DNP Projects   College of Nursing

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Evaluating the Effect of a Nurse Navigator in Increasing Colorectal Screening

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The document mentioned above has been reviewed and accepted by the student's advisor, on behalf of the advisory committee, and by the Associate Dean for MSN and DNP Studies, on behalf of the program; we verify that this is the final, approved version of the student's Practice Inquiry Project including all changes required by the advisory committee. The undersigned agree to abide by the statements above.

Christine Njogu, Student

Julie Ossege, Advisor

DNP Final Project Report

Evaluating the Effect of a Nurse Navigator in Increasing Colorectal Screening

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College of Nursing

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Dedication

This work and my DNP Project is dedicated to my mother and father who are watching down on me from heaven. You always taught me that I can achieve any goal through perseverance and hard work, and I know that you are very proud of my accomplishments. For my husband and my two boys who have supported me through this long and tough journey and have given up so much of your time and pleasure. For my sisters and brothers who have given me courage when the journey got tougher. Thank you for letting me cry on your shoulders and for comforting me. This is for nursing everywhere that calls us to be change agents and so I hope to devote myself to be just that.

Acknowledgements

EVALUATING THE EFFECT OF A NURSE NAVIGATOR

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EVALUATING THE EFFECT OF A NURSE NAVIGATOR

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Abstract

PURPOSE: The purpose of this study is to evaluate the effectiveness of a nurse navigator in increasing colorectal (CRC) screening in primary care setting.

METHODS: This was a descriptive retrospective study of the effect of nurse navigators in increasing colorectal screening in primary care settings within Jefferson county and its surrounding counties. The sample consisted of 200 patient chart reviews for the period of September 1st through December 31st, 2017. Rates of colorectal screening were compared in those who received a nurse navigator call and those who did not.

RESULTS: Overall screening rates were 44.6%. A distinct increase in screening was identified when patients were contacted by a nurse navigator.

CONCLUSION: The study findings support the nurse navigator's role in colorectal screening. These findings may further help clarify the nurse navigator's role in cancer screening and treatment plans within communities. Further research is needed using a larger study sample to identify a continuous trend.

Evaluating the Effect of a Nurse Navigator in Increasing Colorectal Cancer

Introduction

Millions of people in the United States do not get the recommended screenings for colorectal cancer. By not getting routine screening, qualifying individuals are missing the chance to prevent colorectal cancer in the early stages when treatment is more effective. The purpose of this project is to evaluate the effectiveness of colorectal screening compliance conducted by a nurse navigator within the primary care setting.

Background

Colorectal Cancer (CRC) is among the most common cancer in the world. Timely screening can reduce the mortality of colorectal cancer by early diagnosis. Colorectal cancer is the third most commonly diagnosed cancer in both men and women in the United States. (ACS, 2017). According to the Centers for Disease Control and Prevention (CDC), the annual national expenditure for colorectal cancer treatment is estimated at 5.5-6.5 billion of which approximately 80% of the annual expenditure will be used for inpatient hospital care (CDC, 2016).

Among other cancers, colorectal cancer is ranked as the second leading cause of cancer death among adults in the United States (ACS, 2017). Colorectal cancer is the most diagnosed type of cancer among adults aged 65-74 years with a median age of 73 at the time of death (ACS, 2017). According to the Kentucky Department of Public Health ({KDPH}, 2014) division of prevention and quality improvement, Kentucky ranked the 4th in the nation with an average colorectal death rate of 19.3% compared to the national rate of 16.4 %. In Kentucky, the average single hospital stay charge in 2013 for colorectal cancer diagnosis was estimated over $56,000 with a total of almost $119 million in a year (KDPH, 2014).

Presently, about one- third of eligible adults in the United States have never had a colorectal screening (USPSTF, 2016). Older age is the most significant risk factor for colorectal cancer in most adults (USPSTF, 2016). Adult aged 50 years and older are the most affected by colorectal cancer with a median age of 68 years in women and 72 years in men at the time of diagnosis (CCC, 2017). Although colorectal cancer affects both men and women equally, African American males have higher colorectal cancer incidence and mortality rates compared with other racial/ethnic subgroups (USPSTF,2016).

