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Addressing Gender Differences and Colon Cancer Screening Disparities in Spanish-preferred Populations

Brittany Strelow[1]*, Allison Moysis[2], Angela Fought[3], Anne Carmean[2], Abby Gilliland[2], Matt Shelden[3] and Danielle O'Laughlin[1,2]

[1]Department of Community Internal Medicine, Geriatrics and Palliative Care, Mayo Clinic, Rochester, Minnesota, USA

[2]Mayo Clinic Physician Assistant Program, Rochester, MN, USA

[3]Mayo Clinic Knowledge and Evaluation Research Unit, Rochester, MN, USA

***Corresponding author:**
Brittany Strelow

strelow.brittany@mayo.edu

Department of Community Internal Medicine, Geriatrics and Palliative Care, Mayo Clinic, Rochester, Minnesota, USA

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Abstract

Objective: Colorectal Cancer (CRC) is the third leading cause of cancer deaths in the United States. The United States Preventive Services Task Force recommends screening for average-risk individuals aged 45 through 75. Screening is lowest amongst Latinx/Hispanic. Our study aims to improve CRC screening in Spanish-preferred patients by disseminating Spanish voiced Online Patient Education Material (OPEM) on CRC.

Methods: In overdue patients, we conducted a non-randomized study comparing standard care in Family Medicine (FM) and standard care plus Spanish CRC screening OPEM in Internal Medicine (IM). IM patients were randomized to get either a male-narrated or female-narrated OPEM. We evaluated whether baseline characteristics differed for the two study arms using the Wilcoxon rank-sum test or Fisher's exact test. For the primary goal, we examined whether there was a difference in screening completion between the intervention and standard care groups using Fisher's exact test. Using descriptive statistics, we investigated whether there was a difference in characteristics for those who completed screening and those who did not. In the intervention group, we compared the gender concordance of the patient and the video narrator by screening completion.

Results: We had 54 patients in IM and 50 in FM, differing only in age, with medians of 60 and 53. Post-study, 14.8% (8/54) in IM and 6.0% (3/50) in FM completed CRC screening, which was not significantly different, p=0.21. Patients who completed screening had higher median ages, 61 vs. 55. In the intervention, five of the eight patients who completed screening were female and received a female narrator. For the other three patients, two were male with female narrators and one was female with a male narrator.

Conclusion: Providing Spanish OPEM increased screening in the IM department by eight patients. Incorporating culturally tailored education mitigates language-related health disparities and improves screening rates.

Keywords: Colon cancer screening; Prevention; Health literacy; Colonoscopy; Spanish-preferred populations

Introduction

Colorectal cancer is the third leading cause of cancer-related deaths in the United States (US) for men and women.1 It is also the third most common cancer worldwide [1]. Regular screening for Colorectal Cancer (CRC) is the best way to catch the disease early [2], as CRC screening, such as colonoscopy or Fecal Immunochemical Testing (FIT), has been proven to decrease the incidence and mortality of CRC [3]. After the implementation of CRC screening, there was a 40% decline in the incidence and mortality of CRC [4]. When found at an early-stage, the five-year survival rate of CRC is 90% [5]

The US Preventative Services Task Force (USPSTF) and the American Cancer Society recommend screening individuals aged 45 through 75 at average risk for CRC [1,4]. CRC screening options include stool-based tests and visual exams of the colon and rectum. Stool-based tests include the highly sensitive FIT performed yearly, the highly sensitive guaiac-based Fecal Occult Blood Test (gFOBT) performed annually, or the multi-targeted stool DNA test with fecal immunochemical testing performed every three years. Visual examinations include colonoscopy performed every 10 years, CT colonography performed every five years, or sigmoidoscopy performed every five years [1]. Colonoscopy is the most widely used test for CRC screening in the US due to a high sensitivity (18-100%) and specificity (89%) [6,7]. This procedure involves bowel preparation and is performed under sedation, commonly in an outpatient setting [6].

