Comparing the Relative Efficacy of Narrative vs Nonnarrative Health Messages in Reducing Health Disparities Using a Randomized Trial

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[Q1]

Over the past 2 decades, public health policies in the United States have prioritized reducing and eliminating health disparities and improving the nation's health.[1,2] Sustained work on health disparities has found that characteristics historically linked to exclusion or discrimination, such as race/ethnicity, religion, socioeconomic status, gender, age, mental health, disability, sexual orientation or gender identity, or geographic location exacerbate health inequities and compromise the health status of individuals, families, and communities.[3,4] The effective communication of health information to all groups is critical to achieving the goal of eliminating health disparities. However, in the past, research on public health intervention campaigns also found that individuals from disadvantaged groups were less likely to benefit from health interventions, whereas those from advantaged groups were more likely to experience positive changes in knowledge and behavior.[5] To combat existing and future health disparities, health communication interventions must be designed such that disadvantaged groups benefit, and the gap between historically advantaged and disadvantaged groups narrows.

In the past decade, narrative-based strategies have been gaining ground as a health communication tool with the potential to reduce health disparities, especially in the context of cancer communication.[6,7] Humans are innate storytellers, and storytelling has played a vital role in transmitting prescriptive and normative information in most cultures for thousands of years. However, in conveying modern health messages, narratives have been underutilized, with prominence given instead to more didactic forms of communication, typically presented as lists of risk factors, prevention steps, symptoms, and treatment options.[7] Conceptually, narrative messages can be understood as "a

Objectives. We compared the relative efficacy of a fictional narrative film to a more traditional nonnarrative film in conveying the same health information.

Methods. We used a random digit dial procedure to survey the cervical cancer-related knowledge, attitudes, and behavior of non-Hispanic White, Mexican American, and African American women, aged 25 to 45 years, living in Los Angeles, California, from 2011 to 2012. Participants (n = 704) were randomly assigned to view either a narrative or nonnarrative film containing the same information about how cervical cancer could be prevented or detected, and they were re-contacted 2 weeks and 6 months later.

Results. At 2 weeks, both films produced a significant increase in cervical cancer-related knowledge and attitudes, but these effects were significantly higher for the narrative film. At 6 months, viewers of both films retained greater than baseline knowledge and more positive attitudes toward Papanicolaou (Pap) tests, but women who saw the narrative were significantly more likely to have had or scheduled a Pap test. The narrative was particularly effective for Mexican American women, eliminating cervical cancer screening disparities found at baseline.

Conclusions. Narratives might prove to be a useful tool for reducing health disparities. (*Am J Public Health*. Published online ahead of print April 23, 2015: e1–e7. doi:10.2105/AJPH.2014.302332)

[Q2]

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."[7(p222)] By contrast, nonnarratives are "expository and didactic styles of communication that present propositions in the form of reasons and evidence supporting a claim."[7(p222)]

Because of the ability of narratives to facilitate processing of new or complex information, to reduce reactance to information, and to create stronger attitudinal, normative, and behavioral shifts,[8–17] there has been increased interest in narrative-based interventions. Over the past several years, researchers have expanded on theoretical mechanisms, such as transportation,[18] identification,[19,20] and emotion[14,15] that underlie narrative processing and engagement (see Moyer-Gusé[12] and Busselle and Bilandzic[21] for an expanded discussion on these theoretical mechanisms). Experimental

and laboratory-based studies have manipulated different formats and messages to understand the efficacy of narratives in comparison with nonnarratives. These include comparing news stories presented in a narrative or story format to the same news stories presented in a nonnarrative format (for example, Kim et al.[8] and Oliver et al.[22]) or comparing fictional entertainment videos with embedded health message against traditional educational videos on the same topic.[13] However, although these contribute to a growing body of evidence on the efficacy of using narrative messages as persuasive health communication tools, there has been a paucity of large-scale randomized field studies that have compared the relative effectiveness of narrative health communication versus more traditional nonnarrative health communication. Furthermore, there is also limited work exploring the possibilities of using narratives as an effective communication tool to address health disparities.[7]

Our purpose was to test the relative efficacy of narrative and nonnarrative health communication materials in reducing health disparities by comparing their ability to produce knowledge, attitude, and behavior change longitudinally across 3 ethnic groups. Specifically, we tested a culturally relevant narrative intervention against a comparable nonnarrative intervention, both of which addressed information gaps among minority women with regard to cervical cancer. By examining an intervention targeted toward Mexican American women among Mexican American, African American, and non-Hispanic White women, we were able to examine impacts on health disparities in a growing but underserved population, and the extent to which women of other race/ethnicities responded to an intervention that was relevant but not culturally targeted toward them. Although we focused on 1 particular health disparity, namely cervical cancer incidence, it is important to note that our results have implications for the more general use of narratives in health communication.

