

HPV Vaccines: Clinical assistance to sin or prevent STIs?

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Keywords: *Cervical cancer, Gardasil-9, HPV, sexual health, vaccination, women*

Abstract

The Human Papillomavirus (HPV), is described as the killer of young women; causing cervical cancer in women younger than 50 years old. Gardasil-9, the vaccine offered by the NHS to children as young as 12-13 years of age, could help protect against nine strains of HPV; two of which can cause anogenital warts and five strains that are oncogenic. The contention that may arise concerning providing consent to HPV vaccines is the notion that offering vaccines at such a young age may lead to early sexual activity. Parents and HCPs may feel that offering the vaccine is a form of promoting a promiscuous society. This paper examines the spread of HPV and the need for the vaccine at an early age. HPV vaccination programmes from Muslim-majority countries are also taken into account. The concept of ‘assisting’ is also explored in light of the Holy Qur’an.

Human Papillomavirus (HPV)

The Human Papillomavirus [pap"i-lo'mə-vi"rəs] (henceforth HPV); induce exophytic lesions of the skin and mucous membranes. Over 150 types of HPVs exist which can be categorised by their oncogenicity (ability to cause cancer, especially cervical). More than 40 types of HPV cause anogenital warts (see Figure 1 below). The virus is extremely common and almost all sexually active men and women contract some strains of the virus at some point in their lives [1].

A person’s immune system, however, will naturally clear infections. Other infections, nevertheless, could remain in the body for many years before they cause damage. Two types, HPV 6 and 11, are known to cause anogenital warts whereas 14 types of HPV are known to cause cancer [2]. A sexually active person carrying HPV could transmit it to their partner through sexual activity.

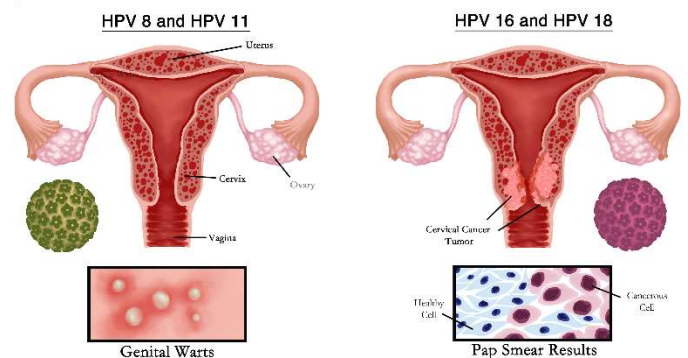


Figure 1. Genital warts and cervical cancer tumour[3]

Non-oncogenic HPVs: 6 and 11

HPV 6 and 11 are known to cause anogenital warts 90% of the time[4][5]. Although a carrier may not feel any change immediately upon contracting HPV, after many months, they will experience the growth of anogenital warts.

Oncogenic HPVs

14 HPVs (16, 18, 31, 33, 35, 39, 45, 51, 52, 56, 58, 59, 66, and 68) are high risk (see Table 1 below). These HPVs cause anogenital cancers; including vaginal, vulvar, penile, and anal cancers [6]. HPVs can also cause head and neck squamous cell carcinomas (HNSCC). The two most dangerous oncogenic types are HPV 16 and 18.

The former is responsible for 20% of all HNSCC [7]. Subsets of HNSCC include oral cavity SCC (OCSCC), oropharyngeal SCC (OPSCC), laryngeal SCC (LSCC) and paranasal sinus cancer [8][9]. HPV 16 is responsible for causing almost 90% of OPSCC and is prevalent in males [10]. According to the WHO, in women from low-to-middle-income countries worldwide, HPVs have caused 85% of cervical cancer cases [11].

HPV Type	Causes	Gardasil-9	Cervarix Quadravalent	Cervarix Bivalent
16 and 18	Oncogenic	✓	✓	✓
31, 33, 45, 52, 58	Oncogenic	✓	-	-
35, 39, 51, 56, 59, 66, and 68	Oncogenic	-	-	-
6 and 11	Non-oncogenic	✓	✓	-
1, 2, 4, 6, 7, 11, 13, 32, 42, 43, 44, and 55	Non-oncogenic	-	-	-

Table 1: HPV types and available vaccines

HPVs 16 and 18 and Cervical cancer

Two extremely dangerous types of HPVs are 16 and 18, which collectively cause 70% of precancerous cervical lesions and cervical cancer (henceforth CC) worldwide [12][13][14][15]. These two viruses are also responsible for most other HPV-induced anogenital cancers [16]. In Europe, CCs caused by HPV 16 and 18 amount to 75%; and in the UK, 80%. In the UK annually, CC kills around 900 women [17].

