



# The effects of an HPV education program by gender among Korean university students

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## SUMMARY

**Purpose:** This study compared the effects of an HPV education program by gender among Korean university students in terms of their knowledge of HPV, intention to prevent HPV, awareness of sexual rights, and perception of gender equality.

**Methods:** A quasi-experimental pre–post design was employed. 31 male and 28 female university students participated in eight sessions of an HPV prevention program for four weeks and in a self-administrative survey.

**Results:** At pre-test, the perception of gender equality and some of the intentions to prevent HPV, including the intention to make regular use of condoms, reduce the number of sexual partners, abstain from sex until marriage, and stop smoking or stay non-smoker, were lower among men than women. When these differences by gender at pre-test were taken into account using ANCOVA, education outcome measures at post-test did not differ by gender. After completing the HPV prevention program, both male and female students presented a significant increase in terms of HPV knowledge, awareness of sexual rights, and perception of gender equality. Among the intentions to prevent HPV, only male intention to recommend the Pap test to their partner and female intention to regularly seek the Pap test and pelvic examinations were significantly increased after the program.

**Conclusion:** The HPV program was effective for both genders eliminating gender differences in attitudes and prevention intentions of HPV. However, the intentions to prevent HPV did not increase significantly, and future research is warranted to better understand students' perceived obstacles for practicing HPV prevention methods.

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## Introduction

HPV-associated cancers, including cervical cancer, anal cancer, and oropharyngeal cancer, can be effectively prevented by avoiding HPV infection, which again can be avoided by practicing already known HPV prevention. As seen in the United States, the incidence of HPV-associated cervical cancer has decreased, but the incidence of the anal cancer or oropharyngeal cancer caused by HPV has increased and is likely to become higher than that of cervical cancers (Chaturvedi et al., 2011; Gillison et al., 2008), high-lighting the importance of continuous HPV prevention. In South Korea, HPV prevention is often left to individual women who want to avoid HPV-associated cervical cancer or to the pharmaceutical marketing of HPV vaccines. Although the vaccination is recommended for both females aged 9–26 and males aged 9–15 by the Korean Society of Obstetrics and Gynecology and Colposcopy (Kim et al., 2007), HPV vaccine has not been introduced

to the school mandatory vaccination program yet. The HPV vaccination rate is less than 10% of Korean women (Kang and Moneyham, 2010) and unknown for Korean men. The high cost of the vaccination (about US \$400), which is not covered by national health insurance, may have some relevance in explaining the low HPV vaccination rate.

Nevertheless, one of the primary reasons for inadequate prevention measures is low awareness and attitudes regarding HPV (Oh et al., 2010) and greater education is needed. Although school health education is recommended from primary school to high school by the School Health Law of South Korea (<http://www.law.go.kr/main.html>), HPV relevant information is rarely included in school health education (Yun et al., 2005). Accordingly, Korean university students often have insufficient information or misconceptions about HPV infection and methods of prevention (Kim and Park, 2009; Oh et al., 2010). In light of the limited opportunity to learn about HPV among university students, a comprehensive education program is needed in Korea.

In Korea, the overall seroprevalence of HPV was not significantly different between male and female university students (Clifford et al., 2007). Nyitray et al. (2011) found that the prevalence of anal HPV infection ranges from 12.2% to 47.2% with no age-group predilection. In previous studies, men consistently presented less knowledge than

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women about HPV although both genders are equally responsible for its transmission (Klug et al., 2008). However, research on male HPV prevention is hardly found in South Korea except for a few (Oh et al., 2010; Park and Park, 2012). There is even a misconception that HPV vaccination and prevention are necessary only for women because of the link with cervical cancer or that men are not at risk from HPV-associated cancers. To effectively prevent HPV transmission it is essential for men to have a clear understanding of the HPV infection and to participate in prevention such as condom use, limiting the number of sexual partners, or getting HPV vaccination (Giuliano et al., 2011).

Issues of sexual rights and gender equality are often recommended in sex education to promote individual responsibility in interpersonal relationships (Ahn et al., 2008; Kim et al., 2010; Levesque, 2000). An egalitarian perspective in sexuality and sexual health is included in school health education in primary schools in South Korea (Han and Seo, 2014). However, men are less likely to think about or take preventive action with regard to STDs than women even though they have had the same education (Ahn et al., 2008; Kim et al., 2010; Levesque, 2000). Sexual health cannot be achieved or maintained without sexual rights for all humans (World Association for Sexual Health, 2008). In addition, gender equality, rights of men and women to nondiscrimination, influences sexual attitudes and practices of both genders and thus it should be dealt with in sex education (Rogow and Haberland, 2005). In fact, men who accept gender equality were more likely to have desirable attitudes toward sexual behavior and contraceptive use (Lee, 2005; Pulerwitz and Barker, 2008). Although understanding of sexual rights and gender equality is considered crucial components of STD prevention education (Kim et al., 2010), few HPV prevention programs are found to include those issues so far. HPV can be prevented through a comprehensive approach to sexual health (Pollack et al., 2007) and inclusion of the issues of sexual rights and gender equality is expected to promote university students' respect for not only their own sexual health but also that of their partners in terms of HPV prevention.