Health Disparities in Cervical Cancer

Cervical cancer is the third most common cancer worldwide,[23] but it is almost always treatable if precancerous lesions are identified through screening and removed early.[24] Although there have been recent advances in cervical cancer prevention through early vaccination against the human papillomavirus (HPV) and in DNA screening,[25] the most widely available screening test continues to be the Papanicolaou (Pap) test. Over the last several decades, this test has resulted in a significant reduction in the incidence and mortality rates of cervical cancer in the United States and other parts of the world.[26] Unfortunately, not all populations and regions enjoy the same access and acceptance of the Pap test. The incidence and mortality rate for the disease have revealed ongoing disparities both globally and nationally.[26,27]

In the United States, minority women have higher cervical cancer incidence and mortality rates than do non-Hispanic White women. According to the Centers for Disease Control and Prevention, from 2006 to 2010, Latinas had both higher incidence rates (10.9 vs 7.70

per 100 000) and mortality rate (2.9 vs 2.2 per 100 000) compared with non-Hispanic White women.[28] Incidence and mortality rates were even worse for African American women, with African American women having a much higher incidence rate (10.3 vs 7.70 per 100 000) and a mortality rate almost double that of their non-Hispanic White counterparts (4.2 vs 2.2 per 100 000).[28]

In Los Angeles County, where our study took place, cervical cancer rates are even higher than these national averages. The 2010 Los Angeles County Department of Public Health data for Latinas reveal an incidence of cervical cancer as high as 14.3 per 100 000, compared with 9.3 per 100 000 among Asian/Pacific Islander women, 7.6 per 100 000 among African American women, and 7.5 per 100 000 among non-Hispanic White women.[29] In short, Latinas living in Los Angeles County are twice as likely as are non-Hispanic White women to contract cervical cancer.

Cervical cancer results in more lost life years than maternal conditions, AIDS, and tuberculosis combined.[30] Some of the major factors contributing to cervical cancer disparities include low knowledge level of cervical cancer risk and HPV infection, lack of early and regular screening via Pap test, cultural barriers that lead to failure to adhere to screening guidelines or inappropriate follow-up, slow uptake or incomplete dosing of the HPV vaccine, and lack of access to care.[27,31] Key strategies identified for reducing and eliminating cervical cancer disparities include focusing on improving information and communication, as well as increasing access to care.[32]

Health communication and cancer experts acknowledge that traditional health communication strategies have failed to adequately serve diverse populations or reduce health disparities. Many Americans lack access to and the ability to comprehend vital information needed to make informed health decisions.[33,34] As Kreuter et al.[7] pointed out, although traditional expository forms of communication are "poorly suited for addressing certain fundamental needs of cancer patients," [7(p222)] narratives "may be of particular utility" [7(p225)] for addressing some of these crucial gaps and reduce health disparities. We designed our study to empirically test this premise.

METHODS

We used a 2-group parallel, randomized trial design, with participants having an equal chance of being assigned to view either a narrative or nonnarrative film. To be eligible to participate, women between the ages of 25 and 45 years had to live in Los Angeles County, speak and read English fluently, not have been diagnosed with cervical cancer, and be non-Hispanic White, Mexican American, African American, or Korean American. Based on a power analysis, the initial goal was to recruit using a quota method with at least 300 women of each race/ethnicity. This number of women would allow us to detect differences of at least 0.18 SD within any ethnicity. We used a combination of sampling lists to develop the sampling frame: random digit dial (RDD), ethnic targeted lists, and small area geographic lists to meet the specific quota requirements of this project. However, these methods did not yield sufficiently high numbers of Korean American women who spoke English fluently, so it was decided to change the eligibility criteria and no longer recruit Korean Americans. Thus, only non-Hispanic White, Mexican American, and African American women were retained and included in the final analysis (Figure 1).

