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Tamale Lesson: A case study of a narrative health communication intervention

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Abstract

Cervical cancer is the third most common type of cancer in women globally. Latinas carry a disproportionate burden of this disease. In the United States, when compared with non-Hispanic Whites, Latinas endure much higher incidence rates (13.86 vs. 7.70 per 100 000) with mortality rates 1.5 times greater than for non-Hispanic White women. In order to address this disparity, a multidisciplinary team engaged in a study to test the effectiveness of a narrative, developed in culturally specific ways as a behavioral change communication tool. This case study presents lessons learned from *Tamale Lesson*, a narrative health communication intervention aimed at Mexican-American women that promotes cervical cancer screening (via Pap test) and prevention (via use of the Human Papillomavirus vaccine). Mexican American women who viewed *Tamale Lesson* showed a significant increase in cervical cancer screening, reducing a disparities in cancer screening found at baseline. This case study highlights the benefits of creating a culturally grounded narrative intervention, and underscores the powerful potential of narrative/storytelling in eliminating health disparities in the United States and around the world.

Keywords: Health communication, Cancer health disparities, Cervical cancer, Cancer screening, Culture, Role modeling, Narrative

Overview

Cervical cancer represents a significant public health problem worldwide. In 2008 alone, more than 530 000 women were diagnosed with cervical cancer, resulting in over 270 000 deaths. It is the third most common type of cancer in women worldwide.¹ Latinas carry a disproportionate burden of this disease both globally and domestically. Women in Latin America and the Caribbean have among the highest rates of cervical cancer globally with the age-adjusted incidence rates among Latinas ranging from 20 to 80 per 100 000 women annually in this region.² In the United States, when compared with non-Hispanic White women, Latinas endure much higher incidence rates (13.86 vs. 7.70 per 100 000)³ and have a mortality rate 1.5 times greater than non-Hispanic White women.⁴ The American Cancer Society reports Latinas experience cervical cancer incidence rates higher than any other ethnic group in the United States.⁵

Cervical cancer is considered highly treatable if precancerous lesions are identified through screening (Pap test) and diagnostic tests and removed early.⁵ Over the last 70 years, the Pap test has resulted in a significant reduction in incidence and mortality rates of cervical cancer in the United States and worldwide.⁶ However, even in nations with strong screening programs such as the United States, not all populations enjoy the same success, with lower rates of Pap screening contributing to

the disproportionate burden of cervical cancer experienced by Latinas.⁷

The vast majority of cases of invasive cervical cancer are due to the Human Papillomavirus (HPV).^{8,9} Two strains of HPV – HPV 16 and HPV 18 – are responsible for an estimated 70% of cervical cancers.¹⁰ Since 2006, two different types of HPV vaccines (quadrivalent and bivalent) have been licensed in over 100 countries. Both the quadrivalent and bivalent vaccines prevent infection with HPV types 16 and 18, and one also prevents HPV strains 6 and 11 which cause genital warts.¹¹ Both vaccines have been shown to be safe and effective in preventing high-grade cervical intraepithelial neoplasia and adenocarcinoma *in situ* associated with HPV 16 and 18 in individuals not currently infected with these strains.^{12–15} However, vaccine uptake has been suboptimal.^{16–18} In part, because of the newness of the vaccine, some populations have hesitated in its uptake, while constraints in costs and inconsistencies in distribution have also resulted in implementation strategies with varying successes.^{11,19}

For instance, a comprehensive study conducted in six languages with over 400 ethnic minority-low income, immigrant mothers of vaccine-eligible girls (ages 9–18 years) in Los Angeles County found that only 29% of daughters had initiated the vaccine and of these only 11% received all three doses.¹⁹ The study's findings regarding suboptimal uptake revealed differences in HPV awareness, perceived risk, and other differences in vaccine-related beliefs by ethnicity. The strongest predictor of initiation in this study was vaccine awareness. Further, vaccination rates in the Los Angeles sample were found to be lower than national and state estimates.¹⁹

Research goals

This case study draws from a larger study in which we tested the relative efficacy of using a narrative format against a non-narrative to communicate health information. The team produced two original 11-minute short films, one fiction/narrative (*Tamale Lesson* – the focus of this paper) and one non-fiction/non-narrative (*It's Time*), both containing the same facts regarding causes of cervical cancer, detection (via Pap tests), and prevention (via HPV vaccine). Published results revealed that the narrative was indeed more effective in increasing cervical cancer-related knowledge, attitudes, and behavioral intentions²⁰ and changing participants' perceived social norms about cervical cancer screening and vaccination rates.²¹ Given the effectiveness of the

narrative film over the non-narrative film, this case study focuses only on the narrative. Additionally, although this narrative, *Tamale Lesson*, deals with cervical cancer, it is important to note that narratives could be used to address virtually any health topic. Ultimately, this case study can serve as a compass to navigate the complex process of developing effective narrative health communication materials.

