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Student Column

DEVELOPMENT OF A RADIONOVELA TO PROMOTE HPV VACCINE AWARENESS AND KNOWLEDGE AMONG LATINO PARENTS

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In the United States, Latinas experience higher incidence and mortality from cervical cancer than non-Hispanic white women.¹ Underutilization of Papanicolaou (Pap) testing for cervical cancer screening among Latinas plays a major causal role in this disparity,² as the majority of cervical cancer deaths are preventable with routine Pap testing and patient follow-up care.³

Another strategy for the prevention of cervical cancer is now available with the approval of two human papillomavirus (HPV) vaccines by the U.S. Food and Drug Administration in 2006 and 2009. Public education programs that use tailored, evidence-based communication strategies to target high-risk groups are critical to ensure acceptance and uptake of the HPV vaccine by those most at risk for cervical cancer.⁴

Less acculturated Latino parents with lower levels of English-language proficiency may be less likely to be exposed to comprehensible educational materials related to cervical cancer than individuals with higher levels of English-language proficiency.⁵⁻⁸ Low levels of HPV and HPV vaccine awareness and knowledge among Latinos in a variety of U.S. regions have been demonstrated in several studies.⁹⁻¹¹ However, a number of studies showed that when the HPV vaccine is presented as a strategy to prevent cervical cancer, support for vaccine uptake is high among Latinas and Latino parents.^{10,12,13}

Collaborations with community-based partners who can inform the style, content, and relevancy of cancer education messages result in the most effective cancer

prevention outreach efforts.¹⁴ One effective culturally tailored health education outreach strategy to target Latino communities is the use of *novelas* (short stories) for television, radio, and print. *Novelas* that are developed with Latino community input have been successful at promoting health education messages on human immunodeficiency virus and alcohol use to Spanish-speaking communities with low levels of literacy.^{15,16} The success of *novelas* within Latino communities in the U.S. may in part be the result of the implementation of *novelas* as effective health-promotion strategies in Latin America.^{17,18}

In general, qualitative methodology has been shown to be a useful and valid strategy to develop the content of health education programs targeting Latinos. One study successfully used focus groups (FGs) and community meetings with community members and key leaders to develop a *telenovela* (short story or mini-drama produced for television), *radionovela* (short story or mini-drama produced for radio), and *fotonovela* (short story or mini-drama in the form of a photo pamphlet vignette), all with one storyline, to improve communication between parents and youth and youth attitudes regarding alcohol use within a Latino community.¹⁶

This is one of the first studies conducted on the development of a culturally appropriate *radionovela* to improve HPV and HPV vaccine knowledge and attitudes among Latino parents that employs Grounded Theory methodology related to the analysis of in-depth elicitation interviews and FGs. Furthermore, it is the first study to (1) explore the in-depth perspectives of Latino parents on a sensitive topic related to adolescent sexual health and (2) use these findings to develop a culturally tailored public health intervention to address parental concerns. The methodology employed in this study may be useful to other public health practitioners who are hoping to develop a tailored public health intervention on a new public health topic for a specific target population.

METHODS

Study population and design

This study took place in the Lower Yakima Valley of Washington State, a region that includes many small agricultural communities, has a population of about 62,000, and is more than 50% Latino. Latinos in this region are primarily of Mexican American ethnicity.¹⁹

From June 2008–January 2009, Latino parents or guardians of daughters aged 9–14 years were recruited to participate in in-depth elicitation interviews (EIs). The themes generated from the EIs were used to develop four *fotonovelas* to inform the development of

a *radionovela* to raise awareness of HPV and the HPV vaccine among Latino parents. In April–July 2009, Latino parents of daughters aged 9–14 years who had not participated in the EIs were recruited to participate in FGs to provide feedback on the four Spanish *fotonovelas* that were used to develop a Spanish *radionovela* and on the produced *radionovela* itself.