Procedures

Data were collected in 3 waves from October 2011 through December 2012. When data collection for the pre- and posttests began, the recommended Pap test guidelines were that women should have regular Pap tests at least every 2 years starting with the onset of sexual activity or at 21 years old. During the study period, in March 2012, these guidelines changed. Knowledge of Pap test guidelines were asked as open-ended codes, and answers that would be correct under either set of guidelines were coded as accurate. A pretest took place before viewing either a narrative or nonnarrative cervical cancer-related film (n = 901); a posttest took place 2 weeks after viewing (n = 758); and a follow-up survey took place 6 months later (n = 704; Table 1). Up to 6 call attempts were made to sample numbers to complete pretest interviews, but as many as 35 call attempts were made to complete posttest and follow-up interviews.

FIGURE 1—Flow of study participants: comparing the relative efficacy of narrative vs nonnarrative health messages; Los Angeles, CA; 2011–2012.

We used 3 distinct questionnaires, which were programmed by California Survey Research Services Inc (Van Nuys, CA). We used computer-assisted telephone interviewing (CATI) to insure that question skip patterns and quotas could be accurately implemented, and to complete the random assignment to either the narrative or nonnarrative intervention condition.

Intervention Materials

The narrative intervention was an 11-minute fictional film that featured a Mexican American family preparing for the youngest daughter's quinceañera or 15th birthday celebration. The story began with the eldest daughter of the family, Lupita, disclosing to her sister, Connie, that she had been diagnosed with HPV. As the story unfolded, Lupita shared key facts about HPV, its relation to cervical cancer, and the importance of Pap tests in detecting cervical cancer. For example, facts included that women should get Pap tests even if they are not sexually active, and that the HPV vaccine is available to girls starting at 9 years old. The film

concluded with Connie and a family friend each going to a clinic to have their first Pap test.

The nonnarrative film was nonfictional, but was also 11 minutes long and contained the same facts about HPV and cervical cancer. However, it used a more traditional information dissemination method using charts and figures to provide evidence, and doctors and patients talking about the disease, risk factors, and the importance and process of getting a Pap test (see Baezconde-Garbanati et al[35] for more on development of the intervention materials). Because of the significant disparities in cervical cancer they face, both films were targeted toward and featured Mexican American women.

Outcomes

Knowledge. As described previously, the same facts were included in both films. During the pretest, posttest, and follow-up surveys, we assessed knowledge of those facts using a series of open-ended questions. Example questions included: "What is the test to detect cervical cancer called?" and "How is HPV transmitted?" Participants' correct answers

were coded as 1, and incorrect answers were coded as 0. We summed the number of correct answers of 9 possible questions to create separate count knowledge scores for pretest, posttest, and follow-up.

Attitudes. Attitudes toward the target behavior, getting Pap tests, were assessed using 10-point Likert-type scales anchored at "1 = not at all" and "10 = extremely."[15] Using separate 10-point scales, participants rated the extent to which they thought Pap tests were important, embarrassing, physically painful, expensive, time-consuming, and scary (with the last 5 items reverse-coded such that higher numbers indicated more favorable attitudes toward Pap tests). We averaged the 6 items to create separate attitude scores for pretest, posttest, and follow-up.

Behavior. At pretest, participants were asked when (if ever) they had last had a Pap test and how likely they were to get a Pap test within the next 2 years. Participants who reported that they had a Pap test within the 6 months before the pretest were classified as not due for a Pap test. At posttest and follow-up, participants

TABLE 1—Pretest Participant Characteristics of Respondents Who Completed All 3 Surveys (n = 704): Comparing the Relative Efficacy of Narrative vs Nonnarrative Health Messages; Los Angeles, CA; 2011–2012

