Evaluating Prostate Cancer Knowledge in Rural Southeastern Indiana County

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Abstract

Introduction: Prostate cancer is the most prevalent form of non-cutaneous cancer in the male population and a major cause of death in men. The purpose of this study was to evaluate knowledge of prostate cancer screening rural men in Ripley County, Southeastern Indiana. **Methods**: An 11 item survey was developed and distributed in two family practices, multiple retail sites, and eateries located within Ripley County, Southeastern, Indiana **Findings:** A convenience sample of 59 men over the age of 50 was recruited by the primary investigator (PI). Through descriptive analysis, the data demonstrates men in Ripley County, Indiana are aware of current prostate cancer screening guidelines. Although they indicated knowing updated information regarding prostate cancer screening, many have not obtained screening. Study findings point to the need for educational programs designed to improve prostate cancer screening rates in this population.

Conclusion: Results demonstrate men state they have enough information regarding prostate cancer screening, however many have not obtained screening. The influence of the healthcare provider, spouse, and the men obtaining prostate cancer screening were found to have relationships.

Keywords: prostate cancer screening, survey, theory, models

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Prostate cancer is the most prevalent form of non-cutaneous cancer in the male population and a major cause of death in men (American Cancer Society [ACS], n.d.). Interventions have been conducted to detect prostate cancer at an earlier stage so that it may be cured or prevented from spreading. Incidence rates increased in the 1990s mainly because of prostate cancer screening (National Cancer Institute [NCI], n.d.). Despite efforts to promote prostate cancer screening to detect abnormalities of the prostate, many men do not obtain prostate cancer screening, consistent with current research.

There is much controversy surrounding prostate cancer screening guidelines and a national consensus, but many medical organizations have made statements that include *Informed Decision Making* (*IDM*) (Driscoll et al., 2008). *IDM* occurs when the patient understands the disease for which he is being screened, the benefits, the risks, and the options available after being screened (Rimer, Briss, Zeller, Cahn, & Woolf, 2004). O'Dell, Volk, Cass, & Span, (1999) demonstrated that knowledge deficit is a barrier to men seeking prostate cancer screening, making an informed decision, and seeking treatment.

Populations at Risk

Each year one in every six American males is diagnosed with prostate cancer (American Urological Association [AUA], 2013). The incidence increases with age, with 50% of men being diagnosed before the age of 68 (ACS, n.d.). Those from rural populations are found to be more at risk and less informed than men from urban populations (Driscoll et al., 2008). The literature demonstrates there are differences in cancer screening and staging among rural populations of men. In rural populations, cancers tend to be diagnosed at a more advanced stage (Gosschalk & Carozza, 2003). Rural Americans have reported less access to healthcare and less involvement in

cancer screening detection programs (Casey, Call, & Kinger 2001). Men in rural areas have both a higher incidence and mortality than men in urban areas or where more barriers exist to healthcare (Matterne & Sieverding, 2008). Existing barriers include geographic isolation and lack of healthcare providers (Matterne & Sieverding, 2008; Weinrich, 2006). Rural populations of men have also been found to be more at risk and less informed regarding prostate cancer screening (Driscoll et al., 2008). A nursing research study found rural men are more likely to present to their healthcare provider with prostate cancer in advanced stages of the disease than their urban counterparts (Weinrich, 2006).

Prostate Cancer Screening

Current guidelines no longer recommend routine screening for men 40 to 54 years of age (AUA, n.d.). If a there is a positive family history of the prostate screening would be recommended at an earlier age (ACS, n.d.; AUA, n.d.). Prostate cancer in men under 40 years is rarely diagnosed, but is more aggressive in earlier ages (AUA, n.d.). Prostate cancer is asymptomatic and usually presents with symptoms when the cancer has grown and affects the urethra or invades the sphincter, resulting in lower urinary symptoms (Hamilton & Sharp, 2004).

