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Colorectal Cancer Educational Intervention Targeting Latino Patients Attending a Community Health Center

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Abstract

Objective—Colorectal cancer (CRC) is the third leading cause of cancer death for Latino men and women; and Latinos are more likely to be diagnosed at a later stage, which is most likely due to underutilization of CRC preventive screening. The purpose of this study was to determine whether a brief, clinic-based intervention by a community health advisor (CHA) would increase CRC knowledge compared with traditional educational methodologies (eg, use of print materials).

Methods—Latino adults 50 years and older attending a San Diego community health center were recruited while waiting for their primary care provider routine visit and were randomly assigned to receive 1 of 3 CRC educational interventions: community health advisor (CHA) plus CRC educational brochure (CHA intervention group), CRC educational brochure (minimal intervention group), or 5-a-day nutrition brochure (usual care). CRC knowledge was assessed before and after the primary care provider visit for 130 participants.

Results—Results demonstrate that the CRC educational brochure (minimal intervention group) was effective at increasing CRC screening knowledge as compared to usual care.

Conclusions—Future research is needed to explore innovative health education strategies that improve knowledge and subsequent CRC screening behaviors among low-income, low-literacy, unacculturated Latinos.

Keywords

Latino; randomized clinical trial; colorectal cancer education; cancer prevention knowledge

Within the Latino community, colorectal cancer (CRC) is the third-leading cause of cancer death for both men and women.¹ From 2003 to 2007, the incidence was 44.5 per 100 000 and 31.6 per 100 000 for men and women, respectively.² Although the incidence rate among Latinos was 20% to 30% lower compared to non-Latino whites, they were more likely to be

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diagnosed at a later stage.^{1,3} For all ethnic groups, CRC incidence has decreased during the past two decades from 66.3 to 46.4 cases per 100 000, which has been attributed to an increase in CRC screening activities.⁴ Only 29.9% of Latinos 50 years or older have received a recent CRC screening test versus 44.3% of non-Latino whites.¹ Thus, there is a need to increase CRC screening participation among the Latino community.

Research demonstrates that CRC screening barriers among Latinos include lack of knowledge and awareness, lack of access to care, lack of health insurance, language barriers, culture-bound beliefs, and low literacy.⁵ Research along the Texas-Mexico border showed Latinos held misconceptions about CRC, including confusing CRC with prostate, stomach, and other cancers.⁶ Many had never heard of CRC or CRC screening tests.⁶ Cancer education interventions, such as the use of print materials, have been used to overcome these barriers and increase participation in CRC screening^{7,8} in the general population; however, it is unclear whether more culturally appropriate interpersonal strategies are as effective in promoting CRC knowledge among Latinos.

In this study, we sought to determine the efficacy of a brief, point-of-service, community clinic-based CRC educational intervention by a community health advisor (CHA). The program was titled “*Pregunta Sobre Poli*”. For decades, CHAs, referred to as “*promotoras*,” have been used to provide health information and linkages to services and to improve health behaviors among Latinos. As grassroots advocates, they have become trusted members of the community.⁹ The purpose of this study was to determine whether a CHA, brief, clinic-based intervention would increase CRC knowledge compared with traditional educational methodologies (eg, use of print materials). Participants receiving the CHA intervention were hypothesized to demonstrate greater knowledge increases related to CRC screening, risk factors, and early detection than those in the minimal intervention (eg, CRC educational brochure) and usual care (eg, nutrition brochure) groups.

Methods

Materials and Procedure

Participants were registered patients of San Ysidro Health Center (SYHC). SYHC is a large federally qualified health center located along the California-Mexico border region of San Diego. It has 77 000 registered patients and includes 10 clinic sites. Participants were recruited and eligible for the study if they self-identified as Latino aged 50 to 80 years, had no antecedents of colorectal cancer, were eligible for screening, were literate in English or Spanish, and had no mental or physical condition that could affect participation. The study was approved by San Diego State University’s (SDSU) institutional review board and SYHC’s institutional review board and administration.