Characteristics	Non-Hispanic White, No. (%)	African American, No. (%)	Mexican American, No. (%)	Total, No. (%)
Age, y				
25–29	20 (8.0)	27 (12.2)	32 (13.7)	79 (11.2)
30–34	27 (10.8)	40 (18.0)	46 (19.7)	113 (16.1)
35–39	76 (30.5)	50 (22.5)	58 (24.9)	184 (26.1)
40–45	126 (50.6)	105 (47.3)	97 (41.6)	328 (46.6)
Income, $				
< 10 000	4 (1.6)	39 (17.6)	9 (3.9)	52 (7.4)
10 000 to < 50 000	44 (17.7)	79 (35.6)	96 (41.2)	219 (31.1)
50 000 to < 100 000	83 (33.3)	59 (26.6)	87 (37.3)	229 (32.5)
≥ 100 000	103 (41.4)	38 (17.1)	34 (14.6)	175 (24.9)
Missing	15 (6.0)	7 (3.2)	7 (3.0)	29 (4.1)
Marital status				
Married	190 (76.3)	84 (37.8)	142 (60.9)	416 (59.1)
Separated	2 (0.8)	5 (2.3)	4 (1.7)	11 (1.6)
Divorced	14 (5.6)	22 (9.9)	14 (6.0)	50 (7.1)
Widowed	–	2 (0.9)	2 (0.9)	4 (0.6)
Never married (single)	32 (12.9)	96 (43.2)	51 (21.9)	179 (25.4)
Living with a partner	11 (4.4)	13 (5.9)	20 (8.6)	44 (6.3)
Education				
< high school	1 (0.4)	8 (3.6)	11 (4.7)	20 (2.8)
High school	11 (4.4)	44 (19.8)	43 (18.5)	98 (13.9)
Some college	46 (18.5)	83 (37.4)	83 (35.6)	212 (30.1)
≥ college degree	191 (76.7)	86 (38.7)	96 (41.2)	373 (53.0)
Missing	–	1 (0.5)	–	1 (0.1)
Health care coverage				
Yes	239 (96.0)	192 (86.5)	189 (81.1)	620 (88.1)
No	10 (4.0)	30 (13.5)	44 (18.9)	84 (11.9)
Total	249 (35.4)	222 (31.5)	233 (33.1)	704 (100.0)

Note. Percentages may not sum to 100 because of rounding.

were asked to report if they had either had a Pap test since the previous survey or made an appointment to have a Pap test. Making an appointment for a Pap test was considered an equally relevant behavior because of long waiting times for appointments in Los Angeles area clinics.

Statistical Analysis

We conducted statistical analyses using SPSS version 21 (IBM, Armonk, NY) with α set at 0.05. We used the *t*-test to check randomization to condition; it showed no significant differences in knowledge, attitudes, or behavioral intentions by assignment at baseline. We examined existing racial/ethnic disparities at pretest through a series of 2 (film condition: narrative vs nonnarrative) by 3 (race/ethnicity: non-Hispanic White, Mexican American, African American) analyses of variance. Posttest and follow-up knowledge, attitudes, and behaviors were conducted with 2×3 analyses of covariance, controlling for pretest scores.

RESULTS

At pretest, ethnic disparities existed for all 3 outcomes of interest: knowledge, attitudes, and behavior. Table 2 shows these pretest, posttest, and follow-up knowledge, attitudes, and behaviors. Non-Hispanic White women knew significantly more cervical cancer facts than Mexican American or African American women ($F[2, 698] = 26.1$; $P < .001$; $\eta^2 = 0.07$; reported effect sizes were partial η^2). Likewise, compared with Mexican American women, non-Hispanic White women had attitudes significantly more supportive of Pap tests ($F[2, 696] = 3.1$; $P = .046$; $\eta^2 = 0.01$), and were more likely to have had a Pap test within the previous 6 months ($F[2, 698] = 5.1$; $P = .007$; $\eta^2 = 0.01$).

Both the narrative and nonnarrative film produced significant increases from pretest to posttest in cervical cancer-related knowledge ($t[703] = 30.3$; $P < .001$) and attitudes ($t[701] = 2.8$; $P = .007$). However, these increases were significantly higher for the narrative. Using an analyses of covariance test with pretest knowledge as a covariate, there was a main effect of film condition on posttest knowledge ($F[1, 697] = 7.2$; $P = .007$; $\eta^2 = 0.01$), such that women who saw the narrative knew an average of 0.25 more facts than those who saw the nonnarrative. The main effect of ethnicity on posttest knowledge was likewise significant ($F[2, 697] = 19.8$; $P < .001$; $\eta^2 = 0.05$).