Positive family history is linked to about 20% of cases of colorectal cancer (USPSTF, 2016). Guidelines for colorectal cancer screening are available to primary care providers and their patients to help expand cognizance of cancer symptoms and to promote pertinent timely diagnosis and treatment. Screening in the primary care setting is considered the most effective means of prevention of colorectal cancer across all populations (Klabunde et al, 2009).

Colorectal cancer is the most preventable and easily treatable among cancers when caught in early stages (ACS, 2017). Evidence based guidelines from the US Preventative Services Task Force recommends screenings for CRC to begin at age 50 years until 75 years. However, other professional organizations like the American College of Gastroenterologists recommend that African American get screening at an earlier age of 45 years because of high incidence of colorectal cancer in this population (Rex et al, 2017). Accordingly, the USPSTF recommendations apply to all racial and ethnic groups with efforts pointed towards ensuring that at-risk populations receive recommended screening, treatment and follow up.

The recommended screening tools include annual guaiac-based fecal occult blood test (gFOBT) that detects blood in the stool by using guaiac chemical (USPSTF, 2016). The fecal

immunochemical test (FIT) is also recommended annually and uses antibiotics to detect blood in the stool (USPSTF.2016). The stool DNA or FIT-DNA detects DNA in the stool and is recommended every three years (USPSTF,2016). The flexible sigmoidoscopy is used to check for polyps in the rectum and a third of the lower colon and is completed every 5-10 years (USPSTF,2016).

Colonoscopy is used for general screening and also considered a follow up test for abnormalities found within other screening tests (USPSTF, 2016). Computed Tomography (CT) of colonography is used to view and analyze the entire colon and is performed every five years. By offering choices in the colorectal screening tools, there is likelihood to increase screening uptake by individuals. The largest effect on reducing colorectal cancer mortalities is to maximize the total number of persons that get screened.

There is a need for additional screenings in the primary care setting. One option to enhance screening in primary care could be the use of a nurse navigator. A nurse navigator is a Registered Nurse (RN) with adequate clinical knowledge and expertise of chronic conditions, who is identified by a healthcare facility to act as the educator and advocate for the patient and their family throughout their healthcare continuum from prevention to end of life (ONS, 2015). In addition, the nurse navigator is an educator who supports and provides community resources depending on the illness (Riley& Riley 2016).

The role of the nurse navigator is to act as a buffer and help coordinate patient care through collaborating with the patient's medical team by providing details on the information provided to the patient and family (Vaartion-Rajalin & Leino-Kilpi 2011). A large multi-hospital system in Louisville uses nurse navigators for colorectal screening. The nurse navigator typically

conducts a telephone call with eligible patients seen in the primary care offices and explains the benefits and importance of colorectal screening. The conversation includes an attempt to persuade the patients to schedule screening appointments and encourage those already scheduled for screening to follow through with their confirmed type of screening.

The navigators also assist with scheduling appointments for those patients who agree and consent to screening. While there is limited literature about nurse navigators in colorectal screening, there are studies that note that individuals with diagnosed chronic illnesses, including cancer, tackle their health problems much easier with the help of nurse navigators (McBrien et al, 2018). Individuals followed by a nurse navigator after diagnoses have lower morbidity and mortality rates (Desimine et al, 2011).

In 2017, the Centers for Disease Control and Prevention (CDC) endorsed and adopted a patient navigation model replica known as the New Hampshire Colorectal Cancer Screening Program. This program was piloted and directed by a gastroenterologist at one institution in New Hampshire and proved to be 96% effective in increasing colorectal screening. The manual goes into details on ways other institutions can implement their own nurse navigator model and evaluate their screening rates. The ultimate goal of this CDC project is to reduce long-term consequences of colorectal cancer thus improving the overall health and quality of life for affected individuals.

By improving colorectal screening within primary care settings, individuals at risk for colorectal cancer can be quickly identified and treated efficiently. Providers will be able to initiate important evidence-based interventions to target these individuals and subsequently evade unnecessary acquired malignancies associated with colorectal cancer (Simon, 2016).

According to Hudson et al, (2012), by adhering to the recommended screening guidelines, the providers can help detect cancer early.