Interventions that can produce lasting changes in behaviors and reduce health inequities can be expensive, complex, require participation of multiple stakeholders, and face multiple barriers to success.²² Given the challenges that researchers and practitioners face when developing interventions to eliminate health disparities, the goals of this case study are to (a) describe the process of developing an effective narrative or story-based intervention using the development of a health communication film promoting cervical cancer prevention, screening, and treatment as illustration; (b) present data comparing the efficacy of the film between Latinas and non-Hispanic White women; and (c) present lessons learned from our experience. Specifically we address:

RQ1: What is the process of developing a health communication film using narrative to encourage Pap testing among Latinas living in the United States?

RQ2: How does the response of the primary audience to the narrative (Latinas, and more specifically, Mexican-American women) differ from that of a comparison group (non-Hispanic White women)?

RQ3: What lessons were learned from this process that can be applied to the development of future successful narrative health communication films, especially related to interventions encouraging Pap testing and/or HPV vaccine use among Latinas?

Theoretical framework: use of narratives for health promotion

A narrative can be defined as 'a representation of connected events and characters that has an identifiable structure, is bounded in space and time, and contains implicit or explicit messages about the topic being addressed'²³ (p. 222). Internationally there have been several successful large-scale interventions, which have used an entertainment–education format with its roots in telenovelas in Latin America²⁴ to promote health-related behavior change.^{25–27} Over the past decade, interest and research on the potential use of narrative as a tool

for health promotion – especially in cancer prevention and treatment – has been gaining ground.^{23,28–30} Narrative-based interventions can be a valuable tool in cancer communication by reducing resistance to information, facilitating processing of new or difficult information, producing cognitive and emotional effects that create stronger attitudes and intentions, and providing social connections and role models for behavior.^{23,28,31–36} For instance, in one study in the US among low-income African American women, those exposed to a narrative video with stories of breast cancer survivors vs. those exposed to a content-equivalent informational video, reported higher recall, lower counter arguing, increased breast cancer discussion, lower barriers to getting mammography, more confidence that mammograms work, and were more likely to perceive cancer as an important problem affecting African-Americans post exposure.³⁷ Similarly, another intervention promoting colorectal cancer prevention and early detection among Latinos, found that participants in the storytelling condition were significantly more likely to report intention to engage in colorectal cancer prevention behavior than those in the non-storytelling condition.³⁸ In sum, narratives may be particularly successful in changing behavior among vulnerable populations, such as those with low income, low education, and low literacy levels, who also tend to be the ones suffering the greatest health disparities.

Development of the narrative film

Our primary intended audience for the *Tamale Lesson* intervention was 25- to 45-year-old Latinas of Mexican origin living in Los Angeles County. Our secondary audience included women of other ethnicities – specifically non-Hispanic White women – who served as a comparison group for our primary audience. While great care was taken in crafting the narrative to be especially relevant to the primary audience, we wanted to ensure that other groups did not react negatively to the intervention since it would be widely disseminated. To that end, the secondary groups were consulted in the formative and feedback stages of the research as well.

As previously stated, our research showed that the narrative film was more effective than a non-narrative film with the same facts at increasing cervical cancer-related knowledge, attitudes, behavioral intentions, and perceived norms.^{20,21} Looking at theoretical factors that might explain the narrative's superior performance, the Mexican-American women in our study reported being most

'transported' into the narrative, identifying the most with the characters (who were likewise Latina), and experiencing the strongest emotional response of any group. Transportation, identification with specific characters, and emotion contributed to shifts in knowledge, attitudes, and intent to be screened for cervical cancer.²⁰ Additionally, the narrative film was more effective at producing positive changes in perceived norms (i.e. viewers of the narrative film perceived the rate of cervical cancer screening to be higher among their peers than women who viewed the non-narrative).²¹ In light of these encouraging findings, this case study takes a more in-depth look at the process of creating a culturally competent narrative intervention that can be an effective tool for addressing health disparities.

