

RESEARCH ARTICLE

Motivating Underserved Vietnamese Americans to Obtain Colorectal Cancer Screening: Evaluation of a Culturally Tailored DVD Intervention

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Abstract

Background: Colorectal cancer (CRC) is a leading cause of cancer death among Vietnamese Americans, yet screening remains underutilized. We investigated the effectiveness of a culturally tailored DVD intervention in promoting CRC screening among unscreened Vietnamese Americans age 50 and over. **Materials and Methods:** Using a community-based participatory research approach, we conducted a trial comparing twenty-eight subjects who received a mailed DVD in Vietnamese, with twenty-eight subjects who received a mailed brochure in Vietnamese. Subjects completed telephone surveys at baseline, One-month, and one-year. The primary outcome was receipt of screening. Secondary measures were participants' knowledge, attitudes, and beliefs about CRC screening. Two focus groups explored the intervention's acceptability and effectiveness. **Results:** At one year, CRC screening rates of 57.1% and 42.9% were observed in experimental and control group respectively ($p=0.42$). Subjects in both groups showed increased knowledge about CRC after one month. Focus group findings revealed that the DVD was an effective method of communicating information and would help promote screening. **Conclusions:** The findings suggest that culturally tailored, linguistically appropriate content is more important than the type of media used. This relatively low intensity, low cost intervention utilizing a DVD can be another useful method for outreach to the often hard-to-reach unscreened population.

Keywords: Colorectal cancer - screening - FOBT - colonoscopy - culture - health disparity - Vietnamese American

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Introduction

Colorectal cancer (CRC) is the third most common cancer among Vietnamese Americans (hereafter Vietnamese), and the second most common among Vietnamese women, specifically (Cockburn and Deapen, 2004). Despite this, studies have shown that Vietnamese's CRC screening rates fall dramatically short of targets put forward by *Healthy People 2020* (Department of Health and Human Services, 2010) and *American Cancer Society 2015* (American Cancer Society, 2010), which identify CRC screening rate goals of 70.5% and 75%, respectively. Guidelines put forth by the U.S. Preventive Services Task Force (2008) stipulate that CRC screening begin at age 50 years and continue until age 75, by means of either fecal occult blood testing (FOBT), sigmoidoscopy, or colonoscopy.

Studies examining CRC issues within the broad Asian American and Pacific Islander (AAPI) aggregate

are limited, but even sparser are studies specific to Vietnamese. Kandula, Wen, Jacobs, and Lauderdale (2006) used 2001 California Health Information Survey (CHIS) data to compare screening rates across five AAPI groups Chinese, Koreans, Filipinos, Vietnamese, and "other Asian" (Cambodian, South Asian, and Japanese in aggregate) and found Vietnamese to have among the lowest CRC screening rates, second only to Korean Americans. In another study, Choe, Koepsell, Heagerty, and Taylor (2005) used 25 years of data from the Surveillance, Epidemiology, and End-Results (SEER) program to examine differences between foreign-born and U.S.-born AAPIs in terms of CRC survival and disease severity. This study found that foreign-born AAPIs had a 29% higher risk of mortality following CRC diagnosis than did U.S.-born AAPIs; furthermore, results showed that foreign-born AAPIs were somewhat more likely to be diagnosed at later stages of cancer than were U.S.-born Asian Americans (Choe et al., 2005). It may well

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follow that Vietnamese, of whom 64% are foreign born, are at a higher risk of CRC mortality than are U.S.-born Vietnamese (Choe et al., 2005).

A handful of studies have directly examined CRC screening among the Vietnamese immigrant community, yielding notable trends of Vietnamese's underutilization of CRC screening methods. Walsh and colleagues (2004), for example, found that only 18% of their Vietnamese study participants reported receipt of a sigmoidoscopy in the previous five years, compared to 36% of non-Hispanic white participants; likewise, only 22% of Vietnamese claimed having had a colonoscopy in the previous ten years, compared to 31% among their non-Hispanic white counterparts. Lee, Lundquist, Ju, and colleagues (2011), in a study that utilized three years (2001, 2003, 2005) of merged data from the CHIS, reported a consistent 10% gap between CRC screening rates of Vietnamese and non-Hispanic whites. This study found that 33.1% of Vietnamese participants aged 50 and over reported receipt of a colonoscopy or FOBT in the previous five years, compared to 44.8% of non-Hispanic whites.