The study utilized the Nola Pender's health promotion theory as a guiding framework to determine the rates of screening. The Health Promotion Model (HPM) is based on a philosophical foundation of holistically looking at human interactions. Human beings interact with their environment and frame it to meet their needs in life. The health promotion model focuses on helping individuals achieve higher levels of well-being while identifying elements that influence healthy behavior. This model encourages health care providers to help their patients practice better health behaviors. Using the HPM and working collaboratively with patient, the nurse navigator can help the patient in changing behaviors and opting to complete their CRC screening. The goal for the HPM is to find ways for patients to better their health through behavior change (Pender, 2011).

Purpose

The purpose of this study was to evaluate the effects of the nurse navigator on the rates of CRC screening in one large metropolitan healthcare system in Louisville Kentucky. The primary aims were to assess: (a) the rates of colorectal screening in primary care within this metropolitan healthcare system in Kentucky, and (b) the effectiveness of nurse navigators in increasing colorectal screening.

Methods

Design, Setting, Sample

This study was a descriptive evaluation of the impact of nurse navigators in increasing colorectal screening in primary care patients in a select metropolitan area in Kentucky. The

population included adults aged 50-75 years who were patients at primary care offices for the

period of June 1st to December 30th, 2017 whose health maintenance module was flagged as

needing CRC screening. Exclusion criteria included patients with history of colon cancer or any

kind of colon surgery, younger than 50 years or older than 75 years of age. Non-English-

speaking participants were also excluded.

Procedure

Data collection

A random sample of medical record numbers meeting the above criteria were requested

and received from the institution's data analytics system. The PI reviewed the list of random

electronic medical records to verify study eligibility, meaning they were indeed eligible for CRC

screening. Demographic data collected included age, gender, race, health insurance and type of

screening chosen. The medical records were also reviewed to determine whether the patients

were contacted by the nurse navigator for screening and if they completed the screening. Status

of colorectal screening if completed or not was documented as Yes/No, and if patient was

contacted by the nurse navigator this was also documented as Yes/No. The data was recorded in

an excel spreadsheet that was stored in a secure private electronic hard drive. Approval for the

study was obtained from the University of Kentucky institutional review board (IRB) and the

healthcare system research review board.

Data Analysis

Data was analyzed using SPSS statistics software (Version 23.0). Descriptive statistics

analysis that included frequencies with percentages was used to summarize the categorical

variables of the patient demographics. The Chi-square test of association was used to evaluate

for significance of association between two categorical variables as contained in the dataset, (e.g., nurse navigator call and screening completion). This study considered values of $p < 0.01$ to be statistically significant for the analysis.

Results

Demographic data for the 201 patient charts reviewed are summarized in table 1. The charts reviewed were of individuals aged 50-75 years with the most patients screened aged 55 to 60 years (29.4%, n=59), and the majority were female (51.7%, n=104). The average age of the patients was 58.7 years. Most patients were Caucasian (95.5%, n=192) with only (4.5%, n=9) being African American. Most patients were publicly insured with Medicare (47.3%, n=95). The average age of the patients was 58.7 years.

A total of 201 charts were reviewed. Eighty nine out of the 201 people received CRC screening which translates to 44.6%. At the time of the chart review 112 patients, (55.4%) were determined to be not up-to-date with screening. Fifty-five unscreened individuals who were offered screening declined to be screened while fifty-seven medical records had no record of being offered screening. Utilizing Chi-Square, no significant differences for screening were found among gender or race. The nurse navigator called twenty individuals within the randomized sample. Of the individuals who received the call from the nurse navigator 16 of them (80%) completed the screening (see table 1). There was a statistically significant difference in CRC screening with nurse navigator calls.

Although there are different modes of colorectal screening endorsed by USPTF as adequate for screening, most patients that were screened chose colonoscopy. Out of two hundred

one charts reviewed n=201, fifty-five (32.9%) were screened using colonoscopy and one (0.6%) individual was screened using fecal immunochemical test (FIT).

Discussion

This study was able to evaluate the effect of nurse navigator calls on CRC screening in primary care practices in Louisville KY. The aim was to determine rates of colorectal screening in the primary care setting, and the effectiveness of nurse navigators in increasing colorectal screening. The project in particular sought to determine the if the eligible patients completed screening after they received a call from the nurse navigator and what types of screening modalities were chosen.

