Development of the Human papillomavirus infection prevention program

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Effects of a Gender-Based HPV Prevention Program on Factors Related to HPV Prevention Among Male and Female Korean University Students

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Introduction

HPV education

The importance of including both men and women in HPV education and prevention efforts has been emphasized, within the context that they are equally responsible for HPV transmission

(Wong 2009, Kim 2011)
Introduction

HPV infection among sexually active men

The incidence of cervical cancers has shown a decreasing trend, but the incidence of anal and oropharyngeal cancers has been increasing in the USA, and currently no public screening programs are applied for this

(Gillison et al, 2008)
The prevalence of anal HPV infection among sexually active men was 12.2–47.2%, with no age-group predilection. (Nyitray et al, 2011)

The cumulative incidence of new infection of any genital HPV among the sexually active male university students was 62.4% over 24 months, which is higher than that reported for similar cohorts of young women. (Partridge et al, 2007)
Introduction

Gender differences and Education

Gender differences were reported for knowledge and attitudes related to HPV infection, and it was concluded that those differences should be managed via a tailored HPV educational program for university students.  

(Kim, 2011)

HPV infection is rife among university students, regardless of their gender, and that it is critical to include men in any HPV-prevention
Introduction

HPV vaccination

The main focus of attempts to prevent HPV infection has been on HPV vaccination.

According to a prospective study involving in multiple Western countries, men appear to have a stable risk for acquiring new HPV infection throughout their life; it was therefore suggested it would be cost effective to implement HPV vaccination to men worldwide. (Giuliano et al, 2011)
Introduction

HPV vaccination

The current HPV vaccination rate of young Korean women is very low, at less than 10%.

(Kang & Moneyham 2010)

We cannot rely solely on HPV vaccination to prevent the spread of HPV infection among both young men and women in Korea.
Introduction

Aim of this study

1. To identify gender differences

• HPV knowledge
• Awareness of sexual rights
• Perception of gender equality
• Intention to prevent HPV
Introduction

Aim of this study

2. To Examine the effects of a gender-based HPV-prevention educational program on these factors.

- HPV knowledge
- Awareness of sexual rights
- Perception of gender equality
- Intention to prevent HPV

Women

Men

Gender-based HPV-prevention educational program
The contraction of HPV infection in males and their female partners is influenced by their sexual behaviors, and therefore an understanding of HPV infection itself in men is believed to be an essential component of HPV prevention.

(Giuliano et al, 2011)
To be effective among university students, HPV prevention strategies should focus not only on HPV vaccination programs for girls and young women, but should also incorporate other measures for HPV prevention in the daily life, and should include men.

(Kim, 2011)
Awareness of sexual rights and perception of gender equality are considered necessary in the gender-based approaches to STI prevention.

(White et al. 2005, Kim et al. 2010)

The uniqueness of the HPV-prevention educational program implemented in this study is basically linked to concepts of sexual rights and gender equality.
Sexual rights

Sexual health will not be achieved or maintained without sexual rights for all humans.  
(World Association for Sexual Health 2008)

Awareness of sexual rights was considered to be a starting point or fundamental content of the sexuality education should be prepared for responsible in themselves or interpersonal relationships.  
(Levesque 2000, Kim et al. 2010)
Gender equality

Gender equality refers to the rights of men and women to nondiscrimination, and is considered a relational process. (Subrahmanian 2005)

Gender inequality influences the sexual attitudes, practice, and health of both men and women, and therefore the issues of gender inequality should be reflected in the program contents in order to increase the effectiveness of sexuality education. (Rogow & Haberland 2005)
**Background**

**Theoretical framework**

**Information-Motivation-Behavioral skills (IMB) model**

(Fisher & Fisher, 1992)
Background

Theoretical framework

Applying the IMB model to the HPV prevention program in the present study.

**Information**
- (HPV facts, specific prevention methods, awareness of sexual rights)

**Motivation**
- to affect changes in HPV-prone or risky behaviors (awareness of sexual rights and perception of gender equality)

**Behavioral skills**
- in performing specific HPV-preventive behaviors, which could be measured via behavioral intentions as a proxy of the real behavior
Hypotheses in this study

Gender differences between university students will reduce with increasing knowledge of HPV, awareness of sexual rights and perception of gender equality, and intention to prevent HPV infection after completion of the gender-based HPV prevention educational program.
Hypotheses in this study

Knowledge of HPV, awareness of sexual rights and perception of gender equality, and intention to prevent HPV will be enhanced in both male and female university students after they complete the gender-based HPV prevention educational program.
Methods

Research design

A quasi-experimental design

Pretest
1st week
• Gender differences in factors

Education Program
2nd~5th week
• Gender-based HPV prevention educational program
  • 4-weeks, 12 sessions

Posttest
6th week
• Gender differences in factors
Methods

Sample

Sampling
1. Via the school homepage and offline advertisements
2. September 27, 2010 ~ October 8, 2010

Inclusion criteria
1. Willingness to participate in this study.
2. Never having been married.
3. Not majoring in nursing, medicine, or public health.

