Intentions to Vaccinate Daughters against HPV

A Look from a Cross-Cultural Perspective

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Cervical Cancer Burden

- Second most common type of cancer that kills women worldwide

- 250,000 women die of cervical cancer worldwide each year\(^1\)
  - 4,000 women die of the disease in the U.S.\(^2\)

- Societal monetary burden of treating cancer
  - $182 to $363 million annually\(^3\)

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\(^1\)Huang, 2008; \(^2\)National Cancer Institute [NCI], 2008; \(^3\)Brody, 2007
Key Contributor to Ethnic Health Disparities

- Cervical cancer characterized by severe disparities\(^1\)

- The Human Papillomavirus (HPV)
  - An STD that precedes cervical cancer\(^2\)

- Greater HPV prevalence in ethnic minority women\(^3\)

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\(^1\) American Cancer Society [ACS], 2008; \(^2\) Zur Hausen, 1994; \(^3\) Kahn, Lan, & Kahn, 2007.
HPV Facts

Most common sexually transmitted disease\(^1\)
- Estimated prevalence rate in sexually active women ages 14-19 is as high as 39.6\(^2\)

Over 100 types of HPV
- Genotypes: 16 and 18 account for 70\% of cervical cancer cases\(^1\)
- Genotypes: 6 and 11 account for 90\% of genital wart cases\(^1\)

\(^1\)Centers for Disease Control and Prevention [CDC], 2009; \(^2\)Dunne, Unger, & Sternberg, 2007
The HPV Vaccine

- Quadrivalent vaccine licensed by the FDA in 2006\(^1\)
  - Three dose series given in six months
  - To 11-12 year old girls
  - Before onset of sexual intercourse

- Unprecedented potential to reduce or exacerbate disparities in cancer rates

\(^1\)CDC, 2008
Disparities in Vaccination Rates

- ~16 percent of girls in poorest states in the U.S. vaccinated
  - ~55 percent in wealthiest states
- Residence in a state with high rate of cervical cancer mortality predicts a low vaccination rate
- Cost ineffective way of vaccine distribution
- Research needed on best way to promote uptake in ethnic minority women

1 Bach 2010; 2CDC, 2008; 3Kim & Goldie, 2008
The Content of Health Persuasive Messages

Typically framed to explain the benefits
- Currently done so by CDC, Mayo Clinic, American Cancer Society

Prospect Theory
- Emphasizing **gains** more effective in persuading to adopt a protective behavior
- Emphasizing **losses** more effective in persuading to perform a behavior to detect an illness
The Effect of Framing on HPV Vaccination

Compared to a gain frame, a **loss frame** message more persuasive in college aged women¹

– Engage in risky behavior
– Cope with problems by avoiding them

¹Gerend & Shepherd, 2007; Gerend, Shepherd, & Monday, 2008
Culture of Individual May Matter

An Independent Self\(^1\)

- The Self
  - Internal attributes, goals, preferences
  - Main goal is to stand out through achievements

An Interdependent Self\(^1\)

- The In group
  - Norms and in-group expectations
  - Main goal is to fit in by fulfilling roles

\(^1\)Heine, Lehman, Markus, & Kitayama, 1999; Markus & Kitayama, 1991
Culture and Regulatory Fit Orientations

The Independent Self
Focuses on personal accomplishments
Promotion: Vigilant about Gains

The Interdependent Self
Focuses on harmony and consequently on security
Prevention: Vigilant about Losses

1Aaker & Lee, 2001; Lee, Aaker, & Gardner, 2000; Elliot et al., 2001
Limitations of Prior Research on Framing

- Conducted pre-licensure of the vaccine
- Has not taken into consideration
  - Cultural background
  - Opinion of ‘key decision-makers’

The present research addresses the following gaps in knowledge

1. Tests intentions post licensure of the vaccine
2. In parents of daughters in the CDC recommended 9-12 age range
3. Across cultures
Hypotheses

- A gain frame will increase intentions in non-Hispanic White participants compared to a loss frame.

- A loss frame will increase intentions in Hispanics and African-Americans compared to a gain frame.
Framing Combination Selected

- Many possible combinations of framing\(^1\)
  - Pilot tested materials

- Gain Frame
  - If you vaccinate your daughter you can protect her from cervical cancer

- Loss Frame
  - If you don’t vaccinate your daughter you will miss the opportunity to protect her from cervical cancer

\(^1\)Levin, Schneider, & Gaeth, 1998
Method

Participants

- 150 mothers (50 Hispanic, 50 non-Hispanic White, and 50 African-American mothers)

- Eligibility criteria: Be a parent or legal guardian of a daughter who had not received the Human Papillomavirus (HPV) vaccine

- Participants of the U.S. federal program Women, Infant, and Children (WIC)

- Mean age of mothers was 33.72 (SD = 7.95). Mean number of children was 3.38 (SD = 1.42). Mean age of daughters was 10.94 (SD = 4.01) years.
SPARKING OF YOUR DAUGHTER’S HEALTH

HPV & CERVICAL CANCER

• The genital Human Papillomavirus (HPV) is very common. One out of every two women will get it.

• Most people who have HPV don’t know they have it.

• There is no cure for HPV, but there are treatments for the health problems that some types of HPV can cause, like cervical cancer or genital warts.

• Every year, about 12,000 women are diagnosed with cervical cancer and almost 4,000 women die from this disease in the U.S.

• Genital warts are not life-threatening but are very difficult to treat.

