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Increased Cancer Screening Behavior in Women of Color by Culturally Sensitive Video Exposure

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Background. Electronic media have demonstrated efficacy in increasing knowledge and promoting health-protective behavior among individuals at high risk for chronic disease. In "Stimulating Cancer Screening among Women of Color through Video" (A. K. Yancey and L. Walden, 1994, *J Cancer Educ* 9:46-52) the development of a cost-effective documentary format for culturally sensitive health education videos was described. These videos could not be independently evaluated within the cancer control program for which they were developed.

Methods. A quasi-experimental study design tested the hypothesis that exposure to these videos increases cervical cancer screening behavior among samples of women from two clinic populations of predominantly low-income African-Americans and Latinos in New York City and Los Angeles. A 1-week-on-1-week-off design was utilized, in which the videos were continuously displayed in designated waiting rooms during on (intervention) weeks, with each facility serving as its own control during off weeks.

Results. The proportion of women seen as patients during the intervention weeks who subsequently obtained Pap smears was significantly higher than that of those seen during the control weeks at each site ($P < 0.05$).

Conclusions. Culturally sensitive videos displayed in waiting rooms may be useful in health promotion efforts in communities of color. The similarity of results in both clinic sites suggests that Spanish-language tapes may be constructed to appeal to Latinos of different nationalities. © 1995 Academic Press, Inc.

INTRODUCTION

Lower socioeconomic status African Americans and Latinos bear a disproportionate burden of cancer incidence and mortality in this country (2-4). For example, the rate of cervical cancer is two to three times higher among black women than among white (5). For Latinas, the reported incidence of breast cancer is increasing at three times the rate of non-Latina whites (6).

Mammography and cervical cytology screening have been demonstrated to decrease mortality from breast and cervical cancer (7-9). A number of studies have indicated that lower income and less formally educated women of color are less likely than whites to receive adequate breast and cervical cancer screening (10). Lower utilization of cancer detection programs is largely a function of lack of accurate knowledge of cancer etiology and risks, lack of belief in their susceptibility to cancer (denial) or in allopathic medicine's ability to successfully treat it, and other attitudinal barriers such as fear or embarrassment (11-18).

Studies have found that physician endorsement of early detection methods facilitates obtaining screening services. Lack of a doctor's recommendation to have a mammogram is one of the two reasons for noncompliance most commonly cited by unscreened women (19). Reeder *et al.* (20) found that 75 of 77 urban women who actually received a mammography recommendation had the procedure. However, Gemson *et al.* (21) observed an association between patient ethnicity, patient load, and physician recommendations for cancer screening. Physicians with 50% or more Anglo patient populations saw an average of 86 patients per week in 46 office hr. Those with patient populations composed of 50% or more African Americans and Latinos saw 104 patients per week in only 39.8 hr. The former were three times as likely to recommend mammography (23% vs 7%). Language barriers, social structural barriers, and cultural expectations or assumptions also preclude effective physician counseling behavior in practice settings serving lower income patients (22-26).

OPPORTUNITIES FOR INTERVENTION

Mass media methods have been demonstrated to be effective in prompting women to receive mammograms and Pap smears (18, 27). However, a potentially useful modality that remains underexploited is targeted electronic media, especially videotapes (1). Recruiting and

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influencing patients directly, at the time they present for health care, through electronic media can be effective in addressing patient-related barriers, e.g., fear, knowledge deficits, etc., and access barriers. Their care-seeking provides a "teachable moment" of heightened concern about their health and motivation for health enhancement, protection, or restoration (28). Electronic media may also stimulate or reinforce interaction with health professionals on obtaining screening in these settings. Motivated patients may thereby more readily accomplish the behavior promoted in the media message. Growing recognition of this opportunity is reflected in Whittle Communications' (Knoxville, TN) development of Special Reports TV, a series of health education video programs designed for physicians' waiting rooms.

The community health clinic waiting room is one venue for videotape exposure in which there are large numbers of unscreened low-income people of color. In one mammography utilization survey, 75% of unscreened women had received medical care in the past 2–5 years in one of these settings (3). Extended waiting times in these health facilities present ideal opportunities for health education of a relatively captive audience. Video display in waiting rooms allows inspection and reinspection of video presentations that are significantly longer than news broadcast segments or public service announcements (PSAs), the predominant format for health communication on commercial TV and radio. This setting overcomes the weaknesses of conventional electronic mass media health messages, namely their brevity, lack of opportunity for reinspection (18), and superficial rendering of complex issues.