As of 2013 the AUA and the ACS recommend both the prostate specific-antigen (PSA) blood test, and the digital rectal exam (ACS, n.d.; AUA, n.d.). The United States Preventative Task Force (USPTF) reports screening can detect some prostate cancer; however, each clinician is advised to use an individualized approach (USPTF, 2008). Both the benefits and harms of screening should be presented to each patient (USPTF, 2008). Knowledge of prostate cancer, risks, and benefits are significantly low, with less than 30% of men answering prostate knowledge questions correctly (McCormack et al., 2009). The effect on mortality of prostate cancer screening that utilizes both the PSA test and the digital rectal exam is still unknown.

However, the PSA test and digital rectal exam are the current evidence- based methods recommended for early–stage prostate cancer detection (Liberatore, Nydick, Daskalakis, Kunkel, & Myers, 2009).

Informed Decision Making

Research demonstrates why prostate screening is important and why rural populations of men are at greater risk. Although there is no consensus on prostate cancer screening practices, most medical organizations declare that *IDM* is important for good practice (ACS, n.d.; Rimer et al., 2004). The USPSTF recommends that all physicians use *IDM*, which includes discussion of the patient's preferences, in order to individualize care (USPSTF, 2008).

In a quantitative, quasi-experimental study, the results demonstrated men who attended prostate screening educational events are more likely to be married, have more than a high school education, and a greater desire to obtain more information after the presentation (Arras-Boyd, Boyd, & Gaehle, 2009).

The role of the healthcare provider is a positive influence in a man's decision to be screened. A study which examined 63 physicians and the pre-screening discussions for *IDM* found that the majority, 71.4%, reported having pre-screening discussions with their patients and discussed the benefits and harms of screening (Linder et al., 2009). However, two styles were found to influence *IDM*; some allowed the patients to decide and others recommended the patient to seek screening (Linder et al., 2009).

A qualitative study examined barriers and facilitators to physicians having prostate cancer screening discussions with their patients (Guerra, Jacobs, Homes, & Shea, 2007). Barriers were reported, which include lack of screening discussion secondary to treatment of co- morbid conditions, physician forgetfulness, patient refusal of screening, and negative attitude of

physician toward screening (Guerra et al., 2007). Lack of trust in their healthcare provider was also found to be a barrier in a man's decision to obtain prostate cancer screening (Jones, Steeves, & Williams, 2009). In contrast, facilitators to screening were identified as patient's request for screening information, and physician's favorable attitudes regarding screening, and men with a family history of prostate cancer (Guerra et al., 2007). Jones et al. (2009) also found family support was a key facilitator in men obtaining prostate cancer screening.

Through systematic reviews of the literature and analysis of the research studies, gaps have been found in research relating to lack of knowledge in order to make an informed decision regarding prostate cancer screening. One study found men who attend more formal educational events, have more higher education, attend educational seminars, and wanted more information about prostate cancer screening (Arras-Boyd et al., 2009). The investigators recommended future studies should explore the question where do less educated men get their information regarding screening (Arras-Boyd et al., 2009). Other studies found that married men were more likely to be informed about prostate cancer screening (Plowden, 2006). This information leaves a gap regarding men who are not married and men who are less informed. In addition, limited medical research exists exploring the knowledge of rural populations of men (Arras-Boyd et. al, 2009; Avorn, Kantoff, Wang, & Levin, 2004; Krist, Woolf, Johnson, & Kerns, 2007; McCormack et al, 2009).

In a study utilizing the Prostate Cancer Questionnaire(PCQ), it was found that advanced practice nurses must perform needs assessments and use these in planning and implementing educational interventions related to prostate cancer (Nivens, Herman, Weinrich, & Weinrich, 2001). This was the only study by nurses addressing needs assessments in regards to prostate cancer screening.

