

## Perceptions of HPV and attitudes towards HPV vaccination amongst men who have sex with men: a qualitative analysis

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## **Perceptions of HPV and attitudes towards HPV vaccination among men who have sex with men: a qualitative analysis**

### **Abstract**

**Objectives:** Men who have sex with men (MSM) are at risk of genital warts and anal cancer due to human papillomavirus (HPV) infection. This study explores MSMs' perceptions of HPV and HPV vaccination prior to the introduction of this programme. **Design:** Focus groups and one-to-one interviews with self-identified MSM were conducted between November 2014 and March 2015 in Brighton, UK. **Methods:** Participants were recruited from community-based lesbian–gay–bisexual–transgender (LGBT) venues and organisations. Discussions were recorded, transcribed verbatim, and analysed using framework analysis. **Results:** Thirty-three men took part (median age 25 years, IQR: 21-27), most of whom (n=25) did not know about HPV, anal cancer (31), or HPV vaccination (26). While genital warts and anal cancer were perceived as severe, men did not perceive themselves at risk of HPV. All MSM would accept the HPV vaccine if offered by a healthcare professional. The challenges of accessing sexual health services or openly discussing same-sex experiences with healthcare professionals were perceived as barriers to accessing HPV vaccination. Two participants were concerned that selective HPV vaccination could increase stigma and prejudice against MSM, comparable to the AIDS epidemic. Ten MSM were unsure about the effectiveness of HPV vaccination for sexually active men and were in favour of vaccinating all adolescent boys at school. **Conclusions:** Most MSM have poor knowledge about HPV and associated anal cancer. Despite the lack of concern about HPV, most MSM expressed willingness to receive HPV vaccination. There is a need for health education about the risks of HPV and HPV-related diseases so that MSM can appraise the benefits of being vaccinated. Concerns about HPV vaccine effectiveness in sexually active men, and possible stigmatisation need to be addressed to optimise HPV vaccine acceptability.

## **INTRODUCTION**

Human Papillomavirus (HPV) is one of the most common sexually transmitted infections (STIs), which can cause genital warts, anogenital and oral cancers (Hardwig et al., 2012). In 2008, the UK health authorities introduced a national HPV vaccination programme delivered through schools for adolescent girls aged 12-13 years to prevent cervical cancers (Howell-Jones, 2007). This female-orientated programme has been very successful, achieving coverage of over 80%, and dramatically decreasing the prevalence of HPV and genital warts in young women and unvaccinated heterosexual men of corresponding age (Mesher et al., 2013). It is predicted that with time this gender-oriented strategy will also substantially reduce the incidence of cervical cancer. However, there are data from Australia, which indicate that gay, bisexual and other men who have sex with men (MSM) are unlikely to benefit from such a strategy and continue to experience HPV-related morbidity (Donovan et al., 2011).

MSM are at increased risk of genital warts and anal cancers due to HPV infection, compared to heterosexual men. A study of MSM attending London sexual health clinics showed that 72% were infected with the virus (King et al., 2015). A systematic review of anal HPV infections in MSM estimated that while 5 per 100 000 (95% CI: 0-11) of HIV-negative MSM develop anal cancer, about 46 per 100 000 (95% CI: 31-60) of HIV-positive MSM suffer from this malignancy (Machalek et al., 2012). Between 2012 and 2015, the UK Joint Committee on Vaccination and Immunisation (JCVI) explored the feasibility and cost-effectiveness of a targeted HPV vaccination programme for MSM in England and Wales. They concluded that such a programme is likely to be cost-effective when delivered through sexual health clinics and targeting MSM up to the age of 45 years (Department of Health, 2015). In 2016, the Department of Health launched a pilot HPV vaccination programme for 40,000 MSM

in England through opportunistic vaccination in sexual health clinics (Public Health England, 2016).