THE HPV VACCINE

If you vaccinate your daughter you can protect her from cervical cancer.

• There is a vaccine to protect against HPV. This vaccine has been licensed by the FDA and approved by the CDC as safe and effective.

• The vaccine is recommended for 11- and 12-year-old girls.

• This vaccine was studied in thousands of females (ages 9 through 26 years) around the world and its safety continues to be monitored by the CDC and the FDA. Studies have found no serious side effects. The most common side effect is soreness in the arm (where the shot is given). There have recently been some reports of fainting in teens after they got the vaccine. For this reason, it is recommended that patients wait in their doctor’s office for 15 minutes after getting the vaccine.

• Women will still need regular cervical cancer screening (Pap tests) because the vaccine will only protect against 70% of all cervical cancers. The vaccine will protect against 90% of genital warts.

• Women who get the vaccine after becoming sexually active may not get the full benefit of the vaccine if they had already acquired HPV.
You can vaccinate your daughter at the following places:
- Office of your pediatrician
- Local health department

The vaccine is given in 3 shots in a 6 month period.
You may qualify for coverage through a variety of health insurances
and through your local health department.

YOU CAN GET MORE INFORMATION ABOUT THE HPV VACCINE
FROM YOUR LOCAL HEALTH DEPARTMENT OR AT
WWW.CDC.GOV/VACCINES

CENTER FOR AIDS INTERVENTION RESEARCH (CAIR)
2071 N. Summit, Milwaukee, WI 53202  T: (414) 955-7769 • F: (414) 287-4206
Method Cont.

Procedure
- Recruitment took place at department of health clinics in the Milwaukee, Wisconsin
- Participants read and evaluated two brochures with the framed messages
  - A repeated measures design
- To counteract order effects, the order of presentation was counterbalanced
  - Gain-Loss
  - Loss-Gain
Method Cont.

Measures

- Demographic questionnaire
  - Education level
  - Medical insurance and employment status

- A manipulation check (after each brochure)
  - The take home message of the information presented in the brochures focused on losses or gains?
  - Response options on a 7 point Likert-type scale ranging from “1 = Emphasis on Losses” to “7 = Emphasis on Gains”
Method Cont.

Measures

Measure of intentions to vaccinate (3 time points)
- Four items (will vaccinate, convince daughter, convince significant other, talk to a pediatrician)
- Response options on a 7 point Likert-type scale ranging from “1 = definitely no” to “7 = definitely yes”
- \( \alpha = .91 \) Hispanics, \( \alpha = .90 \) non-Hispanic White, \( \alpha = .88 \) African-American
Results: Demographics

χ² = 49.42, df = 6, p < .001
χ² = 24.89, df = 8, p < .01
χ² = 3.71, df = 4, p = .44
Results Manipulation Check

Mixed Manova. Ethnicity and Order (between). Framing (repeated).
A main effect of framing Wilks’ $\lambda = 20.53, p < .001$, partial $\eta^2 = .12$
Results: The Overall Effect of Framing

- A mixed MANCOVA on intentions
  - Between-subject factors
    - Order of presentation (loss-gain versus gain-loss)
    - Ethnic group (Hispanic versus Non-Hispanic White versus African-American)
  - Repeated measures factor
    - Framing (baseline versus gain versus loss)
  - Covariates
    - Education level and insurance status

- Significant interaction between framing, order, and ethnic group Wilks’ $\lambda = 2.14$, $p = .07$, partial $\eta^2 = .03$. 
A mixed MANOVA with order of presentation (loss-gain versus gain-loss) as the between-subjects factor and framing (baseline versus gain versus loss) as a repeated measures factor. A significant main effect of framing $F(2, 92) = 17.28, p = .001$, partial $\eta^2 = .27$. 

Results: Framing in non-Hispanic White
A mixed MANOVA with order of presentation (loss-gain versus gain-loss) as the between-subjects factor and framing (baseline versus gain versus loss) as a repeated measures factor. A significant main effect of framing $F(2, 92) = 47.26, p = .001$, partial $\eta^2 = .50$. 

**Intention to Vaccinate**

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<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>Gain Frame</th>
<th>Loss Frame</th>
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<tbody>
<tr>
<td>Baseline</td>
<td></td>
<td>d=.79</td>
<td>d=.32</td>
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<tr>
<td>Gain Frame</td>
<td></td>
<td>d=1.18</td>
<td></td>
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<tr>
<td>Loss Frame</td>
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Results: Framing in Hispanics

A mixed MANOVA with order of presentation (loss-gain versus gain-loss) as the between-subjects factor and framing (baseline versus gain versus loss) as a repeated measures factor. A significant main effect of framing $F(2, 92) = 23.38, p = .001$, partial $\eta^2 = .33$. A significant interaction of framing and order $F(2, 92) = 2.88, p = .06$, partial $\eta^2 = .06$. 

- Loss-Gain: $d=.67$
- Gain-Loss: $d=1.15$
- Gain: $d=.81$
Discussion: Effect of Framing

A differential effect of framing across the groups

- Hypothesis not supported in non-Hispanic White
  - Gain not better than loss frame
- Loss framing more effective in African-Americans and Hispanics
  - A different pattern for Hispanics
    - Order made a difference
Future Research

- Development of an intervention incorporating these findings
- Longitudinal design to test
  - Start and completion of vaccination series
  - Male parents
  - Include other ethnic minority groups
    - Asian population
  - Measure plausible mediators
    - Regulatory fit
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- Questions