Identification of Problem

There are various implications for a project as the result of the current research. A needs assessment through a community survey is a good starting point for assessing needs with a high risk population (Witkin & Altschuld, 1995). Implications for nursing practice are defined in the study *Cues to Participation* (Nivens et al., 2001). There is a need for healthcare professionals to know what influences rural men to obtain prostate screening. Clinical practice has long held the assumption that men will seek screening based on prior sources of information, but little has been done to prove this assumption. Although many previous studies found correlations between different types of information and cancer, there were no studies which specifically addressed prostate cancer, demographics, and sources of information as having direct relationships (Nivens et al., 2001).

Methods

Study Design

A needs assessment survey was used for this project. This survey guided the evaluation of the relationships among prostate cancer screening and men's knowledge in rural Ripley County, Southeastern Indiana. For the purpose of this project, the following objectives were examined: 1) Evaluate men's knowledge about prostate cancer screening. 2) Evaluate whether men feel they have enough information regarding prostate cancer screening. 3) Evaluate where men obtain information, in order to find the most effective modality to educate rural men. 4) Evaluate whether men have obtained prostate cancer screening, or if they plan to. This study was approved by the Institutional Review Board at the University of Cincinnati (IRB protocol number 12011101).

Sampling

Criteria for inclusion for the study were men who: (a) were at least 50 years of age or older, (b) resided in Ripley County, (c) were English speaking and able to read and write in English, and (d) consented to complete the questionnaire after being provided the flyer and information sheet. Criteria for exclusion were men who: (a) were non-English speaking (b) were cognitively impaired, (c) were illiterate, and (d) under 50 years of age. Ripley county Indiana is rural with a population 25,583 and has no metropolitan statistical areas (United States Census Bureau, n.d.).

Methods for recruitment included flyers, posters, and the principle investigator (PI) asking for participation in both the family physician offices, and the retail shops and eateries within Ripley County, Indiana. Written permission was obtained by hospital administration prior to recruitment at the doctors' offices and verbal permission was obtained from the eateries, and retail establishments. Once permission was granted posters were placed on the walls of the two physician offices, and secured in front of a table at the eateries and retail establishments. The posters and flyers provided information about the survey and personal contact information through telephone, or email communication of the PI.

The participants who desired to complete the survey were given an information sheet explaining the survey's purpose, and criteria for inclusion, exclusion, risks, and benefits of the survey. The participants were informed that participation was voluntary and they had a right to refuse or withdraw at any time. Participants were assured that all results would be kept anonymous, with no identifying individual information included. Those desiring to participate in the survey completed the form and placed it in a lock box on-site. A pamphlet from the American Cancer Society (ACS) with the new prostate cancer guidelines was given to the men after completion of the survey.

Measures

The instrument used in the study was formulated by the PI and the capstone committee members. The survey consisted of 11 items to measure prostate cancer screening guidelines knowledge, whether men have obtained screening or plan to and influences to seek screening. The last question asked if men felt they had enough information to make a decision on whether or not to get personally screened. Face validity of the survey questions was measured by asking the committee members to evaluate whether the questions were well constructed and useful. One of the expert committee members made recommendations to change the types of questions and how the questions were worded before the survey was conducted. Four of the responses were scored True/False, one Yes/ No, and two select all that apply. Three were arranged on a 5-point likert scale with "1" indicating strongly disagree and "5" indicating agree. A demographic portion provided information on race, marital status, education, computer access, internet service, employment status and residence. Knowledge of prostate cancer screening was evaluated by examining whether men in rural, Ripley County, Indiana understood the guidelines and if they were aware the guidelines had recently had changed. Decision making influences including information from doctors or nurse practitioners, as well as pressure by a spouse were evaluated. Participation in screening and where the men go to get their information was evaluated. Demographic data was used in comparison to each of the prostate cancer screening knowledge questions. These comparisons included use of descriptive statistics along with non-parametric evaluation using Chi-square Test of Association.