Exclusion criteria
Had commenced or completed an HPV vaccination program
Methods

Sample

66 Students Recruited

7 were excluded

59 Students Participated

62 Subjects was necessary: Sufficient Power 0.80, $p<0.05$, large effect size of 0.79 (G power 3.12) + 20% missing subjects

3 female students had been vaccinated for HPV,
2 male students were not able to attend the entire educational
2 female students did not attend the introductory session of the study

31 men, 28 women
# Methods

## Gender-based HPV prevention educational program

<table>
<thead>
<tr>
<th>Session</th>
<th>Contents of the HPV prevention educational intervention</th>
<th>Methodologies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Session 1</td>
<td>Overview of the program and pretest</td>
<td></td>
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<tr>
<td>Session 2</td>
<td>Introduction among participants and the research team</td>
<td>Self introduction</td>
</tr>
<tr>
<td>Session 3</td>
<td>General HPV information: prevalence, pathology, types of HPV, HPV vaccines</td>
<td>Lecture</td>
</tr>
<tr>
<td>Session 4</td>
<td>1. Gender-specific HPV infection</td>
<td>Lecture</td>
</tr>
<tr>
<td></td>
<td>2. Genital warts as a common STI among both genders</td>
<td>Lecture</td>
</tr>
<tr>
<td>Session 5</td>
<td>Common specific approaches to prevent HPV for both genders</td>
<td>Lecture</td>
</tr>
<tr>
<td>Session 6</td>
<td>Sexual autonomy and sexual rights for both genders</td>
<td>Lecture</td>
</tr>
<tr>
<td>Session 7</td>
<td>Sexism and prejudice regarding sexuality in Korean society</td>
<td>Discussion</td>
</tr>
<tr>
<td>Session 8</td>
<td>Explore the experiences and feelings of gender inequality in their sexual health and interpersonal relationships</td>
<td>Discussion</td>
</tr>
<tr>
<td>Session 9</td>
<td>Sexually assertive communication skills, condom use</td>
<td>Discussion&amp;practice</td>
</tr>
<tr>
<td>Session 10</td>
<td>Breaking prejudices about sexuality, STIs, and HPV</td>
<td>Discussion</td>
</tr>
<tr>
<td>Session 11</td>
<td>Summary of healthy behaviors to prevent HPV for both genders</td>
<td>Lecture</td>
</tr>
<tr>
<td>Session 12</td>
<td>Posttest and question-and-answer session</td>
<td>Discussion&amp;evaluation</td>
</tr>
</tbody>
</table>
**Methods**

**Measures: Knowledge of HPV** (5 items)

“HPV can be asymptomatic”
“HPV can disappear without treatment”
“HPV vaccine prevents HPV infection”
“Condoms prevent HPV”
“HPV can affect men”

- A score of 1 was assigned to each item for a correct answer.
- A score of 0 was assigned for an incorrect or “don’t know” answer.
- Higher scores indicate better knowledge regarding HPV.
- Cronbach’s α values of 0.88.
Methods

Measures: Awareness of sexual rights (17 items)

- 4-point scale ranging from 1 ("not at all important") to 4 ("very important")
- The contents of the instrument included five factors related to sexual rights (sexuality education, free from prejudice and bias aberration, sexual satisfaction, safe and equal sexuality, and sexual autonomy)
- Higher scores indicate a better understanding of sexual rights.
- Cronbach’s α values of 0.80
Methods

Measures: Perception of gender equality (5 items)

- The perception of gender equality was assessed by five items on the sexuality subscale of the Korean Gender Egalitarianism Scale (KGES) developed by the Korean Women’s Development Institute (1999).
- 5-point scale ranging from 1 (“very much agree”) to 5 (“never agree”)
- Higher scores indicated better perceptions of gender equality.
- Cronbach’s α values of 0.72
Methods

Measures: Intention to prevent HPV infection (6 items)