As well as evaluating the uptake of the new program there is also a need to assess HPV vaccine acceptability and any potential barriers to HPV vaccination for MSM. So far, the only relevant data are from a large clinic in central London, which showed that 83% of MSM would be willing to receive the vaccine (King et al., 2015), but further qualitative assessment is needed to explore various aspects of HPV vaccine acceptability amongst UK MSM. A systematic review of studies on beliefs about HPV and HPV vaccination amongst MSM demonstrated that men have poor knowledge about the virus and HPV-related cancers (Nadarzynski et al., 2014). Most MSM did not associate HPV with genital warts or anal cancers and did not consider themselves at risk of the infection. Nevertheless, the majority of MSM had positive attitudes towards HPV vaccination. HPV awareness has been associated with vaccine acceptability and thus it is necessary to assess the most effective methods of informing MSM about the benefits of the vaccine. The review demonstrated that specific constructs of the Health Belief Model (Rosenstock et al., 1988), notably; perceived susceptibility and perceived severity of HPV infection and related disease, were correlated with vaccine acceptability. A meta-analysis of the relationship between risk perceptions and health behaviour showed that perceived risk likelihood, perceived susceptibility and perceived severity were associated with HPV vaccination uptake (Brewer et al., 2007). Therefore, the aim of this study was to explore the perceptions of HPV and attitudes towards HPV vaccination in order to inform the development of future interventions on HPV vaccination for MSM in the UK.

## **METHODS**

### **Design**

This qualitative study applied ‘methodological pluralism’ utilising both focus groups and individual interviews to facilitate the capture not only the depth of views but also the range of perspectives on the HPV vaccination (Lambert et al., 2008). Participants who met inclusion criteria were assigned to either a focus group or face-to-face interview.

All discussions were guided by a topic schedule (Appendix A), which was developed based on the results from a systematic review demonstrating associations between HPV vaccine acceptability and risk perceptions (Nadarzynski et al., 2014). Previous studies showed that most MSM were not aware of HPV (Reiter et al., 2010; Colon-Lopez et al., 2012), therefore men in this study were presented with five pieces of information about HPV, HPV-related diseases and the HPV vaccine (Appendix A). These messages, derived from the Centre for Disease Control and Prevention’s leaflet ‘HPV and Men’ (2016), were used to inform MSM about HPV, their risk of HPV-related diseases and to explore attitudes towards HPV vaccination. Their perceptions of HPV, genital warts and anal cancer were then explored to enable better understanding of potential barriers to the introduction of HPV vaccination for MSM in the UK. At the end, perceived barriers and facilitators to the introduction of HPV vaccination for MSM in the UK were explored.

## **Participants**

The inclusion criteria for this study were: English-speaking MSM, between 16 and 40 years old. All self-identified men, who were sexually attracted to or had already had sex with other men, were eligible for inclusion in the study. The sampling aimed to form three separate groups based on participants’ age: 16-20, 21-26 and 27-40. The age cut-off at 40 was chosen as in November 2014, JCVI published an interim statement suggesting that HPV vaccination in MSM up to the age of 40 years, delivered through sexual health clinics, was likely to be cost-effective and worthwhile.

## **Procedure**

Recruitment and data collection were conducted between November 2014 and March 2015 in the City of Brighton & Hove, UK by three trained students. Three methods were used to maximise recruitment: promotional posters and leaflets, online advertisements and face-to-face engagement. Promotional literature explained that the discussions were for gay and bisexual men about their views on sexual health and new vaccines against sexually transmitted infections. Men were offered £15 and the reimbursement of any travel costs within the city as an incentive for their participation. The promotional literature emphasised that all discussions were anonymous and confidential. Men were able to tear off a part of the poster with the study investigator's email address and telephone number. The posters, leaflets and adverts were distributed in MSM community locations including gay bars, a sauna, clubs and cafes. Additionally, e-posters, similar in format to the printed posters, were circulated via social media to local LGBT community groups.

The study was approved by Medical School Research Governance and Ethics Committee (no. 14/036/LLE).

## **Data collection and analysis**

All interviews and focus groups were audio-recorded and lasted between 45 and 80 minutes. Participants were given a brief questionnaire asking about their age, ethnicity and employment status. Discussions were transcribed verbatim during the data collection period until further coding was no longer required. Data on the beliefs and attitudes towards HPV and the HPV vaccine were analysed using the Framework Analysis Approach guided by the topic schedule to reflect the scope of our inquiry which incorporated pieces of information about HPV (Gale, Heath, Cameron, Rashid, & Redwood, 2013). The technique involves