Only two studies were reported in the literature accessed by *Medline* computer search and a wider search of citations in recent articles on video (e.g., [29]) examining effects of health education videos displayed in waiting rooms on unselected patients (those not specifically approached to participate in the research). The first study found that higher SES individuals watched the videos more frequently than those of lower status (30). Researchers in this inner-city London group general practice clinic used four 10-min programs on injuries from burns, injuries from falls, common colds, and alcohol problems. Unfortunately, no information was provided characterizing the video production elements or target audiences, nor was knowledge, attitude, or behavior change reported. The default impression remains that these videos were impersonal, didactic pieces portraying "mainstream" messages less relevant to lower income individuals. In the second, Kleemeier and Hazzard found that incidental viewing does not increase short-term knowledge (31). Patients were randomly assigned to two groups, one exposed to one of two 5-min videos on parenting tips (to which no special attention was called) playing in an inner-city pediatric waiting room and the other viewing one of

the videos in a structured setting in a separate room. Only the latter group demonstrated significant recall of the messages and increased knowledge on subsequent in-person survey assessment. Logically, parents with young children in this setting are the group least likely to attend to such media because of their caregiving responsibilities. In addition, while the video content was characterized as dramatic interactions between parents and children of different ethnic backgrounds conveying basic parenting concepts, the cultural appropriacy of the imbedded values to a lower socioeconomic status population is not clear.

A key audiovisual media concept in reaching specific audiences in *narrowcasting*, or stratifying the medium by selecting certain channels and strategically designing content to suit that audience (32). For example, Solomon and DeJong (33) were successful in motivating behavior change in inner city black male gonorrhea patients through the use of a culturally targeted video intervention. They showed that video-exposed patients reached the same high level of knowledge, regardless of their educational level, and returned for their test-of-cure exams at a higher rate than controls. Even patients in the intervention group who scored poorly on the knowledge post-test returned for their test-of-cure exams at a higher rate than controls. This suggests that culturally sensitive video influences behavior through affective as well as cognitive channels.

A previous article (1) describes the development of a cost-effective documentary video intervention. The English- and Spanish-language videos were designed to strengthen the inreach strategy (extending preventive medical services to individuals already seeking health care on-site) of the UCLA–Los Angeles County Cancer Prevention Research Unit (CPRU) through direct patient recruitment. The CPRU program addresses many of the access barriers in the mobilization and delivery of breast and cervical cancer screening services to low-income women of color. The video format emphasizes relevant cultural dynamics, varied production elements with entertainment value, information comprehensible to people with little formal education, and short, moving, minimally didactic presentation. A community case study was also presented chronicling the rapidly accelerating demand for Pap smears following the showing of one of these videos among Latinas in a small, underserved east Los Angeles area. The design of the CPRU did not allow independent evaluation of the videos, however.

This paper presents the results of a formal evaluation of the video intervention. The study was designed to test the hypothesis that exposure to culturally sensitive videos in waiting rooms can influence cervical cancer screening behavior. Second, the value of the videotapes among differing Latino populations was explored by the selection of intervention sites in New York City and Los Angeles.

SITE DESCRIPTIONS AND PATIENT POPULATIONS

Two community health clinics served as sites for the video intervention. The demographic and service provision data for each were generated from the clinic computer database and derived from patient intake chart information. The first, the William F. Ryan Community Health Center (RYAN), is located on the Upper West Side of Manhattan in New York City. RYAN serves all persons who present themselves for care regardless of their insurance status. In 1991, 22,236 patients were seen and 126,016 visits were provided. Patients seeking gynecological care at RYAN are offered an appointment within 2 to 3 weeks. The RYAN patient profile includes 56% Latinos, 31% African Americans, 5% whites of European descent, and 8% other (which includes Asians, Native Americans, and new immigrants). A greater percentage of the Latino users are Puerto Rican, Dominican, or from other Caribbean countries, while a smaller proportion are from Central and South America. African-American and Latino patients are more likely to be poor than whites: 22.7% of the African Americans and 72.1% of Latino patients have incomes below the poverty level, compared to only 5.2% of whites. Approximately 77% of all RYAN users are at or below the official poverty level, with an additional 16% within 200% of the poverty level. Medicaid accounts for payment for 36% of users, Medicare for 4%, and 53% of users have no form of health insurance.