- 5-point scale ranging from 1 ("not at all") to 5 ("very much")
  1. Intention to use a condom regularly
  2. Intention to reduce the number of sexual partners
  3. Intention to abstain from sex until marriage
  4. Intention to be vaccinated for HPV
  5. Intention to regularly undergo a Pap test or pelvic examination even before marriage (female students only), or intention to recommend a regular Pap test or pelvic examination to sexual partner (male students only)
  6. Intention to stop smoking (or to continue not smoking)

- Cronbach’s α value of 0.80.
Methods

Ethical considerations

- The research protocol was approved by the University Hospital Institutional Review Board.
- The participants were given specific information about the research program, and their right to stop their participation at any time.
- The participants signed an informed consent form agreeing to their participation in this study, and they were assured that the data they provided would be confidential and anonymous.
- The participants received the financial incentive.
Methods

Data analysis

- All variables were analyzed using frequencies, means, proportions, standard deviations, and percentages.

- **At the pretest**, the homogeneity test of sociodemographic factors and the general HPV awareness between male and female students were analyzed using the $t$, $\chi^2$, and Fisher’s exact test.

- Gender differences in the measurement variables were analyzed using the Mann-Whitney $U$ test.
At posttest

- Gender differences in the measurement variables between groups were analyzed using the Wilcoxon signed-ranks test with Bonferroni correction. The effects of the HPV prevention program in each group were also analyzed using the Wilcoxon signed-ranks test. (version 18, SPSS, Chicago, IL, USA).
Results

Gender comparisons of the subjects’ general characteristics

Age

N=59

Male: 20.57
Female: 19.7

Male
Female

Male
Female
Results

Gender comparisons of the subjects’ general characteristics

Grade

<table>
<thead>
<tr>
<th>Grade</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>58.1%</td>
<td>50%</td>
</tr>
<tr>
<td>2</td>
<td>32.2%</td>
<td>14.3%</td>
</tr>
<tr>
<td>3</td>
<td>6.2%</td>
<td>17.9%</td>
</tr>
<tr>
<td>4</td>
<td>3.2%</td>
<td>17.9%</td>
</tr>
</tbody>
</table>

N=59
Results

Gender comparisons of the subjects’ general characteristics

Living condition

Male
- 58.1%
- 32.2%
- 6.2%

Female
- 17.9%
- 17.9%
- 4%

N=59

With parents
Alone, sublets
Dormitory
Results

Gender comparisons of the subjects’ general characteristics

Sexual experience (Significant difference, $p=0.023$) N=56

- **Regular**
  - Female: 15.4%
  - Male: 20%

- **Irregular**
  - Female: 3.8%
  - Male: 35.5%

- **None**
  - Female: 50.8%
  - Male: 80.8%
Results

Gender comparisons of the subjects’ general characteristics

Number of sexual partners

Male
Female

N: Male =13
Female=6
Results

Gender comparisons of the subjects’ general characteristics

STI examination  N=52

- Yes: 0% Female, 3.6% Male
- No: 100% Female, 96.4% Male

Condom use  N=50

- Often: 9.1% Female, 21.4% Male
- Rarely: 9.1% Female, 25% Male
- Never: 81.8% Female, 53.6% Male
Results

Gender comparisons of the subjects’ general characteristics

Smoking experience  N=59

<table>
<thead>
<tr>
<th></th>
<th>Female</th>
<th>Male</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>7.1</td>
<td>61.3</td>
<td>38.7</td>
</tr>
<tr>
<td>No</td>
<td>38.7</td>
<td>92.9</td>
<td>61.3</td>
</tr>
</tbody>
</table>

Frequency of alcohol consumption N=59

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Female</th>
<th>Male</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-3/week</td>
<td>17.9</td>
<td>25.8</td>
<td>21.4</td>
</tr>
<tr>
<td>1/week</td>
<td>17.9</td>
<td>25.8</td>
<td>21.4</td>
</tr>
<tr>
<td>1-2/month</td>
<td>42.9</td>
<td>45.2</td>
<td>42.9</td>
</tr>
<tr>
<td>Never</td>
<td>3.2</td>
<td>21.4</td>
<td>21.4</td>
</tr>
</tbody>
</table>

(Significant difference, p<0.001)
Results

Gender comparisons of the subjects’ general characteristics

Heard of HPV  N=59

<table>
<thead>
<tr>
<th></th>
<th>Female</th>
<th>Male</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>14.3</td>
<td>6.5</td>
</tr>
<tr>
<td>No</td>
<td>82.1</td>
<td>93.5</td>
</tr>
</tbody>
</table>