From November 2005 to February 2007, potential participants were recruited from the clinic reception room while they were waiting for a routine visit with their primary care physician (PCP). If interested, they were escorted to a private room where study eligibility was determined; then, informed consent was sought by a trained SDSU research assistant or by a trained SYHC *promotora*. Once they had consented, participants were then randomized to 1

of 3 intervention groups by using permuted randomization blocks. The research assistant/*promotora* unblinded the group assignment only after completion of the baseline survey.

Intervention

After consenting procedures, and prior to their PCP visit, the first intervention group (CHA intervention), met with a community health advisor/*promotora* who discussed a CRC self-help brochure containing information on risk factors, knowledge, culture-bound myths, and screening tests. The CHA provided tailored communication messages and promoted proactive discussions of CRC screening with the PCP. The CHA/*promotora* reviewed key points listed in the brochure and gave standardized responses, depending on the participants' readiness, aimed at encouraging the participants to talk with their PCPs about scheduling a CRC test. For example, a typical response was: "I'm glad to know that you are planning to undergo a CRC screening in the near future. At this time, I would like you to read these pages that discuss each CRC screening in more detail so that you may be more aware of these tests and about what doctors recommend about continuing screening." Afterward, the CHA gave the participants the brochure to take home with them, and they were instructed to return to the waiting room. The second intervention group (minimal intervention) received the same self-help educational brochure on CRC facts, was instructed to read it carefully, and then was asked to return to the waiting room. Lastly, the third intervention group (usual care) received a 5-a-day nutrition brochure from the California Department of Health Services (promotion of eating a variety of colorful fruits and vegetables), was instructed to read it carefully, and then was asked to return to the waiting room. All materials were available in Spanish or English, and project staff was bilingual/bicultural. Participants completed a preintervention survey prior to randomization and a postintervention survey immediately after the PCP visit to assess change in knowledge on CRC, risk factors, early detection, and screening tests.

Measures

Surveys assessed sociodemographics and CRC knowledge. Surveys were available in Spanish and English, using standard back-translation techniques.¹⁰ Language-based acculturation was measured using the Brief Acculturation Measure for Hispanics (BASH), a 4-item scale that treats language use and preference as indicators for level of acculturation.¹¹ Responses were rated on a 5-point scale; and a single mean score was created (range, 1 to 5), with higher scores indicating greater language-based acculturation. The 4-item BASH had an α of .87 for the total sample ($n = 298$) and .91 ($n = 127$) for the no-attrition sample. Knowledge questions on CRC were divided into 3 sets. Knowledge set 1 consisted of 8 true/false CRC risk factor items, and knowledge set 2 consisted of 2 CRC screening methods items, adapted from the Centers for Disease Control and Prevention's Screen for Life campaign.^{12,13} Knowledge set 3 contained items on early detection of CRC, adapted from literature on breast or cervical cancer screening among Latino women.^{13,14-17} A total sum score was created for each of the three knowledge scales by tallying the individual item responses corresponding to that set. All items answered correctly were given a score of "1," and all items answered incorrectly were given a score of "0." The CRC risks and CRC early detection scales ranged from 0 to 8, and the CRC screening scale ranged from 0 to 2; higher

scores indicated more knowledge. A total knowledge score was created by summing all possible correct answers across the 18 items, ranging from 0 to 18.

Data Analysis

The data were analyzed using SPSS version 15.0 (IBM, Armonk, New York). Analysis of covariance (ANCOVA) was used to compare postintervention knowledge scores between groups, controlling for preintervention knowledge scores, meaning all postintervention intergroup comparative analyses were conducted with an adjustment for preintervention responses. Comparisons for between-group average knowledge change from preintervention to postintervention were analyzed using analysis of variance (ANOVA) with a post hoc Bonferroni correction.¹⁸

Results

Participant Demographics

Of the 1584 adults approached in the waiting room, 73% ($n = 1161$) were eligible, of whom 60% ($n = 691$) were willing to participate. A total of 305 adults completed a baseline survey, and among those, 130 (43%) completed the postintervention survey. Given that recruitment was on-the-spot, participants reported “time” as the most frequent barrier to completing the postintervention survey after their physician visit. Results showed that there were no significant demographic differences between those who did and did not complete their follow-up postintervention survey assessment.