Participants were recruited by Spanish flyers with phone number tear-off tabs posted in local community gathering places such as churches, stores, and organizations.²⁰

In-depth EIs

EIs were conducted in a location that was convenient for the participant; most chose their own home. All EIs were in Spanish and lasted approximately 30–45 minutes. The interviews included a series of semistructured, open-ended questions and probes for further information. The EIs explored sociocultural decision-making processes, barriers, and facilitators of receiving HPV vaccination for their daughters.

EIs differ from other interviews in that they aim to convince the interviewee to share factors related to the particular behavior under investigation (i.e., intention to vaccinate daughter) without pressure on the interviewee to respond in a socially desirable manner.²¹ Furthermore, the interview guide was continuously revised following ongoing data analysis activities to most effectively elicit beliefs, knowledge, and attitudes related to cervical cancer, HPV, and uptake of the HPV vaccine.

Earlier versions of the guide assumed higher levels of participant exposure and familiarity with cervical cancer, HPV, and the HPV vaccine than existed. Later versions of the guide included the same overarching questions, but were better able to capture participant exposure and knowledge levels because they included additional probes to gather more specific and in-depth information. For example, a previous version asked, “Where have you heard about the HPV vaccine?” and a later version also asked, “Have you heard about the HPV vaccine from a health provider? A media source? A friend? A family member? From school? From any other person or place?” Lastly, a short demographic survey was included. Following completion of the EI, participants received a \$20 gift card as compensation for their time. All interviews were recorded, transcribed in Spanish, and then translated into English.

Theoretical framework and data analysis

Ongoing qualitative data analysis activities took place following transcription and translation of the EIs. We used Atlas.ti version 5.5 to conduct all data analysis

activities.²² This investigation employed Grounded Theory to explore the themes that emerged from the EIs. Grounded Theory is able to capture sociocultural contexts because it is a systematic qualitative methodology that allows a theoretical framework to emerge from the data through the process of conducting research and data analysis.²³ Thematic coding and data analysis was completed by the primary investigator for this study. A subsample of the interview transcripts ($n=3$) was coded by two other investigators to confirm classifications, descriptions, and thematic interpretations of the findings. High rates of agreement levels were present, with only minor discrepancies in coding found among the three investigators.

Intervention development

Following EI data analysis, from August 2008 to July 2009, four Spanish-language HPV vaccine *fotonovelas* were produced in collaboration with a local public radio station, Radio KDNA. Radio KDNA is the oldest and largest Spanish-speaking community radio station in Washington, serving a five-county region focused on the Yakima Valley (south-central Washington). It is housed in the Northwest Communities Education Center (NCEC) located in Granger, Washington. Started as a farm worker education and advocacy project, NCEC has literacy and English-as-a-second-language programs, other community services, and radio programming. Its radio shows are in Spanish and make frequent use of *radionovelas*.

Focus groups

Three FGs were conducted with parents of daughters aged 9–14 years to explore the themes and content of the four HPV vaccine *fotonovelas*. Participants responded to open-ended questions related to perception, content, and impact of the *fotonovelas*. One question was, “What is the main message of this *fotonovela*?” This probe was repeated during the presentation of each *fotonovela*. The FGs were conducted by trained Spanish-speaking Latina facilitators and included the participation of a Spanish-speaking note-taker. Following the completion of these *fotonovela* FGs, the qualitative data were analyzed to critically assess the strengths and weaknesses of the health-promotion materials. This feedback was used to inform the development of the final *radionovela* in collaboration with Radio KDNA. Lastly, a *radionovela* FG was held to provide feedback on the produced *radionovela*. In addition, FG participants completed short demographic questionnaires. Following participation in the FG, participants received a \$20 gift card as compensation for their time.

RESULTS

Participant demographic characteristics

The EI participants included 36 Latino parents/guardians of daughters aged 9–14 years (25 women and 11 men) (Table 1). Nine of the parents (25%) expressed that they had already received at least one of the three-dose HPV vaccines for their daughters prior to participating in the EI (data not shown). The FG participants included 33 Latino parents of daughters aged 9–14 years (22 women and 11 men). Most of the participants demonstrated low levels of acculturation as assessed by the Short Acculturation Scale²⁴ (Table 1). More than half of the FG participants (60%) had previously heard of the HPV vaccine (data not shown).