Barriers to CRC screening among Vietnamese immigrants have also been reported in the literature. Tu and colleagues (2010), for example, found certain socio-demographic and health accessibility variables to correlate with low adherence to CRC screening guidelines: male gender, lack of health insurance, infrequent recent medical visits, and no assigned primary care provider. Related to health accessibility issues, Maxwell, Crespi, Antonio, and Lu (2010) found Vietnamese to be less likely than other Asian Americans with the exception of Korean Americans to report a recent doctor's recommendation for screening. Maxwell and colleagues explained that that finding may be due to lack of health insurance or minimal English proficiency, each of which limits access to primary physicians.

In response to such barriers, certain studies have sought to promote CRC screening among Vietnamese. Nguyen and colleagues (2006), for example, learned via focus groups that participants placed their trust in doctor's screening recommendations as well as in Vietnamese-language mass media, print materials, and oral presentations on CRC. Another study, by Wu and colleagues (2010), examined a community health promotion program that employed an evidence-based educational intervention; results showed participants' knowledge of screening and recognition of its importance significantly increased through the intervention. Similarly, a study at a large public hospital in the U.S. found that an intervention using culturally tailored brochures and telephone counseling by community health advisors increased CRC screening among Vietnamese participants (Walsh, et al., 2010).

Given the need to promote CRC screening behavior among Vietnamese it is essential that there be ongoing and improved development of culturally competent CRC screening intervention methods. To our knowledge, no CRC screening intervention among Vietnamese has utilized a video-based approach. Therefore, the current study specifically aims (1) to investigate the potential acceptability and effectiveness of a video-based

intervention in promoting CRC screening as compared to a typical printed brochure intervention, and (2) to examine whether the video-based intervention increases knowledge of screening and the attitudes and beliefs about CRC screening. We chose to focus on previously unscreened participants because this represents a hard-to-reach population who may have little, if any, contact with the medical system.

Materials and Methods

Research design

We conducted a randomized controlled trial with subjects allocated into groups receiving either a culturally tailored DVD or printed Vietnamese language material promoting CRC screening. Outcomes were assessed with baseline, one month, and one year post intervention surveys. The study utilized a community-based participatory research approach from the beginning stage of initial grant-writing to the final stage of dissemination of research outcomes. The University of Minnesota IRB approved this study.

The research team consisted of two University of Minnesota investigators and two program staff at the Vietnamese Social Services of Minnesota (VSSM), which has served the local Vietnamese American community in Minnesota for 25 years. The two program staff had substantial experience providing cancer education and outreach to the Vietnamese American community. The research team held a biweekly research team meeting at the VSSM to implement the research project.

Prior to this project, the VSSM's program staff created an educational video in Vietnamese on the topic of CRC screening. Preliminary evaluation of this DVD was conducted through a series of focus groups with community members and health professionals. The resulting 20-minute-long video featured three primary content areas: (1) general CRC information, including anatomy, risk factors, screening options, screening guidelines, and the importance of early detection; 2) a step-by-step video demonstration of a colonoscopy; and 3) narratives from the Vietnamese community, describing screening experience or CRC survivorship stories.

Subjects and data collection

Study subjects were drawn from the 876 participants in VSSM's Cancer Program. This program helped connect women and men with free or low cost cancer screening resources and was conducted in conjunction with the Minnesota Department of Health's Breast and Cervical Cancer Screening SAGE program. We selected subjects from the participants in the Cancer Program who were aged 50 and older, a majority of whom were women (n=775) and married (n=456). At the time of our study, the participants had not yet been exposed to any CRC prevention education in the project. Flyers and brochures describing the purpose of the current study were also developed and distributed to Cancer Program participants and their spouses. Eligibility criteria included were: (1) age 50 or over, (2) no CRC screening history, and (3) possession of active health insurance. Possible participants

were excluded if they did not have health insurance since the research project did not have funds to cover CRC screening or treatment if cancer was discovered.

