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## Original Research

# A systematic approach to map the adolescent human papillomavirus vaccine decision and identify intervention strategies to address vaccine hesitancy

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## ABSTRACT

**Objectives:** Unsubstantiated safety concerns with human papillomavirus (HPV) vaccines continue to linger. This study sought to identify factors that influence the adolescent HPV vaccine decision and systematically identify intervention functions and strategies likely to be effective in reducing vaccine hesitancy.

**Study design:** This is a qualitative focus group study.

**Methods:** Focus groups were conducted with female adolescents (aged 14–16 years) in Cork and Kerry. During focus groups, the trained facilitator used a semistructured, Theoretical Domains Framework (TDF)–based topic guide to prompt discussion. Transcripts were thematically analysed using the TDF and Behaviour Change Wheel. Behaviour Change Technique Taxonomy version 1 was used to suggest intervention functions and strategies for addressing HPV vaccine hesitancy.

**Results:** A total of 50 adolescents (96% vaccinated), participated in 10 focus groups. The key themes were presented by means of the relevant TDF domains. Seven domains were selected as the most relevant: knowledge, social influences, beliefs about capabilities, optimism, beliefs about consequences, emotion and environmental context and resources. Five intervention functions were identified, education, persuasion, enablement, modelling and environmental restructuring, and linked to 11 relevant Behaviour Change Technique (BCTs). Potential intervention strategies were developed.

**Conclusions:** This study provided a detailed insight into behavioural factors influencing the vaccine decision-making process. It was identified that awareness and knowledge about HPV and its health sequelae was low. Lack of information is a well-recognised determinant of vaccine hesitancy. Therefore, education was recommended as a key area to address in future intervention studies.

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## Introduction

Human papillomavirus (HPV) is the most common sexually transmitted infection worldwide.<sup>1</sup> Although most infections are transient, persistent infection is a prerequisite for pre-cancerous lesions and malignancies, including cervical and oropharyngeal cancers.<sup>2</sup> Three prophylactic HPV vaccines are marketed for the prevention of HPV-related disease, intended to be administered before the onset of sexual activity. By the end of 2017, 80 countries had included the HPV vaccine in their immunisation programmes. In Ireland, the Health Service Executive (HSE) has offered the quadrivalent vaccine to all girls in the first year of second-level schools, vaccinating more than 240,000 girls since 2010.<sup>3</sup> There is high-grade evidence that HPV vaccines protect against cervical precancer in adolescent females,<sup>4</sup> with significant decreases in vaccine-type HPV in vaccinated women.<sup>5</sup> In addition, HPV vaccines have been shown to reduce abnormal screening tests, colposcopies and excisions.<sup>6</sup> This reduction in diagnostic and therapeutic procedures not only lowers healthcare expenditure<sup>6,7</sup> but also reduces their negative psychological effects on the women involved.<sup>8</sup> The safety of these vaccines is well established.<sup>9,10</sup> However, recently there has been a focus on a number of safety signals for the vaccines.<sup>11</sup> Because none have been substantiated,<sup>9</sup> they remain a public concern. In Ireland, maximal vaccination rates of 86.9% were reported in 2014/2015,<sup>12</sup> but these plummeted to 50% in 2016/2017.<sup>13</sup> Although significant research has been conducted into determining vaccine acceptability in parent populations,<sup>14</sup> minimal research has included the views of adolescents, the intended vaccinees. Research, guidelines and policies stress the importance of including adolescents in healthcare decisions.<sup>15,16</sup> Therefore, stakeholder engagement, including both adolescents and parents, is integral to the successful development of interventions, urgently required to restore confidence in the HPV vaccine.<sup>17</sup>

Changing behaviour is complex, and a systematic approach is required to understand the factors that influence vaccine hesitancy so as to inform the design of future interventions. In general, providing information alone does not change behaviour.<sup>18,19</sup> Instead, one must gain an insight into the knowledge, beliefs, attitudes and current behaviours of the target audience and the environmental context in which they occur.<sup>20</sup> The Theoretical Domains Framework (TDF) is a framework which has synthesised 33 theories of behaviour and behaviour change, clustered into 14 domains.<sup>21</sup> The TDF is useful for understanding the factors influencing specific behaviours.<sup>21,22</sup> The associated Behaviour Change Wheel (BCW) is a synthesis of 19 behaviour change frameworks that draw on a wide range of disciplines and approaches and connects this understanding to intervention design.<sup>23,24</sup> The BCW links behaviour components with capability, opportunity and motivation (COM-B model).<sup>24</sup> The Behaviour Change Technique Taxonomy version 1 (BCTTv1) is a set of active components developed to standardise the content and report intervention studies.<sup>25</sup>

This study sought to identify factors that influence the adolescent HPV vaccine decision and systematically identify

intervention functions and strategies likely to be effective in reducing vaccine hesitancy.

