The Pennsylvania State University

College of Medicine

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THE ATTITUDE-SOCIAL INFLUENCE--EFFICACY THEORETICAL MODEL:
APPLICATION TO CANCER SCREENING PROGRAMS AMONG MEDICALLY
UNDERSERVED MEN

A Thesis in
Public Health Sciences

by

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ABSTRACT

Introduction: Prostate cancer is the second leading cause of cancer deaths among men in the United States and affects African Americans at a disproportionate rate. There is controversy surrounding the screening guidelines for prostate cancer, but health care professionals agree on the recommendation that men make an informed decision about getting screened for prostate cancer. Objective: The purpose of this study was to use the results from the Predicting Prostate Cancer Screening Attendance among Underserved African American and White Men Using the Attitude-Social Influence-Efficacy Model study and the Attitude-Social Influence-Efficacy theoretical model to make adaptations to an educational program to improve informed decision making regarding prostate cancer screening among medically underserved men. Methods: The steps of the intervention mapping protocol were used to make adaptations to the Pennsylvania Cancer Education Network’s educational module and survey. These adaptations improved the informed decision making component and reflected the three psychosocial factors (attitude, social influences, self-efficacy) relating to the Attitude-Social-Influence--Efficacy model. Conclusion: The Attitude-Social Influence-Efficacy theoretical model is a useful tool for helping to guide intervention mapping and plan interventions that will ultimately improve participants’ knowledge, attitudes, and self-efficacy about informed decision making and also encourage participants to utilize their significant others, social support, and social contacts to help them with making an informed decision.
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Chapter 1

INTRODUCTION

Prostate cancer is the second leading cause of cancer deaths among men in the United States and affects African Americans at a disproportionate rate.\(^1\) There is controversy surrounding the screening guidelines for prostate cancer, and health care professionals cannot agree on precise recommendations.\(^2\) Until better methods for screening and treating prostate cancer are developed, health care professionals recommend that men make an informed decision about getting screened for cancer.\(^1\) Therefore, cancer education is necessary to ensure that individuals know how to make an informed decision for prostate cancer screening.\(^3\) The aim of this study is to adapt an intervention program in order to improve informed decision making among underserved men by focusing on their attitudes, social influences, and self-efficacy expectations.

Background

Prostate Cancer Screening Guidelines

The American Cancer Society’s guidelines for prostate cancer screening were updated in 2008 to include significant changes.\(^4\) Before 2008, the guidelines stated that all men should get tested for prostate cancer at age 50, African American men 45 years and older and high risk men should get tested, and men at higher risk could begin testing at age 40.\(^4\) Currently, the guidelines recommend that “asymptomatic men with at least a 10-year life expectancy be given the opportunity to make an informed decision about being screened for prostate cancer.”\(^4\) The guidelines also state that men should not be screened unless they have been given information about the uncertainties, risks, and potential benefits of prostate cancer screening. For men who are at average risk for prostate cancer and expected to live at least ten years, discussion about screening is recommended to take place at age 50.\(^4\) For men who are at high risk, which is defined as being African American or having a first-degree relative diagnosed with prostate cancer at an age younger than 65, the American Cancer Society recommends discussing screening at age 45.\(^4\)
Finally, for men at higher risk, which is defined as a person who has more than one first-degree relative with prostate cancer at an early age, the recommended age is 40.4

Other screening recommendations include those from medical organizations, such as the American Urological Association, the American College of Physicians, the Center for Disease Control, and the United States Preventive Services Task Force.5 The American Urological Association, American College of Physicians, and Center for Disease Control guidelines all coincide with the guidelines from the American Cancer Society and recommend that men use informed decision making to determine whether or not they should be screened for prostate cancer.5,6 However, the United States Preventive Services Task Force updated its recommendations in 2012 and now advises men to not get screened for prostate cancer based on the fact that there is no evidence that the benefits of the screening outweigh the harms.7 The prostate cancer screening guidelines are confusing and ambiguous, and men find it difficult to utilize these guidelines.5

Many barriers to prostate cancer screening exist among medically underserved men.8 These barriers include but are not limited to lack of access to health care, low socioeconomic status, lack of knowledge, fear, discomfort, poor patient-provider communication, distrust to medical profession, and lack of transportation.8 These barriers along with the vague screening guidelines prevent medically underserved men from making an informed decision as to whether or not he should be screened for prostate cancer.5,8 Therefore, it is vital to use an educational component when developing cancer screening programs.3

