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Utilizing Multimodal Communication Strategies to Improve Average Risk Women Veteran Patient Participation in Returning Colorectal Fecal Immunochemical Test Kits

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Utilizing Multimodal Communication Strategies to Improve Average Risk Women Veteran Patient Participation in Returning Colorectal Fecal Immunochemical Test kits

A DNP Project Submitted to the
Graduate Faculty
of Jacksonville State University
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Doctor of Nursing Practice

By

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Abstract

Background: Cancer is one of the most dreadful diseases present in today's world. It is responsible for millions of deaths worldwide. The disease is debilitating to one's physical and emotional well-being. Cancer impacts not only the affected individual but also those close to them. When colorectal cancer is identified early via preventive screenings, it has a greater chance of responding to treatment, therefore, increasing the chances of survival. The fecal immunochemical test (FIT) kit plays a pivotal role in the early detection of colon cancer. Schreuders et al. (2016) revealed that FIT kits have better adherence, usability, and accuracy, citing that FITs either provide a qualitative calculation or quantitative calculation in terms of fecal hemoglobin concentration per gram of feces. Schreuders et al. (2016) further supported preventive screenings noting the high occurrence and related mortality with the typically slow progression of colorectal cancer renders colorectal cancer remarkably suitable for population screening via FIT kits. Many of the key findings from the literature review revealed that utilizing multimodal communication strategies enhanced patient participation and compliance in colorectal preventive screenings.

Purpose: The purpose of this DNP project was to improve the return rate of fecal immunochemical test (FIT) kits by implementing multimodal communication strategies.

Methods: Multimodal communication strategies utilize various forms of communication such as verbal, text/email, and written forms such as letters. The goal of this project was to demonstrate that utilizing multimodal communication strategies will increase patients' willingness to return fecal immunochemical test (FIT) kits.

Results: Key results revealed that of the seven kits issued post-intervention (March), there were three (42.9%) returned. There was no statistically significant difference between the proportion of kits returned pre-intervention versus post-intervention (p=0.239).

Conclusion: The project aided in increasing the number of screened patients for colorectal cancer; however, the project's results did not show an increase in the return rate of FIT after implementing multimodal communication strategies.

Keywords: colorectal cancer screenings, colon cancer, preventive screenings, fecal immunochemical test (FIT) kits, multimodal communication strategies

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Utilizing Multimodal Communication Strategies to Improve Average Risk Women Veteran Patient Participation in Returning Colorectal Fecal Immunochemical Test kits

The diagnosis of cancer can be a life-changing experience. It is responsible for millions of deaths worldwide. The disease is debilitating to one's physical and emotional well-being. Cancer impacts not only the affected individual but also those close to them. Although cancer affects people of all sexes, ethnicities, and races, it does not always impact them equally.

The American Cancer Society (2022) defines cancer as the process in which your body's old or abnormal cells that usually die at a certain point in time, live on to out-grow healthy or normal cells. Some cancers grow and spread rapidly, while others are slow or remain stagnant. When cancer is identified early, for instance, through preventive screenings, it has a greater chance of responding to treatment, increasing survival chances. The purpose of this Doctor of Nursing Practice (DNP) project aimed to focus on the return of fecal immunochemical test (FIT) kits for colorectal cancer (CRC) screenings. Colorectal cancer refers to a cancerous tumor or tissue growth that begins in the colon or rectum. Siegel et al. (2020) noted that colorectal cancer is currently the second most common cause of cancer death in the United States.

Abancens et al. (2020) noted that a lower incidence of colorectal cancer is found in females compared to males. According to the American Cancer Society (2022), the lifetime probability of developing colorectal cancer is about 1 in 25 (4.0%) for females and 1 in 23 (4.3%) for males. Healthy lifestyle habits, including smoking cessation, sustaining a healthy body weight, being physically active, reducing alcohol intake, and consuming a nutritious diet, have been associated with a significant reduction in colorectal cancer incidence and mortality (Wang et al., 2021). Preventive screenings such as fecal immunochemical test (FIT) kits are another tool that has proven effective in reducing colorectal cancer mortality.

Background

The World Health Organization (WHO) (2021) noted that between 30 and 50% of cancers could presently be prevented by implementing current evidence-based prevention strategies such as preventive screenings and avoiding known risk factors. One of those preventive screenings is FIT kits for colorectal cancer screenings. Schreuders et al. (2016) revealed that guaiac fecal occult blood tests were first widely used in the 1970s for population-based colorectal cancer screening. The goal of preventive screenings is to improve patients' overall health, not only to diagnose disease processes. Bell et al. (2017) stressed that highly trusted guidelines should provide data on both the benefits and harms accompanying preventive health screenings and knowledge interpretation tools to assist collective decision-making with patients. Although guaiac fecal occult blood tests (gFOBT) have high specificity, its sensitivity is relatively low (Bell et al., 2017). In contrast, FIT kits are more sensitive in detecting hemoglobin than gFOBT with reported sensitivities for advanced neoplasia discovery of two to three times greater compared to gFOBT (Bell et al., 2017). In the study conducted by Conn et al. (2020), multimodal communication strategies were used to increase the return rate of FIT kits noting an increase in return rate to 60.7% from 41.1%.

Needs Analysis

For colorectal cancer screenings via FIT kits to be of any benefit, the kit must not only be explained and dispensed properly but also completed appropriately and returned by the patient for accurate testing. During a local needs analysis, it was revealed that many female veterans at a southeastern Veteran Affairs Medical Center were noncompliant with returning their FIT kits for evaluation. Raw data from the medical center revealed that the total return rate of FIT kits issued to primary care patients was 36.21% as of November 2021. It is particularly important for this

population to complete preventive screenings as Purcell et al. (2021) noted that when compared to the general population, veterans assisted by the Veteran Affairs (VA) healthcare system have more health conditions such as cancer, are older, and also suffer disproportionately from mental health conditions. These patients have courageously and selflessly served their country and thus deserve quality healthcare. It would be undeserving to this vulnerable population to notice a gap in service without a proposal for change. The goal of this project was to implement a process improvement plan within the Veteran Affairs women's clinic that addresses the non-compliance of returning FIT kits.

