


Results of a Lay Health Education Intervention to Increase Colorectal Cancer Screening Among Filipino Americans: A Cluster Randomized Controlled Trial

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BACKGROUND: Filipino colorectal cancer (CRC) screening rates fall below Healthy People 2020 goals. In this study, the authors explore whether a lay health educator (LHE) approach can increase CRC screening among Filipino Americans ages 50 to 75 years in Hawai'i. **METHODS:** A cluster randomized controlled trial from 2012 through 2015 compared an intervention, which consisted of LHEs delivering 2 education sessions and 2 telephone follow-up calls on CRC screening plus a CRC brochure versus an attention control, in which 2 lectures and 2 follow-up calls on nutrition and physical activity plus a CRC brochure were provided. The primary outcome was change in self-reported ever receipt of CRC screening at 6 months. **RESULTS:** Among 304 participants (77% women, 86% had >10 years of residence in the United States), the proportion of participants who reported ever having received CRC screening increased significantly in the intervention group (from 80% to 89%; $P = .0003$), but not in the control group (from 73% to 74%; $P = .60$). After covariate adjustment, there was a significant intervention effect (odds ratio, 1.9; 95% confidence interval, 1.0-3.5). There was no intervention effect on up-to-date screening. **CONCLUSIONS:** This first randomized controlled trial for CRC screening among Hawai'i's Filipinos used an LHE intervention with mixed, but promising, results. *Cancer* 2018;124:1535-42. © 2018 American Cancer Society.

KEYWORDS: Asian American, cancer screening, colorectal cancer, Hawai'i, lay health educator.

INTRODUCTION

Nationally, colorectal cancer (CRC) is the third leading cause of cancer death among Filipinos.¹ For Hawai'i's Filipinos, CRC is the second leading cause of cancer death among men, the third leading cause of cancer death among women, and the third most frequently diagnosed cancer. In 2014, the CRC screening rate for Hawaiian Filipinos was 56.5%,³ which was the lowest in the state and below the Healthy People 2020 target of 70.5%.⁴

Although Filipinos are emerging as the nation's number 2 Asian American population and Hawai'i's second largest ethnic group and top immigrant group,⁵⁻⁷ little is known about why CRC screening is not part of their regular health care, although it can reduce the risk of death and improve quality of life.⁴ Vulnerability to cancer disparities has been linked to social determinants, which include being a new immigrant, limited English proficiency, lack of time for self-care because of multiple low-paying jobs and caregiving, lack of access to transportation and health insurance, and health care costs.^{2,8-12}

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Lay health educator (LHE) approaches are considered a potential way to reach Filipino Americans because of their demonstrated effectiveness to address health disparities within communities.¹³⁻¹⁵ The trustworthy relationships and cultural and linguistic competencies of LHEs enable them to more effectively connect and improve a community's access to health and human services compared with others outside of the cultural network.¹⁶ LHEs, as cultural insiders, may have far greater access and influence to facilitate and process CRC screening messages in the context of Filipino culture.¹⁶

LHE approaches have been an effective intervention strategy to increase cancer screenings among Filipinos,^{17,18} Chinese,¹⁹ Vietnamese,²⁰ and Hmong.²¹ Therefore, Hawai'i's sizable Filipino population⁵ seemed ideal to study the efficacy of an LHE approach to increase CRC screening through a cluster randomized controlled trial (RCT).

MATERIALS AND METHODS

Conceptual Framework

Several behavior change theories were integrated to develop a culturally concordant CRC educational intervention that leveraged interpersonal networks to foster individual health behavior changes. CRC education materials were designed to integrate key constructs of social cognitive theory²² and a transtheoretical model of change²³ with the goal of promoting CRC screening through: 1) increasing knowledge about CRC risk and prevention, 2) increasing positive outcome expectations about CRC screening, 3) enhancing self-efficacy to obtain screening, and 4) increasing the intention to obtain screening. The CRC education intervention model was developed to use LHE engagement, which encourages behavior according to Social Support Theory²⁴: the relationship between the LHE and participants encourages CRC screening, and the participants develop camaraderie toward a common goal as a result of the education received, their group's endorsement, and group sharing of previous screening experiences.

