Examining Barriers to Colorectal Cancer Screening in Livingston Country

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Introduction/Background

From 2009-2013, colorectal cancer (CRC) had the fourth highest incidence of any cancer in the United States among all races and genders. It also had the fourth highest mortality rate among all races and genders (1). Although still high, the rates of colorectal cancer in the United States have significantly decreased since the advent of colorectal cancer screening (2,3). Despite the improvement, there still is a significant amount of people who contract this cancer every year. One reason for this is that barriers still stand between patients and colorectal cancer screening (4, 6, 7, 8, and 9). In particular, there are unique barriers and patient perspectives on colorectal cancer screening in rural populations. For example, the distance to access of screening procedures can be much more than in urban or suburban areas (10). Factors such as this, and more, have led to a discrepancy between rates of undergoing CRC screening procedures between urban and rural populations (11). The goal of this study is to provide information that will help to target and take down barriers to CRC screening in the future in order to decrease the incidence of colorectal cancer, as well as to increase the use of the services provided by critical access hospitals.

Methods

This is a pilot descriptive study that was distributed via a survey at primary care physician's offices in Pontiac, Illinois. This survey was adapted from the Center for Disease Control's Behavioral Risk Factor Surveillance Survey of 2016. As in Knight et al. (9), for those participants who answer no to the question about screening colonoscopy or sigmoidoscopy, they checked marked the reasons why they have not received one. These answers were divided into 4 categories: attitudes and beliefs, health care provider and health care systems barriers, cost, and other. The prevalence of each belief and other descriptive statistics were quantified and compared to the demographic information that was provided on the survey. We used Pearson Chi-Square or Fisher's Exact test to check the associations between two variables. The two-tailed P values were calculated for all tests and $p<0.05$ was considered for statistical significance. All statistical analyses were performed using SAS 9.4 (SAS Institute Inc, Cary, NC).

Results

The total number of patients who were willing to fill out the survey was N=55. Descriptive statistics are reported in Figure 1. 20% of survey participants responded that they had used a home fecal occult blood testing kit, 76% reported that they had not done so and 4% reported they were not sure if they had used a home stool kit. Only 14% of those who reported not having a colonoscopy had a fecal occult blood test within the last year. There were no statistically significant associations between having completed a home stool occult blood test and age ($p=0.175$), gender ($p=0.421$), health insurance status ($p=1$), education ($p=0.482$), and salary ($p=1$). Of the 20% who reported that they had done home stool kit testing for blood, only 36% had done the stool test within the last year. Stool occult blood testing annually is the recommendation. Of the 55 patients who filled out survey, 56% reported that they had undergone a colonoscopy before, 41% reported they had not, and 3% reported they did not know if they have had a colonoscopy or not. There was a statistically significant correlation between level of education and having undergone a colonoscopy ($p=0.023$), which showed that people with higher education were more likely to have undergone a colonoscopy. There were no other statistically significant associations between having undergone a colonoscopy or sigmoidoscopy and age ($p=0.156$), gender ($p=0.473$), health insurance status ($p=0.432$), and salary ($p=0.474$). 22 patients reported never having had a sigmoidoscopy or colonoscopy. These patients reported a total of 39 different reasons for not having undergone a colonoscopy. These were separated into 4 categories, 74% of the barriers were categorized as attitudes and beliefs, 13% were "not sure why" or "other", 8% were cost and 5% of the reasons were related to healthcare provider or healthcare system.

Descriptive Statistics (Fig. 1)

Age				
Minimum	Maximum	Mean	Std Dev	Median
50.0	75.0	57.8	5.8	57.0

gender	Frequency	Percent
M	12	21.8
F	43	78.2

Education Level	Frequency	Percent
no HS or High School Diploma	15	27.3
Some college, College Grad, or Higher	40	72.7

salary	Frequency	Percent
<$50,000	24	55.8
>=$50,000	19	44.2
Frequency Missing = 12		