Themes generated from the EIs

From our Grounded Theory qualitative data-coding activities, a number of themes emerged from the EIs that were used to develop four *fotonovelas* (Tables 2 and 3). Data collected evolved into a theme if the data represented a salient factor affecting participant awareness and interest in the HPV vaccine that emerged within and across participant interviews.

HPV and HPV vaccine knowledge. Overall, participants demonstrated low levels of awareness of HPV and the HPV vaccine. About one-third (33%) of the participants had not yet heard of the HPV vaccine, and more than half (56%) were unfamiliar with the major cause of cervical cancer (Table 2).

Sources of health information. A large portion of participants indicated that they received health information from a physician or nurse at a local clinic (39%) and had a regular physician (44%). Many participants appeared to trust their physicians and have confidence in the information that they received from their health clinics. Furthermore, many participants expressed that they received health information from their family members or friends (31%) (Table 2).

Perceived barriers to vaccination. We found that when informed of the HPV vaccine, parents expressed a range of perceived barriers related to making the decision to vaccinate their daughters. Many parents felt that their daughters were too young to receive a vaccine to prevent a sexually transmitted infection such as HPV (19%). Furthermore, a large portion of the parents were concerned about the vaccine’s possible side effects (36%) (Table 3).

Decision-making activities related to vaccine uptake. Nearly all EI participants felt comfortable speaking with a medical provider (e.g., nurse or physician) about the HPV vaccine (97%). Many parents would talk with their

Table 1. Demographics of elicitation interview and focus group participants for the development of a *radionovela* to promote HPV vaccine awareness and knowledge among Latino parents in the Yakima Valley of Eastern Washington State, June 2008–January 2009

Demographic	Elicitation interview participants (n=36)		Focus group participants (n=33)	
	N	Sample percent ^a or mean	N	Sample percent ^a or mean
Gender				
Male	11	30.6	11	33.3
Female	25	69.4	22	66.7
Age (in years): range (SD)			32	42: 24–56 (7.5)
26–30	1	2.8	6	18.8
31–40	17	47.2	12	37.5
41–50	15	41.7	12	37.5
51–60	3	8.3	2	6.3
Education (in years): range (SD)	36	8.4: 0–16 (4.3)	31	8.7: 3–16 (3.9)
Household income				
<\$20,000	9	25.7	11	33.3
\$20,000–\$29,999	11	31.4	7	21.2
\$30,000–\$39,999	9	25.7	8	24.2
≥\$40,000	6	17.1	7	21.2
Occupation				
Agriculture and packing plants	14	38.9	16	53.3
Stay-at-home mom/housewife	9	25.0	7	23.3
Other	13	36.1	7	23.3
Number of daughters aged 9–14 years				
1	29	80.6	27	81.8
2	7	19.4	4	12.1
3	0	0.0	2	6.1
Country of birth				
Mexico	30	83.3	31	93.9
Years in the United States: range (SD)	30	20.1: 0–36 (7.7)	30	22.9: 9–39 (8.8)
Parents' country of birth				
Mexico	33	91.7	31	93.9
At least one parent born in U.S.	3	8.3	2	6.1
Acculturation				
High	6	16.7	4	12.1
Low	30	83.3	29	87.9

^aPercentages may not add to 100 due to rounding.

HPV = human papillomavirus

SD = standard deviation

daughters' other parent (25%), with their daughter (19%), and/or with another friend or family member (25%) before making a decision for their daughter to receive the HPV vaccine. The majority of parents felt that their daughter was of an appropriate age to receive the vaccine (56%) (Table 3).