Study Design

Figure 1 is a Consolidated Standards of Reporting Trials (CONSORT) diagram for the current cluster RCT (clinicaltrials.gov identification number NCT01904890), with clustering at the level of the LHE, who recruited participants through their social networks.

After recruitment, LHEs with their participants were randomized 1-to-1 to an intervention group or a control group. Randomization was done in blocks of

various sizes by the study statistician using a computer-generated, random-number sequence, and adaptive randomization was used to attempt to correct an imbalance in the sizes of the study arms that developed over time. LHEs did not receive their group assignment until they had recruited all of their participants. Because we wanted to test the intervention as a whole—including the delivery mechanism and content rather than content alone—it was necessary to have a control condition that did not involve LHEs delivering education. Participants in the intervention group received CRC information through LHE activities and a CRC brochure, whereas the control group received CRC information only through a brochure, with lectures on nutrition and physical activity (NPA) education as attention control activities. The study was conducted through continuous recruitment and implementation from 2012 to 2015 in Honolulu County. Study protocols and materials were approved by the University of California-San Francisco and the University of Hawai'i's Institutional Review Boards.

Development of Materials

The community research partner was Nursing Advocates and Mentors, Inc, a volunteer nonprofit organization that provides low-cost US nursing licensure (National Council Licensure Examination) review courses to foreign-licensed nurses, primarily from the Philippines. Nursing Advocates and Mentors, Inc, provided guidance on tailoring the educational flipchart for the CRC prevention intervention, which was based on prior interventions with Chinese¹⁹ and Vietnamese Americans.²⁰ The flipchart displayed culturally appropriate graphics with simple text.

The CRC flipchart content included screening needs and benefits; CRC screening tests; US Preventive Services Task Force recommendations for screening frequency; and messages addressing barriers, such as not knowing how to do a fecal occult blood test (FOBT), the unpleasantness of collecting stool samples, and embarrassment or worry about discomfort with endoscopy.¹⁷ The CRC flipchart was translated into Filipino (the Philippine national language) and Ilokano (another common Philippine language). Tailored flipchart visuals were created and guided by community focus group input. Photographs were from Filipino community members and research staff. The CRC brochure covered a definition of colon cancer and how to prevent it through CRC screening tests. The NPA education covered healthy nutrition for cardiovascular health using serving and portion sizes and national guidelines for physical activity frequency and duration, but no CRC information.