The Venice Family Clinic (VFC), serving West Los Angeles and beach communities, is the largest free health care clinic in Los Angeles. With continuing community support and hundreds of professional volunteers, the clinic provides comprehensive primary and specialty medical care to more than 10,000 patients a year during approximately 50,000 patient visits. Clinic visits, with the exception of the Homeless Clinic, are by appointment. Acute care appointments are normally not given more than a few days in advance. Other clinic sessions have varying waiting times ranging from 1 to 8 weeks. With recent state funding for breast and cervical cancer screening services, additional clinic time and resources are being allocated to women's care. As a result, the VFC is able to offer low/no-cost screening and diagnostic mammography referrals in a timely manner (i.e., usually within 2 weeks). The clinic offers services to a diverse population: 25% of patients are homeless, 90% have incomes below the federal poverty line, 88% have no insurance of any kind, 12% have some Medicaid (Medi-Cal) or Medicare coverage. Sixty-five percent of the patients are Latino, the majority from Mexico and Central America; 20% are white; and 13% black. Sixty-two percent use Spanish as their primary language.

DESIGN AND PROCEDURES

A quasi-experimental design tested the following hypotheses: (a) that exposure to culturally sensitive doc-

umentary videos can influence cervical cancer screening behavior among predominantly African-American women and Latinas; and (b) that the videos are effective in Latina populations of differing nationalities. A 1-week-on-1-week-off study design was utilized at both sites (Fig. 1). The videos were continuously displayed in one or more clinic waiting rooms during on weeks, with each facility servicing as its own control during off weeks. The videos were shown on a 25" television monitor screen mounted on a tall stand (at or above eye level for an average seated adult) using an industrial quality VHS videocassette recorder. The intervention groups included women who kept appointments with physicians, or were seen on a walk-in basis during on weeks (patient attendance tracked by appointment rosters maintained by the desk clerk). Prior to being seen by the physician, all women had the opportunity to watch the videos. However, viewing time for each patient was not assessed. Those patients visiting the clinic during contiguous off weeks without video presentations constitute the control groups.

As a result of the lack of literature on the effect of video interventions in these settings, an effect size could not be precisely estimated. Hence, a range in sample size of 300-500 was thought to provide adequate power in this study. The videos were shown in one or more central waiting areas at each site during 2 on weeks to generate this sample.

Follow-up data were obtained from monthly laboratory summary reports. These reports identified patients by name and patient ID number, which were then compared to appointment rosters to determine whether the video-exposed women obtained more Pap smears at each site than controls. Follow-up duration varied for each clinic based on the average waiting period for appointments: since RYAN's average appointment time is between 2 and 3 weeks, follow-up extended for 12 weeks (3 months); since VFC's gynecologic appointment waiting times vary from 1 to 8 weeks (with an average of 5 weeks), follow-up extended for 20 weeks (5 months).

At RYAN, the video intervention was conducted during the weeks of May 28th through June 4th and July 13th through July 17th. Six videos on cervical and

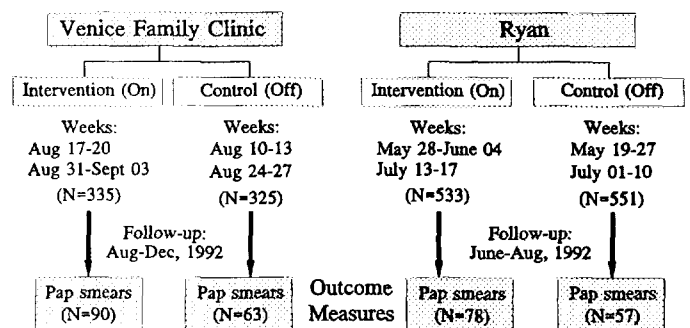


FIG. 1. Study design.

breast cancer prevention alternating Spanish and English (35 min altogether on cervical, 15 min on breast), with a total running time of approximately 50 min, were repeated continuously throughout clinic hours in adult medicine. The five UCLA productions (1) were utilized, plus *Take the Time* [1987], an American Cancer Society uterine cancer prevention video, as an English-language equivalent to one of the UCLA videos, *De Mujer a Mujer*. These videos use interviews with nonpatient and patient members of the target populations to explore beliefs, fears, misconceptions, and other feelings as they contemplate cancer risk or negotiate the screening process with varying outcomes. Expert commentary and on-camera narration is provided by professionals of color. Latinos of various nationalities are represented. Primary prevention messages complement secondary prevention information. The posted estimate of waiting time is 1–2 hr for patients with appointments (about 75% or more) and 3–4 hr for those without appointments. At minimum, RYAN patients were exposed to the entire video series an average of two times.