Cancer Education

Cancer education is important to ensure that individuals are fully informed and can learn how to decrease their risks for getting cancer, the importance of making an informed decision about getting screened, and ways to access different treatment options.3 The main objectives for education are to change knowledge, attitudes and behaviors, and skills. Integration of the principles of adult learning theory is vital to cancer education.3 The experiences, perspectives, and feelings of participants can
contribute greatly to the educational experience; hence, it is important to include activities and discussions so that individuals can share this information. Individuals have different learning styles and preferences; therefore, incorporating different modalities of learning is necessary in cancer education. The adult learning cycle (Figure 1) allows for participatory learning and includes: (1) experiencing, doing an activity or exercise together, (2) processing, or sharing observations and feelings about the experience, (3) generalizing, or examining the meaning of the experience, and (4) applying, or developing an action plan for real-life situations.

Figure 1-1: Adult Learning Cycle
Theory in Interventions

Theory can be best utilized for adapting educational modules and interventions, allowing for the design and evaluation of health behavior and health promotion interventions. By using theory in educational modules and interventions, we are able to better identify the barriers associated with participants not engaging in certain health behaviors.

Pennsylvania Cancer Education Network

This study adapts the Pennsylvania Cancer Education Network’s educational module. The Pennsylvania Cancer Education Network was an evidence-based, cancer control initiative in the commonwealth of Pennsylvania and funded by the Pennsylvania Department of the Health and the Center for Disease Control from 2006 to 2009. The Pennsylvania Cancer Education Network was created in order to address Pennsylvania’s disconcerting rate of invasive cancers. Colorectal, prostate, ovarian, and skin cancers accounted for 30 percent of invasive cancers diagnosed in Pennsylvania in 2006. The objective of the Pennsylvania Cancer Education Network was to educate the public about these cancers. Community-based education focused on the importance of cancer prevention and early detection and was available in all 67 Pennsylvania counties. The educational presentations ranged from brief 20-minute lectures to expanded seminars addressing one or more of these cancers and were free to attend. The Pennsylvania Cancer Education Network aimed to raise awareness, change attitudes, promote early detection, and ensure that all participants could participate in the education sessions regardless of their education or socioeconomic status. The ultimate goal of the program was to reduce the number of people who are diagnosed with late stage cancer and to reduce the number of deaths from colorectal, prostate, ovarian, and skin cancers in Pennsylvania.

2009 Attitude-Social Influence-Efficacy Prostate Cancer Screening Study

The study entitled Predicting Prostate Cancer Screening Attendance among Underserved African American and White Men Using the Attitude-Social Influence-Efficacy Model was conducted at the
Pennsylvania State University, College of Medicine in 2009. This study examined (1) motivating factors (social influences) for prostate cancer screening with education and the cognitive element of informed-decision making; (2) the role of social support in prostate cancer screening; and (3) the intention to be screened among medically underserved, low-income African American men of the recommended screening age of 50 years and older residing in Harrisburg, Pennsylvania.

**Study Schema** Community leaders were an integral part of this study. Research staff reached out to community leaders to aid in participant recruitment for the prostate cancer education sessions; recruitment began in March of 2009, with a pilot test in July and the education sessions occurring between August and September of that year (Figure 1-2). The community-based prostate cancer education sessions utilized the Pennsylvania Cancer Education Network’s educational module. Education and data collection instruments were intently reviewed by community leaders to ensure cultural sensitivity and appropriateness. Men were eligible to participate if they were of the prostate cancer recommended screening age range of 50 to 75 years old, or 40 to 75 years old if they were African American. The prostate cancer education and prostate screening survey pilot test included 11 men of the recommended screening age. A total of six education sessions were conducted between August and September, and consented participants were offered to attend the prostate screening within the month and also completed a one-time 37-item survey assessing their health behaviors, attitudes, beliefs, knowledge, motivating factors (social support), and intention to be screened for prostate cancer.
Survey Instrument. The survey was based on the Attitude-Social Influence- Efficacy, Theory of Planned Behavior and Health Belief Model theoretical frameworks. Direct measures of each construct (attitude, social influence and efficacy) were included in the 37-item survey. In addition, indirect measures of social influence were created consisting of the normative beliefs of important persons and the motivation to comply with that individual.