CONSORT 2010 Flow Diagram

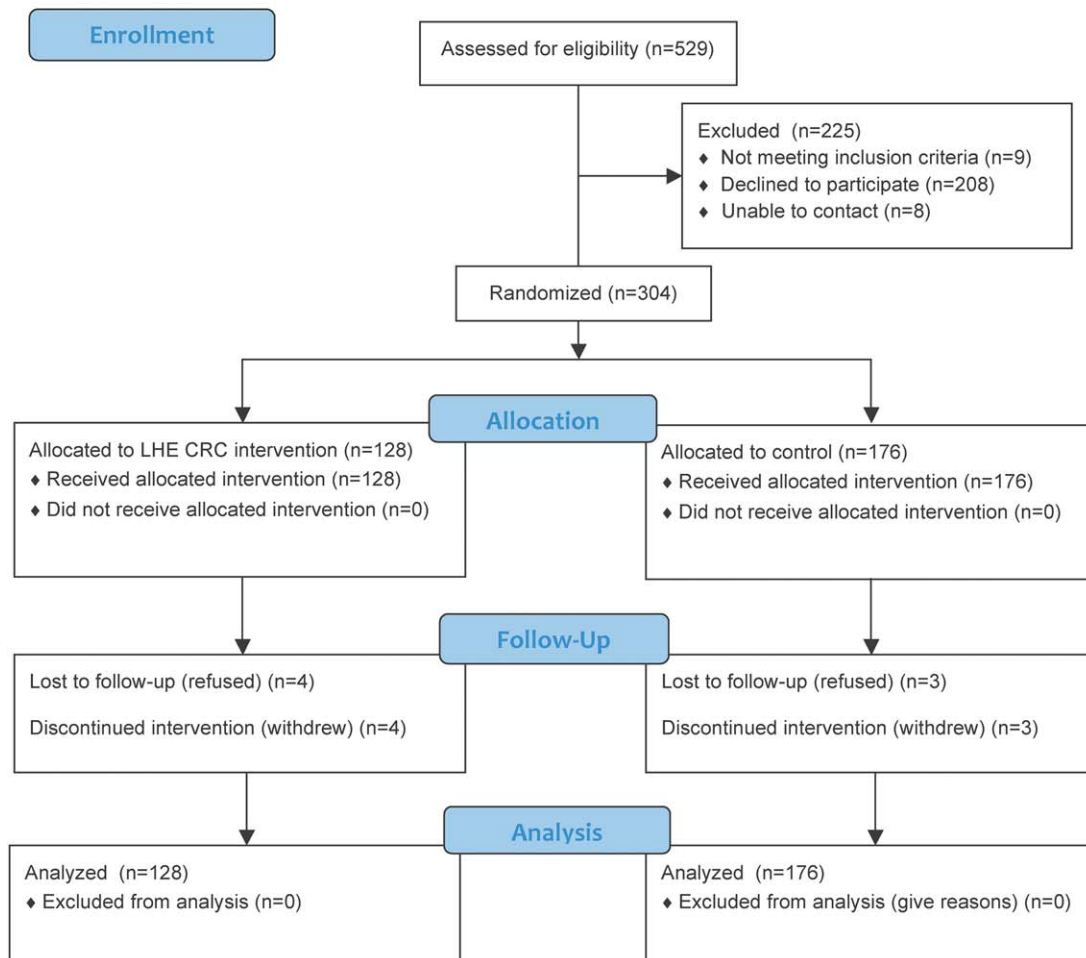


Figure 1. This is a Consolidated Standards for Reporting Trials (CONSORT) diagram for a cluster randomized, controlled trial of a lay health educator (LHE) colorectal cancer (CRC) educational intervention in Honolulu, Hawai'i, from 2012 through 2015.

Research staff recruited and trained Filipino LHEs. Intervention and control LHEs received an identical first training session describing the research program and LHE roles and responsibilities, including the protection of human participants. Then, each LHE recruited between 12 and 15 participants from their social networks using a standard script describing the study's purpose and commitments. LHEs in the intervention arm then received a

second training session on how to conduct group sessions using the CRC prevention flipchart and on CRC prevention and screening. All LHEs received a \$1200 stipend for their expertise and research project time.

Eligibility criteria for participants included 1 participant per household; age from 50 to 75 years; self-identifying as Filipino; intending to stay in the area for at least 6 months; with no history of CRC and no medical

problems preventing attendance at the educational sessions; and the ability to complete 2 education sessions and a postsurvey session. Participants received \$60 for their research participation.

Study Implementation

Participants in both study arms attended two 90-minute educational sessions in groups of 2 to 20 participants, about 2 months apart. Session 1 also included participant consent, preintervention survey administration, and distribution of CRC brochures. One month after each session, participants in both arms received one 5-minute to 15-minute telephone call by their LHEs to ensure participant retention, encourage healthy habits (including CRC screening for intervention group participants), and a reminder of the upcoming session. Sessions were conducted at community locations preferred by participants, such as an LHE's or participant's home, church, community center, restaurant, or flea market. The LHE delivered the CRC intervention sessions. NPA control sessions were delivered by research staff or by a student health educator. Approximately 6 months after the first session, participants in both arms completed the postintervention survey in their respective groups. The preintervention and postintervention surveys were distributed and collected by project staff and were self-administered by the participants.