Screening rates in this Louisville healthcare institution were still below the national average. According to the CDC, the current national colorectal screening rates is estimated to be at 67.3/% (CDC,2018). The *Healthy People* 2020 initiative is to have 70.5 percent of the eligible population up-to-date with CRC screening by the year 2020 (Healthy People 2020,2018). This study revealed an overall low CRC screening rate at 44.6%. In 2018, the screening rates at this Kentucky institution were estimated to be at 40 percent (J. Flynn, personal communication February 2018).

The study results for nurse navigator assisted screening are consistent with the literature. Current research demonstrates that the use of nurse navigators and their contact with patients is effective to increase colorectal cancer. According to Rhodes et al (2018), nurse navigators led to an increased percentage of patients that completed their screenings by colonoscopies and were fully prepared for the screening. In the Rhodes et al (2018) study, ninety percent of patients completed screening when contacted by the nurse navigator. This research is consistent with

these study findings in that the nurse navigators helped increase screenings, but at a lower rate than the Rhodes study.

The most noticeable discovery in this study was that most of the patients did not receive a call from the nurse navigator specifically for CRC screening. The nurse navigator called the patients for other medical problems such as post hospitalization follow up and medication reviews. The study noted that only a small number of patients received a call from the nurse navigator for CRC screening purposes. It is unclear if the nurse navigator's job description in the primary care setting does not emphasize calling eligible patients that meet screening criteria. Based on the findings of this study, specially trained nurse navigators who contact eligible individuals for CRC screening could help increase screening rates at this mid-western region institution.

 Another interesting finding was the large number of patients who completed CRC screening without receiving a call from the nurse navigator. It would be interesting to note what motivated these individuals to complete their screening. Did these patients have high self-efficacy, strong social support or increased self-confidence? The Pender's Health Promotion Model has been highlighted as efficient for this kind of behavior. Being able to identify those most likely to screen without prompting might be beneficial for nurse navigators as the nurse navigators would then focus more of their time to other patients who need more encouragement to complete screening. Overall colorectal screening rates could therefore improve if only the people that require to be contacted by the nurse navigators received the phone call. These two incidental findings indicate there is need for nurse navigators in this organization to have specific job descriptions geared toward increasing CRC screenings.

The study also found that there were frequent documentations by providers that the patients were up-to-date with screening but there was no documentation of what type of screening was done. CRC screening was often documented based on patient's verbal reporting that they had completed the screening.

Inadequate documentation is concerning in that it is then not clear when these individuals are due for rescreening. Different modalities require different time period for rescreening. When the modality is unknown, the due date for screening is likewise unknown. Without proper screening, patients may suffer the consequences of ending up with colorectal cancer when it could have been caught on time and treated promptly. An additional problem with inadequate documentation by providers is that it is falsely reported in the organizations quality improvement and thus the screening rates are skewed

Cost Analysis

In this current age of increased demand for every healthcare dollar, program accountability for return on investment is crucial in the endurance of the nurse navigation program, requiring cost analysis (Strusowski et al., 2017). The calculated cost associated with nurse navigator implementation is focused on the salary, health benefits, and training of the nurse navigator. The first-year expenses would be expected to be higher, due to the training required for the nurse navigator at that time. The starting salary plus health benefits including medical, and vision coverage for the nurse navigator is approximately $74,382/year for a full-time position in a primary care office in Louisville Kentucky (pay Scale,2018). The many benefits of utilizing the nurse navigator outweigh the costs. Estimated reimbursement for an institution for keeping 20 patients healthy with 10 who gets a FIT test and 10 who get a screening colonoscopy,

is approximately $221,926 (CMS, 2018). Conservatively, the institution would have a gain of $146,000. If the nurse navigator was able to encourage more that 20 patients in a year to get CRC screening, the gain would easily be larger and he or she would be able to pay for him or herself.