Heard of genital warts  N=59

<table>
<thead>
<tr>
<th></th>
<th>Female</th>
<th>Male</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>10.7</td>
<td>12.9</td>
</tr>
<tr>
<td>No</td>
<td>89.3</td>
<td>87.1</td>
</tr>
</tbody>
</table>
**Results**

**Hypothesis**

**Pretest**

- Knowledge of HPV
  - Female: 1.5
  - Male: 4.5

- Awareness of sexual rights
  - Female: 0.8
  - Male: 4.0

- Perception of gender equality
  - Female: 13.8
  - Male: 15.9

- Regular condom use
  - Female: 3.5
  - Male: 4.6

- Reduce number of sex partner
  - Female: 2.5
  - Male: 3.7

- Abstinence from sex until marriage
  - Female: 3.7
  - Male: 3.7

- Get HPV vaccination
  - Female: 4.5
  - Male: 5.0

- Stop smoking or continue not smoking
  - Female: 4.8
  - Male: 4.2

- Perceptions of gender equality: $p = 0.016$  
- Regular condom use: $p = 0.033$  
- Reduce number of sex partner: $P < 0.001$  
- Abstinence from sex until marriage: $P < 0.001$  
- Get HPV vaccination: $P = 0.028$
Results

Hypothesis | Posttest

- Knowledge of HPV
  - Female: 2.8
  - Male: 3.9
  - P = 0.281

- Awareness of sexual rights
  - Female: 14.9
  - Male: 17.6
  - P = 0.266

- Perception of gender equality
  - Female: 4.4
  - Male: 3.9
  - P = 0.334

- Regular condom use
  - Female: 4.5
  - Male: 4.0
  - P = 0.180

- Reduce number of sex partner
  - Female: 2.7
  - Male: 3.7
  - P = 0.440

- Abstinence from sex until marriage
  - Female: 4.0
  - Male: 4.0

- Get HPV vaccination
  - Female: 4.5
  - Male: 4.1

- Stop smoking or continue not smoking
  - Female: 4.4
  - Male: 4.0
These findings support the hypothesis that gender differences are reduced by improving knowledge of HPV, awareness of sexual rights and perception of gender equality, and intentions to prevent HPV infection among male and female university students as a result of completing a gender-based HPV prevention educational program.
Results

Hypothesis 1

Male

- Knowledge of HPV
  - Pre: 2.7, Post: 0.8
  - p < 0.001

- Awareness of sexual rights
  - Pre: 14.9, Post: 13.8
  - p = 0.012

- Perception of gender equality
  - Pre: 58.6, Post: 53.7
  - p = 0.005

- Regular condom use
  - Pre: 4.0, Post: 3.9
  - p = 0.013

- Reduce number of sex partner
  - Pre: 4.0, Post: 3.5
  - p = 0.013

- Abstinence from sex until marriage
  - Pre: 3.0, Post: 2.0
  - p = 0.013

- Get HPV vaccination
  - Pre: 3.7, Post: 3.5
  - p = 0.013

- Stop smoking or continue not smoking
  - Pre: 3.9, Post: 4.2
  - p = 0.013

- Recommend Pap test to partner
  - Pre: 4.4, Post: 4.4
  - p = 0.013

Hypothesis 2

- Male
Results

Hypothesis I

Female

- Knowledge of HPV: Pre = 15.8, Post = 2.8, p = 0.002
- Awareness of sexual rights: Pre = 60.5, Post = 55.8, p = 0.005
- Perception of gender equality: Pre = 17.6, Post = 15.9, p = 0.033
- Regular condom use: Pre = 4.5, Post = 4.9
- Reduce number of sex partner: Pre = 4.6, Post = 3.7
- Abstinence from sex until marriage: Pre = 4.7, Post = 3.7
- Get HPV vaccination: Pre = 4.8, Post = 4.6
- Stop smoking or continue not smoking
- Regular undergo Pap test & Pelvic exam: Pre = 4.1, Post = 4.6, p = 0.018
The hypothesis that knowledge of HPV, awareness of sexual rights, and perception of gender equality, and intention to prevent HPV will be enhanced in both male and female university students after completion of a gender-based HPV prevention educational program was supported by our results.
Conclusions

The gender-based approach was an effective educational program for both genders. Future strategies for HPV prevention should include men in HPV educational programs in order to reduce the spread of HPV.
Thank You!

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