Statistical Methods

Endpoints

The primary endpoint was change in self-reported ever receipt of CRC screening by any test (FOBT, sigmoidoscopy, or colonoscopy). Secondary endpoints included change in ever having each test and being up-to-date with CRC screening. Survey questions were based on those used in prior projects in the Chinese¹⁹ and Vietnamese²⁰ communities and were derived from the California Health Interview Survey. Our primary hypothesis was that the proportion ever screened for CRC in the intervention group would have a greater increase than that in the control group between the preintervention and postintervention surveys. Our secondary hypothesis was that the intervention group would have a greater increase between the preintervention and postintervention surveys in the proportion up-to-date with CRC screening than that in the control group.

Measures

Sociodemographic characteristics included age, sex, marital status, birthplace, years lived in the United States, language(s) spoken at home, English fluency, employment,

income, and educational level. Health-related variables included insurance status, self-perceived health status, whether the participant had visited a physician in the past 12 months, had visited a traditional healer in the past year, had a regular place of care, and had a primary physician. Self-reported CRC screening behavior was assessed preintervention and postintervention as: 1) ever having had an FOBT, sigmoidoscopy, colonoscopy, or any of the tests; and 2) being up-to-date with screening by FOBT (within the past year), sigmoidoscopy (within 5 years), colonoscopy (within 10 years), or any of the tests. CRC knowledge was assessed with 5 items preintervention and postintervention (has heard of a colon polyp, knows the age to begin CRC screening, and knows the recommended frequency for each of the 3 screening tests). CRC awareness was measured by asking at preintervention and postintervention whether participants had heard of colon cancer and each of the 3 screening tests.

Power calculation

A sample size of 147 participants in each study arm was required to detect with 80% power the difference between an increase of 0.25 in the intervention group and 0.05 in the control group in the proportion ever screened for CRC at the .05 level (2-sided). On the basis of previous experience, we assumed 12 participants per LHE, an intracluster correlation (ICC) of 0.05, and 5% loss to follow-up.

Statistical analysis

Frequencies and percentages were computed for baseline characteristics of LHEs and of participants by study arm. Generalized linear models were used to compare the study arms with respect to participants' sociodemographic and health-related characteristics (Table 1), as well as preintervention-postintervention changes in CRC awareness, knowledge, and screening behavior (Table 2). A multivariable logistic regression model with main effects of study arm and time (preintervention vs postintervention) and their interaction was developed to estimate odds ratios (ORs) and 95% confidence intervals (CIs) for the intervention effect on ever having CRC screening, as well as the preintervention-postintervention change within each study arm, adjusted for sociodemographic and health-related characteristics. All of these models used generalized estimating equations to account for clustering of participants by LHE; all participants were included on an intention-to-treat basis, with preintervention values carried forward for participants who did not complete the postintervention survey. We also

TABLE 1. Characteristics of Filipino American Participants in a Cluster Randomized Controlled Trial of a Lay Health Educator Colorectal Cancer Educational Intervention in Honolulu, Hawai'i: 2012-2015