At VFC, the study began on August 10, 5 weeks after the implementation of the CDC-funded, state-administered Breast and Cervical Cancer Control Program (BCCCP). As at RYAN, the same constellation of videos were shown in the main clinic waiting area. On periods consisted of two mornings and four events per week to avoid pediatric clinic sessions. (Showing of the videos during pediatric clinics is potentially confounding, in that only the children of women viewers appear on the appointment rosters. Separating video-exposed and nonexposed adults would be problematic.) Waiting times vary for each clinic session. The fourth author, a VFC administrator and health educator, conservatively estimates that an average of ½ to 1 hr is spent before and between appointments in the main waiting area. Thus, VFC patients were exposed once, on average, to the entire series.

The *z* test for two sample proportions was utilized to determine if the difference between intervention and control groups was significant with a 95% confidence interval (34).

RESULTS

The total sample size for on (intervention) and off (control) groups at RYAN was 533 and 551, respectively; for VFC, 335 and 325, respectively.

Demographic data of study participants confirmed their low-income status and ethnic diversity (Table 1). Using χ^2 analysis, no significant differences were found between women in the control group and women in intervention group within a given site. Comparing sites, RYAN's patients were generally older and more likely to have some form of health insurance coverage

TABLE 1
Demographic Characteristics of Study Participants

	VFC intervention (%)	VFC control (%)	RYAN intervention (%)	RYAN control (%)
Age				
10–19	7.7	9.6	0.0	0.0
20–39	43.4	42.9	30.8	32.7
40–59	34.8	33.4	42.7	43.7
60+	14.2	14.2	26.2	23.1
Race				
Latina	75.4	81.2	55.7	58.3
African-American	6.2	5.2	30.1	31.7
White	16.9	12.3	7.3	6.0
Other	1.5	1.2	6.9	4.0
Insurance				
Medicaid	14.5	13.0	31.8	35.6
Medicare	4.0	2.4	12.8	10.1
Other	0.0	0.0	4.6	5.3
None	81.5	84.6	50.7	49.0
Income				
<Poverty line	84.9	86.7	<i>a</i>	<i>a</i>
>Poverty line	15.1	13.3		

a Data not available.

than VFC's. In addition, RYAN had a larger proportion of African-American women than VFC, although the majority of participants at both sites were Latina.

The proportion of women who received Pap smears was approximately one-third higher among those who were exposed to the video intervention than among those in the control group at each clinic (Table 2). This intervention effect was statistically significant at the 0.05 level ($P = 0.011$ and $P = 0.016$ at VFC and RYAN, respectively).

DISCUSSION

The results of this study indicate that these culturally sensitive documentary videos significantly increased cervical cancer screening behavior among community health center patients. Pap smear rates for video-exposed women were higher than those for controls. Due to the ecological nature of the study design, age- and ethnicity-specific results are not available. However, given that the general demographic profile of women in the two clinical sites is lower income, African-American and Latina adults, these results indicate that this video intervention significantly influences the acquisition of Pap tests among those at

TABLE 2
Comparison of Women Who Had Cancer Screening Tests Performed in Video Intervention vs Control Groups

	On	Off	<i>z</i>
VFC: Pap smears	90/335 (26.9%)	63/325 (19.4%)	2.28* ($P = 0.011$)
RYAN: Pap smears	78/533 (14.6%)	57/551 (10.3%)	2.14* ($P = 0.016$)

* Significant at $\alpha = 0.05$.

greatest risk for cervical cancer. While funding constraints precluded comparison of the efficacy of culturally sensitive videos to more conventional health education videos, the lack of response to "mainstream" audiovisual and print materials by lower income people of color has been frequently documented in the literature (32, 33, 35, 36).

Furthermore, the replication of significant results in two geographically and culturally distinct clinic settings suggests that these videotape interventions have multiethnic appeal for Latinas. At VFC, the majority of Latina clients are from Mexico and Central America, while at RYAN the majority of Latina clients are from Puerto Rico, the Dominican Republic, or other Caribbean countries.