## Methods

### Data collection

A list of second-level schools ( $n = 67$ ) and education centres ( $n = 12$ ) was compiled and classified according to the Irish Pobal HP Deprivation Indices.<sup>26</sup> The (i) recruitment poster, (ii) informed consent form and (iii) cover letter detailing the project overview (Appendices A–C) were sent to each school principal. Focus group participants were recruited using purposive sampling: the principal invited eligible students to participate. The inclusion criteria included self-declared satisfactory English language, female gender and females aged 14–16 years. A TDF-based topic guide with a semi-structured design was developed based on a review of the previous literature and discussion among the authors (Appendix D). All focus groups were conducted by author 1, a female pharmacist/clinical pharmacy researcher, with experience in conducting qualitative research. Focus group methods were chosen as they are recognised as a valuable means of eliciting adolescents' views on health-related matters.<sup>27,28</sup> The facilitator prompted and explored issues in more detail as appropriate.<sup>29</sup> Written informed consent to participate was obtained, via the school principal and from the parent/guardian of each participant. Focus groups were conducted until no new themes emerged. Field notes were recorded after each session.

### Data analysis

Audio-recorded sessions (OLYMPUS Digital Voice Recorder VN-731PC) were transcribed verbatim by author 1, and preliminary familiarisation was begun during the transcription process. Computer software (QSR International's NVivo version 11) was used to organise the data and analysis. Each participant was assigned an anonymised identifier. Transcripts were verified against audio recordings with a random sample verified by an independent researcher and analysed using an inductive thematic analysis. Codes were compared within and between focus groups for constant comparison. The transcripts were independently coded by other members of the research team (authors 2 and 4), and any disagreements were resolved through discussion. The codes were then attributed to the domains of the TDF. The domains of the TDF were then linked to the core COM-B components of the BCW.<sup>24</sup> The COM-B model recognises that behaviour is part of an interacting system involving capability, opportunity and motivation.<sup>24</sup> Finally, BCTTv1 was used to suggest intervention functions and strategies for addressing HPV vaccine hesitancy.<sup>23–25</sup> The Affordability, Practicability, Effectiveness and cost-effectiveness, Acceptability, Side-effects/safety and Equity criteria were applied to select the most appropriate intervention functions and BCTs.<sup>23</sup> Reporting was guided by the Consolidated Criteria for Reporting Qualitative Studies checklist<sup>30</sup> (Appendix E).

## Results

Ten focus groups were completed between November 10, 2017, and February 5, 2018 (12.66% recruitment rate). Focus groups were completed on school grounds and had a mean duration of 36 min (range: 21–55 min). The opinions of 50 adolescents were compiled: two unvaccinated and 48 vaccinated (Appendix F). The key themes are presented by means of the relevant domain from the TDF. Participant quotes are represented in italics.

### Theoretical Domains Framework

Based on a familiarisation with the theoretical constructs under each domain<sup>21</sup> and a comprehensive review of the themes, seven key TDF domains were selected as the most relevant.<sup>31</sup>

### Knowledge

Knowledge of HPV, HPV-related disease and HPV vaccination was poor among all adolescents. Some were aware that the HPV vaccine was a ‘cancer vaccine’ but were unable to elaborate. Understanding of the topic was also limited, with participants being unfamiliar with the association between sexual activity, HPV and cervical cancer. In addition, some adolescents expressed doubt in their parents’ understanding of the topic. The participants expressed the requirement for basic information, questioning the efficacy, safety and mechanism of action of the vaccine, requested international data on Gardasil® and discussed how expected adverse drug reactions (ADRs), including potential pain, should be divulged in full. However, pain was primarily discussed by those needle-phobic participants and acknowledged as an acceptable vaccine side-effect by the majority.

*“...just a pinch and you’re done I mean there are other things that definitely hurt way more...”* (P28, vaccinated, 16 years).