To recruit participants, bilingual (English and Vietnamese) program staff from VSSM contacted Cancer Program participants by phone and used a short introductory script to ascertain interest and potential eligibility. Following eligibility assessment, the telephone exchange included obtaining informed consent and the baseline assessment interview. On average, this baseline survey took between 30-40 minutes to complete. After completion of the survey, participants were randomized to experimental or control condition. The intervention group was mailed the educational DVD, whereas the control group was mailed a Vietnamese-language print brochure, developed by the American Cancer Society to promote CRC screening (see: <http://www.cancer.org/acs/groups/content/@healthpromotions/documents/document/acsq-020997.pdf>).

Measurement

Assessment was conducted three times during the project; at baseline, at one month, and at twelve months after the intervention. The baseline and One-month surveys included questions pertaining to socio-demographic characteristics, health and health access, acculturation level, cultural attitudes toward and beliefs about cancer screening, and knowledge of CRC screening methods. In addition, the one and twelve month surveys queried whether CRC screening by any modality had been obtained after the intervention. The twelve month survey assessed only whether CRC screening had been obtained. The survey items used in this study were adopted from a previously developed survey in the Vietnamese language from Walsh, Nguyen, Nguyen, et al. (2009). Any changes or additions were translated and back-translated by research team members.

Two focus groups were conducted with participants in the experimental group. Semi-structured questions were used to examine their experiences with DVD intervention and investigate whether the video-based intervention was feasible and effective in promoting CRC screening. The sessions were conducted in Vietnamese language, voice-recorded, and transcribed into English by a bilingual community research member.

Data analysis

All data were double-entered into an Excel spreadsheet to ensure accuracy. All analyses were conducted using STATA 11.0. (Stata Corporation, 2009). Group demographic characteristics were compared using chi-squared tests or t-tests. Changes between baseline and One-month surveys in participant knowledge, attitudes, and beliefs toward CRC screening were measured using McNemar tests. With regard to qualitative data analysis, the transcribed interviews were coded separately by the first author and a research assistant using content analysis technique. The two coders then discussed the codes and themes they developed and accomplished a consensus through a series of weekly meetings.

Results

Demographic characteristics

Table 1 presents demographic characteristics of the participants. Of the 56 participants in the study, twenty were male (36%) and 36 were female (64%). Overall, most participants were in their fifties (mean=61, SD=7.8), were married, and had an average of just under seven years of education (mean=6.8, SD=6.9). Over half of the total participants reported being employed at the time of the study. Almost one half of the participants had been

Table 1. Demographic Characteristics of the Participants

Variable	DVD N %	Brochure N %	Overall N %
Gender			
Male	10 35.7	10 35.7	20 35.7
Female	18 64.3	18 64.3	36 64.3
Age			
50-59	12 40	16 61.5	28 50
60-69	13 43.3	7 26.9	20 35.7
70-79	5 16.7	3 11.5	8 14.3
Marital status			
Never married	1 3.8	2 7.1	3 5.6
Married	16 61.5	23 82.1	39 72.2
Widowed/Separated or divorced	9 33.3	3 10.7	12 22.2
Education (years, mean)	6.6	7	6.8
Health status			
Excellent	1 3.6	1 3.6	2 3.6
Very Good	6 21.4	7 25	13 23.2
Good	6 21.4	3 10.7	9 16.1
Fair	12 42.9	14 50	26 46.4
Poor	3 10.7	3 10.7	6 10.7
Employment			
Yes	12 52.2	15 55.6	27 54
No	11 47.8	12 44.4	23 46
Years in the U.S.			
10 or fewer	13 46.4	14 50	27 48.2
11-20	12 42.9	9 32.1	21 37.5
21 years or more	3 10.7	5 17.9	8 14.3
Annual Household Income			
Less than \$20,000	9 52.9	10 43.5	19 47.5
\$20,000 up to \$40,000	6 35.3	6 26.1	12 30
\$40,000 up to \$60,000	1 5.9	4 17.4	5 12.5
More than \$60,000	1 5.9	3 13	4 10
Religion			
Catholic	10 37	12 46.2	22 41.5
Buddhist	16 59.3	14 53.8	30 56.6
None	1 3.7	0 0	1 1.9
Language Reading and Spoken			
Only Vietnamese	23 82.1	22 81.5	45 81.8
Vietnamese better than English	5 17.9	3 11.1	8 14.5
Both equally	0 0	1 3.7	1 1.8
English better than Vietnamese	0 0	1 3.7	1 1.8

