Impact of Human Papilloma Virus Seminar on Students’ Attitudes, Perceptions, Knowledge, and Record Search

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Introduction

• Human Papilloma virus (HPV) is the most common STI and cause of genital warts and cancer in the cervix and vagina in women, penis in men, anus and oropharynx.

• HPV types 16 and 18 account for 70% of cervical cancer worldwide.

• HPV types 6 and 11 are responsible for 90% of genital warts.

• An estimated 14 million cases of HPV are reported each year.

• The uptake and the completion of the three series of vaccination has been less among young Hispanics and Blacks.
Introduction

• Hispanics encounter disparities in cervical cancer incidence and mortality.

• Most past studies rarely utilized Hispanics from rural communities.

• Factors associated with health promotion behavior in relation to HPV vaccination uptake among young Hispanic college students are not known.
Purpose

• Determine whether a 15-minute school-located face-to-face HPV seminar directly impacts college-level freshman students’ vaccination-record search behavior, or indirectly impacts through changes perceptions of safety and of risk, attitude toward and knowledge about HPV vaccine.

• Advance understanding of the factors (e.g. attitudes, concerns, intentions, and perceptions) that shape HPV vaccine uptake behavior among Hispanic college students in the medically underserved U.S. southern border region.
• Past studies indicate that knowledge about HPV predicted HPV vaccination.

• However other studies indicate that increase knowledge about HPV does not necessarily translate to increase uptake of HPV vaccine.

• There is inconsistency in the literature regarding the influence of knowledge regarding HPV vaccine uptake.
Risk Perception

- Perceptions of susceptibility to HPV infection were predictive of vaccination.
- Not being sexually active or remained virgins.
- HPV and cervical cancer do not resonate among college men.
- Misconceptions that HPV virus are not tied with anal, penile, and oropharyngeal cancer.
- Parents of college men were not supportive with the thought the cervical cancer only happens among females.

Forster et al., 2010; Kang & Moneyham, 2010; Krawczyk et al., 2012; M. A. Gerend & Magloire, 2008
Risk Perception

- Parental misconceptions that HPV vaccination would lead to promiscuous behaviors.
- Only needed by those who are sexually active; their children were too young.
- Parental concerns about the safety and efficacy profile of the HPV vaccines.
- Other studies indicated perceptions of risk or being susceptible or vulnerable to the HPV disease were associated with intention to get HPV vaccination.

Brewer & Fazekas, 2007; Caskey et al., 2009; Wong, 2008; Rosenthal et al., 2008
Safety Perception

• HPV vaccine beneficial to one’s self is associated with HPV uptake.
• Perceived effectiveness of the HPV vaccine is associated with HPV vaccine uptake

Attitudes toward the Vaccine

• Personal beliefs that HPV vaccine will provide benefits to one’s self.
• Others indicate the lack of need for the vaccine, and will only be beneficial for those who are sexually active.
• Encourages promiscuity among young women.
• Perceived effectiveness of the HPV vaccine.

Fisher, Kohut, Salisbury, & Salvadori, 2013; Liddon, Hood, Wynn, & Markowitz, 2010
Attitudes

• Parental beliefs and attitudes about vaccination influenced initiation and vaccination rates.
• Uptake for vaccination increased by 4 times when recommended by a physician.
• Counselling from physicians were associated with positive attitudes towards HPV vaccination among mothers.

Allen et al., 2012; Rosenthal et al., 2011; Kessels et al., 2012; Morales-Campos, Markham, Peskin, & Fernandez, 2013
Attitudes

• Those who plan to get vaccinated are more likely to report that their significant other supported HPV vaccination.

• However, for college students, it is not known which factors may influence their decision regarding uptake of HPV vaccine.

• There is little information about how campus-based interventions could impact HVP vaccine uptake among college students.
Theoretical Framework

- Gender
- Partner
- Seminar Attendance

- Knowledge
- Risk Perception
- Safety Perception
- Attitude to Vaccine

Vaccine Record Search
Method

• Quasi-experimental study with pretest and a posttest for two groups: (i) HPV vaccine seminar attendees (n=141), and (ii) non-attendees (n=18).