Data from 2018 showed that 70% of US adults were up to date with their CRC screening. Yet, there are specific populations where CRC screening rates have remained low, specifically, the uninsured, those covered by Medicaid (47%) and members of specific racial/ethnic subgroups, specifically Latinxs [8]. Lower CRC screening rates and overall poorer outcomes for CRC have been associated with both Hispanic ethnicity and Spanish-speaking status [9]. Among all ethnic groups, participation in CRC screening is lowest amongst the Latinx/Hispanic group at 56% [5]. Foreign and US-born Hispanics have a significantly lower up-to-date CRC screening rate than US-born non-Hispanic whites [10]. Unfortunately, many diagnoses of CRC made in the Latinx population are in the late stages due to low CRC screening in this population [11,12] and Latinx adults are overrepresented in the late-stage CRC [13]. CRC is the second leading cause of death in Latinxs in the US [14]. This statistic is crucial because, in the US, the Hispanic population rose from 6.5% in 1980 to 19% in 2021, with 62.5 million people and is expected to grow to 90.5 million people by 2050 [10]. Mortality rates of CRC have been decreasing by 1.8% for Latinx patients, but the rate of this decrease is not equivalent to that of their non-Hispanic white counterparts [9].

Understanding the barriers to CRC screening is important to understanding the low screening rates in the Latinx community. There are many psychosocial barriers to CRC screening for the Latinx population, including housing insecurity, lack of familial support, perceived susceptibility, documentation status, language barriers and low health literacy [13]. Latinx individuals are more likely to be underinsured in the US, which contributes to their lack of CRC screening and late-stage CRC diagnoses [12]. In previous Latinx culture studies, self-efficacy (confidence in the ability to perform a behavior), perceived benefits (beliefs on the advantages of screening) and fatalism (belief that life is determined by fate) were found to contribute to poor screening [15]. Patient education is specifically important for Latinx patients because this population is more likely to have a health belief system, including medical mistrust and fatalism [13].

About 70% of patients screened for CRC do so due to a direct recommendation from their provider, [16] through a direct conversation with their provider, informational materials and portal messaging. Though Spanish is the second most common language in the U.S., Spanish patient education materials, both written and spoken, often need to be improved or don't exist. Patients with limited English language proficiency have lower CRC screening rates and receive fewer provider screening recommendations [17]. Similar studies have shown a consensus among Latinx patients who are overdue for CRC screening that they believed they did not receive adequate information on CRC screening from their healthcare providers and wanted more information before agreeing to be screened [18]. Past studies have shown increased CRC screening in patients who received patient education in Spanish [3,4,11,19]. However, many health systems do not have accessible patient education on CRC screening options in Spanish [20]. Language has also been proven to be a more significant barrier for Latinx men than Latinx women [18]. Latinx men are less likely than men of other ethnicities/races to take care of their health. Latinx women are likely to participate in health screening if they find it advantageous, [13] while higher masculinity scores related to "machismo" showed reduced screening rates in Latinx men [21].

Within a Midwest academic health center, our institution's CRC screening overall was 81.7%, yet CRC screening in Spanish-preferred patients was 67.8%. Our study aims to improve CRC screening in Spanish-preferred patients by disseminating Spanish-voiced Online Patient Education Material (OPEM) on CRC. In addition, we aim to determine if there is a difference in uptake in CRC screening when the gender of the Spanish-voiced education matches the patient's gender.

Methods

Study population

Using a CRC screening registry, we identified primary care Spanish-preferred patients aged 45 to 75 at a large, Midwest academic medical center in the Internal Medicine (IM) or Family Medicine (FM) departments. We started with the sample of Spanish-preferred patients, noting the number of patients adhering to CRC screening guidelines and those not. Patients were excluded from the study due to having a Primary Care Provider (PCP) outside the medical center, having no home address, or completing screening before the intervention started.