Table 2. Reported Colorectal Cancer Screening at One Month and One Year Post-intervention by Group*

	One month post-intervention		One year post-intervention	
	DVD N* (%)	Brochure N* (%)	DVD N* (%)	Brochure N* (%)
Colonoscopy	6 (21.40)	8 (28.60)	15 (53.60)	12 (42.9)
FOBT	1 (3.60)	0	1 (3.60)	0
Total screened (Colonoscopy+FOBT)	7 (25.00)	8 (28.60)	16 (57.10)	12 (42.9)

*all comparisons of changes are non-significant (p>0.05)

in the United States about ten years or less (mean=13.5, SD=9.7). Most participants reported stronger written and spoken language skills in Vietnamese than in English.

Effectiveness of the video-based intervention in promoting CRC screening utilization

At one year post intervention, 16 individuals (57.1%) in the experimental group and 12 individuals (42.9%) in the control group reported receiving colorectal cancer screening by either colonoscopy or FOBT, but the difference was not statistically significant (p=0.42). Table 2 presents the results at one month and one year Post-intervention according to screening method. All but one participant reported receiving colonoscopy (one participant received FOBT), and no participants reported receiving sigmoidoscopy or barium enema.

Logistic regression was performed to investigate the effect of demographic characteristics or reported knowledge, attitudes, and beliefs about CRC on the receipt of CRC screening, but no factors were significantly associated with CRC screening uptake (results not shown).

Changes in knowledge of CRC screening methods

Participant’s knowledge of CRC and pertinent screening methods were assessed. As shown in Table 3, one month Post-intervention survey results showed that while large increases in participants’ knowledge of colon cancer and screening methods were seen in both groups, no significant differences were seen between intervention and control groups.

Changes in attitudes toward and beliefs about CRC screening

Changes in participants’ attitudes toward and beliefs about CRC screening were also compared between experimental and control groups (Table 4 and 5). Significant differences between groups were seen for only one item measuring whether regular CRC screening would increase participants’ peace of mind about their health. Participants in the experimental group those who watched the DVD were 2.57 times more likely than were control-group participants to agree with this statement.

Acceptability of the video-based intervention

Two focus groups with participants in the experimental group were conducted to assess the intervention’s

acceptability to promote CRC screening (n=8 in each group). Several themes associated with behavioral or attitudinal change emerged from the participants’ reports. The first theme was the effectiveness of the DVD in delivering its intended message. All sixteen agreed that the DVD resource, designed to promote CRC screening among the study subjects, served to decrease their fear of screening, which in turn prompted them to either consider or receive the CRC screening. Five individuals specifically stated that the content presented in the DVD was easy to understand and culturally relevant. In addition, two individuals stated that they appreciated the DVD’s formatting, which allowed selecting and viewing individual sections.

The second theme had to do with language, with all participants affirming that the DVD provided clear and appropriate information as to CRC screening and related procedures, which reassures them as to screening preparation. About half of the participants complained of previous experiences of having difficulty understanding materials produced in English or poorly translated into Vietnamese. The Vietnamese narration helped them clearly understand the DVD’s message and decrease in long-standing vague fears about CRC screening. All participants stated that the DVD intervention made them more likely to undergo CRC screening.

The last theme was about participants’ trust toward a physician’s introduction of CRC screening. Three focus group participants voiced appreciation for the DVD’s inclusion of a doctor’s explanation and demonstration of

Table 3. Changes in Knowledge of Colorectal Cancer and Screening Methods at Baseline and One-month Post-intervention by Group

Item	Baseline		One month post-intervention		p value
	DVD* N (%)	Brochure* N (%)	DVD* N (%)	Brochure* N (%)	
Colon cancer	6 (21.43)	12 (42.86)	27 (96.43)	27 (96.43)	0.5232
Colon polyp	6 (21.43)	8 (29.63)	28 (100)	27 (96.43)	**
FOBT	7 (25.93)	5 (20.00)	28 (100)	25 (89.29)	***
Sigmoidoscopy	9 (32.14)	9 (32.14)	27 (96.43)	27 (96.43)	1
Colonoscopy	12 (42.86)	11 (39.29)	26 (92.86)	27 (96.43)	0.5092