Fecal Immunochemical Test (FIT)

Doubeni et al. (2016) describe the FIT kit as a "newer fecal occult blood test that uses a specific antibody for human hemoglobin" (p. 2). Blood in the stool can be an early sign of colon cancer; however, it cannot be seen with the naked eye. The FIT kit detects blood in the stool that the visual eye may not see. The FIT test is a noninvasive procedure that can be performed within the comforts of the patient's home. Completing the FIT test involves patients sampling their stool using the wand in the kit and returning it to the appropriate facility. This test needs to be repeated every year.

Each testing kit contains a prepaid postage envelope, the sampling bottle, biodegradable paper, and a plastic biohazard bag. The directions listed by Polymedco (2008) for sample collection are as follows:

1. Place supplied collection paper inside the toilet bowl on top of the water.
2. Deposit stool sample on top of the collection paper.
3. Open the cap by twisting and lifting.

4. Scrape the surface of the fecal sample with the sample probe, covering the grooved portion of the sample probe completely with stool.
5. Collect sample from the stool before the paper sinks, and the stool sample touches the water.
6. Close the sampling bottle by inserting the sample probe and snapping the green cap tightly. Do not reopen.
7. Wrap the sampling bottle in the absorbent pad, insert it into the plastic bag, and then the envelope.
8. Promptly return to the lab either in person or using the prepaid postage envelope.

Problem Statement

A literature review revealed that colorectal screening FIT kits are being given to patients but not returned. Therefore, patients are not adequately screened for colorectal cancer. At this investigator's project facility, protocols are currently being drafted for nurses to follow up with FIT kits that have been given in the clinic or mailed out. This student's goal is that an effective standard operating procedure utilizing multimodal communication strategies will be established in the VA clinics nationwide to ensure the return of the FIT kits. Based on an initial need assessment, a multimodal outreach strategy will be developed.

This DNP student developed a PICOT question based on the need assessments and literature review. The PICOT question approach includes the DNP student considering the population (P), Intervention (I), Comparison (C), and Outcome (O). For the purposes of this study, the question being assessed was among average risk veteran women patients (P), does implementing a multimodal outreach strategy (I), as compared to no intervention (C), increase the return of completed Fecal Immunochemical Test kits (O).

Aims and Objectives

The aims of this project were two-fold:

a) To improve the return rate of FIT kits through increased participation in preventive colorectal cancer screenings among a female veteran population that seeks their medical services through a medical facility that serves veterans that have served in the United States military; and
b) To implement a standard protocol for utilizing multimodal communication strategies among multimodal communication strategies among patients through the utilization of a combination of verbal, text, secure messaging via emails and letters to communicate with patients.

Review of Literature

An analysis and synthesis of literature were performed for the DNP project. The review of literature was performed considering screenings utilizing FIT kits and implementing multimodal communication strategies to increase compliance. The search engine databases used were Google Scholar, PubMed, and CINAHL. The keywords utilized in the database were: colorectal cancer screenings, colon cancer, preventive screenings, women, veteran, fecal immunochemical test (FIT) kits, and multimodal communication strategies.

The American Cancer Society (2022) emphasizes the importance of colorectal screening and notes that many deaths from colorectal cancer could possibly be prevented had more individuals had the recommended screening test to detect colon cancer early. The American Cancer Society (2022) further notes that even if cancer arises, it is likely to be easier to treat if found early during preventive screening. This literature review revealed significant key findings

that stressed the importance of preventive colorectal screenings along with similar methodologies utilized in this DNP project to increase patient participation.

Sexual Dimorphism

Abancens et al. (2020) conducted a review of several studies to reveal sexual dimorphism in colon cancer. The authors noted that combination estrogen, progesterone, and hormone replacement therapy were analyzed in a 2012 meta-analysis based on eight cohort studies, four randomized trials, and eight case-control studies, including data of postmenopausal women, collected from the United States, European Union, and Canada. This study took place between 1965 and 2006 and had a follow-up range of 3–15 years. The review revealed that the findings from this meta-analysis confirmed that both estrogen-alone and estrogen plus progesterone therapy decreased colon cancer risk by 30% (Abancens et al., 2020). The authors also noted that a double-blind, randomized clinical trial executed in the early 2000s by the Women's Health Initiative (2013) showed that combined therapy of estrogen plus synthetic progesterone caused a 38% reduction in colon cancer, noting that the protection did not remain in the follow-up years of the trial (Abancens et al., 2020). These findings are significant because they support the lower incidence of colorectal cancer found in females compared to males. These findings are significant to this DNP project as the project focuses solely on women patients. In the review conducted by Abancens et al. (2020), it was noted that even with similar lifestyle choices, it seems that women sustain a higher level of protection against colorectal cancer than men, associating sexual dimorphism as a critical component in future studies and therapeutic strategies. Abancens et al. (2020) revealed that critical proliferative pathways in CRC tumorigenesis revealed sexual dimorphism, which presents better survival rates in females through cell signaling and estrogen-regulated genes.