The interdisciplinary team

The first step in developing *Tamale Lesson* was to gather a collaborative team of experts and stakeholders from various disciplines. The panel of experts came together in a series of stakeholders meetings to review other materials previously produced by the National Cancer Institute and think creatively regarding the messages and needs for communicating cervical cancer information to the intended population. Medical doctors and cancer and health specialists from the LAC+USC Medical Center (Los Angeles County Hospital), cancer and health specialists from the Norris Comprehensive Cancer Center, the Institute for Health Promotion and Disease Prevention Research and the Department of Preventive Medicine at the Keck School of Medicine of the University of Southern California (USC) provided health information, cancer expertise, cultural and language expertise, and a focus on health disparities. Professional filmmakers and their associates from the USC School of Cinematic Arts and The Change Making Media Lab at USC School, wrote, directed, and produced the narrative film. Researchers from the USC Annenberg School of Communication and Journalism; the School of Communication, San Diego State University; and the Department of Communication, Portland State University provided theoretical input, developed the study design and survey instruments. Qualitative data were collected at various stages of film production through a series of focus groups with 21 to 45-year-old women, from our primary and secondary target audiences, in Los Angeles County. Finally, efforts were also made to obtain input from grassroots health care providers, including Promotoras de Salud from Vision y Compromiso (community

health workers), along with physicians from the Department of Obstetrics and Gynecology and the Laboratory that processes Pap test for Kaiser Permanente and community physicians working in a local clinic in East Los Angeles.

Tamale lesson development

Stage 1 (Formative Research): To inform the development of the film, a series of focus groups were conducted.³⁹ The focus groups were conducted in both Spanish and English, as needed, and included 97 women of Mexican-American, African-American, and non-Hispanic White origin. Details of the focus groups have been reported elsewhere.³⁹ The goals of these focus groups were to identify barriers and assess overall knowledge and attitudes regarding cervical cancer screening and prevention. The lead investigators analyzed the data and identified key themes to inform film development. Specifically, the focus groups were used to (a) identify key barriers that the film should address; (b) determine best ways to deliver the health information in a culturally competent manner; and (c) identify key factors, such as language use, to ensure the film would be culturally relevant. For example, many women in the focus groups reported that they were unaware Pap tests were offered for free at many local clinics, so the films addressed that specifically. Throughout the focus groups, women used the phrase ‘down there’ when referring to their reproductive organs and vagina, so we incorporated that phrase into the dialogue. We also found that participants often spoke in ‘Spanglish’, using Spanish words that were more culturally appropriate than their English counterparts, or to express a concern or emotion (*Qué pasa?*). Thus, the characters in the film similarly spoke in English with commonly known Spanish words used for emphasis throughout the film. These focus group findings were then provided to the scriptwriter and filmmakers. This was an essential step in creating a narrative that reflected the everyday lives, cultural nuances, and language preferences of the primary audience, Latinas.

Stage 2 (Production & Pre-Testing): The well-known playwright Josefina Lopez, whose previous credits include the acclaimed play and film *Real Women Have Curves*, wrote the initial script for *Tamale Lesson*. Cervical cancer facts were provided by medical experts and approved by the National Cancer Institute (NCI) and University Cancer Center for inclusion in the script. A ‘staged reading’ of the script was done by the actors and was followed immediately by two focus groups held simultaneously in two separate rooms: one

with the primary audience (Latinas) and one with the secondary audiences (Non-Latinas) to get their reactions to the staged reading. Feedback from the ‘staged reading’ focus groups influenced the finalization of the script including choice of Spanish terms, selection of actors, etc. The script was finalized, and a ‘rough cut’ film version of *Tamale Lesson* was produced and focus grouped with the primary and secondary audiences to ensure that the audience members were accurately able to identify the health information conveyed in the film. After editing the rough cuts, a final set of five focus groups was conducted to gauge reactions of the primary and secondary audiences and to ensure that issues regarding clarity of information found in the previous round had been addressed. See Table 1 for a snapshot of the focus groups at each stage and how they each provided input for the next stage.