At 6 months, viewers of both films retained greater than baseline knowledge ($t[703] = 13.7$; $P < .001$). However, the main effect of film condition on follow-up knowledge was not significant ($F[1, 697] = 0.9$; $P = .35$), although the ethnicity effect was significant ($F[2, 697] = 17.5$; $P < .001$; $\eta^2 = 0.05$). Posttest attitudes were significantly more supportive of Pap tests among women who viewed the narrative film compared with the nonnarrative film ($F[1, 695] = 17.1$; $P < .001$; $\eta^2 = 0.03$). Moreover, the ethnicity effect on attitudes found at pretest disappeared ($F[2, 695] = 1.3$; $P = .26$). By the 6-month follow-up, attitudes had regressed toward the mean, such that the film effect was no longer significant ($F[1, 695] = 0.03$; $P = .86$), and the ethnicity effect no longer met the α for statistical significance either ($F[2, 695] = 7.2$; $P = .07$).

We examined actual behavior change at the 6-month follow-up (Figure 2). With Pap test status at pretest entered as a covariate, the film had a main effect on having completed a Pap test or made an appointment for one by the follow-up ($F[1, 691] = 3.8$; $P = .05$; $\eta^2 = 0.01$).

TABLE 2—Knowledge, Attitudes, and Behavior by Race and Experimental Condition (Narrative or Nonnarrative Film): Comparing the Relative Efficacy of Narrative vs Nonnarrative Health Messages; Los Angeles, CA; 2011–2012

Variable	Mexican American		Non-Hispanic White		African-American	
	Narrative (n = 117), Mean (SD)	Nonnarrative (n = 116), Mean (SD)	Narrative (n = 129), Mean (SD)	Nonnarrative (n = 120), Mean (SD)	Narrative (n = 107), Mean (SD)	Nonnarrative (n = 115), Mean (SD)
Knowledge						
Pretest	4.27 (1.59)	4.46 (1.72)	5.39 (1.59)	5.23 (1.45)	4.18 (1.50)	4.57 (1.70)
Posttest	6.40 (1.45)	5.99 (1.41)	7.22 (1.23)	7.09 (1.03)	6.22 (1.49)	6.12 (1.53)
Follow-up	5.27 (1.57)	5.16 (1.54)	6.11 (1.32)	6.22 (1.29)	4.85 (1.42)	5.23 (1.68)
Attitudes						
Pretest	7.91 (1.43)	7.59 (1.63)	8.18 (1.29)	7.97 (1.23)	7.98 (1.50)	7.95 (1.64)
Posttest	8.17 (1.46)	7.54 (1.58)	8.37 (1.16)	7.86 (1.35)	8.25 (1.48)	8.06 (1.61)
Follow-up	8.04 (1.39)	7.79 (1.49)	8.40 (1.02)	8.07 (1.31)	8.17 (1.35)	8.35 (1.42)
Behavior						
Pretest	0.32 (0.47)	0.33 (0.47)	0.50 (0.50)	0.43 (0.50)	0.36 (0.48)	0.39 (0.49)
Follow-up	0.83 (0.38)	0.73 (0.44)	0.78 (0.41)	0.73 (0.44)	0.77 (0.43)	0.74 (0.44)

Note. Knowledge range was 0 to 9 facts, and attitudes range was 1–10. Pretest behavior indicated whether participants had a Papanicolaou (Pap) test within the 6 months before taking the pretest. Follow-up behavior indicated whether participants were up to date on Pap tests by the follow-up (includes having had a Pap test within the 6 months before the pretest, during the 6 months of the study, or scheduling an appointment for one).

Women who viewed the narrative film were more likely to be up to date with their Pap tests. Not only was there no ethnicity effect for follow-up behavior ($F[2, 691] = 2.6$; $P = .08$), but also what trend existed suggested Mexican American women were more likely to have had a Pap test than non-Hispanic White women in the 6 months after viewing. At the 6-month follow-up, Mexican American women in the narrative condition had the highest level of compliance with Pap test screening guidelines.

DISCUSSION

The narrative and nonnarrative films were successful interventions in both the short-term at posttest and long-term 6-month follow-up. Importantly, the results of the randomized trial

Note. Pap = Papanicolaou.

FIGURE 2—Behavior at 6-month follow-up by race/ethnicity: comparing the relative efficacy of narrative vs nonnarrative health messages; Los Angeles, CA; 2011–2012.

revealed that the narrative was more effective in increasing cervical cancer-related knowledge and attitudes at posttest than the nonnarrative. Racial/ethnic disparities in attitudes toward Pap tests that were found at the pretest no longer existed at either the posttest or follow-up. Moreover, the 6-month follow-up behavioral data revealed that the narrative erased the ethnic disparity in cervical cancer screening rates that existed at baseline. At pretest, non-Hispanic White women were far more likely to have been recently screened (46%) than Mexican American participants (32%); however, by the 6-month follow-up, Mexican American participants exposed to the narrative went from having the lowest rate of screening (32%) to the highest (82%). This suggests that narratives might be an invaluable tool in reducing health disparities and add to the arsenal of strategies to eliminate a preventable disease such as cervical cancer.