Benefits and Harms

In the review conducted by Bell et al. (2017), evaluations from The National Lung Screening Trial, European Randomized Study on Screening for Prostate Cancer, computed tomography and prostate-specific antigen tests were used to determine the rate of overdiagnoses. The authors revealed harms related to false-positive test results include stress and anxiety associated with the diagnosis of the disease, as well as harms related to the extra testing essential in determining the presence or absence of a disease or condition (Bell et al., 2017). Conditions in which preventive health guideline recommendations offer strong evidence that the favorable effects of an intervention outweigh the unfavorable effects or benefits, providers can be certain that most patients would be best helped by following the guidelines (Bell et al., 2017). In addition, providers could be certain that most patients would be served well by following the guideline recommendation. The findings lacked strong evidence indicating that different methodologic approaches were used to calculate estimates. These findings were not significant to this student's DNP project as specific colorectal cancer estimates were omitted. However, the results raised awareness that studies need to be inclusive to address qualitative data such as anxiety and stress related to patients' apprehension of completing preventive screenings.

Colorectal Screening Program Intervention and Implementation

In an in-depth analysis conducted by Conn et al. (2020), 12 federally qualified facilities implemented a reminder protocol for FIT kits issued. The purpose was to boost colorectal cancer screenings to 80% or at least 10% of baseline screening rates at the participating facilities (Conn et al., 2020). In this study, the use of reminders was examined to determine if phone calls and reminder letters encouraged the return of FIT kits. The initial rate of compliance was compared with the return rate. Results noted that of 5,041 FIT kits issued, the initial compliance rate was

41.1% prior to any interventions. Furthermore, 2,201 patients received reminders, resulting in a total average return rate of 60.7%, improving the FIT return rate by 19.6%. These findings were significant to this DNP project because the interventions implemented in the study were very similar to the interventions implemented by this DNP student. Also, the positive results from this study provide evidence to have the facility support sustainability of this student's DNP project. In the study conducted by Conn et al. (2020), a powerful lesson learned was the value of having superior electronic systems in position that can sustain tracking patients in the current time to circumvent the need for a large volume of staff's time to manually screen patients for colorectal screening programs.

Crosby et al. (2016) noted that an outreach-based colorectal cancer screening program in a rural environment might produce high return rates. In this study, 345 participants were recruited via a community outreach program to determine who would return FIT kits. Eighty-two percent of participants returned the kits. Of the returned kits, 68.4% were female, and 340 participants identified as Caucasian. A significant finding of this study was that those reporting an annual income of less than $15,000 per year were more likely to return to the kits at 89.8%. Also, those who stated they did not have a regular primary care provider were more likely to return the kits (92.3%) when compared to those who did have a primary care provider (79.9%). One major limitation of this study was that it was conducted out of convenience of the participants. However, the findings were noteworthy, citing that women are more likely to return the FIT kits, although current data shows that men have a higher incidence of colorectal cancer (Crosby et al., (2016).

Gupta et al. (2020) revealed that mailed FIT kits propose potential for increasing screening rates, but ideal strategies for execution have not been well created. In the review of a

Centers for Disease Control and Prevention summit conducted by Gupta et al. (2020), numerous observational and randomized controlled trials were examined and proved that mail outreach programs offering FIT tests were successful and effective. The summit's purpose was to gather a group of experts to review evidence for mailed FIT outreach methods, best practices for execution and to summarize the disparities in the research literature. The summit's attendees reviewed a per-protocol analysis conducted by Schlichting et al. (2014), who reported an 85% FIT return rate in a sample of 190 veteran patients who were sent a preliminary letter, received a call from a live person, agreed to be sent a FIT test, and followed by additional telephone reminders. One limitation that the summit noted regarding letters is that published literature on the comparative effectiveness of the letter's content was inadequate. However, suggestions were made to include a return contact number for questions, provide information in the patient's own language, and simple writing in giant print for patients with literacy deficits. A reminder was noted that the effectiveness of the mailed FIT programs with colorectal outcomes relied upon a complete follow-up for abnormal stool test results. Overall, these findings were exceptionally noteworthy for this student's DNP project as it supports the effectiveness of utilizing multimodal communication strategies to increase the return of colorectal FIT kits.

The qualitative study conducted by Liles et al. (2015) explored 55 stakeholder viewpoints regarding implementing a population-based colorectal cancer screening program. These stakeholders consisted of 20 primary care providers, eight health plan leaders, 23 endoscopy specialists, and four program managers. Liles et al. (2015) noted that a third-party qualitative methodologist conducted professionally transcribed interviews for analysis. In the interviews, health plan leaders advocated utilizing a multimodal approach in screening patients during visits and conducting automated phone calls to improve screening rates (Liles et al., (2015). One

barrier that primary care providers noted during this study was the lack of support by specialists and health plan leaders when patients were referred for colonoscopy in average-risk patients. All stakeholders assumed some providers believed that colonoscopies are the only appropriate method for colorectal cancer screening for average-risk patients (Liles et al., (2015). Health plan leaders recognized the multimodal approach to offering screening possibilities to patients (i.e., at patient visits (in-reach) and via automated calls (outreach) as significant characteristics of enhanced screening rates (Liles et al., (2015). A limitation of this study was that stakeholders' responses represented true feelings due to being interviewed. A great strength of this study was that it collected viewpoints of individuals who were in a position to assist with implementing a successful population-based colorectal cancer screening program.