Despite the participants’ poor knowledge and understanding, they were intrigued by the topic, constantly questioning and seeking information.

### Social influences

The responsibility for vaccine decision-making was clearly assigned to the parent/guardian. The participants discussed how they were influenced by their parents and often accepted the parental recommendation, with minimal or no discussion. The requirement for parental consent further consolidated the role of the parent as the decision-maker.

*“I’d probably listen to my mam too, she’s not going to let me get something that’s not good for me”* (P3, vaccinated, 15 years),

*“You kind of just have to do whatever your parent...or whoever is signing the form, says”* (P21, vaccinated, 15 years).

The participants acknowledged the influence of healthcare providers (HCPs; e.g. nurses and doctors), who they believed

were equipped to guide the vaccine decision, either positively or negatively. However, the adolescents discussed how they felt obliged to follow recommendations without discussion and without active participation, highlighting their lack of influence in the decision.

*“Because they’re not going to tell you to get something if you shouldn’t, they know your background and stuff so they’ll know what you need, and what you don’t”* (P38, vaccinated, 15 years),

*“...like if my doctor said not to get it, then it would be hard for me to get it then because you should probably do what your doctor says”* (P42, vaccinated, 16 years).

The participants also viewed vaccinated peers as role models, as a source of information and feedback, on their experience with the vaccine. They acknowledged their own potential to become role models to unvaccinated girls, once vaccinated.

*“I’d listen to people who had gotten it already ‘cos they’ve been through it and they know the story”* (P26, vaccinated, 16 years).

*“If they were nervous about getting the vaccine because of the side-effects, I’d say I got it and look at me, I’m grand, you should just get it”* (P22, vaccinated, 15 years).

Group conformity and the power of the social norm was a major theme, with many adolescents admitting to conforming to the behaviour of their peers.

*“I’d probably be more worried if a load of people weren’t getting it, you’d be wondering why not...I think it might make me not want to get it”* (P21, vaccinated, 15 years).

### Beliefs about capabilities

Some participants felt, on reflection, that they would have been capable of making the vaccine decision and would have appreciated this empowerment and that were disappointed with the lack of autonomy and choice afforded.

*“If you were given, told what it was about then you might have (been able to make the decision), it’s not that hard, I know parents just make the decision for you but it would be nice to know a bit about it before they just jab you in the arm...”* (P31, vaccinated, 16 years),

However, many preferred to defer responsibility to the aforementioned individuals, justifying their lack of involvement in the decision with poor knowledge and young vaccination age, associated with a lack of sexual experience and an inability to comprehend the complexities of the HPV vaccine.

*“...it’s probably better to let the parents or whoever decide, I mean, what do you know about vaccines or even cancer, when you’re 13?...”* (P35, vaccinated, 15 years),

### Optimism

While many participants believed that freedom of medical choice regarding immunisation should remain, they were optimistic that teenage girls and their parents would accept HPV vaccination should they receive appropriate information.

*“...if people get all the information and they understand what the vaccine is for and what will happen if they don't get it...I think people would risk a lot to stop them getting cancer” (P34, vaccinated, 16 years).*

### Beliefs about consequences

Vaccination was viewed as an accepted norm, and participants recognised the importance and benefits of immunisation.

*“Some diseases aren't even around anymore, if enough people get them... If there's a vaccine there, I'll want to get it” (P32, vaccinated, 15 years).*

The participants discussed the consequences of vaccination, confident in its effect yet pragmatic in its ability to prevent cancer, and acknowledged the potential for anticipated regret should vaccination be refused.

*“Even if it's not guaranteed to stop you getting cancer, it's better than nothing, it means it's something less to worry about” (P31, vaccinated, 16 years).*

*“Imagine how they'd feel in a few years or whatever if they got cervical cancer” (P22, vaccinated, 15 years).*

### Emotion

Vaccination was an emotive topic. The adolescents discussed their fear of needles, fear of cancer, fear of vaccine side-effects and fear of the unknown.

*“...even if you're scared of needles, you should be way more scared of cancer” (P38, vaccinated, 15 years).*

*“...it's a way bigger deal getting cancer than it is getting another disease like a cold or whatever, cancer can kill you” (P46, vaccinated, 15 years).*

*“As long as they're safe...and parents are worried about the side-effects...” (P7, vaccinated, 16 years),*

*“...it doesn't mean you will get cancer but you don't know what's going to happen in the future so it's better to just get it done” (P28, vaccinated, 16 years).*

However, even those who exhibited needle-phobic tendencies revealed that these fears did not discourage vaccination.