• Study participants were n=159 college-level freshman students enrolled in UNIV 1101 classes at a university classified as a Hispanic-serving institution in a U.S. southern border city in Fall 2013.

• Seminar attendance (our focal independent variable), other covariates included gender and whether participant had a partner.

• Our mediating variables were the differences (i.e., mean posttest score – mean pretest score) in the perceptions of safety and of risk of HPV vaccine, attitudes toward HPV vaccine, and in knowledge about HPV vaccine.
Method

• Perception of safety and of risk measured in a 7-point 3-item Likert scale.
• Attitude toward HPV vaccine measured using a 7-point 8-item semantic differential scale.
• Knowledge about HPV vaccine measured with an 11-item true or false quiz.
• Vaccination-record search behavior was the dependent variable
Analytical Techniques

• Analyses come in 2 stages.
• **Stage 1:** a set of normal error regression analyses where the mean differences between posttest and pretest for perceptions of safety, risk, attitude, and for knowledge about HPV vaccine were each cast as dependent variables.
• In this stage, seminar attendance, sex of participant, and whether participant had a partner were the independent variables.
Data Analysis

- **Stage 2**: A binary logistic regression analysis in which we sequentially run two models --- model 1 (M1) and model 2 (M2).

- In M1, vaccination-record search behavior (i.e. did or did not search) was the dependent variable. Seminar attendance, sex of participant, and whether participant had a partner still served as independent variables.

- In M2, we maintain the form of M1 except that this time we included the mean differences between posttest and pretest for perceptions of safety, risk, attitude, and knowledge about HPV vaccine as additional independent variables.
Table 1: Descriptive Statistics

<table>
<thead>
<tr>
<th>Variables</th>
<th>n²</th>
<th>Mean</th>
<th>SD</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respondent is female (1=yes; 0=no)</td>
<td>107</td>
<td>0.57</td>
<td>0.50</td>
<td>0.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Respondent has boy/girl friend (1=yes; 0=no)</td>
<td>105</td>
<td>0.89</td>
<td>0.32</td>
<td>0.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Respondent attended seminar (1=yes; 0=no)</td>
<td>107</td>
<td>0.89</td>
<td>0.32</td>
<td>0.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Respondent searched for vaccination record (1=yes; 0=no)</td>
<td>106</td>
<td>0.37</td>
<td>0.48</td>
<td>0.00</td>
<td>1.00</td>
</tr>
</tbody>
</table>

1 refers to the difference between post- and pre-seminar values

2 per item sample sizes vary from the effective sample size of 107 due to item non-response or missing values
<table>
<thead>
<tr>
<th>Predictors</th>
<th>Perception of safety (Difference)</th>
<th>Perception of risk (Difference)</th>
<th>Attitude toward HPV vaccine (Difference)</th>
<th>Knowledge about HPV (Difference)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>SE(B)</td>
<td>p-value</td>
<td>B</td>
</tr>
<tr>
<td>Intercept</td>
<td>0.40</td>
<td>0.51</td>
<td>0.436</td>
<td>0.93</td>
</tr>
<tr>
<td>Respondent is female (1=yes; 0=no)</td>
<td>-0.45</td>
<td>0.31</td>
<td>0.150</td>
<td>-0.19</td>
</tr>
<tr>
<td>Respondent has boy/girl friend (1=yes; 0=no)</td>
<td>-0.25</td>
<td>0.33</td>
<td>0.457</td>
<td>-0.29</td>
</tr>
<tr>
<td>Respondent attended seminar (1=yes; 0=no)</td>
<td>-0.11</td>
<td>0.47</td>
<td>0.812</td>
<td>-0.07</td>
</tr>
<tr>
<td>R-squared (%)</td>
<td>3.20</td>
<td>1.30</td>
<td>3.70</td>
<td>11.50</td>
</tr>
</tbody>
</table>