As is evident from the description of the stages in the process, the consultations and focus groups formed the backbone of the creative process and provided the health researchers a strong foundation for testing the effectiveness of the narrative intervention. In the second half of this paper we present a comparison of the response to *Tamale Lesson* by the primary Mexican-American audience and the comparison group, non-Hispanic White women.

Description of the film

The narrative film, *Tamale Lesson*, conveys facts regarding the cause of cervical cancer, and how to prevent it (via the HPV vaccine) and detect it (via Pap tests) using Latino cultural tradition and the value of ‘familism’, with a Mexican-American family’s preparation for their youngest daughter’s *quinceañera*, or 15th birthday. The film was shot in English with multiple Spanish words and colloquialisms scattered through the dialogue. The film opens with the oldest daughter (Lupita) and middle daughter (Connie) in the family kitchen in the midst of preparing tamales for the upcoming celebration. After overhearing Lupita talking on the phone with her boyfriend about her recent abnormal HPV test, her sister, Connie, questions Lupita about HPV and its cause and detection, as she is unfamiliar with the infection. During the conversation, their mother, Blanca, and her older best friend/‘comadre’, Petra, join the sisters. Lupita shares key facts about cervical cancer prevalence, leading cause (HPV), detection via Pap tests, and prevention via the HPV vaccine. Lupita points out that her youngest sister, Rosita, could be vaccinated against HPV and encourages both her sister Connie and her mother’s friend,

Table 1: Focus group stages and their role in formative research and narrative production.

Groups consisting of 8–10 female participants each (by ethnicity)	Purpose	Findings	Implications
<i>1. Formative groups</i>			
Four English-speaking Latina groups Four Spanish-speaking Latina groups Two European American groups	Determine women's knowledge, attitudes and behavior regarding cervical cancer, Pap tests and HPV and HPV vaccine	<ul style="list-style-type: none"> • Most women actually knew what a Pap test was but did not know of its relationship to cervical cancer • In contrast, participants did not know a lot about HPV and the vaccine and were skeptical about its safety • Latinas from different countries had slightly different terminology for vagina, cervix, etc. Latinas expressed discomfort with talking about 'down there', a phrase that was integrated into our script and prompted the character of Petra the older woman who had never had a Pap test • The major barriers to getting a Pap among Latinas were a lack of time and money to get tested on a regular basis. Latinas trusted family members when they had questions about their health 	We decided to focus primarily on women of Mexican descent
<i>2. Reactions to script (staged reading)</i>			
One English-speaking Mexican-American group One European American group	Assess whether the primary group, English-speaking Mexican-American women, and to a lesser extent other ethnic groups identified with the characters and understood the factual information conveyed in the script	<ul style="list-style-type: none"> • One of the actresses was perceived as 'too ghetto' and unattractive by the Mexican-American women • Women wanted to emphasize men's responsibility in transmitting HPV 	The character of Lupita was recast and softened. In the opening scene, we see Lupita on the phone with her boyfriend saying 'You gave me this disease'
<i>3. Reactions to rough cut</i>			
Two English-speaking Mexican-American groups One European-American group One African-American group One Korean-American group	Confirm whether the story conveyed the facts about cervical cancer prevention and detection. After viewing participants were asked a series of questions on each fact	<ul style="list-style-type: none"> • Women reacted positively to the film but one fact regarding the link between cervical cancer, sex and HPV was unclear 	We reshot this scene to clarify that point

Continued

Table 1: *Continued*

Groups consisting of 8–10 female participants each (by ethnicity)	Purpose	Findings	Implications
<i>4. Feedback on final version of Tamale Lesson</i>			
Two English-speaking Mexican-American groups One European American group One African-American group One Korean-American group	Obtain qualitative reactions to the final polished version of the film and test whether all 10 facts were now clear to viewers	<ul style="list-style-type: none"> All groups except the Korean Americans (who found the cross-generational discussion of sex inappropriate) enjoyed the film and felt motivated to be screened themselves and have their children vaccinated against HPV 	We used the final narrative film in quantitative testing, but were forewarned that the Korean women might not react positively

Petra, who have never had a Pap test, to get one. Blanca and Lupita do an impromptu demonstration of a Pap test using a chicken and the ingredients on the kitchen table to allay the fears that Connie and Petra had regarding Pap tests. The film ends with both Connie and Petra modeling the behavior of going to the free clinic to get Pap tests.