*“...even though I hate needles, if it stops cancer, then I'd get a million needles” (P15, vaccinated, 16 years).*

Two of the adolescents realised that they had not received the HPV vaccine. This was not an intentional avoidance of immunisation: these girls were not enrolled in formal education when the vaccine was offered and expressed fear and anxiety over this missed opportunity.

### Environmental context and resources

The adolescents acknowledged the influence of the government immunisation programmes, expressing the view that the vaccine would not be offered free of charge if it was unsafe or ineffective:

*“The government isn't going to pay for the vaccine for children unless they need it and it's good for them so if the government says to get it, I would” (P32, vaccinated, 15 years).*

Some participants acknowledged their awareness of alleged ADRs associated with the vaccine and expressed safety concerns owing to media exposure: the primary information source that was mentioned was radio. These girls were not able to recall any details of the vaccine reactions and were non-specific in their knowledge.

*“Wasn't there girls who said they had problems after getting the vaccine? I think it was seizures? I heard about it on the radio and there was a girl who had to leave school because of it, she couldn't walk after it” (P7, vaccinated, 16 years).*

However, some participants discussed how this negative media attention had resulted in a variation in vaccine uptake among family members and how the participants themselves would potentially change their mind about the vaccine in light of recent information:

*“Mum was like, I know you're fine but I wouldn't let you get the vaccine, if you were back in first year, I don't know if my sister got it after me either” (P7, vaccinated, 16 years).*

Conversely, many participants expressed a lack of belief in the girls allegedly affected by the vaccine, believing them to be overreactive and attention seeking.

The participants were asked about resources accessed when making a healthcare decision. Once again, HCPs were identified as excellent sources of information, highlighting the importance of the patient-healthcare professional relationship. However, it was discussed how access to general practitioners (GPs) can be difficult and many participants felt that they would not make an appointment with their GP to speak exclusively about vaccination, perceiving this to be a waste of time.

*“...I wouldn't go to the doctor just to find out about it...like I only go to the doctor when I'm properly sick” (P28, vaccinated, 16 years).*

The participants were asked to discuss the Internet as a source of vaccine information: although some adolescents acknowledged the Internet as a useful source, being readily accessible, many participants were cynical about its use. They felt that it was often difficult to determine the reliability of content on the Internet, with websites often offering the impression of credibility while presenting excessive, inaccurate information.

*“Because even if it’s completely fake and bad, it might look really...professional or something and sound like it’s been written by someone who actually knows what they’re talking about, when really they don’t know anything and they could be just making stuff up. You know in Wikipedia you can just write whatever you want and it goes up online” (P32, vaccinated, 15 years).*

In addition, the adolescents felt that Internet searches of health topics generate extreme, dramatised and sensationalised results, often terrifying the searcher.

*“...you look up something online and it will tell you you’re dying, imagine if you looked up cancer vaccine what you get back” (P47, vaccinated, 15 years).*

When questioned on the existence of reliable resources, the adolescents were mostly unaware. A minority mentioned the HSE (Ireland) and National Health Service (UK) websites. However, although these participants knew of the existence of these websites, they had not personally accessed them. When asked if they had read the information supplied before HPV vaccination, none had read, with many believing the information was intended only for their parents:

*“...that was for whoever was signing the forms” (P47, vaccinated, 15 years).*

Although they had not read the information, the adolescents were quick to offer their opinion. Some participants assumed the information would have been too complex, whereas others felt that it would have been easy to understand but boring. The participants believed information should be delivered to both vaccinees and their parents/guardians, and several methods of dissemination were suggested: a leaflet providing concise, interesting, user-friendly and accessible information, an audience with an expert providing information and affording the opportunity to ask questions and/or an advertisement on digital or social media.

#### **Application of the BCT taxonomy and identification of potential intervention functions**

Guided by links between COM-B and TDF domains,<sup>24</sup> five intervention functions were identified and linked to 11 relevant BCTs, as outlined in Table 1.<sup>23,25</sup> Potential intervention strategies were developed and listed in Table 2. Some of these strategies were points raised by the participants in the focus groups.