With regards to CC, the estimated number of new cases worldwide is approximately 530,000, along with an estimated 270,000 deaths annually [18]. Accordingly, CC is considered to be the fourth most common cancer in women worldwide [19]. However, in terms of age, CC is the most common cancer among women who are 15 to 34 years old [20]. As such, CC mainly kills young women - with 62% of cases occurring in women who are younger than 50 years old [20]. Besides HPVs 16 and 18, types 31, 33, 45, 52 and 58 (see Table 1 above) cause an additional 15% of CCs. Like the gradual emergence of genital warts caused by HPV, CC caused by HPV can also take many years to emerge.

Living as HPV positive or with cervical cancer

Sexual life can be negatively impacted by HPV-related infections [21]. The impact of HPV infection on women could be devastating physically, sexually, socially, and

mentally. Physically, the infection would mainly affect the vulva and cervix. Consequently, physical changes could interfere with intimate relationships and sexual enjoyment may decrease [22][23][24]. Socially, the patient would require repeated tests and treatments. Moreover, social stigma may arise with regard to trust in marital relations. Such impact from various dimensions would harm the patient's mental health; the patient's physical health is likely to impact pregnancy plans. Repeated exposure to tests, could lead to feelings of vulnerability, shame, and in terms of femininity, low self-esteem.

Gardasil-9

Three vaccines have been developed for protection against HPV infections (see Table 1); these include: a) Cervarix bilavent vaccine, which protects against HPV 16 and 18, b) Cervarix and Gardasil Quadravalent vaccines which protect against HPV6, 11, 16 and 18, and c) Gardasil-9, which protects against the following nine strains: oncogenic strains 16 and 18 as well as 31, 33, 45, 52, 58 along with protection against non-oncogenic strains 6 and 11.

HPV vaccines have been monitored and are concluded as safe and having high efficacy in females and males [25]. Additionally, although Gardasil-9 does not treat established HPV infections, it could still protect against other strains and also protect against infection at different mucosal sites [25].

Efficacy of Gardasil-9 at ages 12-13

HPV infections are usually found on the fingers, hands, mouth and genitals and can be spread by any skin-to-skin contact. Therefore, the virus can be spread during any kind of sexual activity, including touching. Although genital HPV is spread through intimate skin-to-skin contact during sexual activity, HPV strains that infect the mouth and throat can be passed on through kissing. An individual can have a genital virus for many years before any symptoms appear. As such, an individual might not be aware for many years that their partner is a carrier. The HPV vaccine is thus most effective when received before coming into contact with HPV i.e. around the ages of 12-13 before becoming sexually active [26].

The NHS information on HPV vaccines states that it is 'given as 2 injections into the upper arm spaced at least 6 months apart. In school Year 8, girls and boys aged 12 and 13 are routinely offered the first dose of the HPV vaccine free of charge. The second dose is also free and is offered 6 to 24 months after the first dose [27]. Moreover, the vaccination is free on the NHS until one's 25th birthday for girls born after 1 September 1991 and boys born after 1 September 2006. Beyond these conditions, patients requiring HPV vaccines would have to pay for each injection privately.

HPV vaccination in Muslim-majority countries

Given the harrowing statistics on HPV, the WHO's global strategy for the elimination of cervical cancer has led to over 100 countries, including Muslim countries, having introduced HPV vaccination [28]. Indonesia and Bangladesh, for instance, are offering vaccines at doctor offices, community health clinics, school-based health centres, and health departments. [29]

In Malaysia [30], Gardasil was made available for private use in 2006, and Cervarix in 2010, for females aged 9 to 40 years [31][32]. The National HPV Immunization Program was led by the Ministry of Health (MOH). The program aims to vaccinate about 250,000 school girls aged 13 years old every year with a goal to prevent 27,000–32,200 cases of cervical cancer by the year 2070 [33]. The success of the vaccine programme in Malaysia appears to be the strong triangulated collaboration of the MOH, the Ministry of Education, and importantly, the Fatwa council. JAKIM^a declared that not only were the HPV vaccines safe and permissible but that, from a Shariah viewpoint, they were required [34][35][36][37].