These findings add to the growing body of literature on the effectiveness of narratives as a health intervention.[8–22] In addition, we provide insight on how effective culturally targeted narratives might potentially be across different groups. Although previous interventions have strongly advocated and demonstrated the appropriateness of using culturally based narratives for engaging a particular ethnic group on a health issue,[36,37] our study explored the ability of culturally tailored narratives to appeal to audiences other than the primary target audience. Because mass media campaigns might be viewed by much broader groups than the primary intended audience (Mexican Americans), we designed this study to test the ability of narrative health interventions to affect other racial groups who might be exposed to the messages. This points to the importance and complexity of understanding the role of culture in health communication[38–40] and the need for further research on the ability of narrative health messages to transcend group identification in their appeal (through mechanisms such as transportation, identification, and emotion), so that they might effectively promote health behavior changes.

As noted previously, the ability to effectively convey health information is critical to the elimination of health disparities. However, health information is often communicated in a manner that may not benefit all groups equally.[5,7] In the past, scholars argued that inequalities in communication are one of the critical social determinants of existing disparities across the cancer continuum.[4] However, unlike other structural and social determinants, communication inequities can be easily addressed and can have an important influence on reducing disparities in cancer incidence, prevalence, and mortality.[4] We recommend one promising communication strategy, namely, narrative interventions, to help overcome knowledge and behavior gaps among traditionally underserved populations.

The narrative successfully eliminated the differential rates of cervical cancer screening that existed before the intervention. This finding was in line with a recent meta-analytical review of narrative health interventions that found that narrative evidence had a stronger influence on subsequent heath behavior than did nonnarrative evidence such as facts and figures.[41] Moreover, our study went beyond other narrative impact studies in at least 2 distinct ways. First, we measured actual behavior as opposed to behavioral intent. Second, our study involved a longitudinal design that allowed us to track not only short-term impact, as is the case with the majority of such studies, but longer-term impact as well.

Limitations

The behavior in question in this study, getting a Pap test, was self-reported and could be subject to social desirability bias. Marin et al.[42] found evidence of social desirability bias among Hispanics, but showed the effect to be greater in Spanish language questionnaires than for English language questionnaires. Thus, we did not expect social desirability effects to differ by ethnicity or condition for this study. However, future research should obtain clinical verification when possible to validate self-reported behavior.

In part because both the narrative and nonnarrative films yielded substantial change from pretest to posttest, some of the relative effects of the narrative compared with the nonnarrative were small. In mass media research with large audiences, even small effects were to have meaningful population-level impact.[43] Future research should investigate which types of knowledge, attitudes, or behavior narratives might be most effective in changing and for which target audiences. Finally, it was beyond the scope of this article to identify factors (such as education or health literacy) that might be associated with an individual's response to the narrative or nonnarrative film; future research should explore this area in more depth.

Conclusions

Narrative is a useful, but underutilized tool in health communication. Moreover, narratives might have the advantage of appealing to individuals from cultures with strong histories of storytelling, making them particularly well suited for reducing health disparities.[9] Engaging, culturally targeted narratives that depict characters with which audiences can identify can produce lasting shifts in knowledge, attitudes, and behavior. ■

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This article was accepted September 14, 2014.

Contributors

S. T. Murphy was principal investigator of the study, in a multiple principal investigator structure with L. A. Baezconde-Garbanati; she conceptualized the study, led the writing of the article, and provided guidance on the methods and analyses and edits on the article. L. B. Frank conducted the analyses, worked on the conceptualization of the article, and provided substantive edits. J. S. Chatterjee worked on conceptualization of the article, and served as lead editor. She also provided advice on communication campaigns and health disparities. M. B. Moran provided substantive contributions, including advice on health communication literature, analyses, and directions, and made substantive edits to the article. N. Zhao provided assistance with the analysis, tables, and literature review. P. Amezola de Herrera worked on conceptualization and provided feedback.

Human Participant Protection

The research protocol was approved by the University of Southern California's institutional review board.

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