*, **, *** denote p-values that are significant at the .05, .01, and .001 level, respectively,
<table>
<thead>
<tr>
<th>Predictors</th>
<th>Searched for vaccination record (1=yes; 0=no)</th>
<th></th>
<th></th>
<th></th>
<th>Searched for vaccination record (1=yes; 0=no)</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>exp(B)</td>
<td>p-value</td>
<td></td>
<td>B</td>
<td>exp(B)</td>
<td>p-value</td>
</tr>
<tr>
<td>Intercept</td>
<td>-0.47</td>
<td>0.63</td>
<td>0.123</td>
<td></td>
<td>-2.36</td>
<td>0.09 **</td>
<td>0.004</td>
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<tr>
<td>Respondent is female (1=yes; 0=no)</td>
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<td>-</td>
<td>-</td>
<td></td>
<td>0.84</td>
<td>2.31</td>
<td>0.068</td>
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<tr>
<td>Respondent has boy/girl friend (1=yes; 0=no)</td>
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<td>-</td>
<td>-</td>
<td></td>
<td>0.49</td>
<td>1.63</td>
<td>0.253</td>
</tr>
<tr>
<td>Respondent attended seminar (1=yes; 0=no)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td>1.43</td>
<td>4.16 *</td>
<td>0.047</td>
</tr>
<tr>
<td>Perception of safety (Difference)</td>
<td>-0.05</td>
<td>0.95</td>
<td>0.725</td>
<td></td>
<td>0.00</td>
<td>1.00</td>
<td>0.998</td>
</tr>
<tr>
<td>Perception of risk (Difference)</td>
<td>-0.16</td>
<td>0.85</td>
<td>0.369</td>
<td></td>
<td>-0.15</td>
<td>0.86</td>
<td>0.439</td>
</tr>
<tr>
<td>Attitude toward HPV vaccine (Difference)</td>
<td>0.11</td>
<td>1.11</td>
<td>0.474</td>
<td></td>
<td>0.00</td>
<td>1.00</td>
<td>0.997</td>
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<tr>
<td>Knowledge about HPV (Difference)</td>
<td>-0.04</td>
<td>0.96</td>
<td>0.664</td>
<td></td>
<td>-0.05</td>
<td>0.95</td>
<td>0.635</td>
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<tr>
<td>Akaike Information Criterion (AIC)</td>
<td>146.40</td>
<td></td>
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<td></td>
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<tr>
<td>Bayesian Information Criterion (BIC)</td>
<td>159.67</td>
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<td></td>
<td></td>
<td>166.24</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*, ** denote p-values that are significant at the .05 and .01 level, respectively,
Results

• Compared to non-attendees results indicated that seminar attendees -- participants who attended the 15-minute HPV vaccine seminar -- tended to gain knowledge about HPV.

• However, there was no significant impact of seminar attendance on participants’ scores in regards to perception of safety of HPV vaccine, perception of risk of HPV vaccine, or attitude toward HPV vaccine.
Results

• Results indicated that seminar attendance significantly increased the likelihood of vaccination-record search behavior. Neither perceptions of safety, perceptions of risk, nor attitude toward HPV vaccine had any significant impact on record search behavior.

• While seminar attendance was significantly associated with increased knowledge about HPV vaccine and with record search, knowledge gained about HPV vaccine did not mediate between seminar attendance and record search behavior.

• In other words, gain in knowledge as a result of seminar attendance did not translated to any detectable increase in the likelihood of vaccination-record search behavior.
Conclusion

• In the context of higher education, short face-to-face seminar-type presentation on HPV has allowed the transmission of explicit knowledge and triggered record search behavior.

• However, the same presentation strategy failed to influence the more cerebral and subjective dimensions relating to attitudes (attitudinal change) and perceptions (perceptual change).
Conclusion

• Adds to the extant knowledge about a segment of the population in the medically underserved area of the U.S. southern border region, a region that is home to the colonias, poor communities in the U.S. southern border region with living conditions that mirror those of the poor in developing countries.

• Points to a direction that can be taken to improve health-related information and knowledge.