Results

Approximately four thousand men live in the Ripley County in southeastern, Indiana (http//www. IN.gov). Margaret Mary Community Hospital reports that in 2011 only 106 attended free prostate cancer screening (T. Dwenger, personal communication, October 10, 2011). A total number of 59 men living in Ripley County, Indiana were recruited and completed the survey. Table 1 depicts demographic information on the sample where a majority owned a personal computer with internet access (68%). The age of the survey participants ranged from 50-88 with a mean age of 64 years (s.d. = 10.72).

Table 1

Demographic Characteristics of Survey Respondents (n=59)

Demographics	N (Percentage)
Race	
Caucasian	59 (100 %)
Marital Status	
Single	0 (0%)
Married	54 (92%)
Divorced	1(2%)
Widowed	3 (5%)
No Response	1 (2%)
Highest Level of Education	
Less than High School	0 (0%)
High School Graduate	32 (54%)
Associate Degree	6 (10%)
Bachelor Degree	12 (20%)
Master Degree	4 (7%)
Doctoral Degree	5 (9%)
Own a Home Computer and Maintain Internet Service	
Yes	38 (64%)
No	21 (36%)
Employment Status	
Full Time	25 (42%)
Part Time	2 (3%)
Unemployed	1 (2%)
Retired	31 (53%)
County of Residence	
Ripley	59 (100 %)

Data obtained from the sample were analyzed as group data. Approximately one third (37%, n = 59) of the participants indicated that they knew what the prostate cancer guidelines were; however, well over half answered false to knowing that the guidelines had recently changed (66%, n = 59). Over half (54%, n = 59) of the participants indicated that they had an appointment to obtain prostate cancer screening. Approximately one third (36%, n = 59) have obtained prostate cancer screening. Approximately one half (55%, n = 59) of the participants indicated they plan on talking to their healthcare provider this year about getting prostate cancer screening. In addition, the majority (83%, n = 59) believed men over 50 years of age should obtain prostate screening every year and well over half (66%, n = 59) believed some men over the age of 50 do not have to obtain prostate cancer screening.

For those indicating why they obtained prostate cancer screening, approximately one third (38%, n = 59) of the men have obtained prostate cancer screening because their doctor told them to or they knew it is the important. Another influence was marital status. Participants noted that their spouse requested them to obtain screening (19%, n = 59). The majority of men (83%, n = 59) felt that they had enough information regarding prostate cancer screening to make a decision personally on whether or not to have to obtain screening.

Table 2

Knowledge (n=59)

Knowledge Response	N(Percentage)
I know what the guidelines for prostate screening are.	
Strongly disagree	12 (20%)
Disagree	3 (5%)
Neither agree or disagree	11 (19%)
Agree	27 (27%)
Strongly Agree	6 (10%)
I have an appointment to get my prostate cancer screening this year.	
Strongly disagree	13 (22%)
Disagree	7 (12%)

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Knowledge Response	N(Percentage)
Neither agree or disagree	7 (12%)
Agree	16 (27%)
Strongly Agree	16 (27%)
I plan on talking to my healthcare provider about getting a prostate cancer screening this year.	
Strongly disagree	12 (20%)
Disagree	3 (5%)
Neither agree or disagree	3 (5%)
Agree	18 (31%)
Strongly Agree	14 (24%)
I have gotten my prostate cancer screening this year.	
Yes	21 (36%)
No	38 (64%)
I have gotten my prostate cancer screening because:	
A nurse practitioner told me	1 (1%)
A doctor told me	22 (37%)
My wife told me	9 (19%)
I have a family member with prostate cancer	2 (4%)
The local hospital told me to	0 (0%)
I know this is important to do	14 (29%)
I believe all men over the age of 50 should get prostate cancer screening every year.	
True	48 (83%)
False	10 (17%)
I believe men over the age of 50 should have a discussion with a doctor or nurse practitioner about prostate cancer screening before getting screened.	
True	51 (88%)
False	7 (12%)
I know that the medical guidelines for prostate cancer screening have recently changed.	
True	20 (34%)
False	38 (66%)
I believe it is okay for some men over the age of 50 not to have prostate cancer screening.	
True	20 (34%)
False	38 (66%)
If I need information about prostate cancer screening, I would:	
Ask my doctor	31 (81%)
Ask my nurse practitioner	2 (5%)
Ask my friend	0 (0%)
Ask my wife	1 (3%)
Go to the library	0 (0%)
I feel like I have enough information about prostate cancer screening to make a decision about whether to personally have or not have my prostate screened.	
True	49 (83%)
False	10 (17%)