Themes and feedback provided by the FGs

Following data analysis from the EIs, the generated themes were used to develop four *fotonovelas* with Radio KDNA. Each *fotonovela* took the shape of a trifold pamphlet that included a series of large photos that told a story using brief dialogues. The four vignettes included:

- *Fotonovela* #1: Mother speaks with her daughter's physician regarding her questions about HPV and the HPV vaccine. Mother discusses vaccine uptake with the daughter and the daughter's father prior to uptake.
- *Fotonovela* #2: Daughter learns about the HPV vaccine from one of her friends at school. The daughter tells her mom what she learned about the vaccine from her friend and from her friend's mother (a nurse). After asking a few questions, she receives the vaccine from her pediatrician.

Table 2. Elicitation interview themes for the development of a radionovela to promote HPV vaccine awareness among Latino parents (n=36) in the Yakima Valley of Eastern Washington State, June 2008–January 2009

Themes	N (percent)	Example quotes that represent each theme	Fotonovela and radionovela content and/or strategy developed to address theme
<i>HPV and HPV knowledge</i>			
Low level of familiarity with the HPV vaccine	12 (33)	I don't know much about the vaccine. I haven't heard anything. –Father of a 13-year-old daughter	A description of the vaccine presented by an adolescent girl, a daughter, a friend who is a nurse, and a physician.
Low level of knowledge related to the cause of cervical cancer	20 (56)	Honestly, I do not know. –Mother of a 12-year-old daughter	A description of HPV presented by an adolescent girl, a daughter, a friend who is a nurse, and a physician.
Low familiarity with HPV prevalence	4 (11)	I think it is rare, right? –Mother of 12-year-old daughter	Discussion related to the prevalence of HPV between a mother and her daughter's physician.
Low familiarity with HPV symptoms	4 (11)	It seems to me it's burning urine. Yes? And a bad odor, as far as I understand. –Mother of a 13-year-old daughter	Discussion of HPV symptoms between a mother and her daughter's physician.
Low familiarity with how to treat HPV	6 (17)	With treatment it disappears. Without treatment it doesn't. –Mother of a 14-year-old daughter	Discussion between a mother and her daughter's physician related to the body's ability to clear most HPV infections.
Low knowledge of vaccine's cost	12 (33)	No, I don't remember the cost. –Father of a 9-year-old daughter	Mother and father discuss how their clinic confirmed that the vaccine is covered by most insurance plans and medical coupons.
Low level of familiarity with the HPV vaccine series	11 (31)	I do not know the procedures. –Mother of a 10-year-old daughter	Discussion between mother and physician related to the number of injections in the series.
<i>Sources of health information</i>			
Clinic	14 (39)	Well, more than anything they [the physicians] are the ones that are educated in this science. I imagine that is why one depends on them. –Mother of a 14-year-old daughter	Discussion between a mother and her daughter's physician about the importance, logistics, and side effects of the HPV vaccine.
Family members or friends	11 (31)	I have a friend who works with me and her daughter got the vaccine . . . we share the information that we know or how to get help. –Mother of a 13-year-old daughter	Discussion between mother and her friend who is a nurse about the importance of the HPV vaccine.
Media (television or radio)	10 (28)	Radio KDNA is where I heard about it (cervical cancer). –Father of 13- and 14-year-old daughters	Radio may be an effective strategy to reach rural Latino parents.
Pamphlets	7 (19)	Well, they have them available for everyone, the brochures. I get the brochures . . . when they're available in Spanish. I read them while they call me in. –Mother of 9- and 12-year-old daughters	Print fotonovelas may be an effective strategy to reach rural Latino parents.
Health information received primarily in English	6 (17)	Almost all (health information) is in English, even though I only understand a little bit of English . . . because in Spanish . . . I don't see that. –Mother of a 14-year-old daughter	Spanish will be used.
Regular health-care provider	16 (44)	Yes, I have a specific doctor. –Father of a 12-year-old daughter	Mother asks questions of her provider.

