccination of adolescent daughters in Chinese families.

## Methods

Hong Kong Chinese women with at least one adolescent daughter aged 10 to 18 years who were aware of HPV vaccination, together with the daughter and her father, were invited to semi-

structured interviews. Theoretical sampling was used for recruitment. All interviews were audiotaped, transcribed, and analysed using a grounded theory approach.

## Results

A total of 51 respondents (35 mothers, 15 adolescent girls, and one father) from 35 families were interviewed between March and September 2013. Of the 35 families, five (14%) had daughters who had been vaccinated against HPV (Table).

Most participants reported that the mother took primary responsibility for childcare. Most parents whose daughters had not been vaccinated against HPV had had no formal discussions about vaccination, as there was no perceived and immediate need. Many mothers and daughters had never discussed HPV vaccination with fathers, perceiving that men were uninterested and ignorant about 'a female topic'. Mothers often reported that fathers felt embarrassed when these issues were considered, so the decisions tended to fall to mothers and daughters, especially when fathers were neutral on the question of vaccination. However, when fathers held strong negative opinions, mothers' opinions were influenced. Social factors significantly influenced most parents' and daughters' HPV vaccination decision making, along with balancing

**TABLE.** Participants' characteristics and attitudes about human papillomavirus vaccination

Characteristic	No. of participants*
Mothers (n=35)	
Mean (range) age, y	43.6 (33-52)
Marital status	
Married	27
Divorced/widowed	8
Education	
Tertiary	7
Secondary	26
Primary	2
Family income, HK\$	
≤10 000	6
10 001-19 999	10
20 000-50 000	11
>50 001	8
Cervical cancer diagnosis	2
Daughter vaccinated	5
Daughter unvaccinated	30
Supportive (delaying vaccination)	16 (11)
Undecided/declining	14
Father (n=1)	
Age, y	59
Education	Secondary
Daughter unvaccinated	1
Supportive	1
Adolescent girls (n=15)	
Age, y	17.5 (10-18)
Education	
Tertiary	1
Secondary	10
Primary	4
Vaccinated	2
Unvaccinated	13
Willing to receive at current age	6
Wait until adulthood	5
Refuse	1
Unknown/not answer	1

\* Data are presented as No. of participants unless otherwise stated

of the risks and benefits (Fig). Most parents who currently declined HPV vaccination stated that they would re-consider when their daughters grew up, by which time they felt that the vaccine will have been evaluated more thoroughly.

The factors influencing HPV vaccination decision making are as follows:

(1) General attitude towards and experience with vaccination. All parents ensured that their children had received government-mandated vaccines. These were important to most parents, who believed (correctly) that young children are highly susceptible to pathogens but (incorrectly) that they have weaker immunity (rather than lacking exposure). Some parents expressed reluctance towards optional vaccines, either owing to negative experiences (such as unpleasant adverse effects) or a preference for 'natural immunity'. A few mothers believed that having childhood diseases (such as chickenpox) helps to strengthen children's immune systems.

(2) Knowledge and perceptions about HPV and cervical cancer. Both parents and daughters reported not knowing much about cervical cancer or HPV. Many participants knew that the HPV vaccine can reduce the risk of cervical cancer but were unaware that the vaccine protects against HPV itself.

Almost all parents and some senior girls linked sexual activity with cervical cancer. Some mothers and girls attributed cervical cancer to promiscuity. Some mothers believed that heredity, unhealthy diet, stress, and environmental pollution also contributed to cervical cancer.

Many parents and girls considered cervical cancer as fatal for women. Many parents believed that young people are more susceptible to cervical cancer because they are more likely to have early and casual sex in addition to living in a polluted environment.