Discussion

The survey used in the needs assessment was developed to evaluate men's knowledge of prostate cancer screening. Non-parametric testing confirmed a statistically significant relationship in men's education level and participation of prostate cancer screening ($p = .036$). A significant probability was found with married men and the physician influence to why they obtained screening ($p = 0.05$). An evaluation of married marital status and the belief that men over the age of 50 should be screened yielded a significant statistical probability ($p = 0.028$).

The majority of men were married and indicated that they have obtained screening because of their healthcare providers influence or spousal influence. A significant relationship also exists between married men and the belief that every man age 50 years and older should have a discussion with their healthcare provider before obtaining screening. Education and screening demonstrated a significant relationship as well. Plowden (2006) in a qualitative study exploring factors influencing a man's decision whether to obtain screening, identified knowledge as a motivator. These findings agreed with the importance of healthcare provider recommendations found earlier in the review of literature (Linder et al., 2009; Arras-Boyd et al., 2009).

The strength of this study was an adequate sample size was to perform chi-square testing. Limitations of this study include no construct validity or reliability on the survey. Because associative relationships were reported, a potential for confounding variables may exist because of the association among the variables. Additionally, the findings of this study cannot be generalized beyond the sample of men in Ripley County, Indiana because the study was confined to a single region in Southeastern, Indiana. Another limitation was the survey questions did not measure knowledge level and was not able to define the education level that made obtaining

screening significant. The survey did not ask the men if they had a healthcare provider or health insurance. There is also the risk of the questions being answered honestly with self-reporting.

Conclusion

Men should not be unaware if the risks and options for early detection of prostate cancer (ACS, n.d.; AUA, n.d.). Nurses and healthcare providers in collaboration with the community stakeholders must identify the best delivery methods for rural populations of men to obtain prostate cancer screening education. Through the use of a needs assessment, information was obtained as a basis to evaluate if men in Ripley County, Indiana have knowledge of prostate cancer screening or if a need exists for a community education program. An effective needs assessment can be used as a basis for comprehensive planning of programs (Issel, 2009). A formal planning team is a critical part in planning programs. Stakeholders such as hospital administration, men, spouses, primary and secondary healthcare providers, and community members in Ripley County, Indiana should be included to establish goals and action plans.

Men in Ripley County, Indiana indicated they had knowledge of prostate cancer screening guidelines. A relationship was demonstrated between the healthcare provider and why the men obtained screening. An additional influence was found to be the spouse. Men seeking more information regarding prostate cancer screening indicated they would ask their physician or nurse practitioner. Healthcare providers should provide education regarding prostate cancer screening risks and benefits so that men can make an informed decision.

Additional studies are needed to expand on these findings with open ended questions regarding what men actually know and understand concerning prostate cancer screening. Interventions that include a spousal or healthcare influence should be developed and tested. Future research is needed to survey family members and friends to ascertain if they are a positive

influence or a trigger to the man's participation in a community education programs. Assumptions should not be made that men already possess knowledge regarding their health. Men must be adequately exposed to information including the risks and benefits and be able to make a self-directed informed decision regarding prostate cancer screening. Advance practice nurses must be advocates to their patients and assess their knowledge thoroughly to provide for IDM. Continuous quality improvement is integral to identify which educational activities are associated with effective promotion of IDM in this rural population of men.

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