Of those ($n = 130$) who completed preintervention and postintervention surveys, 73% ($n = 93$) were women, average age of 64 years ($SD = 8$, $n = 126$), and all self-identified as Latino—mostly of Mexican heritage. More than one third of participants (39%, $n = 49$) reported being married and living with a spouse. Most (69%, $n = 88$) reported having an educational level of eighth grade or less. About one third (34%, $n = 43$) reported their employment as “homemaker,” and 81% ($n = 96$) reported having a monthly household income of \$1099 or less. Almost half (50%, $n = 63$) reported having Medicare and/or medical insurance, and 28% ($n = 36$) reported having “no insurance or received a discount/sliding fee scale.” The sample had a low level of language-based acculturation ($M = 1.3$, $SD = 0.6$, $n = 126$, with a possible range of 1 to 5), meaning they were more likely to speak, read, and write in Spanish versus English (Table 1).

Change in CRC Knowledge

Table 2 illustrates the adjusted intergroup differences at postintervention (controlling for preintervention scores) for knowledge set 1 (CRC risk factors), knowledge set 2 (CRC screening), and knowledge set 3 (early detection).

After controlling for the initial preintervention scores, there was a significant difference in postintervention scores for screening knowledge between the three groups ($F_{2,116} = 4.301$; $P < .01$). A post hoc analysis revealed that the adjusted postintervention difference was between the minimal intervention group ($M = 1.10$) and usual care group ($M = .79$; $P < .01$), indicating that the minimal intervention group significantly increased in CRC screening

knowledge over time as compared to the usual care group. There was no difference between the CHA intervention group and the other two groups for the adjusted postintervention screening knowledge. After controlling for initial preintervention scores, the between-group differences at postintervention for CRC risk factors ($F_{2,121} = 126$; $P = .882$], early detection ($F_{2,122} = .168$; $P = .845$] and total knowledge ($F_{2,107} = 2.710$; $P = .071$] were insignificant (Table 2).

Discussion

Participants in the minimal intervention group demonstrated a significantly greater increase in CRC screening knowledge as compared to the usual care group; there was no difference between the CHA intervention and the usual care groups. Results also showed that there was no change in CRC early detection and CRC risk factor knowledge over time across all three intervention groups. However, although not significant, results showed that after their PCP visit, the CHA intervention (41%) and minimal intervention (42%) groups were more likely to report having asked their doctor about colorectal cancer screening than did the usual care group (21%; Table 2). Thus, these findings indicate that the point-of-service CRC print-media intervention was partially successful at increasing CRC knowledge in this sample of Latinos as compared to the CHA intervention group and the usual care group. Indeed, prior studies have utilized communication strategies such as videos, calendars, posters, brochures, and flyers on CRC screening strategies and have produced significant increases in CRC knowledge among other ethnic groups.¹⁹⁻²¹ Thus, future studies should consider the use of multiple communication strategies to educate Latinos about CRC.

This point-of-service intervention had several limitations. Time constraints and limited incentives may have caused many participants not to take the postintervention survey. A stronger incentive than \$10.00 could improve retention. Selection bias may have influenced recruitment because patients who were in obvious distress or pain were not approached. The relatively low sample size of paired preintervention and postintervention surveys may have limited the power to detect other or more notable statistically significant differences. This study was based at a community health center serving a population of predominantly low-income Mexican Americans, most of whom were women—limiting the generalizability of these findings to different Latino-origin groups or to non-Latino populations without health care access, with a higher socioeconomic status, or with a higher acculturation. The knowledge scales were derived from cancer screening awareness tools for breast and cervical cancer, focus groups, and the researchers' previous experience. The scales have not yet been validated in CRC screening, limiting their widespread utilization.

The study assessed only short-term knowledge, inhibiting the ability to assess knowledge retention over time. Researchers may want to consider assessments of long-term CRC knowledge to see how information is retained, processed, and utilized to inform screening and related health behaviors. Another limitation to this study was the low rates of CRC adherence. Prior to the study, medical chart review data showed that 12 individuals (9%) were adherent with the CRC screening guidelines (eg, fecal occult blood test every year, barium enema every 5 years, sigmoidoscopy every 5 years, or colonoscopy every 10 years).

A follow-up medical chart review revealed that a total of 18 individuals (14%) were adherent with CRC screening guidelines two months after the intervention.