In the pragmatic randomized trial conducted by O'Connor et al. (2020), 26 clinics serving low-income populations of 30,667 patients were randomized by a computer-generated randomization strategy with a one-to-one ratio. O'Connor et al. (2020) noted that tools were created to enable clinics to use the electronic health record to create mailing lists along with materials for the following: (a) a preparatory letter, (b) a FIT kit with instructions specifically created for poor-literacy and non-English-speaking populations, and (c) a reminder letter. The FIT completion in the intervention group ranged from 15 and 25%, predictably three to six percentage points greater than control group participants (O'Connor et al., 2020). One major limitation noted in the study was the sole reliance on the electronic health record for moderator variables that may not have been accurate or misclassified. The strength of this study was the pragmatic effectiveness trial, operated in real-world safety net clinics, utilizing existing staff and structure (O'Connor et al., 2020). Responses to a mailed FIT intervention were commonly constant across a wide range of individuals and neighborhood-level patient attributes, including

typically underserved patients and those in low-means communities (O'Connor et al., 2020). One significant relevance of the article to this student's DNP project is the reliance on electronic health records to identify patients due for colorectal screening. However, due to the DNP project being conducted in a federal facility that takes pride in up-to-date and reliable electronic health record systems, this student is confident in relying on the electronic system for accurate monitoring and data.

Costs Associated with Mailed FIT Kits

In the program conducted by Kemper et al. (2018), the objective was to assess whether a mailed FIT program could be executed at a reasonable cost that would allow sustainability of practice. Kemper et al. (2018) noted that The Washington State Department of Health partnered with HealthPoint, a large federally qualified health system, to implement a direct-mail FIT program at nine medical clinics. The program included following up with a reminder letter and automated telephone calls to individuals not compliant with recommended screening. According to Kemper et al. (2018), a total of 5,178 kits and 4,009 reminder letters were mailed, along with 8,454 automated reminder telephone calls placed. The average total cost per FIT kit returned was $39.81, which included the development and intervention phase, management oversight, and data quality assessment (Kemper et al., 2018). The study's findings were that 31.0% of those who received the FIT kits completed the screening. One of the limitations of the conclusions was that HealthPoint only tracked patients' language preferences and health information associated with the FIT screening while disregarding patient characteristics. This limitation was significant to this student's DNP project as the project's inclusion is only women. However, the project provided insight into possible costs associated with implementing such a program. The cost of a

FIT kit screening is $39.81, whereas the average per capita expenditure for colon cancer care is $60,321, according to Eaglehouse et al. (2019).

Fecal Testing

In the retrospective cohort study conducted by Doubeni et al. (2016), the relation of ambient temperature exposure with FIT sensitivity and positivity rate was examined. The cohort study included 510,922 patients and 1,429,089 qualified FITs over a 7-year study timeframe. The study revealed that exposure of FIT specimens to high ambient temperatures is correlated with reduced FIT sensitivity and positivity rate for detecting colorectal cancer. FIT positivity rates were substantially lower in weeks with higher temperature degrees when compared with the lower temperature weeks. Doubeni et al. (2016) suggest revising kit designs and specimen transportation methods, displaying visible warnings on the kits about heat sensitivity, and other techniques for minimizing high-temperature contact to help enhance FIT performance. However, it was also noted that these actions might increase testing difficulty and decrease patient adherence, thus necessitating careful study (Doubeni et al., 2016). These findings were significant to this student's DNP project due to FIT kits being mailed and patients testing their samples in their homes, thus eliminating a controlled setting to monitor the temperatures of the FIT kits.

In the article by Schreuders et al. (2016), the advantages and disadvantages of guaiac fecal occult blood tests (gFOBT) are compared to FIT kits. Schreuders et al. (2016) noted although gFOBT has a high-level specificity, its sensitivity is inadequate since it does not detect hemoglobin levels below approximately 600 μg/g of feces. The authors revealed that FIT kits have greater adherence, usability, and precision as compared to gFOBT, citing that FITs either provide a qualitative calculation such as pass or fail results or quantitative calculation in terms of

fecal hemoglobin concentration per gram of feces (Schreuders et al., 2016). Preventive screening was supported by Schreuders et al. (2016) noting the high prevalence and associated mortality and the ordinary history of colorectal cancer with slow advancement from a premalignant polyp to cancer, rendering colorectal cancer exceptionally suitable for population screening. This article was of importance to this DNP project because it supports the use of FIT testing versus the original guaiac fecal occult blood test.

Colorectal Cancer Statistics

In the article *Colorectal Cancer Statistics*, Siegel et al. (2020) interestingly noted that although the CRC occurrence rate is 31% higher in men, the lifetime risk is comparable in men (4.4%) and women (4.1%) due to women statistically living longer. Siegel et al. (2020) also noted that frequency is comparable in those younger than 45 years of age, however, it is 40% to 50% higher in men than in women of ages 55 to 74 years. Siegel et al. (2020) further noted more than one-half of all CRC cases and deaths were caused by modifiable risk factors, and a significant amount could have been prevented through screening and surveillance. Guideline-compliant screening frequency reached 66% in 2018 nationally; however, commitment remained low in many states, among the uninsured, individuals ages 45 to 54 years, and those who had a family history of the disease (Siegel et al., 2020). The statistics in this article that were noteworthy were the mention of modifiable behaviors along with preventive screenings to reduce the incidence of CRC.

A nationwide cohort study conducted by Wang et al. (2021) revealed captivating data that suggested that 20% to 70% of CRC cases and deaths could possibly be prevented by following a healthy lifestyle of maintaining an appropriate body mass index (BMI), smoking cessation, increased physical activity, proper dieting, and limiting alcohol intake. The study's results

propose that approximately 32% of CRC cases and 34% of CRC deaths could possibly be prevented by endoscopic screening solely (Wang et al., 2021). In conjunction with the five healthy lifestyle factors, these statistics increased to 61% and 55%, respectively. One limitation of the cohort study observed was that participants were all predominantly white health professionals, which may not be typical of the general population.

Overall, the literature review revealed insightful guidance in implementing this student's DNP project. Many of the key findings from the literature review showed that utilizing multimodal communication strategies enhanced patient participation and compliance in preventive screenings. Unfortunately, the literature review revealed limited data regarding compliance in returning colorectal FIT kits among female veteran patients. The review also lacked substantial evidence-based data noting precise verbiage to include in introductory letters and reminder calls to increase compliance with return rates.