HPV = human papillomavirus

Table 3. Elicitation interview themes for the development of a *radionovela* to promote HPV vaccine awareness among Latino parents (n=36) in Yakima Valley of Eastern Washington State, June 2008–January 2009

Theme	N (percent)	Example quotes that represent each theme	<i>Radionovela</i> and <i>radionovela</i> content and/or strategy developed to address theme
<i>Perceived barriers to vaccination</i>			
Daughter too young to receive the vaccine	7 (19)	Right now I think she's still too little. –Mother of a 12-year-old daughter	A discussion between a mother, her friend, her daughter, and her husband about age and vaccine uptake.
Concerned about the HPV vaccine's possible side effects	13 (36)	I don't know a lot about the vaccine. I don't know if it is something new that later on could cause other complications, or certain side effects or something, because I haven't heard much about it. –Mother of a 13-year-old daughter	A discussion between a mother and her daughter's physician about side effects.
Concerned that the vaccine will encourage early onset of sexual activity	6 (17)	I believe that [we] Hispanics believe that if we give them permission to get vaccinated, it is because we are giving them permission to be sexually active. –Mother of a 12-year-old daughter	A discussion between a father and his daughter about not wanting the daughter to feel that it is okay to have sexual relations at this age.
<i>Decision-making related to vaccine uptake</i>			
Comfortable speaking with a medical provider	35 (97)	I would feel comfortable talking about the vaccine. I would feel comfortable talking to my doctor, if I would go back to my doctor. Yes I would feel comfortable. –Father of a 13-year-old daughter	A discussion between a mother and her daughter's physician about her HPV questions.
Parent would talk about vaccine uptake with daughter's other parent	9 (25)	I don't know how many men or fathers you've interviewed. But with me, my problem would be to convince him, because to this day he (thinks) she's the little girl, he doesn't see her as a young woman, so talking to him about this vaccine is, no, simply no. –Mother of a 9-year-old daughter	A discussion between a mother and father about their daughter's possible receipt of the HPV vaccine.
Parent would talk with daughter about vaccine uptake	7 (19)	Well, she was excited to get it because I told her that they said that there were risks, that she could feel ill, possibly, but she said, "yes," that she did want to get it. –Mother of a 10-year-old daughter	The mother and father talk about the HPV vaccine with their daughter.
Parent would discuss vaccine uptake for daughter with friend or family member	9 (25)	Yes (discussed vaccine), with my sister, I told her about it, and she also had her daughters get it. –Mother of a 10-year-old daughter	The mother discusses the HPV vaccine with her friend who is a nurse.
Parent feels that his/her daughter is at the appropriate age to receive the vaccine	20 (56)	Well, actually, I think that she's already at the perfect age (to receive the vaccine). She's 12 years old. –Mother of a 12-year-old daughter	A young adolescent girl who is interested in receiving the vaccine is the focus.
Parents are supportive of all recommended vaccines for children	11 (31)	Because it is prevention like any other vaccine. Why do we vaccinate to prevent hepatitis? It is the same thing. If you want to prevent a disease, might as well do it once and for all. –Mother of a 12-year-old daughter	A discussion between a mother and her friend about viewing the HPV vaccine like any other recommended childhood immunization.

HPV = human papillomavirus

- *Fotonovela* #3: A mother reads a pamphlet about the HPV vaccine and calls her friend, who is a nurse, to ask questions about the vaccine.
- *Fotonovela* #4: A discussion takes place between a mother and neighbor about a friend who was diagnosed with cervical cancer.

Three FGs were held with 17 women and 10 men to receive feedback on the four sample *fotonovelas*. The order of discussion of each *fotonovela* was randomized during each of the three FGs. Overall, participants learned a lot of new information from the *fotonovelas*. After reviewing each *fotonovela*, participants were motivated to ask more questions about HPV and the HPV vaccine. Participants were most strongly impacted by *fotonovelas* #1 and #2 because they learned the most from them and found their themes to be more culturally familiar. These two *novelas* were used as the foundation for the *radionovela* text, which was then produced in collaboration with Radio KDNA. In addition, participants wanted a fact box on the back panel of the *fotonovela* that included more HPV and HPV vaccine facts, as well as resources for additional information.