Response to *Tamale Lesson*

Methods

As reported previously,¹⁹ a random sample of women between the ages of 25 and 45 years living in Los Angeles was recruited for the project using random digit dial procedures. All participants first completed a pre-test survey via phone to assess their baseline level of cervical cancer-related knowledge, attitudes, and behavior and then those randomly assigned to the narrative condition received a DVD of the *Tamale Lesson* in the mail. They were contacted by phone to complete a post-test survey two weeks later, and once again six months later to allow time for actual behavior change. All participants watched the film at least once. This was verified prior to the post-test survey by asking questions such as ‘Who gets a Pap test at the end of the film?’ Women who were unable to answer this manipulation check were asked to watch the film prior to completing the post-test, and their post-test interview was rescheduled. In this case study, we compare the experience of the Mexican-American ($N = 117$) and non-Hispanic White women ($N = 129$) who viewed *Tamale Lesson* by examining their post-test responses to the film and behavior change at the six-month follow-up. Participants averaged 37 years old ($SD = 5.7$). Most participants had health insurance ($N = 220$, 89%) and were married ($N = 171$, 69.5%).

Enjoyment of the film was assessed at post-test with three items measuring how much participants liked *Tamale Lesson*, how interesting they found the film, and how much they enjoyed it on three separate Likert-type scales with 1 indicating ‘not at all’ and 10 indicating ‘extremely’ ($\alpha = 0.93$). Participants were also asked whether they found the Spanish words in the film distracting, how many times they viewed the film, and whether they shared the film with anyone else. Participants were asked about their Pap test screening behaviors at pre-test, post-test, and follow-up. Responses from the Mexican-American participants were compared to those of the non-Hispanic women for all analyses with alpha set at 0.05 *a priori*. Each statistical test was conducted with the full set of participants who answered the relevant questions.

Results

Overall, participants responded very positively to viewing *Tamale Lesson*. However, there were statistically significant differences in the responses to the film between our primary audiences, Mexican-American women, and the broader audience represented by the non-Hispanic White women. For both Mexican-American ($M = 8.7$, $SD = 1.4$) and non-Hispanic White women ($M = 7.4$, $SD = 1.9$) (see Table 2), enjoyment of the film was quite high, well above the scale midpoint. However, Mexican-American women enjoyed the film significantly more than non-Hispanic White women ($t(244) = 6.04$, $P < 0.001$). Very few women found the Spanish words in the film distracting, with no difference by race/ethnicity ($t(244) = 1.79$, $P = 0.075$).

The design of this field study allowed women to watch the film in their own homes at their leisure. Thus, we were interested in seeing the extent to

Table 2: Means and standard deviations of response to the narrative by ethnicity.

	Mexican-American (N=117)	Non-Hispanic White (N=129)
Enjoyment of the narrative	8.73 (1.4)	7.41 (1.9)
Spanish words distracted from narrative	0.02 (0.1)	0.06 (0.2)
Number of times watched narrative	1.49 (0.7)	1.14 (0.3)
Show the narrative to anyone else	0.25 (0.4)	0.05 (0.2)

Note: Enjoyment of the film could range from 1 to 10. Finding the Spanish words distracting and showing the films to others were yes (1) or no (0) questions. Standard deviations are in parentheses.

which women chose to view the films more than once or to share the films with their friends and family. Mexican-American women were particularly likely to voluntarily view the film a second time. Of the 117 Mexican-American participants, 45 (38%) watched *Tamale Lesson* two or more times with some women reporting watching it as many as four times in the two weeks after they received the DVD. In contrast, only 14% of non-Hispanic White women watched *Tamale Lesson* twice and none reported watching it more frequently. This difference in mean number of times watching the film by ethnicity is statistically significant ($t(244) = 4.99, P < 0.001$). Moreover, Mexican-American women were also more likely to show *Tamale Lesson* to others ($\chi^2(1) = 20.4, P < 0.001$). Of the Mexican-American women, 29 (24.8%) shared the film whereas only 4.7% ($N = 6$) of non-Hispanic White women did. Of those Latinas who shared the film, they were especially likely to share it with their daughter ($N = 10, 8.5%$) or husband, boyfriend, or partner ($N = 9, 7.7%$).