Study design: Quasi-experimental study. Compliance with CRC screening for Spanish-preferred patients within an IM division was 68.5%. In comparison, the overall CRC screening compliance for all patients in the IM division was 81.7%. To mitigate this discrepancy, a quality improvement project was initiated to create a multimedia Spanish-language OPEM video to help eliminate the linguistic barrier and educate Spanish-preferred patients on CRC screening, to improve CRC screening. A male or a female narrated the Spanish-language video, which was created to determine the influence of the patient and provider gender on response rates.

Target population

The non-randomized study included IM and FM patients from the overall sample who were not adherent to CRC screening guidelines pre-intervention.

Intervention

A two-arm CRC screening non-randomized study was designed to determine whether a new gender-tailored, Spanish-speaking video outreach message, in addition to standard care, increased the likelihood that patients scheduled a screening appointment compared to standard-of-care alone, which was a written English patient portal message. In the IM treatment group, overdue patients were randomized to receive either a male-narrated or a female-narrated Spanish video message, regardless of gender. In the FM control group, overdue patients, not randomized, received only the standard English-written patient portal message. Patients in both groups were monitored until completion of screening or for 4 months after the study start date, whichever occurred first.

Data analysis

Patient characteristics were presented as median and interquartile range (IQR) for continuous variables and frequency and percentage for categorical variables. We evaluated if baseline characteristics differed for the two study arms, using the Wilcoxon rank-sum test for continuous variables and Fisher's exact test for categorical variables. Fisher's exact test was also used to compare the proportion of overdue patients who completed screening between the IM and FM groups. Patient characteristics were descriptively compared between those who completed screening and those who did not after the study concluded. Continuous variables were summarized using median and IQR, while categorical variables were summarized with frequencies and percentages. For patients in the intervention, we evaluated the frequencies of their gender by the OPEM narrator. Statistical analyses were conducted using R version 4.4.1. P values < 0.05 were considered statistically significant.

Results

The total number of Spanish-preferred patients identified from the CRC screening registry was 373, with 207 in IM and 166 in FM. Sixteen patients were excluded prior to the study due to their PCP being outside the medical center [14], having no home address [1], or having completed screening before the start of the intervention [1]. After exclusion, we had 196 Spanish-preferred patients in IM and 161 in FM. There were 142 adherent with CRC screening in IM and 111 adherent in FM. Post-study in the sample of Spanish-preferred patients, eight in IM and three in FM completed CRC screening, an increase of 4.1% (8/196) and 1.9% (3/161), respectively. Focusing on the overdue patients in the study (54 IM and 50 FM), they differed in age, with medians of 59.5 years (53.0, 69.8) and 53.0 years (48.0, 60.0), respectively [Table 1]. The two groups were not different regarding the remaining baseline patient characteristics.

For the primary aim, 14.8% IM patients scheduled and completed CRC screening (8/54) compared to 6.0% in FM (3/50), p=0.21. Patient characteristics were summarized separately for those who completed screening and those who did not [Table 2]. The median age of patients who completed screening was 61.0 years (59.5, 72.5) compared to 55.0 years (49.0, 62.0) for those who did not complete. Of the patients who completed screening, 72.7% were female (8/11) and 27.3% were male (3/11) compared to 53.8% female (50/93) and 46.2% male (43/93) in the patients who did not complete screening. Regarding insurance status, 45.5% (5/11) of patients who completed screening had insurance, compared to 25.8% (24/93) among those who did not complete screening. CRC screening history was reported in 45.5% (5/11) of patients who completed screening and 14.0% (13/94) of those who did not. For the secondary aim, the intervention group was randomized to receive a male or female-narrated video. Of the 32 female patients, 17 received a female narrator and 15 a male narrator. For the 22 male patients, 10 received a female narrator and 12 a male narrator. Five of the eight patients who completed screening in IM were female and received a female-narrated video. The remaining three IM patients who completed screening included two male patients who received a female-narrated video and one female patient who received a male-narrated video. No male patients who received a male-narrated video completed screening.

