

***Comparing the Health Belief Model and Theory of Planned Behavior in Predicting Intention to Vaccinate Against the Human Papillomavirus in College-Age Women***

Juli Buchanan, Psy.D.

Chase Brexton Health Services Inc., Baltimore, MD

Kymerley K. Bennett, Ph.D.

University of Missouri – Kansas City

# ***HPV: Prevalence and Vaccine***

- Dunne et al. (2007) article in JAMA:
    - Prevalence data for women
      - Overall between the ages of 14 and 59: 26.8%
      - Between the ages of 14 and 19 : 24.5%
      - *Between the ages of 20 and 24: 44.8%*
      - Between the ages of 25 and 29 : 27.4%
  - HPV vaccine (Gardasil®):
    - FDA approved it for females between the ages of 9 and 26
    - Protects against low-risk (6 and 11) and high-risk (16 and 18) strains
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# ***HPV among College-Age Women***

- Vaccine efficacy:
    - 95% to 100% without prior exposure to HPV
    - Highest before any sexual experience
      - Thus, public health messages target young, pre-sexual girls
    - Declines with sexual experience (i.e., assumed exposure to strains of HPV)
  - Why study college-age women?
    - High prevalence rates
    - Even with exposure to one strain, vaccine may protect against others
    - Opportunities to decrease incidence rates
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# ***Health Decision-Making***

- Theory of Planned Behavior (TPB):

- Attitude toward vaccination
- Subjective norms
- Perceived behavioral control

- Health Belief Model (HBM):

- Perceived susceptibility
  - Perceived severity
  - Benefits
  - Barriers
  - Self-efficacy
  - Knowledge
  - Cues to action
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# *Purpose*

- Which of the TPB variables significantly predicts intention to vaccinate against HPV?
  - Which of the HBM variables significantly predicts intention to vaccinate against HPV?
  - Can an integrative model (of variables from the TPB and the HMB) be developed to capture the most important determinants of intention to vaccinate against HPV?
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# *Participants*

- 143 non-vaccinated female college students
  - Ages ranged from 18 to 39 ( $M = 21.76$ ,  $SD = 3.32$ )
  - 80% Caucasian
  - 86% reported having sexual intercourse at least once
    - Mean age of first intercourse = 16.63 ( $SD = 1.87$ )
    - Mean number of lifetime partners = 5.04 ( $SD = 6.55$ )
    - 53% used a condom with last new sexual partner
  - 75% were dating or partnered
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# Questionnaire

- Control variables:
    - Smoking status
    - Number of lifetime sexual partners
    - Sexual risk factors
      - E.g., age of first experience, oral sex, condom used with last new partner, diagnosis of an STI, abnormal PAP test
  - Predictor variables:
    - TPB variables (total of 3)
    - HBM variables (total of 7)
  - Outcome variable:
    - Intention to vaccinate
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# ***Results: Descriptive Statistics***

- Intention to vaccinate:
    - Mean = 10.68 ( $SD = 3.53$ )
      - Scores range from 4 (*very unlikely*) to 16 (*very likely*)
  - Knowledge of HPV:
    - 17 true/false items; Mean = 68% answered correctly
    - Troublesome items about the effects of HPV:
      - 48.3% incorrectly believed:
        - “All women with certain types of HPV will develop cervical cancer unless they receive treatment.”
      - 39.2% incorrectly believed:
        - “Most women with HPV have abnormal menstrual periods.”
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# ***Results: Descriptive Statistics***

- Knowledge of HPV, continued:
  - Troublesome items about transmission of HPV:
    - 36.4% incorrectly believed:
      - “Condoms do not protect you from getting HPV.”
    - 49.7% did not know:
      - “HPV can be passed from person to person by skin to skin contact with an HPV infected area.”
  - Troublesome items about a cure for HPV:
    - 23.1% incorrectly believed:
      - “HPV goes away permanently if a woman gets the right treatment.”
    - 46.2% incorrectly believed:
      - “HPV can sometimes be cured with antibiotics.”

# TPB Regression Results

<u>Predictor variables</u>	<u>β</u>	<u>p-value</u>
Have had sexual intercourse	-.03	n.s.
Used condom with last new partner	-.07	n.s.
<b><i>Attitude toward vaccine</i></b>	<b>.33</b>	<b>.001</b>
<b><i>Subjective norm</i></b>	<b>.39</b>	<b>.001</b>
Perceived behavioral control	.06	n.s.

$F(5, 118) = 19.55, p < .001; R^2 = .45$

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# HBM Regression Results

<u>Predictor variables</u>	$\beta$	<u>p-value</u>
Have had sexual intercourse	-.02	n.s.
<b><i>Used condom with last new partner</i></b>	<b>-.20</b>	<b>.01</b>
Knowledge	-.11	n.s.
<b><i>Perceived susceptibility</i></b>	<b>.41</b>	<b>.001</b>
Perceived severity	.08	n.s.
<b><i>Benefits</i></b>	<b>.25</b>	<b>.001</b>
Barriers	-.06	n.s.
<b><i>Self-efficacy</i></b>	<b>.21</b>	<b>.01</b>
Cues to action	-.01	n.s.

$F(9, 114) = 10.77, p < .001; R^2 = .46$

# *Integrated Model Regression Results*

<u>Predictor variables</u>	<u><math>\beta</math></u>	<u>p-value</u>
Used condom with last new partner	-.11	.10
<b><i>Attitude toward vaccination (TPB)</i></b>	<b>.24</b>	<b>.01</b>
<b><i>Subjective norm (TPB)</i></b>	<b>.25</b>	<b>.01</b>
<b><i>Perceived susceptibility (HBM)</i></b>	<b>.21</b>	<b>.01</b>
<b><i>Benefits (HBM)</i></b>	<b>.18</b>	<b>.05</b>
<b><i>Self-efficacy (HBM)</i></b>	<b>.15</b>	<b>.05</b>

$F(6, 116) = 22.62, p < .001; R^2 = .54$

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# *Discussion*

- Predicting vaccination among college-age women:
    - *Inter-personal factor:*
      - Norms of reference group
    - *Intra-personal factors:*
      - Positive attitude toward the vaccine
      - Susceptibility to HPV
      - Benefits of vaccination
      - Feelings of self-efficacy to vaccinate
  - Gaps in knowledge of HPV remain:
    - Effects, transmission, and treatment
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# ***Limitations & Implications***

- Limitations:

- Sample of convenience
- Intentions  $\neq$  actual vaccination behavior
- Knowledge of HPV assessed, not of vaccine itself

- Implications:

- Knowledge of vaccine may impact intention to vaccinate
  - Positively-framed messages about the vaccine may be effective in increasing self-efficacy and perceptions of benefits, and in promoting positive attitudes
  - Peer-based interventions may be beneficial
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