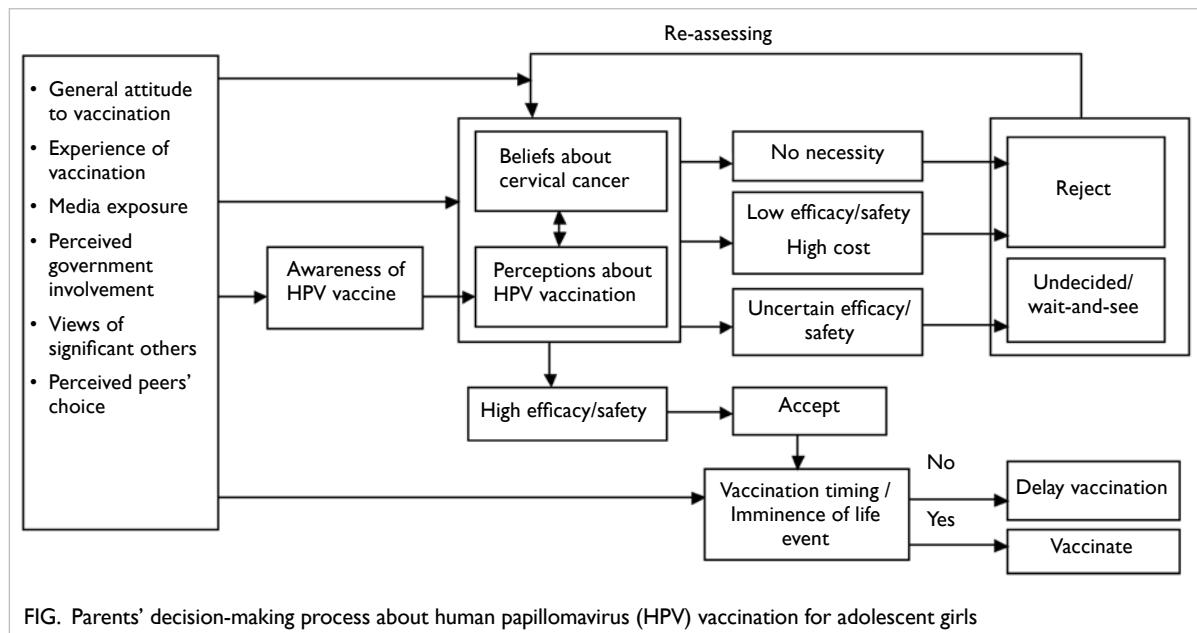
(3) Reasons for accepting HPV vaccination. For many parents and girls who accepted HPV vaccination, fear/worry about cervical cancer was a key motivating factor, although some girls did not know exactly what cervical cancer was:

*"I am very scared of it, cervical cancer. In fact, I have no idea what it is, but it sounds scary."*  
(girl 9)

Many mothers who accepted HPV vaccination reported that although they taught their daughters self-protection and hoped they would lead responsible lives, they could not predict or control their daughters' behaviour and life. They felt better protecting their children with vaccination, particularly when daughters approach rites of passage, such as graduation or overseas study:

*"Anyway, they will go abroad for study. I cannot take care of them for such a long time, cannot keep 'talking' to them, so better to vaccinate them."* (mother 33)

Despite few participants ever having received a recommendation for HPV vaccination from healthcare professionals, concrete advice, particularly from trusted doctors, was a key cue to



action for those who received it:

*"In fact, I have no idea about this (vaccine), but I trust Dr X and her recommendation."* (mother 2)

Some participants were confident about the safety and efficacy of HPV vaccination, as they (incorrectly) perceived that the vaccine was promoted by the government, which must have approved it before it was marketed:

*"I never considered them (side effects), because I think it is promoted by the government... In terms of effectiveness, it must give some protection, so that's why the government vigorously promotes it."* (mother 6)

Some participants reported that their friends had been vaccinated or had vaccinated daughters without experiencing any apparent side effects, and this reduced their concern about possible adverse effects of vaccination. If respondents perceived that a high proportion of their peers were getting vaccinated, then they felt more confident about their decision:

*"In the beginning, (I) was slightly concerned about side effects. Recently, I heard from the radio that many people have been vaccinated. I feel nothing, feel assured."* (mother 24)

(4) Reasons for declining/delaying HPV vaccination. Many parents perceived that the susceptibility to HPV infection was lower than that to other childhood diseases owing to the difference in transmission modes. This was particularly so in participants who attributed cervical cancer to promiscuity, who seemingly considered HPV vaccination as unnecessary. Few parents believed that

using condoms could be effective as an alternative prevention approach. Religious faith was cited by some parents who declined the HPV vaccine:

*"If she (a person) does not fear God or grow up with reverence, she will do something beyond the bottom line... So I don't see it as necessary to give her a sense of security."* (mother 27)

Some parents felt that a new vaccine needed around 10 years of observation before people would have more confidence in it. However, despite its availability in Hong Kong for 8 years, many parents thought HPV vaccines had only been available for 2 to 3 years. Many parents who declined the HPV vaccine expressed concerns about vaccination safety, including potential unknown side effects, harm to physical development and fertility, and even impacts on subsequent generations:

*"In the long term, do the children of people who are vaccinated have side effects from this vaccination?"* (mother 15)

Because the HPV vaccine primarily targets adult-onset cervical cancer, any immediate benefits are minimal and invisible. Some parents questioned the effectiveness of the vaccination and duration of protection:

*"I read (a news article) that stated that currently, there is no medical evidence to support that it is definitely effective."* (mother 12)

Most parents and some girls objected to the vaccine being recommended for girls aged  $\geq 9$  years as being unnecessarily early. Many parents saw no immediate need because their daughter was not likely to become sexually active anytime in the near future, usually based on their daughter's general

characteristics/personality:

*"Because she is very conservative, she won't fool around, I know her personality. She is very good, well-behaved."* (mother 7)

Some parents also worried that their young, immature daughters were particularly fragile, vulnerable to any potential harms resulting from vaccination, and preferred to delay vaccination:

*"Because she is young, it is very important, she cannot resist it (side effects)... when she is an adult, (her tolerance) will be better."* (mother 8)

Among mothers who declined the HPV vaccine, despite the lack of communication or discussion within family or with peers, any disapproval from other significant family members or friends, particularly their husbands, significantly hampered their decision making about the HPV vaccination:

*"He (the father) said, 'Don't do something for nothing! He feels it has risks.'* (mother 23)

Most parents and girls interviewed had never received HPV vaccination recommendations from healthcare professionals. Several mothers reported that despite initiating consultations with family doctors, they failed to receive concrete advice:

*"Actually, I have asked my doctor, he didn't give me a very concrete answer.... His response, 'Taking it doesn't matter, and I am not sure whether it will be really helpful,' is neutral."* (mother 22)

Some parents saw it as uneconomical or discretionary consumption and declined it. Some parents in favour of the vaccine ultimately decided to delay vaccinating their daughters because the present cost was unaffordable:

*"I want to wait until my daughter makes some money and then vaccinate her, we cannot afford it now."* (mother 10)

## Discussion

Financial cost was a major barrier against HPV vaccination, particularly for disadvantaged families. Fear of cervical cancer was a key factor motivating vaccination. This is consistent with the utility model, which proposes that the primary motivating factor to adopt preventive behaviour is to resolve threat-associated anxiety, rather than the threat itself.<sup>3</sup> Some mothers and girls attributed cervical cancer to promiscuity and believed that monogamy or condom use was the best protection. Healthcare providers should emphasise the prevalence and transmission of HPV infection, as a monogamous woman may

also face the risk of HPV infection, and condoms provide limited protection from HPV prevention.

The decision-making process among families about HPV vaccination reflects social and formal professional influences along with risk-benefit assessments under conditions of uncertainty. Lay responses often revert to reliance on heuristics, primarily 'imitate the majority'.<sup>4</sup> Many parents adopted a wait-and-see approach, which may significantly impair the value of prophylactic vaccination. Our findings are consistent with those reported about local families<sup>1,2</sup> and new immigrant families.<sup>5</sup>

There are reasons to implement a school-based programme for vaccination against HPV for all Hong Kong girls. There are disparities in access to health resources based on socio-economic status. These disparities are unjustifiable, as they contribute to avoidable later life inequalities in women's health. Meanwhile, a programme to educate primary care doctors should be initiated to improve parents' knowledge about HPV vaccination. However, this is unlikely to be an effective strategy for new immigrant and low-income families who remain suspicious about the fiscal motives of private clinicians.<sup>5</sup>

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