familiarisation with data (e.g. listening to recordings and reading transcripts), followed by identification of concepts and themes guided by the framework. Newly identified concepts that were not part of the framework were classified as ‘novel’. Next, the codes that corresponded with each concept were indexed by coding passages to form a thematic map or matrix. Data were then sorted according to the thematic reference, using headings and subheadings. Passages of text were referenced to participants. This was followed by an interpretative phase, where all views were compared and contrasted enabling the creation of a specific map of responses representing patterns of issues. All themes were validated by an independent and experienced qualitative researcher to confirm their presence in the data. Any inconsistencies and ambiguities were discussed between researchers to achieve consensus and the final version of the results reflecting themes. Due to the character of the study and the sensitivity of the topic, the participants were not offered the opportunity to provide feedback on transcripts of the data analysis. Microsoft Excel was used to facilitate categorisation of the data.

## **RESULTS**

A total of thirty two participants took part in one of four focus groups or thirteen individual interviews. The median age was 25 years (IQR: 21-27), the majority of MSM identified as White, in education and had already disclosed their sexual orientation to a HCP. Three participants identified as transgender and 27 men reported having more than five lifetime sexual partners. Appendix B presents demographic characteristics of each participant.

Findings were categorised into seven themes: i) Awareness about HPV, ii) Beliefs about HPV, iii) Perceptions of genital warts, iv) Perceptions of HPV-related cancers, v) Attitudes towards targeted HPV vaccination for MSM, vi) Eligibility based on sexuality perceived as barriers to HPV vaccination, and vii) Perceived motivational barriers.

## **Awareness of HPV**

There was generally poor awareness of HPV and the HPV vaccine amongst our participants. Typically, older MSM were unaware of HPV and were unable to recall any information related to the HPV vaccine. Younger men were more familiar with the term ‘HPV’ and were able to recall that the HPV vaccine was offered to girls at school. They knew that it could cause cervical cancer and believed that HPV only affected women:

*“I know that it’s more dangerous for girls. It can cause genital warts and it can also increase their chances of cervical cancer?” (#6, Part-time employee and student, 22)*

The HPV vaccine was frequently perceived as a “*cervical cancer vaccine*” and thus not relevant to men.

## **Beliefs about HPV**

After reading the information about HPV (Appendix A), MSM were often surprised that HPV could affect men. They reported that the lack of media coverage about HPV in men led them to believe that HPV was not relevant or deserving of their attention:

*“I didn’t realise this was an issue for men. I’ve heard of HPV because when I was at school all the girls had to have vaccinations” (#9, Student, 27)*

Several participants described HPV using analogies with HIV, herpes or chlamydia. The lack of visible symptoms in most cases of HPV was related by these men to their



perceptions of HPV being relatively innocuous and trivial. Some men thought HPV was easily curable and the majority of participants did not express any worry or concerns. Men thought that there were “*bigger ones*” to worry about, referring mainly in this context to HIV infection:

*“It’s not something that, you know, being concerned about getting, because HIV they’re the ones that are kind of worried about” (#12, Student, 28)*

The participants varied in their individual perceived susceptibility to HPV. While some men thought that HPV infections were very rare, others believed that every sexually active person was at risk. Men were unable to assess their personal risk of exposure. While some participants believed that having two sexual partners would be sufficient to acquire the virus, others thought that only more promiscuous men are at risk of HPV and other STIs:

*“I’m sexually active with other people who have sex with other people so I would say probably quite a big risk of HPV, and I would just get on with it and say that’s probably gonna be part of my life at some point. So, not scared of that one.” (#21, Part-time student, 20)*

Several participants believed that being in a monogamous sexual relationship and using condoms would protect them from acquiring HPV. Most men did not perceive HPV to be a serious concern and assumed that men could only ‘carry’ the virus without symptoms or affect. Some participants had received consistent negative STI test results, which led them to believe they were free from any STI:

*“Not at risk [of HPV] on the basis that I was sort of tested for everything that was available and so was my sexual partner and neither of us had anything.” (#25, Student, 25)*

Others were uncertain whether HPV was included in standard STI screening and most expressed a willingness to test for the virus in the future.