Despite the study's limitations, results highlight that knowledge of CRC risks and screening is low in a low-income Latino population with access to medical services, and a culturally and linguistically directed intervention can effectively increase CRC screening knowledge. Given that the brief, clinic-based educational intervention produced some viable results, more research is needed to determine the correct intervention dosage needed to produce change in colorectal cancer knowledge for a sample of low income, low education, and unacculturated Latinos. There is also a need to understand how to improve Latino CRC knowledge, which can influence the practice of CRC preventive health behaviors, including screenings.

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Table 1

Sociodemographic Sample Characteristics (n = 130)

Characteristics	% (n)
Gender	
Male	26.8 (34)
Female	73.2 (93)
Marital status	
Single, never married	4.7 (6)
Married, living with spouse	38.6 (49)
Married, not living with spouse and/or separated	20.5 (26)
Divorced	14.2 (18)
Widowed	20.5 (26)
Unmarried, living with partner	1.6 (2)
Education (highest grade completed)	
None or Kindergarten only	6.3 (8)
Grades 1–8	62.2 (79)
Grades 9–11	18.1 (23)
High school or GED	8.7 (11)
Above high school	5.7 (6)
Employment status	
Employed for wages and/or self-employed	21.4 (27)
Out of work	13.5 (17)
Homemaker	34.1 (43)
Retired	14.3 (18)
Disabled/unable to work	16.7 (21)
Monthly household income	
<\$700	40.7 (48)
\$700–\$1099	40.7 (48)
\$1100–\$1499	9.3 (11)
\$1500–\$1899	5.1 (6)
\$1900–\$2199	0.8 (1)
\$2200	3.3 (4)
CRC screening insurance	
Medicare and/or medical	49.6 (63)
County Medical Services (CMS)	18.1 (23)
HMO	2.4 (3)
PPO	0 (0)
No insurance or discount	28.3 (36)
Other	1.6 (2)
Ever had a fecal occult blood test (FOBT) in the past?	
Yes	37.2 (48)
No	61.2 (79)

Characteristics	% (n)
Don't know	1.6 (2)
Ever had a sigmoidoscopy or colonoscopy test in the past?	
Yes	23.2 (29)
No	73.6 (92)
Don't know	3.2 (4)

Abbreviation: CRC, colorectal cancer.

Table 2

Mean Knowledge Comparison of Groups

Knowledge Category by Group	Adjusted Postintervention Survey Scores		Change in Survey Scores From Preintervention to Postintervention	
	M ± SE (n)	P value	M ± SE (n)	P value
Knowledge set 1—CRC risk factors		.882		.913
CHA intervention group	2.47 ± 0.16 (37)		−0.16 ± 1.52 (37)	
Minimal intervention group	2.50 ± 0.14 (48)		−0.17 ± 1.23 (48)	
Usual care group	2.40 ± 0.15 (40)		−0.28 ± 1.32 (40)	
Knowledge set 2—CRC screening		.016		.126
CHA intervention group	1.03 ± 0.09 (35)		0.37 ± 0.55 (35)	
Minimal intervention group	1.10 ± 0.08 (45)		0.27 ± 0.69 (45)	
Usual care group	0.79 ± 0.08 (40)		0.08 ± 0.66 (40)	
Knowledge set 3—early detection		.845		.737
CHA intervention group	7.59 ± 0.09 (37)		0.11 ± 0.77 (37)	
Minimal intervention group	7.64 ± 0.08 (48)		0.25 ± 0.93 (48)	
Usual care group	7.58 ± 0.08 (41)		0.20 ± 0.75 (41)	
Total knowledge		.071		.453
CHA intervention group	11.14 ± 0.21 (31)		.48 ± 1.73 (31)	
Minimal intervention group	11.28 ± 0.18 (45)		.51 ± 1.78 (45)	
Usual care group	10.68 ± 0.20 (35)		.06 ± 1.63 (35)	
	% Yes (n)	P value		
Did you ask your doctor today about colorectal cancer screening?		.070		
CHA intervention group	41.0 (16)			
Minimal intervention group	41.7 (20)			
Usual care group	20.9 (9)			

Abbreviation: CHA, community health advisor.