## **Discussion**

This is one of the first studies to investigate the views of female adolescents, living in Ireland, on the HPV vaccine and to use a behavioural change theory to analyse the findings and systematically suggest intervention functions and strategies to address vaccine hesitancy. Recommendations are based on the identified factors that influence the HPV vaccine decision and a systematic approach. All recommendations need to be considered for future public health vaccination campaigns and intervention studies as no single recommended BCT or intervention strategy will address all identified factors.

The adolescents demonstrated poor knowledge and understanding of HPV, HPV-related diseases and/or the HPV vaccine and relied on their parent/guardian to provide information and make healthcare decisions on their behalf. Our finding is comparable with the published literature,<sup>32</sup> where parents remained the leading source of health information for 55% of the adolescents surveyed. However, a large systematic review has described the limited parental knowledge of HPV, even in those who had already made vaccination decisions for their daughter(s), in regions where immunisation had been initiated.<sup>33</sup> Even those parents who appeared knowledgeable demonstrated a limited understanding of recommendations.<sup>33</sup> Therefore, providing knowledge about HPV and HPV-related diseases (‘information about health consequences’ and ‘salience of consequences’) and explaining the societal benefits of herd immunity (‘information about social and environmental consequences’) and the level of protection afforded by the HPV vaccine (‘information about emotional consequences’ and ‘focus on past success’) should be key components in future interventions.

Our study highlights the importance of considering ‘credible source’, ‘demonstration of the behaviour’ and ‘identification of self as a role model’ as possible components of an intervention. Several ‘vaccine experts’ were suggested by the participants including HCPs, vaccine researchers and previously vaccinated girls. In addition, vaccinated participants self-identified as vaccine advocates and credible and trusted champions for immunisation to build support and trust in vaccine efficacy and safety and raise awareness of benefits.<sup>20</sup> The participants were unaware of reliable resources, had not read the HPV vaccine information leaflet provided by the HSE and were sceptical about online health information. Intervention components should highlight the availability of reliable online resources (‘credible source’), for example, HSE immunisations, Centers for Disease Control and Prevention Teen Website, and adolescentvaccination.org, that present balanced communication about effectiveness and side-effects (‘pros and cons’).

A major concern highlighted by this study was the exclusion of adolescents not enrolled in the state school system from the national immunisation programme. ‘Restructuring the physical environment’ by expanding the range of HPV vaccinators is necessary to include those in the community setting, for example, public health nurses<sup>20</sup> and pharmacists, who may be able to improve vaccine accessibility to this specific adolescent cohort.

**Table 1 – Intervention functions identified by applying the TDF and BCTTv1 to the study findings.<sup>24</sup>**

COM-B	TDF domain	BCT taxonomy	BCT label	Intervention functions
Psychological capability	Knowledge	5. Natural consequences	5.1. Information about health consequences 5.3. Information about social and environmental consequences 5.6. Information about emotional consequences	Education
Social opportunity	Social influences	5. Natural consequences 6. Comparison of behaviour 9. Comparison of outcomes 13. Identity 15. Self-belief	5.2. Saliency of consequences 5.5. Anticipated regret 6.1. Demonstration of the behaviour 9.2. Pros and cons 13.1. Identification of self as a role model 15.3. Focus on past success	Modelling Enablement
Physical opportunity	Environmental context and resources	5. Natural consequences 9. Comparison of outcomes 12. Antecedents 13. Identity 15. Self-belief	5.2. Saliency of consequences 5.5. Anticipated regret 9.2. Pros and cons 12.1. Restructuring the physical environment 13.1. Identification of self as a role model 15.3. Focus on past success	Enablement Environmental restructuring
Reflective motivation	Beliefs about capabilities Optimism Beliefs about consequences	5. Natural consequences 6. Comparison of behaviour 9. Comparison of outcomes 13. Identity 15. Self-belief	5.1. Information about health consequences 5.2. Saliency of consequences 5.3. Information about social and environmental consequences 5.6. Information about emotional consequences 6.1. Demonstration of the behaviour 9.1. Credible source 13.1. Identification of self as a role model 15.3. Focus on past success	Education Persuasion Modelling Enablement
Automatic motivation	Emotion	5. Natural consequences 6. Comparison of behaviour 9. Comparison of outcomes 13. Identity 15. Self-belief	5.1. Information about health consequences 5.2. Saliency of consequences 5.3. Information about social and environmental consequences 5.6. Information about emotional consequences 6.1. Demonstration of the behaviour 9.1. Credible source 13.1. Identification of self as a role model 15.3. Focus on past success	Persuasion Modelling Enablement

BCT, Behaviour Change Technique; TDF, Theoretical Domains Framework; BCTTv1, Behaviour Change Technique Taxonomy version 1.

