Awareness of human papillomavirus among women attending a well woman clinic

J Waller, K McCaffery, S Forrest, A Szarewski, L Cadman, J Wardle

**SHORT REPORT**

**Objectives:** To assess the level and accuracy of public understanding of human papillomavirus (HPV) in the United Kingdom.

**Methods:** Women attending a well woman clinic were asked to complete a questionnaire assessing HPV awareness and specific knowledge about the virus.

**Results:** Questionnaires were completed by 1032 women, of whom 30% had heard of HPV. Older women, non-smokers, and those with a history of candida, genital warts, or an abnormal smear result were more likely to have heard of HPV. Even among those who had heard of HPV, knowledge was generally poor, and fewer than half were aware of the link with cervical cancer. There was also confusion about whether condoms or oral contraceptives could protect against HPV infection.

**Conclusions:** In this relatively well educated sample, awareness and knowledge of HPV were poor. Public education is urgently needed so that women participating in cervical cancer screening are fully informed about the meaning of their results, especially if HPV testing is soon to be introduced.

**RESULTS**

**Characteristics of the sample**

The response rate was high, with approximately 80% of women who were asked agreeing to complete a questionnaire. Those who declined mostly did so because of time constraints. Of the 1045 women completing the questionnaire, 13 did not respond to the question about having heard of HPV and are excluded from all analyses, leaving a sample size of 1032. Participants were representative of the clinic population being predominanty young (mean age 30.2 (SD 7.7)), white, well educated, and in full time employment (see table 1). Equal numbers of women were married/cohabiting (47%) and single (47%). Most reported having had between one and three sexual partners in the past year and 27% reported a previous diagnosis of an STI.

**HPV knowledge**

About 30% of women (316/1032) had heard of HPV. There were significant, but generally small associations with demographic characteristics (see table 1). Awareness of HPV was higher in older (47%) than younger women (25%). Women reporting a history of candida or genital warts had higher awareness of HPV, as did those who reported ever having an abnormal smear result. Not surprisingly, knowing someone who had had HPV was associated with greater awareness. Awareness was lower among smokers (22%) than non-smokers (35%). When the significant predictors were entered into a logistic regression model (see table 1), all remained significant independent predictors of awareness of HPV except experience of an abnormal smear result.

Even among women who had heard of HPV (n=316), knowledge was poor (see table 2). They generally knew that HPV was sexually transmitted and could be carried by men, but the meaning of their results, especially if HPV testing is soon to be introduced.
but fewer than half knew that it is the main cause of cervical cancer, and only a third knew that genital warts do not cause cervical cancer. The majority believed condoms to be protective and, worryingly, only half knew that the contraceptive pill does not protect against HPV infection. The most common sources of information were the media or a general practitioner. Women who had heard about it from an “other” source cited a wide variety including pamphlets, sexual health classes, through having had HPV in the past, or having a medical background.

DISCUSSION

This is the first study to evaluate HPV knowledge among women in a primary healthcare setting in the United Kingdom. In this predominantly young and sexually active population, only 30% reported awareness of HPV, and knowledge was generally poor even among those who had heard of it, consistent with the findings of previous US and UK studies. Given that the sample was highly educated, and there was some evidence of a trend towards poorer knowledge among less educated women, it is likely that knowledge in the general population is even lower. However, the age effect would be in the opposite direction, as the sample was skewed towards younger women who had lower awareness.

Awareness of HPV was associated with experience of candida, genital warts, or an abnormal smear, indicating that attending for treatment for these might expose women to information about HPV. Knowing someone who has had HPV was another predictor of awareness, although women generally cited the media or their general practitioner as sources of knowledge.

Awareness was lower among smokers, which is of concern as smoking increases the risk of cervical abnormalities and cancer among women with HPV infection. Raising awareness of the virus and the role of cigarette smoking in viral persistence and CIN progression among smokers should be a priority.

Women’s uncertainty about whether the pill protects against HPV partly reflects their lack of knowledge about the sexually transmitted nature of the virus. Of those who knew...
that HPV is sexually transmitted, 70% were aware that the pill is not protective, compared with only 32% of those who did not know or were not sure that HPV is an STI. It is also possible that the protective role of the pill in other gynaecological cancers might have influenced women's beliefs about its protection, although the evidence for this is unclear. It seems likely that condoms provide some protection, but the message about condom use will need to be clarified so that women can be given consistent information about HPV.

Caution must be exercised when drawing conclusions beyond our sample, as it was not representative of the UK population, being younger, better educated, and more predominantly white. However, low HPV awareness was consistent with other studies, which lends credence to this finding.

Public education about HPV is essential, in order that women participating in cervical screening understand the possible results of the smear test, particularly if HPV testing is introduced. Clear and consistent messages about HPV transmission, cancer risk, and protection must be developed in order that women are fully informed when they participate in cervical screening.

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CONTRIBUTORS
AS, JW, and LC conceived the study and obtained funding; KM and SF designed the measures and conducted the fieldwork; JoW contributed to the field work, carried out the data analysis and wrote the first draft of the text; all authors commented on drafts and contributed to the final manuscript.

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REFERENCES

Table 2  HPV knowledge among those who had heard of it (n=316 out of total sample of 1032)

<table>
<thead>
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<th>Question</th>
<th>True (%)</th>
<th>False (%)</th>
<th>Not sure (%)</th>
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</thead>
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<td>How did you hear about it?</td>
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<tr>
<td>GP</td>
<td>18.7</td>
<td>59</td>
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<td>Friend or family member</td>
<td>13.9</td>
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<td>Internet</td>
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<tr>
<td>TV/magazine/newspaper</td>
<td>38.3</td>
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<tr>
<td>Other</td>
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<tr>
<td>HPV sexually transmitted (true)</td>
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<td>True</td>
<td>64.9</td>
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<td>HPV main cause of cervical cancer (true)</td>
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<td>Men can carry HPV (true)</td>
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<td>Genital warts cause cervical cancer (false)</td>
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<td>The pill protects against HPV (false)</td>
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