### **Perceptions of genital warts**

Over half of these men had difficulty associating genital warts with HPV infection, and thought of genital warts and HPV as two discrete conditions. Many were surprised to learn about the link, and even after reading the information provided, several participants struggled to understand that HPV is the virus which causes genital warts:

*“Is HPV the only way you get genital warts? That’s quite surprising actually that you can get them as a result of the HPV infection.”*

The appearance of genital warts was reported to be disturbing and distressing, being described as “*disgusting*”, “*awful*”, “*scary*” or “*atrocious*”. Men thought genital warts were embarrassing and socially unacceptable, impacting on sexual confidence and self-esteem. Participants also mentioned the stigma of genital warts and some feared being judged by their partners if they developed a skin lesion in their genital area:

*“They don’t really look that nice, do they? So if I was going to be sleeping with a man that had one I’d be a little bit turned off. I’d be a little bit like ‘what’s that?’ And I’d probably, like if I saw somebody with that, I’d probably wouldn’t then sleep with him. I’d probably be like ‘Nah, I don’t really want to go there’. (#27, Self-employed, 20)*

Genital warts were perceived as highly contagious, and men were concerned that they could infect their partners. While they all struggled to estimate their risk of HPV the majority of participants also had difficulties estimating their risk of genital warts.

MSM reported being worried and apprehensive about the possibility of developing warts, which were perceived as more serious than HPV infection. Some participants reported that the message about the causal role of HPV in the development of genital warts increased their level of concern:

*“I think for me honestly the idea of genital warts is something that is really worrying and I think if you had them they’re one of those sexually transmitted diseases that I think people would be embarrassed about.” (#25, Student, 25)*

### **Perceptions of HPV-related cancers**

The majority of men had never heard of penile and anal cancers. They were “*surprised*”, “*shocked*” and “*disappointed*” to read the information describing how they could develop

genital cancers because of an STI. Several men expressed elevated concerns because any form of cancer was perceived as a serious and potentially life-threatening disease:

*“It makes me feel even more concerned about this HPV thing that I had no idea about 20 min ago” (#27, Self-employed, 20)*

The information that MSM are 17 times more likely to develop anal cancer than men who have sex with women influenced participants’ risk perceptions. Several men stated that the information made them feel at risk of HPV and anal cancer. There was a parallel increase in anxiety, concern and worry about HPV.

*“Now I feel a lot more at risk. Because I am seventeen times more likely than someone who’s only had sex with a woman, statistically... umm, to develop anal cancer. Yeah, it’s definitely something to think about.” (#1, Part-time employee, 30)*

Men had difficulty understanding how common penile and anal cancers were. Despite perceiving cancers as a serious and devastating disease, men argued that the lack of direct contact with anyone who had suffered from penile or anal cancers made it difficult to estimate their own risk:

*“I think that’s serious. Though I still don’t know anyone, as I’ve never had a friend that is a gay man that’s had HPV that led to cancer or genital warts.” (#21, Student, 20)*

Several men compared their risk of HPV-related cancers to the risk of other cancers. Men believed that an accumulation of various risk factors made them susceptible to many different diseases. Some believed that it was difficult to completely reduce their risk of developing any types of cancer.

*“I think that we still live in a society where you mention the word cancer everyone sort of panics. But it [the information provided in Appendix A] says it’s quite rare, so I suppose we also sort of live in the world where everything can cause cancer apparently. You have to kind of level itself out I suppose.” (#2, Part-time employee, 26)*

### **Attitudes towards targeted HPV vaccination for MSM**

Most men expressed willingness to be vaccinated against HPV. Three MSM would only be willing to be vaccinated if it was free of charge. Some men reported that they would prefer to wait until an HCP offered the vaccine to them rather than actively seeking it. Doctors were perceived as the most trusted source of medical information and their opinions as well as recommendations would substantially influence their decision to obtain the vaccine:

*“I think I’d be more likely to accept it if it were offered than I would actively request it. I think because if it was, if it was recommended to you it would be coming from a trusted source.” (#1, Part-time employee, 30)*

One man stated that offering the vaccine solely to women and gay men would undermine men's masculinity because the vaccine has been initially introduced to combat female genital diseases:

*“It may be that masculinity aspect of it if it's been given to women only previously. Services that are exclusively given to women I suppose seem feminine. I can imagine that there are some people who would resist against something if they thought it had feminine associations to it.” (#9, Student, 27)*