| Variable | No. (%) | | | P ^a |
|------------------------------------------|--------------|--------------|----------------|----------------|
| | NPA, n = 176 | CRC, n = 128 | Total, n = 304 | |
| Sociodemographic | | | | |
| Age, y | | | | |
| 50-64 | 109 (62) | 65 (51) | 174 (57) | .19 |
| 65-75 | 67 (38) | 63 (49) | 130 (43) | |
| Women | 140 (80) | 93 (73) | 233 (77) | .35 |
| Married | 113 (64) | 82 (64) | 195 (64) | .98 |
| Employed | 116 (66) | 65 (51) | 181 (60) | .080 |
| Born in Philippines | 154 (88) | 123 (96) | 277 (91) | .093 |
| Years lived in United States | | | | |
| >10 | 142 (81) | 118 (92) | 260 (86) | .084 |
| ≤10 | 34 (19) | 10 (8) | 44 (14) | |
| Speaks only Filipino language(s) at home | 76 (43) | 52 (41) | 128 (42) | .73 |
| Speaks English | | | | |
| Fluently | 60 (34) | 23 (18) | 83 (27) | .075 |
| Well | 71 (40) | 61 (48) | 132 (43) | |
| So-so | 29 (16) | 25 (20) | 54 (18) | |
| Poorly/not at all | 16 (9) | 19 (15) | 35 (12) | |
| Education | | | | |
| College graduate | 63 (36) | 30 (23) | 93 (31) | .31 |
| Some college/technical school | 48 (27) | 28 (22) | 76 (25) | |
| High school graduate | 30 (17) | 25 (20) | 55 (18) | |
| <High school graduate | 35 (20) | 45 (35) | 80 (26) | |
| Household income | | | | |
| ≥\$20,000 | 99 (56) | 68 (53) | 167 (55) | .74 |
| <\$20,000 | 45 (26) | 40 (31) | 85 (28) | |
| Do not know/refused | 32 (18) | 20 (16) | 52 (17) | |
| Health-related | | | | |
| Has health insurance | 160 (91) | 126 (98) | 286 (94) | .045 |
| Has regular place for health care | 160 (91) | 123 (96) | 283 (93) | .11 |
| Seen physician in past year | 155 (88) | 113 (88) | 268 (88) | .96 |
| Has primary physician | 158 (90) | 124 (97) | 282 (93) | .051 |
| Seen traditional healer in past year | 13 (7) | 16 (13) | 29 (10) | .22 |
| Self-perceived health status | | | | |
| Excellent/very good/good | 146 (84) | 99 (80) | 245 (82) | .44 |
| Fair/poor | 27 (16) | 25 (20) | 52 (18) | |

Abbreviations: CRC, colorectal cancer (intervention) group; NPA, nutrition and physical activity (control) group.

^aP values are from generalized linear models using generalized estimating equations to account for clustering of participants by lay health educator.

computed the ICC for our primary outcome using a variance components model. Statistical significance was assessed at the .05 level (2-sided), and the analyses were conducted using SAS software (version 9.3; SAS Institute, Inc, Cary, NC).

RESULTS

Twenty-six LHEs were randomized, including 11 to the intervention group and 15 to the control group. The 26 LHEs recruited a total of 529 potential participants, of whom 304 were eligible, consented to participate, and completed the preintervention survey (128 in the intervention group and 176 controls), with 297 completing the postintervention survey (97.7% retention rate). On average, each LHE had approximately 12 eligible participants

LHE CHARACTERISTICS

There were 18 female and 8 male LHEs, with ages ranging from 20 to 73 years. Ten were US-born, and 16 were Philippine-born. Eight LHEs (31%) were undergraduate and masters public health students, 15 (58%) were employed, and 3 (12%) were retired; 20 LHEs (77%) had more than a high school diploma, including 6 (23%) with a bachelor's degree or higher. Of 14 LHEs aged 50 years or older, 12 (88%) were screened for CRC.