In the Middle East, the Saudi Food and Drug Administration approved the Bivalent vaccine (Cervarix), and Quadrivalent vaccine (Gardasil) in 2010 for females aged 11 to 26 years. [38] Moreover, the vaccines were made available to males as an option and as part of the routine vaccine programme for females [38]. Vaccination is accommodated at private hospitals and clinics, along with a few major hospitals as well as paediatric clinics [38]. Furthermore, parental consent has been found to be high [39]. A study in the UAE by Ortashi et al. [40] found that '80% of those who had heard about HPV vaccination were willing to be vaccinated themselves, and 87% would recommend vaccination to relatives and friends'. The HPV vaccine is given to females prior to age 15.

The main challenge with regard to HPV uptake in Libya and UAE where exist HPV programmes exists appears to be financial constraints [41]. Likewise, the Iranian government has not been able to implement an immunisation programme due to the HPV vaccines not being cost-effective [42][43]. Many other EMR countries have also been facing economical challenges, however, HPV vaccines can be received in the private sector[44]. Despite, Malaysia's successful vaccination programme, the COVID-19 pandemic led to a halt in the national school vaccination programme in 2020 and 2021. The disruption resulted in about 225,000 females aged 13 years old missing their vaccination [45]. Resultantly, many parents have been unable to pay for their children's HPV vaccines due to extra costs [45].

Another factor which Heffernan et al. attribute to the reluctance toward sexual and reproductive health in the Middle Eastern North Africa (MENA) region is the notion that 'cultural normative values toward pre-marital sexual behaviour being forbidden in the Islamic faith and associated family dishonour and shame, and stigma with sexuality discourses' [46]. However, studies have shown that adolescent sexual activity is already existent and increasing in young Muslims aged 14-17 [13][47]. Irrespective of Shariah guidelines, such findings reveal the high risk of HPV morbidities. Additionally, some HCPs might also feel that by promoting the vaccine, they are tacitly approving non-Shariah-compliant behaviour [13].

HPV vaccination in the UK

According to the 2015 report from Public Health England, since vaccines were introduced, HPV infections in young women have significantly decreased. To elaborate, in the UK, prior to the start of the vaccination,

HPV was the most common sexually transmitted infection. The HPV immunisation programme in England has contributed to almost eradicating cervical cancer in women born since Sept 1995 [48]. As such, the HPV vaccination programme is having an impact on reducing the number of CCs in the future.

Contentions among British Muslims: Promotion of a promiscuous society

One fear related to the HPV vaccine for some HCPs and Muslim parents is that the NHS vaccination programme might encourage sexual activity *exo-nikah* (which includes pre-marital and extra-marital). From a Shariah viewpoint, sexual activity is permitted only *intus-nikah*, meaning within the institution of marriage^b. In England and Wales, according to the Marriage and Civil Partnership Act 2022, which came into effect in February 2023, the age of marriage and civil partnership has been raised to age 18. With the HPV vaccines being offered at early as age 12, the fear in some members of the British Muslim community might be the notion that the youth may take advantage of the vaccine to engage in sexual activity *exo-nikah*. Even prior to the law change, one study revealed that 20% of Muslim Pakistani mothers declined the vaccination on religious grounds [13].

In Pakistan, due to a lack of an HPV vaccination programme, 68.6 million women are at risk of CC [49]. If a programme was to be introduced in Pakistan, over 133,000 cervical cancer cases could be prevented [50]. In religious communities, some mothers perceived the religious notion of abstinence from pre-marital sex as grounds for not requiring the vaccine [51][52][53][54]. On the other hand, according to a survey study in Lahore, Pakistan, 50 - 60% of the respondents mentioned that they would get the vaccine if it was recommended by their physician [55].

Another reason for refusing the vaccine - found among Jewish communities and a reason that could likely be the case in Muslim ones - is the lack of perceived risk of HPV-related disease because of circumcision and abstinence from sex before marriage [52]. The solution is, therefore, believed to be simply refraining from sexual activity until marriage. Such an approach appears to be based on good faith that one's partner(s) will also not engage in any sexual activity nor will they have contracted HPV orally.