Table 1: Overdue patient demographics by department.

		FM (N=50)	IM (N=54)	Total (N=104)	p value
Age	Median (IQR)	53.0 (48.0,60.0)	59.5 (53.0,69.8)	57.0 (50.0,63.3)	0.01[1]
Gender	Female	26 (52.0%)	32 (59.3%)	58 (55.8%)	0.55[2]
	Male	24 (48.0%)	22 (40.7%)	46 (44.2%)	
Has insurance	No	34 (68.0%)	41 (75.9%)	75 (72.1%)	0.39[2]
	Yes	16 (32.0%)	13 (24.1%)	29 (27.9%)	
Colon screening history	No	43 (86.0%)	43 (79.6%)	86 (82.7%)	0.45[2]
	Yes	7 (14.0%)	11 (20.4%)	18 (17.3%)	
Race	White	25 (50.0%)	22 (40.7%)	47 (45.2%)	0.432
	Other	25 (50.0%)	32 (59.3%)	57 (54.8%)	
Ethnicity	Hispanic or Latino	48 (96.0%)	51 (94.4%)	99 (95.2%)	>0.99[2]
	Not Hispanic or Latino	2 (4.0%)	3 (5.6%)	5 (4.8%)	
Written language	English	6 (12.0%)	4 (7.4%)	10 (9.6%)	0.52[2]
	Spanish	44 (88.0%)	49 (90.7%)	93 (89.4%)	
	Unknown	0 (0.0%)	1 (1.9%)	1 (1.0%)	

Note: 1. Wilcoxon rank sum test

2. Fisher's Exact Test for Count Data

Table 2: Patient demographics by outcome.

		Not Completed (N=93)	Completed (N=11)
Age	Median (IQR)	55.0 (49.0,62.0)	61.0 (59.5,72.5)
Gender	Female	50 (53.8%)	8 (72.7%)
	Male	43 (46.2%)	3 (27.3%)
Has insurance	No	69 (74.2%)	6 (54.5%)
	Yes	24 (25.8%)	5 (45.5%)
Colon screening history	No	80 (86.0%)	6 (54.5%)
	Yes	13 (14.0%)	5 (45.5%)
Race	White	44 (47.3%)	3 (27.3%)
	Other	49 (52.7%)	8 (72.7%)
Ethnicity	Hispanic or Latino	88 (94.6%)	11 (100.0%)
	Not Hispanic or Latino	5 (5.4%)	0 (0.0%)
Written language	English	9 (9.7%)	1 (9.1%)
	Spanish	83 (89.2%)	10 (90.9%)
	Unknown	1 (1.1%)	0 (0.0%)

Discussion

Providing spoken Spanish patient education in a video OPEM *via* the online patient portal or letter did not significantly improve screening adherence in this study compared to the standard of care. However, incorporating Spanish-tailored education mitigates language-related health disparities and increases screening rates by approximately 4 percent compared to 2 percent of the time. Based on the literature, we suspected that patients overdue for CRC screening would largely be males without insurance and with no prior CRC screening. Likewise, we suspected that those who would complete CRC screening would be females with insurance and a previous history of CRC screening. Our study did find a higher rate of CRC screening in females post-intervention, but screening was higher for those without insurance and those without prior CRC screening.

Conclusion

Our study was limited by the small sample size of 104 Spanish-preferred patients who were overdue for screening and further research is needed to make generalizations on a larger scale. The intervention was not randomized, so differences between groups, like age, may have influenced the outcomes. This limits the ability to draw firm conclusions about the intervention's causal effect. In addition, patients receiving only standard care may not have received a reminder about screening during the study period due to the timing of automated outreach. Thus, we do not know if having a higher percentage of completers in the intervention group is from the Spanish OPEM or because they received another reminder. Future research, including randomized trials, could more rigorously assess its impact. Future studies over a longer time, across multiple medical institutions and in a younger, more tech-savvy population could reveal more data on the strengths and limitations of this intervention.

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