Participant Characteristics

The majority of participants were women (77%), married (64%), employed (60%), and had some posthigh school education (56%) (Table 1). Most were born in the Philippines (91%), had lived in the United States for more than 10 years (86%), and reported speaking English fluently or

TABLE 2. Preintervention-Postintervention Changes in Awareness, Knowledge, and Behavior Among Filipino American Participants in a Cluster Randomized Controlled Trial of a Lay Health Educator Colorectal Cancer Educational Intervention in Honolulu, Hawai'i: 2012-2015 (n = 304)

| Domain | NPA, n = 176 | | | CRC, n = 128 | | | CRC-NPA <i>P</i> ^a |
|--------------------------------------|-----------------|-----------------|-----------------------|-----------------|-----------------|-----------------------|----------------------------------|
| | No. (%) | | <i>P</i> ^a | No. (%) | | <i>P</i> ^a | |
| | Pre | Post | | Pre | Post | | |
| Awareness | | | | | | | |
| Heard of colon cancer | 132 (75) | 134 (76) | .80 | 107 (84) | 114 (89) | .22 | .49 |
| Heard of FOBT | 118 (67) | 138 (78) | .014 | 78 (61) | 114 (89) | <.0001 | .024 |
| Heard of sigmoidoscopy | 48 (27) | 65 (37) | .33 | 29 (23) | 79 (62) | <.0001 | .0014 |
| Heard of colonoscopy | 157 (89) | 152 (86) | .41 | 108 (84) | 119 (93) | .0012 | .0086 |
| Knowledge | | | | | | | |
| Heard of colon polyp | 117 (66) | 125 (71) | .35 | 85 (66) | 114 (89) | <.0001 | .0049 |
| Knows age to begin screening | 105 (60) | 85 (48) | <.0001 | 67 (52) | 80 (63) | .15 | .0041 |
| Knows FOBT frequency | 47 (27) | 73 (41) | .0024 | 42 (33) | 73 (57) | <.0001 | .20 |
| Knows sigmoidoscopy frequency | 35 (20) | 46 (26) | .031 | 29 (23) | 64 (50) | <.0001 | .0033 |
| Knows colonoscopy frequency | 25 (14) | 19 (11) | .16 | 20 (16) | 56 (44) | <.0001 | <.0001 |
| Behavior | | | | | | | |
| Ever screened | 128 (73) | 131 (74) | .60 | 103 (80) | 114 (89) | .0003 | .084 |
| Ever FOBT | 101 (57) | 109 (62) | .30 | 87 (68) | 100 (78) | .0021 | .30 |
| Ever sigmoidoscopy/colonoscopy | 84 (48) | 89 (51) | .25 | 70 (55) | 80 (63) | .0008 | .14 |
| Up-to-date screening | 103 (59) | 106 (60) | .47 | 86 (67) | 95 (74) | .096 | .27 |
| Up-to-date FOBT | 44 (25) | 54 (31) | .061 | 47 (37) | 52 (41) | .38 | .74 |
| Up-to-date sigmoidoscopy/colonoscopy | 77 (44) | 80 (45) | .54 | 63 (49) | 73 (57) | .015 | .15 |

Abbreviations: CRC, colorectal cancer (intervention) group; FOBT, fecal occult blood test; NPA, nutrition and physical activity (control) group; Post, postintervention; Pre, preintervention; SD, standard deviation.

^a*P* values are from generalized linear models using generalized estimating equations to account for clustering of participants by lay health educator.

well (71%), but many (42%) spoke only Philippine languages at home. Most participants (94%) had health insurance, a regular place of care (93%), and a primary physician (93%); had seen a physician in the past year (88%); and rated their health status as excellent, very good, or good (82%). Intervention group participants were more likely than control group participants to have health insurance (98% vs 91%; *P* = .045).

Changes From Preintervention to Postintervention

Participants in the intervention group experienced significantly greater gains than the control group in awareness of the 3 screening tests and in knowledge of polyps, the age to begin screening, and the recommended frequency of sigmoidoscopy and colonoscopy (Table 2). Participants in the intervention group were more likely to ever have been screened by any of the 3 tests postintervention compared with preintervention (89% vs 80%; *P* = .0003), but this increase was not significantly different (*P* = .084) from that of the control group (74% vs 73%; *P* = .60). Results were similar for ever having had an FOBT (intervention group: 78% vs 68%; *P* = .0021; control group: 62% vs 57%; *P* = .30; intervention vs control: *P* = .30) ever having had a sigmoidoscopy or colonoscopy (intervention

group: 63% vs 55%; *P* = .0008; control group: 51% vs 48%; *P* = .25; intervention vs control: *P* = .14), and for having an up-to-date sigmoidoscopy or colonoscopy (intervention group: 57% vs 49%; *P* = .015; control group: 45% vs 44%; *P* = .54; intervention vs control: *P* = .15). The ICC for ever receiving CRC screening was 0.057.