The last FG included five women and one man. They listened to the produced *radionovela* and provided their feedback. Only two of the individuals had previously heard of the vaccine. The participants responded positively to the *radionovela* and found all the facts to be useful. They especially appreciated the inclusion of a father and a physician. They enjoyed the length (about five minutes) and all of the content. The *radionovela* sparked interest and questions related to HPV and the HPV vaccine. Overall, the participants found the *radionovela* to be a helpful health-promotion strategy.

DISCUSSION

To the best of our knowledge, this is the first study to use qualitative methodology to develop a Spanish *radionovela* aimed at improving awareness, knowledge, and interest related to HPV and the HPV vaccine among Latino families. *Novelas* represent a culturally tailored mechanism to convey HPV and HPV vaccine information in a meaningful way that may have a strong impact on Latino parent knowledge and perceptions related to the HPV vaccine. *Novelas* are useful health education tools because they are able to promote health education messages to Spanish-speaking communities with low levels of literacy by integrating characters into a short and simple drama that is embedded within a familiar sociocultural context. Furthermore, *novelas* are easy to disseminate to communities via radio, video, and/or print media.

The products produced as a result of this study have been used to promote awareness of the HPV vaccine among Latino parents in the Yakima Valley of Washington. The two *fotonovelas* were produced as high-quality pamphlets with professional photography for widespread dissemination at community events, home health parties, health clinics, and schools. The *radionovela* was aired at least three times per day for three months from September to November 2009 on Radio KDNA. Prior to the airing of the *radionovela*, an efficacy evaluation was completed. Latino parents of daughters aged 9–17 years ($n=88$; 78 mothers and 10 fathers) were randomized to listen to the HPV vaccine *radionovela* or to another public service announcement. Participants completed a 30-minute pretest/posttest questionnaire. The HPV vaccine *radionovela* improved HPV and HPV vaccine knowledge and attitudes among rural Latino parents.²⁵ However, further investigation is needed to assess the widespread impact of the *fotonovelas* and *radionovela* on HPV and HPV vaccine awareness and uptake among Latino parents in the Lower Yakima Valley.

The *fotonovelas* and *radionovela* aimed to increase HPV and HPV vaccine knowledge and awareness. Knowledge related to HPV and the HPV vaccine may be a key predictor of HPV vaccine uptake. A few studies have demonstrated that parents with higher levels of HPV and HPV vaccine knowledge are more likely to have given permission for their daughters to receive the HPV vaccine^{26,27} and are more likely to support vaccine uptake for their daughters.^{28,29} Note that these studies have included very few or no U.S. Latino parents and were cross-sectional in design. More research is needed to investigate HPV knowledge-based factors related to HPV vaccine uptake among Latino parents in the U.S. As previously discussed, past studies have demonstrated that Latino parents and Latinas who are informed of the HPV vaccine are supportive of HPV vaccine uptake.^{10,12} Furthermore, one study demonstrated that Latina mothers noted lack of information as an important reason to not support HPV vaccine uptake.¹⁰

In addition, the themes that emerged from our EIs are similar to others. Specifically, in a population-based survey from the 2008 Child Health Assessment and Monitoring Program for 617 parents in North Carolina that investigated factors related to HPV vaccine initiation, rural parents were significantly less likely to have allowed their daughters to be vaccinated than urban parents (21.3% vs. 35.5%). The most common reasons for not allowing their daughters to be vaccinated were the need for more information, the belief that one's daughter was too young, and concern about the vaccine's safety or side effects.³⁰

Limitation

This study was subject to one limitation: the use of a convenience sample to develop and evaluate the *fotonovelas* and *radionovela* from a distinct region of Washington State. As a result, these findings and products may not be as useful to Latinos residing in other regions of the United States. Further evaluation of product impact would be needed.

CONCLUSIONS

Latino parents demonstrated overwhelmingly high interest in learning more about the HPV vaccine. For Latino parents to take action and learn more about the HPV vaccine, more culturally tailored health-promotion programs such as this one need to be conducted in other Latino communities. Furthermore, the methodology employed in this study may be useful to public health practitioners nationwide aiming to develop effective health education tools on new and important public health issues for specific target communities and populations.

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