To develop and evaluate HPV prevention education, the information–motivation–behavioral skill (IMB) model was adopted as a theoretical framework. Information and motivation, as independent factors, are influencing behavior change like HPV prevention behaviors directly or indirectly through behavioral skills (Robertson et al., 2006). When the IMB model is applied to the HPV education program in this study, the information component includes knowledge on HPV facts, prevention methods, sexual rights, and gender equality. Motivation to stop HPV-risky behaviors and adopt prevention methods was stimulated through small-group discussions in the program and measured through behavioral intention for HPV prevention as a proxy for real behavior. Behavioral skills in performing specific HPV prevention behavior, such as sexually assertive communication skills and condom use, were taught in the program but not measured in this study.

The purpose of this study was to evaluate effects of HPV prevention education by gender, considering a previously known gender difference in HPV knowledge and general attitudes for sexual health. The following two hypotheses were proposed: 1) the HPV prevention education enhances both male and female university students' knowledge of

HPV, awareness of sexual rights, perception of gender equality, and intention to prevent HPV infection, and 2) the education reduces gender differences in terms of knowledge of HPV, awareness of sexual rights, perception of gender equality, and intention to prevent HPV infection.

## Methods

### Design and Participants

The research protocol was approved by the Institutional Review Board. A pre–post test quasi-experimental design was employed. Using a convenience sampling method, university students were recruited through website and offline advertisements at the university from September 27 to October 8, 2010. Students were excluded if they 1) had been married with regular sexual activity, 2) majored health care fields such as nursing, medicine, or public health, and 3) were part of or completed an HPV vaccination program because they may be better informed about HPV and have more positive prevention attitudes than the other students (Kim and Park, 2009).

To compare mean differences by gender, the number of subjects in each gender was estimated 26 for a statistical power of 0.80, significance of 0.05, and a large effect size of 0.79 based on a previous study (Kim, 2009) using G\*Power 3.12. Assuming 20% withdrawal of subjects, a total of 59 students, 31 men and 28 women, participated in the study. Among the study applicants, 2 male students were not able to participate in the study because of their academic schedule, and 2 female students dropped out. Each participant was assured that their data would remain confidential and anonymous and signed an informed consent before the education.

### HPV Education Program

The education program was based on the premise that HPV infection is common regardless of gender and that both men and women require equal perspective and responsibility for HPV prevention. The content was developed based on a previous HPV education program (Kim, 2009): a) the first four lectures about general HPV information, gender-specific HPV infection, genital warts, common approaches for HPV prevention, and sexual autonomy and sexual rights, and b) the following four small-group discussions about sexism and prejudice regarding sexuality, experiences and feeling of gender inequality, sexually assertive communication skills and condom use, and breaking prejudice about sexuality, STDs, and HPV (Table 1). Social factors like awareness of sexual rights and perception of gender equality are highly likely to influence interpersonal relations or negotiation in sexual behavior between men and women (De Meyer et al., 2014). Accordingly, the HPV program was designed to educate about gender equality and sexual rights in addition to HPV knowledge, expecting to improve gender-biased attitudes and strengthen HPV prevention intention for both males and females.

The content and methodology of the education were validated by experts of women's health nursing, public health nursing, gynecology,

**Table 1**  
Education contents of the HPV prevention program.

Session	Contents	Instructional method
1	General HPV information: prevalence, pathology, types, and vaccines	Lecture with a handout
2	Gender-specific HPV infection: cervical, genital, and other types of cancers in males and females	Lecture with a handout
3	Genital warts as a common STDs among both males and females	
4	Common approaches for HPV prevention for both males and females: abstinence, regular condom use, fewer sexual partners, the cessation of smoking, HPV vaccination, and routine Pap smears	Lecture with a handout
5	Sexual autonomy and sexual rights for both males and females	Lecture with a handout
6	Sexism and prejudice regarding sexuality in Korean society	Small-group discussion
7	Exploration of experiences and feelings of gender inequality in sexual health and interpersonal relationships	Small-group discussion
8	Sexually assertive communication skills and condom use	Small-group discussion and practice
	Breaking prejudices about sexuality, STDs, and HPV	Small-group discussion

STDs = sexually transmitted diseases; HPV = human papilloma virus.

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