More information was not necessarily seen as helpful. A few participants believed that highlighting the additional risk of anal cancer amongst MSM only would increase stigma and prejudice, comparable to the AIDS epidemic. Some men believed that a targeted HPV vaccination programme for MSM would not be received well by the gay community that have already been marginalised because of high HIV incidence:

*“If there's another virus, like HPV, it's going to be strongly linked to gay men community again. I don't think it's a good thing for people because it will strengthen the gay label to this specific disease. I don't think people will like it. Since they just got rid of HIV labels and they don't want another stigma again.” (#28, Student, 19)*

A few participants emphasised the need to educate MSM about the vaccine in order to encourage them to visit their doctor and ask to be vaccinated. Some men were afraid that the vaccine could have serious side effects or even lead to autism. Participants also questioned the effectiveness of the vaccine in sexually active men who might already have been exposed to HPV and/or had genital warts in the past. Based on the information provided (Appendix A), some thought that the vaccine would probably be ineffective and they did not need to be vaccinated:

*“I suppose the only reason why you would not is because it says it does not cure existing HPV infections so if you already have it, that would be the only reason, don’t need that.” (#2, Part-time employee, 26)*

Thus, men were concerned that their sexual experience could put them at greater risk of HPV and at the same time reduce the vaccine effectiveness. Most participants were in favour of HPV vaccination at school for both sexes. They expressed regret and a sense of injustice that HPV vaccination was not routinely offered to boys, as HPV affects all men:

*“If it’s been proven to protect you against problem in men then yeah I’m a man so... I would be more concerned about why health authorities are considering whether to vaccinate gay or bisexual men in the future. What are they gonna do? Cos it seems to me like it’s all men, not just gay and bisexual men. So they should just offer it with the girls at school.” (#25, Student, 25)*

### **Eligibility based on sexuality perceived as barriers to HPV vaccination**

Participants perceived sexuality as a barrier to HPV vaccination. Men believed that same-sex sexual contacts were becoming more acceptable and it was difficult to set boundaries between men that identify as gay or straight. Some men argued that MSM, who do not identify as gay or bisexual, would be unable to benefit from the vaccine if it was only offered to self-declared gay or bisexual men.

*“Sexuality is more fluid and flexible than we like to think. I know many people who identify as heterosexual or straight but at some point in their lives experimented with the same-sex partner.” (#1, Part-time employee, 30)*

One participant, who had never been to a sexual health clinic, stressed the importance of the vaccine needing to be available in other accessible settings. As he did not want to be associated with the gay culture he might consider refusing the HPV vaccine. One participant was not willing to disclose his sexuality to a doctor and would not like to be labelled as ‘gay man’ and therefore also perceived himself to be unlikely to uptake the HPV vaccine.

*“I don’t want to reveal my sexual orientation and if the leaflets keep telling me that if you’re gay then it’s more serious and if you’re not then it’s not, that it’s fine, then probably I still don’t want to take it because I don’t want to be labelled that I’m a gay man.” (#19, Student, 23)*



Although several participants believed that young men do not feel comfortable discussing their sexuality with HCPs, nearly all agreed that it would not stop themselves being vaccinated. Another participant indicated that he searches for signs of friendliness towards gay and bisexual men in HCPs before he is ready to discuss any issues related to sexuality.

*“Just body language. I guess a reluctance to make conversation or just being almost cold in that they’re just getting information without taking into account that this could be some sort of sensitive issue. Especially if sexuality is involved.” (#25, Student, 25)*

### **Perceived motivational barriers**

Dislike and distrust of vaccinations were also perceived as barriers. Some men questioned if the vaccine was being tested on gay and bisexual men. Fear of needles and aversion to injections were also expressed. One participant reported being overwhelmed with information about safe sex and the risk of different STIs, arguing that it was difficult to understand the symptoms of each infection. Some MSM associated the vaccine with promiscuity and expressed concerns about being stigmatised if they were to accept the HPV vaccination. Several men stated that despite seeing vaccinations as important for their health, they never felt an urge to be vaccinated against any disease. They expressed a ‘fatigue’ about health advice, where they might be aware of the value of vaccination, but still not make any effort to obtain it.