At the baseline pre-test, non-Hispanic White women in our sample were far more likely to have had a Pap test in the previous six months than Mexican-American women (50% vs. 32%, respectively; $\chi^2(1) = 7.93, P < 0.01$), evidencing a large health disparity. However, by the 6-month follow-up, the narrative virtually erased the ethnic disparity regarding cervical cancer screening rates. Mexican-American women were more likely to have had a Pap test after viewing the film than non-Hispanic White women (38% vs. 22%, respectively; $\chi^2(1) = 6.7, P < 0.01$). Overall, Mexican-American women who watched *Tamale Lesson*

went from having the lowest rate of screening to having the highest percentage of women who had a Pap test within the previous year or had scheduled one (32 to 82%). This suggests that narrative formats may prove a useful tool in reducing health disparities, especially if done with rigorous background research and culturally targeted to the primary audience.

Lessons learned

This case study overviews the procedure for creating an effective narrative health intervention using the illustration of a narrative film that address cervical cancer prevention among Latinas and adds to the body of scientific literature arguing that narratives may be a valuable communication tool in reaching vulnerable populations. Our case study in particular suggests that there are several key factors that can facilitate the development of effective interventions to reduce health disparities in groups at high risk, such as Latinas with high risk for cervical cancer.

Need for theoretical grounding

As many health communication scholars have noted before, theoretical grounding is crucial to the success of any intervention.⁴⁰ The development of *Tamale Lesson* was grounded in the literature that specified the key processes through which narratives operate. As such, we were able to develop a film that transported audiences into the story, evoked emotional responses, and had a diversity of characters with which audiences could identify. Our prior work examining the effectiveness of the film found that the three key processes of transportation, emotion, and identification did indeed mediate the narrative's effects.²⁰ Thus, looking to prior research and theory is a critical first step in developing effective narratives.

Need for an interdisciplinary team

The film produced is of very high quality with a high production and educational value. This would not have been possible without the collaboration of the various disciplines involved. The communication researchers, physicians, health disparities experts, and the film's creative team had to learn to speak a common language, understand the value of each other's contributions, and appreciate the complexities of the various tasks. For example, the researchers learned the value of quickly providing research results that could serve as timely and effective input to the creative team, while the creative team learned the value of rigorous research design and the need to follow an

institutional review board-approved research protocol. Given varying worldviews and differing research/creative agendas, team members had to negotiate these aspects throughout the process of crafting the narrative to deliver an effective intervention.

Need for extensive formative research

An additional process key to the success of *Tamale Lesson* was the extensive formative research. Focus groups with participants at all stages of the film's development allowed us to identify targets of change, learn more about cultural values and participant's everyday experiences, and to develop a screenplay that addressed these targets and particularly sensitive issues in a culturally relevant and meaningful way. Being able to use information from the focus groups to develop the dialogue was essential. For instance, we found that many women in our target audience were uncomfortable talking about sexual health, would not use the word 'vagina' and would typically use words like 'down there' to refer to the vagina. One of the characters, Petra, was thus designed to reflect similar attitudes and language use and model these prevalent beliefs and behaviors in order to resonate with the target audience. Translating concepts across cultures or into another language is often difficult, and diverse audiences may more closely relate to different aspects of a narrative. These findings call for incorporating storytelling into health communication and education by focusing on culturally appropriate messages that resonate with the target audience and a script that is in tune with the audience's values. For example, in *Tamale Lesson*, the value of '*familism*' was highlighted in the interaction and conversations among the family members. Blanca convinced Petra to get a Pap test for her '*familia*' (her family) – rather than focusing on arguments centered on individualism-based beliefs. Throughout the film the characters switched seamlessly between English and Spanish words/phrases to reflect the kind of code switching that is prevalent in everyday talk among the intended audience. The use of these Spanish terms and phrases not only gave the film greater cultural grounding but also made it more relatable to the Latinas. Focus groups conducted through additional stages of development allowed us to ensure the film was also effective and to make revisions when needed.

Emerging questions and future directions

There is still considerable uncharted territory in the study of narrative as a tool for eliminating health

disparities. One area of interest is whether narrative maintains its superior effectiveness in print form. Our team is currently addressing this question through a study that explores the relative effectiveness of narrative health interventions through print and film channels. Given the limited resources most campaigns have at their disposal, these forms of comparisons could help tease apart what forms of narrative communication are most effective for whom under what conditions in order to optimize their use.