Theoretical Model Utilizing Jean Watson's Theory of Caring

Noel (2010), utilized Jean Watson's *Caring Theory* as a theoretical framework for a nursing model stating, that nursing is concerned with "promoting health, preventing illness, caring for the sick, and restoring health" (p.18). According to the World Health Organization (2021), the theory of cancer screenings is that a screening test should decrease mortality rates from a particular condition without disproportionately harming people without the condition. At-home FIT kits are an appropriate screening tool that can be utilized in the preventive measures of the nursing process.

Determining various ways to implement changes within an organization can be challenging. To facilitate the success of an intervention, one must first have a plan with proven effectiveness in place. For that reason, the Plan-Do-Study-Act Model (PDSA) will be followed

to implement this student's process improvement project. Morelli (2016) confirmed that the PDSA model could prepare a solid foundation from which to initiate the process of quality improvement by planning out what will be done, doing it, studying and analyzing the outcomes, and acting on the outcomes to make improvements in the project.

Methodology

This principal investigator received prior authorization from Veterans Affairs and an approval letter from Jacksonville State University's internal review board (IRB) to complete this DNP project (Appendix A). Prior to implementing the project, this DNP student also completed the Collaborative Institutional Training Initiative (CITI) program (Appendix B). The DNP student reviewed a panel of 804 women patients assigned to a southeastern Veteran Affairs primary care clinic that seek their medical care from a medical center facility that specializes in care of the military population. Currently, there are two providers in the women's clinic who each provide care for approximately 1,000 female patients. The average risk patients, in which criteria are listed later in this manuscript, were evaluated to determine if they had been screened for colorectal cancer. A FIT test was mailed to individuals that met inclusion average risk and agreed to FIT testing.

Sample Size

From a panel of 804 women veteran patients, 97 (12.06%) were deemed 'average risk' for colorectal cancer and were either upcoming or past due for colorectal screening. Of the 97 'average risk' patient group, 27 (27.83%) patients were excluded due to refusals and recent or future scheduled colonoscopies. Twenty-nine (29.89%) patients of the 'average risk' patient group were unable to be reached via telephone and secure messaging attempts. The excluded, unreachable, and refusal groups contributed to a decreased sample size of 41(42.26%) patients.

From this group, the DNP student narrowed down the number of patients due for colorectal cancer screenings via FIT kits for March. For March, 13 patients were due or past due for colorectal cancer screenings, 6 of those patients were excluded due to not being reachable via communication attempts, refusals, or having recent or future scheduled colonoscopies. Therefore, 7 patients were screened and issued FIT kits for the month of March.

According to *A Cancer Journal for Clinicians* (2020), average risk patient criteria include individuals aged 45-75 that DO NOT HAVE: (a) history of colorectal cancer or certain types of polyps, (b) family history of inflammatory bowel disease, (c) confirmed suspected colorectal cancer syndromes, such as familial adenomatous, (d) polyposis or Lynch syndrome, (e) history of radiation to the abdomen or pelvic area to treat a prior cancer. Inclusion and exclusion criteria for the DNP project can be found in Table 1.

Consent

Verbal consent was obtained from all participants before project implementation (Appendix C). It was emphasized that the participant's role was to complete the FIT kit; however, there would be no consequences for not participating. The risks and benefits were discussed, and the participants were allowed to voice any questions or concerns. The participants were stressed that privacy and confidentiality of all identifiable information would be maintained throughout the DNP project.

Design

Multimodal communication strategies were utilized to encourage patients to return the FIT kits. These strategies included initially contacting the patient via telephone and secure messenger, notifying of 'average risk' status. If the patient was unreachable by phone or secure messenger, the patient was sent a primer letter (Appendix D) by mail and secure messenger. The

primer and follow-up communication letters were created by the site's colorectal cancer coordinator and approved for official use prior to implementing the DNP project. The primer letter informed the patient that she was deemed "average risk" for colon cancer and to contact the primary care team if interested in FIT kit testing for colorectal cancer. If the patient was contacted successfully and consented to complete the FIT kit, a FIT test was ordered and mailed out to the mailing address verified by the patient. The patients were advised to return the FIT test as soon as possible, preferably within 7 days. This student monitored the return of the FIT kits for 14 days following the issuing of the kit. At the 14-day mark, patients who had not returned the kits were given a follow-up call to encourage the return of the kit. The patient was mailed a follow-up reminder letter if the patient could not be reached via telephone during the follow-up phase (Appendix E). Concurrently, a follow-up reminder notice was also sent via secure messenger. The follow-up letter reminded the patient that she was mailed a FIT kit on a specified date; however, the facility hadn't received it. The follow-up letter advised the patient to return the kit as soon as possible or to contact the primary care team for a replacement if it was misplaced.

After the follow-up letter was issued, this student monitored for the return of the FIT kits for an additional two weeks. At the 30-day mark of the FIT kit being issued, the FIT order was canceled per the facility's policy due to no specimen being received.

Risks and Benefits

Lower risks of colorectal cancer are associated with smoking cessation, limiting alcohol intake, increasing physical activity, following a healthy diet, and maintaining an appropriate body mass index (BMI), according to Wang et al. (2021). When cancer is identified early, it has a greater chance of responding to treatment, therefore, increasing the chances of survival. The

benefit of participating will reveal if multimodal communication strategies are effective in returning FIT kits.

The risks involved in not participating include not being adequately screened for colorectal cancer on an annual basis. Participants may experience anxiety or nervousness while sampling their own stool for collection. To minimize this risk, the DNP student ensured each patient was provided full disclosure of the risks and benefits of colorectal screening.