Figure 2

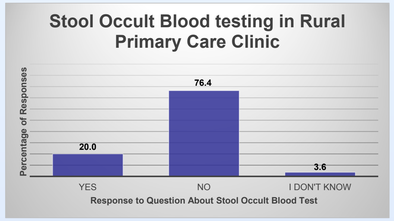

Figure 3

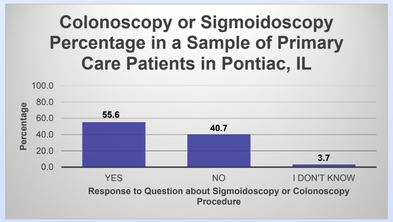

Figure 4

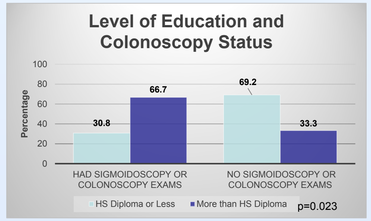

Figure 5

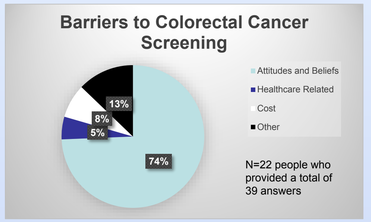

Figure 6

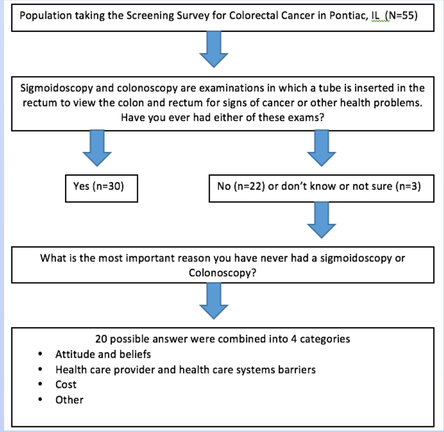

Figure 7

Attitudes and Beliefs	Health Care Provider or Health Care System	Cost	Other
1. You don't want to have the test 2. Test not needed, you have no symptoms of colorectal cancer, you have no family history of the disease 3. You have not thought about having the test 4. You fear that the test or preparation for test is uncomfortable or painful 5. You have no time to be tested 6. You postponed having the test 7. You feel the test is embarrassing 8. You are afraid of what the test may find 9. You are too old to have the test 10. You are too young to have the test 11. You feel that test does not work or is not effective	1. You have no facilities or doctors nearby to undergo test; it is inconvenient to travel the required distance to a testing facility 2. Your doctor did not recommend the test, or your doctor never said test was needed 3. You do not know where to go for testing or how to go about getting tested	1. The cost of the test is too high 2. The test is not covered by insurance 3. You have no transportation or difficulty finding transportation 4. You do not have a doctor you see regularly	1. You do not know or are not sure why you haven't had a colonoscopy 2. Other

Conclusions

As in Knight et al (5), this study showed that one of the main barriers to colorectal cancer screening is education level. Increasing access to high school and higher education services is an obvious solution for the younger generation to help improve screening rates in the future. It is important to address the current barriers to colorectal cancer screening for those people who have already surpassed their educational opportunities such as the rising baby boomer population. Studies, along with ours, have shown that patients choose not to have colonoscopies due to the attitudes and beliefs that were listed in this study (5, 12). Options for removing these barriers are patient education through shared decision making with physician, brochures, and word of mouth. The continuing emphasis on education of colorectal cancer screening by providers is a necessity. We cannot conclude from this study whether there are unique barriers in a rural setting to colorectal cancer screening as compared to other settings. This study had limitations compared to other similar population based studies. The sample size (n=55) was small and not representative of all of Livingston County. Further investigation must be undertaken to get a better outlook at the barriers to colorectal cancer screening in Livingston County. A more appropriate data collection process would be random online survey or phone call survey to all citizens in Livingston County (5,12). Nonetheless, the limited sample size gives the county hospital a glimpse into the reasons and factors that affect and do not affect patients' decision to get colorectal cancer screening. Also, the descriptive statistics and screening rates in this population give the primary care physicians a baseline to their screening rates and allow them to set realistic goals for future screening rates.

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