Along the same vein, further research is also required on whether narrative health interventions can work especially well for low literacy populations or immigrant/low-aculturated populations. To this effect we have dubbed the existing film into Spanish, and have obtained funds from the Southern California Clinical and Translation Science Institute (CTSI) and from the California Community Foundation to test the film among 300 low literacy Mexican-American women using the same research protocol. We have already engaged community experts and promotoras de salud (lay community workers) in the translation process, and have culturally adapted concepts that did not translate well from English to Spanish. In hindsight, had resources permitted, it would have been more efficient to craft the Spanish version simultaneously with the English version from the beginning – either dubbing or having the actors shoot the scenes concurrently in English and Spanish.

Further, given the use of storytelling rather than presentation of facts and figures to convey important health communication messages on cervical cancer, narratives may be particularly suited to bridge the gap between low health literacy and cervical cancer disparities. Future research could look at how narratives may be effective in addressing health literacy barriers for the elimination of cancer and other disparities.

Limitations

This case study detailed the production of and examined reactions to a narrative film among Mexican-American women living in Los Angeles who were the primary target audience for the film. The strict inclusion criteria were appropriate to the study in an effort to match the sample to the intended audience. However, they limit the generalizability of the findings to other narratives or audiences. Additional research will be necessary to examine alternative narratives created for other audiences. Likewise, additional research is necessary to explore narrative on other topics, such as smoking or other cancer prevention behavior. Moreover, participants in the study

were required to watch the film. Although the number of times that participants chose to view the film can provide some indication of their interest in the story, this study design does not allow an examination of selective exposure.

The persistence of health inequalities represents one of the greatest challenges in global health. Narratives have the potential for providing a culturally acceptable innovation that may improve health and reduce inequalities in a variety of settings. Given that storytelling is such a universal concept grounded at the core of how information is communicated among various cultural groups worldwide, this research has significant implications for the use of narrative as a tool for health communication.

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Disclaimer statements

Contributors

Dr Baezconde-Garbanati is the lead author, and conceptualized the manuscript and led the writing, providing substantive material as relevant to health

disparities, procedures and edits to the manuscript; Dr Chatterjee provided substantive contributions, and served as lead editor, she also provided advise on analyses and direction; Dr Frank conducted the analyses, assisted in the conceptualization of the paper, and provided substantive edits; Dr Murphy, worked on conceptualization and provided substantive feedback and guidance on the methods and analyses and edits on the manuscript. Dr Moran provided information on the focus groups, on the procedures and processes implemented, and provided editorial advise, Ms Werth provided assistance with the literature review, and advise on global implications; Dr Zhao provided assistance with the literature review and references and provided substantive edits as relevant to global implications, Ms Amezola provided guidance and wrote sections on the community-based participatory aspects of this project, Ms Mayer provided information on the involvement and procedures for film development and substantive edits to the manuscript. Mr Kagan provided information on the development of the films, Mr O'Brien provided information on film development and procedures. *Tamale Lesson* and *It's Time* were directed by Professor Jeremy Kagan from the Change-Making Media Lab, produced by Professors Doe Mayer, Jeremy Kagan and Dave O'Brien, from the USC School of Cinematic Arts; with executive producers, Dr Sheila Murphy at the Annenberg School for Communication and Journalism at USC and Dr Lourdes Baezconde-Garbanati at the Institute for Health Promotion and Disease Prevention Research, Department of Preventive Medicine, Keck School of Medicine of USC.

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Conflicts of interest

There is no known conflict of interest among any of the authors on this paper.

Ethics approval

Institutional Review Board approval has been obtained for the conduct of this study at the University of Southern California.

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In 2013 this team of colleagues received a prestigious award from the American Public Health Association, Public Health Education, and Health Promotion Section for the best multimedia educational materials, for the work presented here on a cancer communication intervention using narrative, titled 'Tamale Lesson'. This film and the relevant research also received the Best Research Paper award at the 2013 International Health Communication Conference in Washington, DC at George Mason University. In 2014, the research and film funded by the National Cancer Institute: Transforming Cancer Knowledge, Attitudes and Behavior Through Narrative' (Murphy/Baezconde-Garbanati) competed and won the National Institutes of Health Common Fund 10-year Commemoration, Song and Video Competition.