Multivariable Model

After covariate adjustment, there was a significant intervention effect on ever being screened by any test (OR, 1.9; 95% CI, 1.0-3.5). Screening was associated with aged >65 years (OR, 1.8; 95% CI, 1.0-3.2), living in the United States for >10 years (OR, 2.4; 95% CI, 1.3-4.4), and having a college degree (vs less than a high school education: OR, 2.6; 95% CI, 1.1-6.5) (Table 3).

DISCUSSION

To our knowledge, this was the third RCT conducted on the efficacy of LHEs to promote Filipino CRC screening^{17,18} and the first for Filipinos in Hawai'i. Results of the Hawai'i RCT were mixed. We observed significant differences between the study arms in change in knowledge, but not in screening, in our bivariate analysis. A significant intervention effect using a multivariable model was observed, suggesting that a combination of LHE

TABLE 3. Characteristics Associated With Ever Screening For Colorectal Cancer Among Filipino American Participants in a Cluster Randomized Controlled Trial of a Lay Health Educator Colorectal Cancer Educational Intervention in Honolulu, Hawaii: 2012-2015 (n = 304)^a

| Variable | Ever Screened | |
|-------------------------------------|-----------------|------------------|
| | OR ^b | 95% CI |
| Group × time | | |
| CRC post vs pre | 1.97 | 1.21-3.19 |
| NPA post vs pre | 1.03 | 0.72-1.47 |
| CRC change vs NPA change | 1.91 | 1.04-3.52 |
| Sociodemographic | | |
| Age 65-75 vs 50-64 y | 1.80 | 1.02-3.18 |
| Men vs women | 1.22 | 0.60-2.47 |
| Married vs not married | 1.33 | 0.78-2.26 |
| Employed vs not employed | 0.89 | 0.57-1.37 |
| Lived in US > 10 vs ≤ 10 y | 2.42 | 1.33-4.41 |
| Speaks English | | |
| Fluently | 0.72 | 0.29-1.80 |
| Well | 1.09 | 0.43-2.76 |
| So-so | 1.54 | 0.60-3.97 |
| Poorly/not at all (ref) | 1.00 | |
| Education | | |
| College graduate | 2.61 | 1.06-6.46 |
| Some college/technical school | 1.10 | 0.48-2.51 |
| High school graduate | 1.18 | 0.60-2.31 |
| <High school graduate (ref) | 1.00 | |
| Income | | |
| ≥\$20,000 | 0.89 | 0.57-1.41 |
| Do not know/refused | 1.07 | 0.46-2.45 |
| <\$20,000 (ref) | 1.00 | |
| Health-related | | |
| Insured vs uninsured | 1.49 | 0.55-4.03 |
| Saw physician in past year | 0.86 | 0.35-2.08 |
| Self-perceived health status | | |
| Excellent/very good/good | 1.12 | 0.57-2.19 |
| Fair/poor (ref) | 1.00 | |

Abbreviations: CI, confidence interval; CRC, colorectal cancer (intervention) group; NPA, nutrition and physical activity (control) group; OR, odds ratio; post, postintervention; pre, preintervention; ref, referent category.

^aThe model used generalized estimating equations to account for clustering of participants by lay health educator and included n=599 preintervention and postintervention observations.

^bORs were adjusted for all variables tabulated.

outreach and a CRC brochure may be superior to a CRC brochure alone in increasing ever screening for CRC after adjustment for participant characteristics.