*“You can push and push and push with posters and campaigns and stuff but the people that ain’t gonna do it, ain’t gonna do it.” (#1, Part-time employee, 30)*

Two men who disclosed being diagnosed with HIV were concerned about the interaction between the HPV vaccine and their HIV treatment. Several participants had difficulties understanding why MSM are at an increased risk for HPV-related diseases and requested more statistics on the prevalence of these diseases in gay and bisexual men. They wished to know more about HPV symptoms, routes of transmission, and whether they could be tested for it before making their decision whether to accept the HPV vaccine. A few participants suggested that having a picture of genital warts and HPV-related cancers would help them to better understand these diseases.

The majority of men thought *targeted* HPV vaccination of MSM at school was not acceptable, and preferred sexual health clinics as the most suitable setting to reach MSM. These healthcare settings were perceived as relevant to sexual health and the openness and non-judgemental attitudes of staff in sexual health clinics were thought to be reassuring. HPV vaccination was most acceptable when given alongside sexual health screening, together with Hepatitis B vaccination. Although some men had experienced difficulties discussing sexual health with their general practitioners, some suggested that the vaccine should be offered at GP surgeries as some young men do not access sexual health services:

*“If they start routinely testing for this at GUM clinics, and you’re negative and not carrying it, then it should be suggested to you at the same point [like] they would suggest a hepatitis A and C vaccine.” (#4, Full-time employee, 33)*

*“I think the best thing is to do it at your GP everywhere, offer it so don't make it like you have to go to a place to get it cos then there is potentially like, oh I have to make an appointment at a sexual health clinic, two, there's a stigma oh I need to go to a sexual health clinic so remove all that offer it at GP, if you want it, you'll get it.” (#1, Part-time employee, 30)*

## **DISCUSSION**

This is the first study to report that MSM favoured a gender-neutral HPV vaccination approach at school over a targeted vaccination in sexual health clinics due to their concerns of vaccine effectiveness. Some men perceived targeted HPV vaccination in MSM as discriminatory and unjust, which could lead to prejudice and marginalisation. Furthermore, targeted HPV vaccination delivered through schools was not perceived as acceptable, which may prove problematic for current targeted school-based programmes (Sauvageau et al., 2016). The low desirability of HPV vaccination amongst MSM could potentially lead to relatively lower uptake and completion rates than when delivered to all boys at school.

As predicted, the MSM in our sample had poor knowledge about the HPV virus, HPV infection and the HPV vaccine, which they mainly associated with cervical cancer and female genital health problems. They also appeared to have not connected HPV with genital warts and were not aware of anal cancer. Thus, MSM have difficulties estimating their susceptibility to HPV and HPV-related diseases. However, MSM showed concerns about genital warts and anal cancer. Most were apprehensive about developing genital warts mainly due to the visual and social aspects that were linked with embarrassment, reduced confidence and self-esteem.

Our study supports the findings of Nurena et al. (2013) showing that MSM perceive HPV and genital warts as two separate infections, with the latter causing embarrassment and distress. Thus, the psychosocial aspects of genital warts are likely to increase perceived severity of HPV, as men might be more likely to relate to the risk of genital warts more than HPV per se. Also, MSM expressed anxiety and distress when given the information about HPV-related cancers in our study. However, some men showed signs of either optimistic or pessimistic bias believing that anal cancer would never happen to them or conversely that the accumulation of naturally occurring environmental risks inevitably puts them in a 'high risk' category. Hence, MSM are likely to express their general beliefs and mental representation of 'cancer' when processing information about their risk of HPV-related cancers.

The poor awareness about HPV in MSM is likely to be an effect of the early public health strategy that focused on female-oriented HPV vaccination promoted as a defence against cervical cancer only (Saslow et al., 2007). In the UK, there has been little media coverage about the health consequences of HPV infection in men. MSM are either not familiar with HPV-related diseases or are only aware of specific symptoms of the infection such as genital warts. Therefore, the lack of knowledge about HPV is likely to be associated with lower perceptions of severity and susceptibility to the virus (Marlow et al., 2009). Nevertheless, the information about an increased risk of anal cancer in MSM may elevate risk perceptions, concerns and anxiety as some men in our study perceived themselves knowledgeable about STIs and had not expected to learn of a potential novel threat.