A direct measure of attitude toward prostate cancer screening was measured with four items corresponding to a personal evaluation of prostate cancer screening as being important, wise, necessary and acceptable. Social-influence was assessed with two items measured the individual’s subjective norm. Then, twelve items assessed the normative beliefs and the motivation to comply with six different referents (wife/partner, family members, friends, doctor, church, and presenters of the educational
Self-efficacy was determined with a single item where the individual rated their level of agreement with a statement that attending a free prostate cancer screening would be easy for them. Finally, intention was assessed using level of agreement with high intent to screen.\textsuperscript{12, 13}

\textit{Findings/Conclusions.} This study had five major findings (1) most participants indicated their significant other had informed them of the opportunity to be screened for free and gave them information important to their decision; (2) men who attended screening session without an education session were more influenced by their social contacts as compared to men who did attend the education session; (3) African American men were more likely to agree with the statement “my church thinks I should be screened” than white men (4) more African American men were in agreement with self-efficacy for screening than non-African American men; and (5) African American men reported having a positive attitude toward prostate cancer screening and most agreed with intention for attending free screening.\textsuperscript{12} The study concluded that a community-based targeted intervention with a church and social support component appears to have potential for improving prostate screening uptake among African American men in Pennsylvania.\textsuperscript{12}

\textbf{Purpose}

The purpose of this study was to use the results from the \textit{Predicting Prostate Cancer Screening Attendance among Underserved African American and White Men Using the Attitude-Social Influence-Efficacy Model} study and the Attitude-Social Influence- Efficacy theoretical model to make adaptations to an educational program to improve informed decision making regarding prostate cancer screening among medically underserved men.
Chapter 2
LITERATURE REVIEW

Prostate Cancer

What is Prostrate Cancer

Prostate cancer is defined as cancer that forms in tissues of the prostate.\(^2\) The prostate is a gland in the male reproductive system that is located below the bladder and in front of the rectum and is about the size of a walnut.\(^2\) Prostate cancer is the second leading cause of cancer deaths among men in the United States.\(^1,15\) In 2009, Pennsylvania had incidence rate of about 130.2 to 138.0 per 100,000 men, and a mortality rate of about 20.5 to 22.6 per 100,000 men.\(^15\)

The symptoms for prostate cancer vary from person to person, and some men do not have any symptoms at all.\(^2\) Some symptoms of prostate cancer include: difficulty with urination, frequent urination, pain or burning during urination, blood in the urine or semen, constant pain in the back, hips, or pelvis, difficulty emptying the bladder completely, and painful ejaculation.\(^2\)

Prostate cancer screening involves looking for cancer before symptoms begin showing.\(^2\) There are two main screening tests for prostate cancer, the digital rectal exam and the prostate specific antigen test.\(^2\) The digital rectal exam is performed by a doctor or nurse by inserting their finger through the rectum and feels the prostate through the rectal wall.\(^2\) By feeling the prostate, the examiner can determine if the prostate is enlarged or if the prostate has any lumps. The prostate specific antigen test is a blood test that measures the level of the prostate specific antigen in the blood.\(^2\) For men who have prostate cancer, the levels of prostate specific antigen can be higher but may also be elevated due to other factors or conditions that affect the prostate.\(^2\)

Prostate cancer screening can have both beneficial and harmful results.\(^2\) If a man chooses to get screened, negative results of the test may give him peace of mind.\(^2\) Screening will also allow for early detection and the ability to treat a potentially serious cancer. However, there are also many risks associated with screening and potential treatment.\(^2\) Over-diagnosis is a common issue with prostate cancer
screening and occurs when a non-harmful cancer is diagnosed.\textsuperscript{2} Many men with tumorous prostates will never develop symptoms in their lifetime and would not benefit from screening or treatment.\textsuperscript{2} False positive results are another major concern of prostate cancer screening, especially with the prostate specific antigen test which sometimes shows elevated levels even when there is no cancer.\textsuperscript{2} Over-diagnosis and false positive results lead to more invasive treatments and are associated with negative psychological effects.\textsuperscript{2} There are also many consequences that may result from treatment of prostate cancer, such as pain, infection, bleeding, impotence, or involuntary urination.\textsuperscript{3} One of the major concerns of prostate cancer screening, however, is that there is no convincing evidence that detecting early-stage prostate cancer through screening and treating the cancer decreases mortality.\textsuperscript{2}