**Table 2 – Potential intervention strategies to reduce HPV vaccine hesitancy.<sup>24</sup>**

BCT label	Intervention functions	Potential intervention strategies	Intervention target population
5.1. Information about health consequences	Education and persuasion	Explain that not accepting the HPV vaccine can increase susceptibility to HPV-related diseases Explain the lifetime susceptibility to HPV	Adolescents and parents
5.2. Salience of consequences	Persuasion and enablement	Highlight the prevalence of HPV-related diseases	Adolescents and parents
5.3. Information about social and environmental consequences	Education and persuasion	Explain the concept of herd immunity and its importance in disease prevention	Adolescents and parents
5.5. Anticipated regret	Enablement	Ask the person to assess the degree of regret she will feel if she does not get the vaccine and subsequently develops a HPV-related disease	Adolescents and parents
5.6. Information about emotional consequences	Education and persuasion	Explain that accepting the HPV vaccine will allow the person to feel protected from HPV-related diseases	Adolescents and parents
6.1. Demonstration of the behaviour	Modelling	Present a vaccinated adolescent female discussing her experience with vaccine	Adolescents
9.1. Credible source	Persuasion	Present a speech given by an identified ‘vaccine expert’ to emphasise the importance of accepting the HPV vaccine, for example, consultant in public health/gynaecologist	Adolescents and parents Adolescents and parents
9.2. Pros and cons	Enablement	Highlight the availability of reliable sources of information Present the advantages and disadvantages (adverse effects) of HPV vaccination	Adolescents and parents
12.1. Restructuring the physical environment	Environmental restructuring	Increase the vaccinator population by including public health nurses and pharmacists	Healthcare professionals
13.1. Identification of self as a role model	Enablement	Inform the person that if she accepts the vaccine, she may be a good example for unvaccinated girls	Adolescents
15.3. Focus on past success	Persuasion and enablement	Explain the success of the HPV vaccine worldwide	Adolescents and parents

BCT, Behaviour Change Technique; HPV, human papillomavirus.

The challenge of designing interventions that combat vaccine hesitancy may be compounded by negative media representation of vaccines, in particular, media representation of vaccine ‘harm’.<sup>34</sup> Although the adolescents in this study were offered the vaccine before the national decline in uptake, they were familiar with media coverage of suspected ‘adverse events’. Therefore, as well as providing evidence-based assurances of vaccine safety, efficacy and durability, future interventions should include an ‘anticipated regret’ component, where adolescents are asked to consider how they would feel should they refuse vaccination and later develop a HPV-related disease.

Limitations of this study included the fact that the participants were asked to retrospectively reflect on their vaccine decision. In addition, two of the 50 participants were unvaccinated, but this was not necessarily by choice. Therefore, it was not possible to collect the views of true vaccine-hesitant adolescents. Finally, although the focus group facilitator was not known to the participants, the adolescents were aware that author 1 was a pharmacist, and assumptions may have been made regarding her attitudes towards vaccination.

A key strength of this study is the systematic approach (TDF and BCW) that was applied to map the adolescent HPV vaccine decision and to recommend a range of potential intervention strategies. It has been shown that using theory to understand the mechanisms of action of intervention strategies improves the effectiveness of interventions.<sup>35</sup> In addition, the World Health Organization has declared vaccine hesitancy as one of the ten global threats to health in 2019, and intervention strategies recommended by this study may be applied to other vaccines and vaccination programmes.

In summary, this study provided a detailed insight into behavioural factors influencing the vaccine decision-making process. It was identified that awareness and knowledge about HPV and its health sequelae was low. Lack of information is a well-recognised determinant of vaccine hesitancy.<sup>36,37</sup> Therefore, education was recommended as a key area to address in future intervention studies.

## Author statements

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### Ethical approval

Ethical approval was obtained from the Social Research and Ethics Committee, University College Cork (Log 2016-122).

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None declared.

### Competing interests

None declared.

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## Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.puhe.2019.07.009>.