Timely screening results in better patient outcomes and thus elevates patient satisfaction scores. Timely screening is the expected benefit of assigning a nurse navigator for colon health. As previously mentioned, early detection and treatment translates to less costly treatment and better outcomes (Gerves-Pinquie et al., 2018). The nurse navigator is critical in advocating for timely screening, treatment and increased overall quality of care. The use of nurse navigators for this purpose is both economical as well as worth of the investment.

Limitations

There were multiple limitations identified during the study which may affect generalizability. First, although the charts were randomly selected, there seemed to be a bias toward one primary care practice in the eastern part of Jefferson county where most of the patient's records were from. In addition, the population was 95% Caucasian which is not representative of the Jefferson county population. According to the US Census bureau, there are approximately 25% African Americans in Jefferson county and this study consisted of 5% of African Americans (US Census Bureau, 2018).

Since the sample is not representative of the greater Louisville area, the results the results cannot be generalized beyond the sample. Another limitation is the sample size of 201 participants. A larger number of participants may have found more significant relationships. A third limitation was the absence of CRC screening modality in the medical record

documentation. The inadequate documentation limited the evaluation of whether screening was up-to-date or when the next screening was due. This may have affected the calculated screening rates for this study. Lastly, it was unclear if any confounding factors influenced people to get screened and therefore it is possible that confounding factors not measured in this study affected the screening rates.

Recommendations for Practice and future studies

Implications for further study on this topic in the same or different health institution should include ways to identify patients that complete screening without receiving a call from the nurse navigator. It may be helpful to know what motivates these patients to complete screening on their own. What modifying, and/or individual factors influence CRC screening completion? For example, is their self-efficacy higher, do they perceive or define health as important factor in their life or is their education and socio-economic status higher? Delineating patients who are likely to complete screening on their own could result in the nurse navigators concentrating their efforts on those most likely to need their assistance. The use of Health Promotion Model by nurse navigators contacting the unscreened patients could increase nurse navigator efficiency. More research is needed in this area.

It is not helpful when the modality used for screening is not documented. When modality is not documented appropriately, false screening reports may be generated. There is a need to educate providers to include the mode used for screening when documenting in the electronic medical record (EMR).

As nurse navigators have different job descriptions, it would be important and beneficial to change the job description to reflect CRC screening. Ideally a nurse navigator dedicated to

CRC would benefit the patients and the institution. Studies related to screenings such as breast and lung cancers indicates that the use of nurse navigators specifically trained in these areas increased screening significantly (Rosario, Mckinney & Alcott, 2016). Nurse navigators well versed with colorectal cancer and required screening can keep eligible patients engaged and educated on benefits of screening (Hermann et al, 2018). The study institution has CRC screening rates less than the national average. Dedicated nurse navigators could improve screening rates and ultimately may be able to save lives

Conclusion

Colorectal cancer can be prevented by routine screening. The goal of this study was to demonstrate the impact of nurse navigators in improving colorectal screening. Colorectal screening is covered at no cost to average or at-risk patients aged 50-75 years by most private and public insurance carriers. According to Ali-Faisal et al, (2017), the increase in colorectal screening rates helps reduce the morbidity and mortality rates from colorectal cancer. The use of nurse navigators is effective in educating patients to increase screening compliance. The findings from this study support the effectiveness of the nurse navigator in CRC screening. Increasing the number of nurse navigators in the primary care setting who focus on contacting and educating eligible patients about the benefits of screening could significantly increase screening rates.

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Table 1. Demographic characteristics of the study sample ($N = 201$)

	n (%) = 200
Age	
55-60	59 (29.4)
66-70	44 (21.9)
61-65	42 (20.9)
50-54	36 (17.9)
71-75	20 (10.0)
Gender	
Female	104 (51.7)
Male	97 (48.3)
Race/Ethnicity	
Caucasian	195 (95.5)
African American	9 (4.5)
Health Insurance	
Medicare	95 (47.3)
Private	60 (29.9)
Medicaid	37 (18.4)
No Insurance	9 (4.5)
Nurse Navigator Call	
No	180 (90)
Yes	20 (10)
CRC screening chosen	
None	111 (66.5
Colonoscopy	55 (32.9)
Other	1 (0.6)
Screening Complete	
No	112 (55.7)
Yes	89 (44.3)

Table 2

Comparison of nurse navigator call and CRC screening completion