All men are at risk for prostate cancer; however, age, family history, and race are three factors that have been found to increase a man’s risk for developing prostate cancer.\textsuperscript{2,17} Older men have a higher chance of getting prostate cancer, and although there is no specific gene that has been found to increase the likelihood of prostate cancer, a man with a direct relative (father, brother, son) who had prostate cancer is three times more likely to develop the disease himself.\textsuperscript{2,17} Prostate cancer has also been found to be more common in some racial groups as compared to others, and specifically affects African Americans at a disproportionate rate.\textsuperscript{16,17} Compared to white men, African American men have higher incidence rates of prostate cancer with 234.6 cases per 100,000 for African American men and 150.4 cases per 100,000 for white men.\textsuperscript{17} Furthermore, prostate cancer mortality among African American men is more than twice as high as the rate among white men with 54.2 cases per 100,000 African American men and 22.8 cases per 100,000 white men.\textsuperscript{17}

**Prostate Cancer Screening**

Previous studies have found that ethnocentric screening recruitment strategies with Afrocentric materials and participation of black culturally sensitive professionals as members working with the population, in order to establish trust, are motivators for African American men to be screened for prostate cancer.\textsuperscript{18} In addition, social influences have also been found to be key motivators for prostate
cancer screening. Webb et al. (2006) conducted a focus group study with African American men in Harrisburg, Pennsylvania, which conveyed that social influences, specifically the influence of females, were key motivators for participation in prostate cancer screening. Another study conducted in-depth interviews with African American men and white men with diverse educational backgrounds in order to compare how education, race, and screening status impacted men’s knowledge of prostate cancer screening. The major finding from this study reported that education, not race, is associated with prostate cancer and screening knowledge.

Informed decision making is the current guideline to follow when deciding whether or not to be screened for prostate cancer. According to the Center for Disease Control and Prevention, informed decision making includes: understanding the screening test (risks, benefits, and alternatives), understanding personal values and preferences, weighing the pros and cons of the test, clarifying decisional preferences, finding additional information, and finally, deciding on an action plan. As a result, there are several recommendations in the literature for interventions to improve people’s knowledge and skills to assist these individuals with informed decision making since many men are not using informed decision making in their decision to be screened. Drake et al. (2010) developed and pre-tested a prostate cancer screening informed decision making intervention based on the Ottawa Decision Support Framework and the Health Belief Model. The intervention was shown to improve informed decision making among African American men and provided sufficient evidence that informed decision making is an important component when developing interventions for cancer screenings.

**Theoretical Framework**

**Attitude-Social Influence-Efficacy Model**

The Attitude-Social Influence-Efficacy model was derived from the Theory of Planned Behavior, the Health Belief Model, and the Transtheoretical model and posits that an individual’s decision about a specific health behavior can be predicted by their intention to partake in that particular health behavior.
Furthermore, the model assumes that intention can be predicted by attitudes, social influences, and self-efficacy expectations. An individual’s attitude is a personal evaluation of one’s own knowledge regarding the behavior. Social influences include the people who are important to the individual making the decision and their beliefs as to whether they approve or disapprove of the behavior. These individuals may directly or indirectly influence the thoughts, feelings, and actions of the person who is making the decision. Lastly, self-efficacy, or perceived behavior control, is defined as an individual’s perceived ability to overcome environmental barriers that prevent the behavior. Therefore, targeting these specific psychosocial factors that predict intention can modify a person’s health behavior. The Attitude-Social Influence-Efficacy model has been used to identify factors that predict behaviors for cancer screening.

**Attitude-Social Influence-Efficacy Model Utilization**

Odedina et al. (2008) targeted African American men for prostate cancer and screening and utilized a theoretical model. This study used the Attitude-Social Influence-Efficacy model to identify that attitude was the primary determinant of prostate cancer screening behavior among African American men in Florida. In this intervention, however, study participants were not provided with information and skills to make an informed decision for screening and 3 out of 4 (78%) of the individuals went on to be screened. The study results may not be generalizable to the medically underserved, low-income African American men in Pennsylvania due to the different socio-demographic profiles between the two populations. The results from this study in particular guided Lidell’s study at the Pennsylvania State University to identify how attitude and subjective norms predict intention and screening for prostate cancer among medically underserved men in Pennsylvania.

The Attitude-Social Influence-Efficacy model was also used in other interventions. A study used to understand the factors influencing whether or not individuals in Yugana chose to receive voluntary counseling and testing for HIV found attitudinal beliefs, social influences, and self-efficacy expectations that are associated with voluntary counseling and testing for HIV based on the Attitude-Social Influence-
Efficacy model. Another study used the Transtheoretical model and the Attitude-Social Influence-Efficacy model to study the motives of pregnant women to either quit or to continue smoking. This study reported that depending on their motivational stage for quitting, women needed information on the consequences of smoking and quitting for themselves and their babies to create a positive attitude or required information on overcoming barriers that prevent these women from quitting in order to create greater self-efficacy.