Although MSM are receptive to HPV vaccination, a number of potential barriers have been identified. MSM might be less likely to uptake the vaccine if they had to cover its cost. Some men expressed the a lack of motivation to request the vaccine and would accept it only if offered by a HCP, who they perceive as the most trusted source of health knowledge. Some MSM might not identify as gay or bisexual, or be willing to disclose their sexual orientation or

sexual behaviour to HCPs. Also, the vaccine might be less acceptable if men believe it will undermine their masculinity. Thus, the lack of openness about sexual orientation and restricted access to sexual health clinics are likely to act as barriers to HPV vaccination in MSM. Previous quantitative studies with MSM in the US have demonstrated that doctor's recommendations are one of the strongest predictors of HPV and hepatitis vaccine uptake (Thomas and Goldstone; 2011, Reiter et al., 2010; Vet et al., 2015). Hence, there is a need for investment in the training of non-HCPs, such as youth or community workers, to encourage MSM to take up HPV vaccination.

Other motivational obstacles were identified. Men expressing more concerns about side-effects or vaccine effectiveness in sexually active men could be less likely to accept the vaccine, as previous studies identified that perceived effectiveness was associated with HPV vaccination acceptability in MSM (Reiter et al., 2015). In general, men do not perceive the HPV vaccine as a relevant and urgent intervention to prevent potential HPV infection, which could be a consequence of the lack of awareness about HPV and HPV-related diseases in MSM. Also, they may experience fatigue with various programmes within sexual health (Levine and Ross, 2002) associated with overload of information about the risk of STIs for MSM. Although HPV vaccine is highly acceptable amongst MSM when HCPs offer it, their motivation to uptake the vaccine might be only modest. This study supports the findings of a systematic review on HPV vaccination in MSM highlighting similar perceived barriers (Nadarzynski et al., 2014). Also, the identified perceptions complement the development of theoretical framework on HPV vaccination for MSM (Wheldon et al., 2016), which emphasised the relationship between beliefs, attitudes and perceived norms on HPV vaccination uptake. Knowledge and perceptions of HPV and HPV vaccine are likely to influence individual motivation for HPV vaccination.. Therefore, individual decision-making processes are likely to play an important role in MSM-targeted HPV vaccination.

## **Limitations**

There are several limitations in this research. The geographical area of Brighton & Hove has a relatively large population of gay and bisexual men compared to other UK cities (Office for National Statistics, 2011), influencing the local culture, social norms, knowledge about STIs and individual perceptions. It is possible that MSM, who live in other parts of the UK, where LGBT matters are not so visible, might report other/different potential barriers to HPV vaccination. There is a need to design a quantitative study measuring HPV vaccine acceptability and related factors in a representative sample of MSM in the UK. Also, the level of education and sexual health literacy of the sample was not assessed, risking the possibility of self-selection bias if men who were willing to take part in the study had existing high levels of knowledge about STIs and sexual health services. Future studies need to explore if men with lower educational qualifications and those from areas of higher social and economic deprivation have similar views on HPV and the HPV vaccine.

There are specific challenges associated with risk-communication about anal cancers to MSM. These cancers are relatively rare and most participants reported no direct experience or awareness of anyone suffering from anal cancer. During the discussions, MSM were informed about the 17-fold increase in the risk of anal cancer when compared to MSW. Men were not given any estimates of the absolute risks to enhance the understanding of the disease incidence. Stone, Yates and Parker (1994) have argued that a single presentation of either absolute or relative risk to patients for low-probability risks is likely to change their perceived vulnerability. While the absolute risk or incidence rate representation were associated with optimistic biases in estimates of personal risks, the relative risk estimators were associated with the value of comparison statistics rather their susceptibility (Rothman, Klein, & Weinstein, 1996). Therefore, the information on the relative risk of anal cancer in MSM could evoke

unrealistic expectations about the prevalence of anal cancers in MSM. The attitudes towards HPV vaccine might have been different if men were made aware of the prevalence of anal cancers in the population.

### **Conclusion**

Although most participants perceived benefits in HPV vaccination, the overall vaccine desirability was low. Poor awareness of HPV and the HPV vaccine, as well as low perceived demand for the vaccine, could be a significant barrier impeding the implementation of the HPV vaccination programme. This study identified that the recommendation and active promotion of the vaccine from HCPs are likely to play a major role in achieving optimal uptake among MSM. Future studies need to assess the motivation for HPV vaccination amongst MSM and its relationship with vaccine acceptability and uptake.

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