Outcome Measurement

Outcomes were measured by comparing FIT kit return data post-intervention with pre-intervention data. The facility has an internal tracking and reporting tool that monitors patient compliance in which this student was granted access. The pre- and post-intervention data were compared using the Chi-squared test to determine the difference between the proportion of kits returned pre- (February) and post-intervention (March). The test was performed using Stata version 15.

In the month of February, a total of 16 FIT kits were issued, and 11 (68.8%) were returned. An outlier of this was that an additional 17 patients were due for a colorectal screening via a FIT kit for February; however, the screening was not completed, nor was a FIT kit issued. Of the total number of patients (41) that were mailed FIT kits, 18 kits (43.90%) were returned. For March only, 13 patients were due a screening. Three patients were excluded due to being unreachable via telephone and secure messaging efforts. Three additional patients were excluded due to refusal and recent and future scheduled colonoscopies. Therefore, 7 FIT kits were mailed out to patients. For the month of March, 3 (42.9%) FIT kits were returned.

Results

Of the 16 kits issued pre-intervention, there were a total of 11 (68.8%) returned, and of the 7 kits issued post-intervention (March), there were a total of 3 (42.9%) returned. Considering that a p-value less than 0.05 is significant, there was no statistically significant difference between the proportion of kits returned pre-intervention versus post-intervention (p=0.239).

Discussion

This project aimed to address the low compliance of FIT kit returns given to women veteran patients in a primary care clinic. The main aims were to improve the FIT kit return rates and establish a standard operating procedure for following up with the FIT kits given. Although this DNP project did not yield the desired results, it did, however, reveal that more interventions are needed to motivate patients to return the issued FIT kits. Aside from patients not returning the FIT kits, the project also revealed that the facility's staffing shortage contributes to patients not being screened for colorectal cancer. The proposed process calls for nurses to review the patients due for colorectal screenings and contact them via telephone or by letter. Adding additional nursing tasks to overworked, burned-out nurses who already have time constraints is arduous. It was noted that all of the pre-intervention FIT kits were given to patients while they were in clinic. This is likely the reason for pre-intervention return rates being substantially higher than post-intervention return rates. Convenience screening, such as screening patients who come into the office for a primary care visit or walk-in patients, reduces the resources necessary for screening outside of this setting.

An alarming detection was noted during the data collection process. While reviewing patients in need of CRC preventive screening, it was noted that a total of 97 (12.1%) female veterans were past due for their annual CRC screening. To assist the facility with decreasing this

percentage, the DNP student not only screened patients due for March but also every individual past due for CRC screening on the provider's panel. Quantitative data was used to measure the effectiveness of this project. With a p-value of 0.239, there was no statistically significant difference between the pre- and post-intervention return FIT kit rates, see Table 2.

Patients who refused colorectal cancer screenings often cited they either felt it was unimportant or were "turned off" by collecting their own stool and the possibility of their hand coming in contact with fecal matter. A possible solution to this challenge would be to include educational material that is written on a 3rd-grade level to ensure that the material is easy to understand and comprehend, has a bigger font size, includes pictograms, and contains individualized statistical information based on the patient's race and age group. Stool collection is an unsanitary process; therefore, the inclusion of gloves in each FIT kit could potentially lessen the apprehension of one collecting their own stool. Further studies should investigate other reasons why patients are reluctant to complete the FIT test and ways to motivate patients' compliance.

This project revealed that continuous interventions are needed to ensure patients are educated regarding colorectal cancer and the benefits of colorectal screening via the FIT kit. Results of similar studies offer reassurance that with persistent efforts, an increase in return of FIT kits can be obtained. Motivating patients to complete colorectal screenings is a continuous challenge that requires additional resources and techniques to increase FIT kit return compliance rates.

Implications for Clinical Practice

The project's aim of increasing colorectal screenings was met in that 41 patients (42.2%) from the provider's entire panel were successfully contacted and notified of the need for CRC

screening, thus increasing awareness of the importance of this screening. This project can contribute to existing evidence by showing the necessity of an effective plan to increase patients' compliance with returning FIT kits. Standardizing an effective strategy provides a resource with simplicity and thoroughness via a guided blueprint for nurses to implement.

Implications for Quality Healthcare and Patient Safety

Quality care and patient safety are core values among healthcare institutions nationally**.** Quality healthcare involves achieving the desired health outcomes while patient safety eliminates unnecessary harm, thus preventing adverse events. Administering FIT kits demonstrates quality care and patient safety by satisfying colorectal cancer preventive screening recommendations, being noninvasive, containing high-level specificity, and reducing possible mortality associated with colorectal cancer. This process improvement project demonstrated the overall improvement of quality care provided by exhibiting the increase of returned FIT kits. Implementing a standardized follow-up protocol for FIT kits administered builds rapport and a trusting relationship between the patient and nurse. The patient feels a sense of caring and concern, knowing that the nurse has taken the time to ensure the patient has completed this vital screening.

Limitations

The main limitations of this project were the small population group, female-only gender inclusion, and control setting. The project was performed only with women at the women's primary care clinic. Studying only women is not a good representation of the facility's population as a whole and is a significant limitation. Women tend to live healthier lifestyle habits when compared to their male counterparts. Women with greater trust in physicians also tend to seek healthcare more often and have longer consultation times with their providers than men

according to Thompson et al. (2016). This tendency could feasibly be the reason for this particular population to be agreeable to returning the FIT kits and not the communication strategies that were implemented in the alignment of the project.