**Attitude-Social Influence- Efficacy Model and Intervention Mapping**

Intervention Mapping provides health education program planners with a framework for developing an intervention by integrating theory, empirical findings from the literature, and information about the target population. There have been many effective interventions that use intervention mapping in the development and integrate the Attitude-Social Influence-Efficacy model. A study using intervention mapping to develop a program to prevent HIV among heterosexual migrant men found that it is feasible for the Municipal Public Health Service to use intervention mapping. Another study used intervention mapping to develop a self-management program for employees with a chronic disease. The findings from this study concluded that intervention mapping was useful in developing this program and suggested that intervention mapping is valuable for developing or adjusting interventions in occupational health care. Noordegraaf et al. (2012) also reported that the intervention mapping protocol used theory and evidence, proving to be valuable in developing an eHealth intervention to help empower gynecological patients to return to normal activities and work after surgery.
Chapter 3

METHODS

This adapted study utilizes the Lidell study results and the Pennsylvania Cancer Education Network prostate cancer education program. Adaptations were made using the Attitude-Social Influence-Efficacy theoretical model to improve informed decision making regarding prostate cancer screening among medically underserved men. The adaption methodology followed the six steps of intervention mapping protocol; intervention mapping has shown to be a successful and effective tool for program adaptation (Figure 3-1).

Figure 3-1: Steps of Intervention Mapping Protocol

1. Needs assessment
   • Assess health problems, population, determinants and context

2. Objectives
   • State expected changes
   • Specify performance and change objectives

3. Theory and practice
   • Identify theoretical bases
   • Select programme method and practical applications

4. Programme
   • Develop programme
   • Produce materials
   • Identify partners

5. Implementation
   • Identify implementation and adoption conditions

6. Evaluation
   • Describe programme outcomes and research questions
   • Specify evaluation design
Intervention Mapping Protocol

1. Performing a Needs Assessment

The first step of intervention mapping requires performing a needs assessment, which begins with assessing the health problem.29 The needs assessment included a comprehensive review of the literature using Google Scholar and PubMed search engines. Prostate cancer is the second leading cause of death among men, and African American men are affected at a disproportionate rate.1 From the literature, we know that social influences (particularly the influence of females), education, culturally-appropriate material, and the involvement of black competent and culturally-sensitive professionals as members working with the population were all found to be motivators for African American men to attend prostate cancer screenings.18,19,20,21 In addition, the five key points found from Lidell’s study provided valuable information as to what factors influence men’s intention to be screened.12 Furthermore, the steps for informed decision making, intervention mapping, and the incorporation of the Attitude-Social Influence-Efficacy theoretical model have been used to successfully develop several health behavior interventions.13,25,30,31 This information showed that there was a need to adapt the current public health interventions in order to further the public’s knowledge and skills for making an informed decision.

2. Defining Program Objectives

The second step of intervention mapping involves defining program objectives by identifying who and what will change as a result of the intervention; it is this step that provides the basis for the intervention.29 The Pennsylvania Cancer Education Network program has been shown to produce significant increases in knowledge and behavioral intent.11,12 Therefore, this intervention used the prostate cancer educational module from the Pennsylvania Cancer Education Network and the survey used in the Lidell’s 2009 study. This adapted study introduced a comprehensive informed decision making component to the educational module and survey that reflects the Center for Disease Control’s recommendations and the findings from Lidell’s study relating to attitudes, social influences, and self-efficacy expectations.2,10 The program objectives are to (1) increase knowledge about prostate cancer and
risk factors, (2) reduce any misconceptions about prostate cancer screening, (3) ensure that the
participants benefit from the educational session, regardless of educational level, (4) increase
understanding of current prostate cancer guidelines and the process of informed decision making, and (5)
to increase self-efficacy and help participants to be able to make an informed decision about prostate
cancer screening.\textsuperscript{10,11}