Little information suggesting the mechanism(s) of action of the videos' effect in the intervention group is provided within this study design. Women may have been prompted (through direct viewing or discussion about video content—see below) to request provider referrals for Pap tests or self-initiate gynecologic appointments. It is also possible that providers (physicians and nursing personnel), after repeatedly hearing or glimpsing the videos, suggested referrals or performed/facilitated this screening. Since more than 90% of Pap tests at RYAN are performed in gynecology clinic, ward clerks/receptionists are unlikely to have played a substantive role. Those exposed to the videos worked in the Adult Medicine clinic and do not make appointments at other clinics. A study surveying video-exposed patients in CPRU waiting rooms is planned to assess intervening variables of knowledge and attitudinal change and aid in distinguishing provider and patient cues to action.

Two aspects of the study design may underestimate the effect of the video. First, the videos were shown continuously during regular clinic hours and all women seen in the clinic on those days were included in the intervention group. Thus, women who may not have actually watched a substantial portion of the videos were included. This may have been offset to some extent by word-of-mouth dissemination of information between patients (1), although possible verbal interaction with social contacts in the control group would decrease effect size (contaminate the control group). Second, patients motivated to obtain screening by exposure to the videos may have obtained services elsewhere. These Pap smears performed at other sites would not be captured here, also reducing the magnitude of the calculated effect. However, these design disadvantages were considered to be more than adequately compensated by the potential for demonstrating an effect with a minimal intervention in a "real world" setting.

Interestingly, Pap smear rates at the two sites varied considerably: 23.2% at VFC vs 12.2% at RYAN. This might be explained by differences in the patient popu-

lations of the two sites. A higher proportion of RYAN patients are covered by Medicaid, Medicare, or other forms of insurance, and therefore may more readily seek services elsewhere. At VFC, a higher percentage of patients are homeless or indigent (90% at or below poverty level vs 77% at RYAN), thereby having fewer options for care.

Logistical challenges were confronted in delivering the intervention at each site.

RYAN: The major problem encountered in implementing the video intervention was the "T" configuration of the adult medicine waiting area. Only five to six seats had optimal view and audio level. Women were observed, however, to move into these seats as they were vacated. This logistical problem may also reduce the number actually exposed to the video, decreasing the magnitude of the difference between groups. Nursing staff complaints about the redundancy of the sound posed a minor difficulty. This was addressed by the insertion of 7–8 min of "black" (blank screen) during each programming cycle. Staff were also commended verbally and in writing for their patience and cooperation, conveying that this type of efficacy research is necessary to generate funding to increase the variety of programs available for this population. Interestingly, the appointment clerks who had the greatest exposure to the repetitive sound, reported no feelings of irritation and an unexpected benefit: patients with extended waits were less likely to crowd the nursing station and interrupt the orderly flow of their work, especially on busy days.

VFC: Problems encountered included competing requests for volume adjustments by patients attempting to hear the programs above the waiting room din and staff attempting to summon patients or simply tiring of the repetition. A play area for children adjacent to the video equipment was responsible for the increased noise levels.

Despite these limitations, the pattern of results and the replication of these results in two different sites supports the study's hypotheses. Disproportionate numbers of blacks compared with whites have negative perceptions of the benefits of taking action related to prevention and early detection of cancer (37). This finding is more likely attributable to lower SES than to race/ethnicity. However, the lower cost-benefit ratio of preventive maintenance to individuals in communities with more immediate economic priorities and health concerns (e.g., high death rates from intentional and unintentional injuries), rather than knowledge deficits, may underlie many of these negative attitudes. The demonstration of the impact of appropriately targeted videos on people living in communities with such intractable problems suggests positive directions for health promotion efforts. The minimal cost of the intervention in equipment and staff time, as well as the widespread access to underserved populations in these

venues (emergency and clinic waiting rooms) is also encouraging in the potential for application of this approach to other public health problems.

For the Latino population, multinational inclusiveness and appeal of Latino-targeted health education materials has important implications for the funding and development of future health educational/promotional materials which strive to reach diverse Latino populations. This is especially relevant given the paucity of Spanish-language tapes available on most topics and the unlikelihood of producing videos targeting each group separately in this era of diminishing public health resources. With ever-expanding health care needs and ever-shrinking public budgets, this approach may aid in extending services and avoiding duplication of effort. As Ramirez and McAllister (38) (p. 609) assert, "more than color, customs, or beliefs, the Spanish language is the single most important identifying characteristic of the Hispanic American population." This suggests, in a Spanish-language production, it is possible to highlight themes unifying Latinos as a group.

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