Returning to the belief that vaccination is tacit approval for *exo-nikah* sexual activity, the contention appears to be rooted in the Qur'an. Verse 5:2, 'Help one another in

birr and *taqwa* but do not help one another in *ithm* and *udwan*'. From a linguistic perspective, the general translation of *ithm* is given as 'sin' (52 English translations). *Birr* is translated as 'righteousness' (35) or 'good' (20) and is explained by Qur'anic commentators to be antonymous in the verse to *ithm*. Likewise, *taqwa* is translated as 'piety' (39) and is explained to be antonymous in the verse to *udwan*, which was found to be translated in a number of ways including 'transgression' (34), 'aggression' (23), 'enmity' (15), and 'hostility' (15).

Through the lens of Islamic jurisprudence, however, *ithm* is applied to an act that is regarded as intrinsically sinful such as stealing and murder. On the other hand, *udwan* is when actions that are permitted but are done beyond their permitted limits and boundaries are seen as 'transgression'. For instance, eating and drinking are permitted, however, to have a fatal diet would be considered *udwan*. Likewise, sexual activity is permitted *intus-nikah* whereas sexual activity *exo-nikah* is considered another form of *udwan*.

Moreover, the context of verse 5:2 is explained by Tabari [56] (d.839) and Tusi [57] (d.1067) to refer to a case during the time of the Prophet (peace be upon him) when a group of Medinites collaborated to exact revenge on a thief. An individual by the name of Al-Hutam bin Hind Al-Bakri had travelled to visit the Prophet in Medina under the pretence of inquiring about Islam. However, on leaving Medina, he raided cattle belonging to the Medinites and on reaching Yemen, he slaughtered the cattle and profited immensely from sales. Al-Hutam then used the profits to purchase a large amount of merchandise to sell at the upcoming Hajj. The Muslims who were outraged by his audacity wanted to arrest and take Al-Hutam to account. However, Al-Hutam sought refuge within the sacred vicinity. Given the sanctity of the time and place, the Qur'an highlights that killing the thief would be *ithm* and to support one another in arresting him in the sacred vicinity or forcefully removing him therefrom, would be *udwan*.

As such, a significant contextual difference arises between offering HPV vaccines and the incident referred to in the Qur'an. The latter prevents Muslims from carrying out a process which involves compromising key Islamic values, albeit to establish justice, whereas offering HPV vaccines does not appear to violate any value. The hesitancy around the HPV vaccine is then based on fear of abusing the vaccine programme; which is beyond the remit of HCPs.

A key Islamic jurisprudential maxim to bear in mind is '*al-umour bi-maqasidiha*' meaning 'Matters are determined by their purpose' [58]. Another relevant maxim is '*al-ebratu bi-siyagh al-uqoud aw bi-ma'anih*' meaning 'Matters are to be considered based on linguistic representations and their meanings' [59]. The purpose of offering HPV at a young age, as stated by the NHS, is to protect against HPV before children come into skin-to-skin contact with an individual who has HPV. Irrespective of Shariah guidelines promoted in culture, child sexual abuse is a reality that must not be overlooked.

Offering HPV vaccines does not amount to helping in *ithm*. The HCP, offering the vaccine to a child, intends safety. The HCP's responsibility is to prevent harm. Furthermore, the patient's intentions would unlikely be verbalised i.e. that the patient would state that they would like the HPV vaccine so that they could engage in sexual activity *exo-nikah*. Additionally, the Qur'an clarifies that one shall not bear the burden of another's sin [60]. The Qur'an, therefore, places no blame on the HCP for providing sincere clinical support to prevent harm. Moreover, according to Islamic theology, sexual activity *exo-nikah* is a matter that is deferred to Allah for judgement, whereas providing clinical support is regarded as an honourable service to His creation.

Supporting HPV vaccines is also not the same as euthanasia or abortion, because the latter two cases involve taking a life which directly falls under *ithm*. In the context of HPV vaccines, *ithm* would be to engage in sexual activity *exo-nikah* post-vaccination whereas verbally encouraging the act post-vaccination would be considered *udwan*.