*Number of subjects correctly answering question; **Comparison between the DVD and brochure groups cannot be made due to the small sample sizes. McNemar’s test on DVD group p=0.4799. Brochure group p=0.3020; ***Comparison between the DVD and brochure groups cannot be made due to the small sample sizes. McNemar’s test on DVD group p=0.3123. Brochure group p=0.5515

Table 4. Changes in Attitudes Toward Colorectal Cancer Screening from Baseline to One-month Post-intervention by Group (N=56)

Item	Baseline		One month post-intervention		p value**
	DVD N* (%)	Brochure N* (%)	DVD N* (%)	Brochure N* (%)	
1. If a colon cancer test comes out normal, you do not need to have any more tests.	8 (28.57)	8 (33.33)	21 (75.00)	17 (60.71)	0.3791
2. Having a colon cancer screening test is very embarrassing.	16 (59.26)	12 (46.15)	3 (10.71)	2 (7.14)	0.9597
3. Having colon cancer tests regularly would give me peace of mind about my health.	20 (74.07)	25 (96.15)	25 (89.29)	15 (53.57)	0.0009
4. If I eat a healthy diet, I don’t need colon cancer tests.	16 (57.14)	9 (33.33)	2 (7.14)	3 (10.71)	0.1764
5. If a colon cancer test finds any kind of problem it will be too late to do something about it.	24 (85.71)	18 (66.67)	3 (10.71)	3 (10.71)	0.2908
6. Having a colon cancer test will make me feel in control of my health.	20 (74.07)	21 (80.77)	25 (89.29)	20 (71.43)	0.0676
7. Tests for colon cancer are important even when there is no family history of colon problems.	10 (37.04)	17 (60.71)	26 (92.86)	27 (96.43)	0.8597
8. I think the benefits of the test outweigh the difficulties.	16 (59.26)	17 (60.71)	25 (89.29)	26 (92.86)	0.7045

*Number of Cases in Agreement; **The p-value corresponds to the Z-test of the time by group interaction term in the GEE logit model

Table 5. Changes in Beliefs Toward Colorectal Cancer Screening from Baseline to One-month Post-intervention by Group (N=56)

Item	Baseline		One month post-intervention		p value**
	DVD	Brochure	DVD	Brochure	
	N* (%)	N* (%)	N* (%)	N* (%)	
1. Tests for finding colon cancer are not very effective.	10 (37.04)	14 (53.85)	26 (96.30)	24 (92.31)	0.1259
2. I don't need to have a colon cancer test until I have stomach problems.	18 (64.29)	20 (71.43)	27 (96.43)	25 (89.29)	0.2217
3. My traditional health practice does more to maintain health than screening could do.	19 (67.86)	19 (70.37)	27 (96.43)	26 (96.30)	0.5372
4. It would be inconvenient to have a colon cancer screening test at this time.	7 (26.92)	11 (42.31)	17 (65.38)	20 (76.92)	0.5293
5. Too many things can go wrong with tests for colon cancer.	5 (17.86)	8 (30.77)	23 (82.14)	22 (84.62)	0.4195
6. A colon cancer test will get in the way of other things I have to do.	11 (39.29)	12 (46.15)	21 (75.00)	20 (76.92)	0.7293
7. There are too many twists and turns in your intestines for tests to find cancer when it is small.	1 (3.7)	8 (29.63)	23 (85.19)	23 (85.19)	0.0657
8. If there is any chance that a colon cancer test is not safe, I do not want to have it.	6 (24.00)	11 (44)	22 (88.00)	21 (84.00)	0.2324
9. Tests for colon cancer take too much time.	10 (37.04)	15 (55.56)	15 (55.56)	13 (48.15)	0.1094
10. If my doctor examines my rectum with his/her finger, I do not need to have a colon cancer test.	16 (61.54)	22 (78.57)	23 (88.46)	26 (92.86)	0.6926
11. A colon cancer screening test is not as important as some people say it is.	11 (40.74)	13 (46.43)	27 (100)	27 (96.43)	***
12. I don't want to have the test because I am afraid of finding cancer.	17 (62.96)	14 (51.85)	24 (88.89)	25 (92.59)	0.4078
13. I worry about getting colon cancer.	11 (40.74)	10 (38.46)	25 (92.59)	24 (92.31)	0.9370