The setting for obtaining the stool sample is within the patient's home. One limitation of this is that there is no control over the patient's home setting and the care of the FIT kit itself once it is given to the patient. High ambient temperatures are associated with decreased FIT sensitivity and positivity rates for detecting colorectal cancer. If the patient left the kit in a hot car, out in the sun, or even if postal handlers left the kit in direct sunlight, this could potentially alter the results obtained. Additionally, this project depended on the patient following the testing instructions accurately and testing her own stool. Due to not being present during the sample collection, it cannot be determined if the stool sample was obtained appropriately or even from the patient. This project relied entirely on the patient collecting stool accurately and properly handling the testing kit, which is a great limitation.

Another limitation is the constricted time for returning the FIT kits. Due to potential degradation of the kits, patients were advised to return the kits within seven days preferably. Patients who had other time-consuming obligations such as working or caring for the family may view the time constraint as a nuisance. Due to the small sample size of patients, utilizing only one clinic, only including women, and having limited follow-up duration, it is difficult to determine whether the changes will sustain over time or be as effective in a different clinical setting. Nevertheless, with ongoing interventions, results could reflect similar outcomes in more extensive scaled studies, indicating potential on a larger scale.

Dissemination

The findings for this project will be disseminated by means of a poster, presentation, and scholarly written manuscript. A poster or presentation will be presented on July 15, 2022, during the DNP dissemination conference. In addition to this, the DNP manuscript will be placed in Jacksonville State University Digital Common's Repository.

Plans for Future Scholarship

The implementation phase of this project required extensive time of this student. This investigator invested 16 hours over the span of two days scrubbing the provider's entire panel of patients to narrow down individuals that met inclusion criteria. Investing in efficient electronic computing systems that accurately support tracking patients synchronously reduces the need for staff's time to screen patients. In addition, automated notices to patients becoming due for colorectal screening reduces the need for staff to physically generate correspondences to patients. Due to the small size and shorter timeframe for this study group, future research can track the longevity of this plan among larger sample sizes for a greater length of time to observe sustainability. Increasing the sample size and length of the study may aid in identifying barriers to continuing this protocol for an extended period of time. Furthermore, this study's inclusion criteria can be broadened to include male patients, which constitute the majority of the population at this medical center.

Conclusion

Colorectal preventive screenings assist with the improvement of colorectal diagnoses through early detection. Siegel et al. (2020) remarked that colorectal cancer is presently the second most common cause of cancer mortality in the United States. Many patients may feel apprehensive regarding undergoing invasive procedures such as a colonoscopy. However, FIT

testing is non-invasive, inexpensive, and can conveniently be done within the comforts of the patient's home. Despite the proven benefits of screening, only 65% of age-eligible adults are up to date in the United States, according to Cusumano and May (2020).

The importance of life-saving colorectal screenings cannot be emphasized enough. This DNP project sought to increase participation in colorectal cancer screenings via FIT kits by utilizing multimodal communication strategies. While this project revealed many limitations, including a small sample size, female-only gender, and uncontrolled setting, the extensive literature review revealed the effectiveness of utilizing multiple modes of communication to engage patient participation in caring for his or her health. Further research should identify other barriers to staff from completing the screenings with their patients. With continued education, awareness of colorectal cancer, and the use of multimodal communication strategies, healthcare officials can assist patients in closing the gap of past due preventive colorectal screenings, thus reducing its mortality effects.

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Table 1

Inclusion and Exclusion Criteria

Inclusion and Exclusion Criteria	
Inclusion Criteria	Exclusion Criteria
• women patients that are enrolled in the women's clinic • ages 45-75 • deemed 'average risk'	• Male patients • Less than age 45 or greater than age 75 • Not deemed "average risk" • Recent or future colonoscopy scheduled • Patients that refused colorectal screening • Patients unable to be contacted via telephone or secure messaging

Table 2

Statistical Analysis Report

Statistical Analysis Report				
Period	**Kits Issued** **N**	**Kits Returned** **n (%)**	**Difference**	**P-Value**
Pre-Intervention	**16**	**11 (68.8%)**		
Post-Intervention	**7**	**3 (42.9%)**	**25.9%**	**0.239**

Appendix A

IRB Approval Letter

JSU | INSTITUTIONAL REVIEW BOARD
JACKSONVILLE STATE UNIVERSITY

Institutional Review Board for the Protection of Human Subjects in Research
203 Angle Hall
700 Pelham Road North
Jacksonville, AL 36265-1602

December 9, 2021

Shuntae Hooten
Jacksonville State University
Jacksonville, AL 36265

Dear Shuntae:

Your protocol for the project titled "Utilizing Multimodal communication strategies to Improve Average Risk Women Veteran Patient Participation in Returning Colorectal Fecal Immunochemical Test Kits" 120920201-04 has been granted exemption by the JSU Institutional Review Board for the Protection of Human Subjects in Research (IRB). If your research deviates from that listed in the protocol, please notify me immediately. One year from the date of this approval letter, please send me a progress report of your research project.
Best wishes for a successful research project.

Sincerely,

Lynn Garner
Associate Human Protections Administrator, Institutional Review Board

Appendix B

CITI Training Certificate

CITI PROGRAM

Completion Date 26-Sep-2021
Expiration Date 25-Sep-2024
Record ID 45311878

This is to certify that:

Shuntae Hooten

Has completed the following CITI Program course:

Not valid for renewal of certification through CME.