The intervention effect of health education adds to findings from previous studies by Maxwell et al that CRC education can improve awareness, knowledge, and screening behavior in the Filipino population.^{17,18} In contrast to one of Maxwell's studies,¹⁷ CRC education in the current RCT was delivered by LHEs who were not nurses or health professionals, but they demonstrated effective delivery of information. The finding that LHEs delivered education to members of their own social network is likely to have enhanced attention to the educational message.

LHE advice may have seemed particularly salient to participants who were motivated by pride in a young relative's or friend's future health career.

The high baseline screening rate in the intervention group limited the magnitude of increase that could reasonably be achieved. A possible explanation may be the high level of health insurance and access to health care—only 4.5% of Hawai'i's Filipinos are uninsured⁸—as well as the high proportion of college graduates in our sample. Those with arguably the highest access—older than age 65 years, long-time residents, and highly educated—were more likely to be screened. Our study site was the island of O'ahu, an urban county, and excluded the 30% of Filipinos who live in more rural and medically underserved areas.^{7,8,10} Nonetheless, evidence of the efficacy of the intervention on first screening, as well as prior studies in populations with low access to care,²⁰ indicates that the LHE approach may be promising for underserved Filipinos.^{19,20}

Community focus groups conducted by this study and another project⁹ suggested that, despite increased CRC knowledge, persistent barriers to screening included fear of discovery of cancer, other attitudinal factors, and time limitations because of working at multiple jobs, which may also account for the lack of an intervention effect on up-to-date screening. Future studies should include innovative strategies to address these barriers.

Another study limitation is that CRC screening receipt was a self-reported outcome. Our intervention effect estimates may be inflated by over-reporting; however, a CRC screening RCT for Filipino Americans in California indicated that intervention effectiveness was supported in analyses that adjusted for self-report bias.²⁵

Conclusion

The LHE intervention achieved some success in increasing rates of first CRC screening in a sample of Filipinos who had high access to care. Further CRC screening-promotion research is needed among Filipino men and new immigrants. Intergenerational LHE approaches to CRC education are warranted, given our successful use of college students as LHEs. Such a strategy could be used in other community settings, such as faith-based, social, and civic organizations. Our LHE approach provided community capacity-building benefits, laying the groundwork for future community-based research in disease prevention.

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CONFLICT OF INTEREST DISCLOSURES

Charlene F. Cuaresma and Tung T. Nguyen report grants from the Asian American Network for Cancer Awareness and Training during the course of the study. Angela U. Sy reports grants from the National Institutes of Health outside the submitted work. Reginald C. S. Ho reports grants, personal fees, and nonfinancial support from the Asian American Network for Cancer Awareness and Training outside the submitted work. Janice Y. Tsoh reports a grant from the National Cancer Institute (R01 CA138778) during the course of the study. Marjorie Kagawa-Singer reports a grant from the National Cancer Institute (U01 CA114640) during the course of the study. Elisa K. Tong reports a grant from the American Cancer Society (RSGT-10-114-01-CPPB) during the course of the study.

AUTHOR CONTRIBUTIONS

Charlene F. Cuaresma conceptualized the study and wrote and reviewed the article. **Angela U. Sy** conceptualized the study and wrote and reviewed the article. **Tung T. Nguyen** originated and conceptualized the study and developed and reviewed the article. **Reginald C. S. Ho** conceptualized the study and wrote and reviewed the article. **Ginny L. Gildengorin** analyzed data and reviewed the article. **Janice Y. Tsoh** conceptualized the study and reviewed the article. **Angela M. Jo** conceptualized the study and reviewed the article. **Elisa K. Tong** conceptualized the study and reviewed the article. **Marjorie Kagawa-Singer** originated and conceptualized the study and reviewed the article. **Susan L. Stewart** originated and conceptualized the study, analyzed data, and reviewed the article. All authors read and approved the final version.

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