*Number of Cases in Disagreement; **The p value corresponds to the Z-test of the time by group interaction term in the GEE logit model; ***Comparison between the DVD and brochure groups cannot be made due to the small sample sizes. McNemar's test on DVD group $p < 0.0001$. Brochure group $p = 0.0018$.

CRC screening both its preparation and procedure in the DVD, which promoted participants' consideration of CRC screening.

Discussion

This study demonstrated the acceptability and effectiveness of a culturally tailored video-based intervention promoting CRC screening among previously unscreened Vietnamese. The results revealed that the video and the Vietnamese language brochure were not significantly different in their impact on screening rates and that both interventions played an important role in increasing the use of CRC screening. Both methods were effective at improving knowledge, beliefs, and attitudes about CRC and screening. Thus we believe that the content of the intervention presented in culturally tailored and linguistically appropriate terms deserves more attention than the medium of intervention in efforts to promote CRC screening among this population.

This study adds to the sparse literature on promoting CRC screening in the Vietnamese population that a community-based, culturally competent, and linguistically appropriate CRC screening intervention can bring about a positive health behavior change. For example, Nguyen and colleagues (2010) found that a community-based intervention using culturally and linguistically competent mass media materials lead to a 1.4 fold increase in CRC screening compared to the control community. In another community-based CRC screening campaign for multiple Asian American groups using Asian language media, Wu and colleagues (2010) found that CRC screening rates could be increased from 37%-78% in a pre-and post-design. A major difference in our study is the focus on the often hard- to- reach population of previously unscreened adults. Other studies have examined population screening rates and included all adults regardless of their screening history. Our study looked at the initiation of screening, a rarely, if ever, studied question in this population.

Colonoscopy was the almost exclusive method used for CRC screening for our participants. It is unclear to what extent this reflects the participants' preferences or current community trends toward colonoscopy as the predominant

screening method (Maxwell and Crespi, 2009; Phillips et al 2007; Klabunde et al 2011). In addition, Nguyen and colleagues (2008) demonstrated that having health insurance (as did all of our participants) was correlated with receipt of colonoscopy, while people having no health insurance but who received regular indigent care from counties were more likely to be screened by FOBT. Thus, further study is needed to explain why far fewer participants received FOBT or sigmoidoscopy screening than colonoscopy.

Study limitations

There are several limitations to be acknowledged in this study. The small sample size limits the study's power to detect possibly significant differences between groups. The generalizability of our results is also limited since our participants were all from one metropolitan area and had insurance coverage (an ethical imperative in conducting this study). Lastly, we did not make comparisons with non-linguistically or non-culturally tailored materials, so we cannot conclude that tailoring, or any particular element of tailoring, is critical to success.

Implications for practice, policy, and research

This study provides evidence that a culturally tailored video promoting CRC screening is acceptable and effective at improving screening, as well as knowledge, beliefs, and attitudes amongst previously unscreened Vietnamese. Although it was equivalent to a tailored Vietnamese language brochure, the video-based intervention was highly successful at increasing CRC screening. This suggests that the relatively low intensity, low cost intervention of mailing a DVD can be used successfully to reach an often hard-to-reach unscreened population. Such intervention could be relatively easily conducted by a variety of organizations including health plans, clinics, health departments, or community agencies. The DVD could potentially be used in group settings (e.g., workshop) in the community, as well.

In disseminating the information gleaned from this study to other underserved groups, such as Hmong Americans, other AAPI groups, or those residing in rural communities, it will be vitally important to understand

pertinent characteristics of each group, such as the state of acculturation, literacy particularly reading literacy, or health and cancer literacy. Such sensitivity to an underserved population's characteristics and abilities is very important to the success of cancer prevention and control efforts.

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