Furthermore, Shariah law prioritises halal over haram. The recommended Sharia approach is to base decisions on the idea that Muslims will opt for halal - as that is what they have subscribed to willingly. According to the Qur'an and hadith literature, *dhann* (suspicion) is criticised as the worst basis for making decisions [61]. As such, the central idea with regard to HPV vaccines is that Muslims would be able to enjoy a healthier life mentally, sexually, physically, socially and spiritually.

Fewer cases of HPV would need to be disclosed prior to marriages and couples would be able to enjoy safe halal sexual relations *intus-nikah*. Moreover, in unfortunate cases of sexual abuse or where a spouse did not disclose carrying HPV, the victim would have a better chance of not contracting HPV.

Discussion

Before British Muslims refuse to receive HPV vaccines or decline on behalf of children, some considerations are important.

From a moral perspective, whilst providing pastoral care is primarily the role of the ulama, an existing illness still requires management by HCPs. Treating medical conditions are viewed in Shariah as a form of *ihسان*, meaning kindness. Secondly, although an individual may abstain from sexual activity *exo-nikah*, the vaccine would protect them from contracting HPV should their partner be a carrier. The symptoms of HPV also include anogenital warts, which could result in the patient suffering from poor mental health and low self-esteem. Moreover, the vaccine could save individuals from social stigma.

In terms of costs, British Muslims are fortunate to have access to Gardasil-9. At the time of writing, this vaccine was unavailable in many low-income and middle-income countries that are not eligible for support from Gavi [62]. As discussed, even in Muslim countries like Malaysia and Iran, parents and the government have faced economical challenges.

Perhaps a strong point to consider is the fact that a country like Saudi Arabia promotes vaccination despite its stringent regulations to prevent sexual activity *exo-nikah*. For instance, culturally, such behaviour is strongly discouraged from a religious viewpoint. Couples would not be permitted to make reservations at a hotel without a marriage certificate. Even when couples intend to marry, a blood test is required to detect genetic and infectious illnesses. Such measures contribute to decreasing sexual activity and thereby, the spread of STIs, yet HPV vaccination is encouraged. In the UK, such stringent measures to prevent sexual activity are not in place, nor are blood tests for marriage purposes a requirement culturally or legally. As such, British Muslims ought to strongly consider receiving the HPV vaccination for their protection and perhaps, even consider blood tests for marriage purposes.

Conclusion

HPV is known to cause anogenital warts and cervical cancers. Many strains of the virus exist, however, the Gardasil-9 vaccine helps to protect against nine strains of which five are oncogenic. Living with HPV can have a negative impact physically, sexually, mentally, and socially. The most effective period to receive the

vaccination is around 12-13 years of age i.e. prior to becoming sexually active. Offering the vaccine to individuals is to promote health and safety and is a form of assisting in public welfare.

A collaboration of medical experts and Muslim jurists is key to addressing patient concerns. Educational sessions could be held in Mosques, Islamic seminaries, and community centres during Ramadan, Hajj, and marriage seasons. Alternatively, mobile vaccination vehicles could be stationed where British Muslims gather. Sessions could be tailored and delivered in languages understood by patients and influential members of communities to address myths and misconceptions.

HCPs and faith leaders need to educate the public on the fact that Gardasil-9 does not protect individuals against other types of HPV types (see Table 1). Neither is the vaccine a form of contraception nor does it protect against other infections that could spread during sex, such as AIDS, chlamydia, gonorrhoea, and syphilis. Likewise, common warts can still be caused by HPV types 1, 2, and 4; planter warts by types 1, 2, and 4; anogenital warts by types 6, 11, 42, 43, 44, 55 and more; epidermodysplasia verruciformis by more than 15 strains; oral focal epithelial hyperplasia by types 13 and 32; and oral papillomas by types 7 and 32 [63]. In line with the UN joint global programme on CC prevention and control [12], cancer screening also needs to be promoted given that the only type of HPV-related cancer with a recommended screening test is CC.

In addition to grassroots efforts to promote better health care, HCPs and Muslim jurists could collaboratively author 'medical fatwas' [64] on HPV to promote an informed and unified stance. Importantly, given that HPV causes cervical cancer in young women, female perspectives on this matter are crucial.

Notes

^a Malay: Jabatan Kemajuan Islam Malaysia - the federal government agency in Malaysia that administers Islamic affairs in Malaysia.

^b The technical term for 'marriage' in Shariah is law is nikah comprising of terms and conditions.

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