Social and Behavioral Responsible Conduct of Research
(Curriculum Group)
Social and Behavioral Responsible Conduct of Research
(Course Learner Group)
1 - RCR
(Stage)

Under requirements set by:

Jacksonville State University

CITI
Collaborative Institutional Training Initiative

Verify at www.citiprogram.org/verify/?w068d33be-2326-492b-8843-240433a2fbf7-45311878

Appendix C

Participant Consent Form

TITLE OF STUDY: Utilizing Multimodal Communication Strategies to Improve Average Risk Women Veteran Patient Participation in Returning Colorectal Fecal Immunochemical Test kits

Principal Investigator: Shuntae Hooten

This consent form is part of an informed consent process for a DNP student project. This form will provide information that will help you decide if you want to volunteer for this project or not. The timeframe for data collection is 6 weeks. If you have any questions or concerns at any time, feel free to ask them. After all of your questions and concerns have been answered, you may proceed with participating in this project by signing the consent form below.

Why is this project being done?

The problem in current practice is that colorectal screening Fecal Immunochemical Test (FIT) kits are being given to patients but not returned. Therefore, patients are not properly screened for colorectal cancer. This DNP project will explore if implementing a multimodal outreach strategy increases the return of completed FIT kits at the Birmingham Veteran Affairs Annex.

The process of the study

The average risk patients will be reviewed to determine if they have been screened for colon cancer. The DNP student will be contacting potential participants initially via telephone or secured messenger. Individuals that wish to not participate in this project will not be further contacted after the initial communication, respectfully. If the patient meets average risk criteria, consents to the project, and agrees to FIT testing, this student will then mail out a FIT test. If the FIT test is not returned within 14 days the DNP student will follow up by contacting the patient via phone or secure messenger to encourage the return of the completed FIT kit and to reinforce the importance of this screening. If the patient cannot be reached via phone or secure messenger, this student will then send a letter out to the patient's address encouraging return of the FIT kit. After the letter is mailed, this student will monitor if the patient returned the FIT kit for another 2 weeks. Per the facility's policy, the colorectal cancer screening can be documented as refused if no response is received from the patient at 30 days after distribution. The DNP student will communicate with all participants in the manner above, that are in agreement with participating in this project.

What will be your role in this project?

The participant's role will be to complete the FIT kit and return it to the facility. There will be no compensation for participating in this project. There will be no consequences for not participating. Each participant reserves the right to withdraw at any time without penalty.

What are the risks and benefits you may experience when participating?

There are benefits of completing preventive screenings. Preventive screenings such as Fecal Immunochemical Test (FIT) kits have proven to be effective in identifying early signs of colorectal cancer. When cancer is identified early, it has a greater chance of responding to treatment therefore increasing chances of survival. The benefit of participating will reveal if multimodal communication strategies are effective in returning of FIT kits as well as being properly screen for colorectal cancer. The risks involved by not participating include not being properly screened for colorectal cancer and feelings of anxiety or nervousness related to the collection of own stool sample.

How will your information be kept confidential?

Confidentiality will be maintained by not using any personal identifiable information such as name, birthdate and social security number. No personal identifiable information will be published. All data collected will be stored on a secured electronic network within the facility.

Who to call if you have any questions or concerns?

If you have any questions or concerns, please contact the principal investigator Shuntae Hooten at (205) 335-4042 or Shooten@stu.jsu.edu.

AGREEMENT TO PARTICIPATE

Participant consent:

I have read the entire description of the DNP project/study, and I understand the procedure described on the attached pages. I also have received a copy of the description. All of my questions and concerns have been addressed. I agree to take part of the DNP project.

_____ _____ _____

Name Signature Date

Investigator:

I have explained and discussed information regarding the DNP project to the best of my ability. All questions and concerns of the participant have been answered truthfully.

_____ _____ _____

Name Signature Date

Appendix D

Primer letter

Dear Ms._____

Your health is very important to the VA Health Care System. One of the most important screenings for maintaining your health is Colorectal Cancer Screening (CRCS). The US Preventative Services Task Force (USPSTF) has recently recommended screening for colorectal cancer in adults aged 45-49 years. The VA will now begin colorectal cancer screening for "average risk" individuals starting at age 45, while continuing to recommend colorectal cancer screening in adults aged 50 to 75 years.

A person is considered at "average risk" for colon cancer if they do not have:

* A personal history of colorectal cancer or certain types of polyps

* Family history of colorectal cancer

* History of inflammatory bowel disease (Ulcerative Colitis or Crohn's disease)

* Confirmed of suspected colorectal cancer syndrome, such as familial adenomatous polyposis (FAP) or Lynch syndrome

* History of radiation to abdomen or pelvic area to treat prior cancer

Our records indicate you have an Average Risk for colon cancer. If you are interested in FIT KIT Testing for ColoRectal Cancer Screening, please contact your Primary PACT Team and a KIT will be mailed to you with instructions.

If you have received colorectal cancer screening (FIT Testing, Cologuard or Colonoscopy) through an outside provider within the last 1-10 years, please provide your PACT team with the results, as we may not have access to those records.

If you have any further questions, you can contact your Primary Care PACT Team.

Respectfully,

Appendix E

Follow-up letter

Dear Ms._____

Colorectal Cancer is the third leading cause of cancer related deaths in the U.S. The Hemoccult FIT test you recently received is a screening test for ColoRectal Cancer that allows for early detection when the disease is easier to treat. According to our records, you have received a FIT KIT dated_____and have not yet returned the kit to the medical center. Please return the kit at your earliest convenience in the prepaid postage envelope included with the KIT.

If you have lost or misplaced your FIT kit and require a new one to be mailed, please call your Primary Care PACT Team so we can mail a new FIT kit to your address. It is important that you contact us within the next 7 days.

Please consider completing this test to assist with achieving lifetime health and wellness. It is our goal to provide quality care in a timely manner. If you have had a Colonoscopy, Cologuard, or FIT Test within the last 1 to 10 years, please provide a copy of your results to us so that we can scan your medical record.

Thank you for choosing the VA Health Care System for your healthcare needs.

Sincerely,

Your Primary Care PACT Team