3. Identify Theory-Informed Methods

In step three, theory-informed methods are identified which will help change the behavior of the
individuals.\textsuperscript{29} In this study, the Attitude-Social Influence-Efficacy theoretical model was identified as the
theory that would help change the behavior of men. Using the Attitude-Social Influence-Efficacy model,
adaptations were made to the original educational module from the Pennsylvania Cancer Education
Network (Appendix A).\textsuperscript{11, 12} These adaptations included: (1) an expanded PowerPoint presentation to
include comprehensive informed decision making information regarding prostate cancer, (2) a group
activity and discussion to enhance informed decision making, and (3) the use of anatomical models in
informed decision making portion of presentation to support informed decision making discussion. The
survey (Appendix B) used in Lidell’s 2009 study included questions relating to attitude and self-
efficacy.\textsuperscript{12} Adaptations were made to include three questions to evaluate the effects of social influence
based on the Attitude-Social Influence-Efficacy model: (1) It is important to discuss screening with my
significant other, (2) It is important to discuss screening with my faith community, and (3) I am confident
that I can use informed decision making to make a decision about getting screened.\textsuperscript{10} The adaptations
made based on the Attitude-Social Influence-Efficacy model are summarized in Table 3-1.
### Table 3-1: Application of Attitude-Social Influence-Efficacy Model to Informed Decision Making for Prostate Cancer Screening\(^{10,22}\)

<table>
<thead>
<tr>
<th>Construct</th>
<th>Definition</th>
<th>Implications for informed decision making</th>
<th>Adaptations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Attitude</strong></td>
<td>A personal evaluation of one’s own knowledge regarding the behavior</td>
<td>Informed decision making requires that an individual understands prostate cancer and the consequences (including risks, limitations, benefits, alternatives); consider his preferences; and participate in decision making</td>
<td>• Added following information to PCEN* educational module: new screening guidelines, informed decision making definition and process, Elements of decision making, outcomes of informed decision making, barriers to screening</td>
</tr>
</tbody>
</table>
| **Subjective norms (Social Influences)** | Beliefs about whether individuals who are important to the person approve or disapprove of the behavior | Informed decision making may be influenced by factors such as social norms and perspectives of influential others (family, friends, providers, church) | • Added information to educational component regarding personal factors as part of informed decision making  
• Added questions to pre/post evaluation to determine influence of significant other and church |
| **Self-Efficacy (Perceived behavior control)** | An individual’s perceived ability to overcome environmental barriers preventing behavior | Informed decision making occurs when an individual understands the likely consequences of a decision, including risks, limitations, benefits, alternatives, and uncertainties | • Added discussion about barriers to educational module  
• Added activity to educational module to apply knowledge  
• Added question to evaluation to determine individual’s confidence in using informed decision making |

*PCEN: Pennsylvania Cancer Education Network*
4. Scope and Sequence of Components in Intervention

Step four describes the intervention components, including the scope and sequence of the different components.\textsuperscript{29} The adaptations for the educational module (Appendix C) include modification of the meaning and current guidelines for screening. In addition, nine slides were added to include information on informed decision making, elements of decision making (clinical factors and personal factors), outcomes of informed decision making, barriers to screening, discussion about overcoming barriers, and an activity to improve self-efficacy for informed decision making.

Of the new slides, slide one discussed screening and addressed the question “Should I be Screened,” which lead into the discussion about the current guidelines and informed decision making, based on the knowledge that screening is not necessarily right for everyone. Slide two was recreated and updated to reflect the new guidelines, including informed decision making, from the American Cancer Society.\textsuperscript{4} Slide three included information that was added to reflect the Center for Disease Control and Prevention’s defined steps for informed decision making.\textsuperscript{2} Shared decision making was also discussed on this slide, which described the process in which physicians and patients share in the decision-making process.\textsuperscript{22} The elements of decision making were explained in slide four and introduced clinical factors and personal factors that play a part in informed decision making.\textsuperscript{2} Before the next slide would be shown, the presenter would ask the participants to share what they felt were the benefits and harms of screening. Then, slide five showed the benefits and harms of screening as listed by the Center for Disease Control and Prevention’s were discussed in more detail and would include anatomical models to support this discussion.\textsuperscript{2} Slide six further discussed the accuracy of the two screening methods for prostate cancer (Prostate Specific Antigen and Digital Rectal Exam) and a specific example was given from the Center for Disease Control and Prevention’s decision guide.\textsuperscript{2} Slide seven discussed the roles of significant others, the religious community, social contacts, positive attitude, and self-efficacy as a part of the informed decision making process. Then, slide eight listed the possible outcomes of informed decision making and showed that based upon the individual, the informed decision making process may or may not lead to getting screened in the future.\textsuperscript{2} Then the presenter would ask the participants what barriers they would
encounter if they chose to be screened. After some responses from the participants, slide nine would be shown with a list of barriers that would be discussed in further detail and include the use of anatomical models to supplement the conversation.8 Also, the idea of social support would be introduced to help overcome some of these barriers. Lastly, slide eleven was a group activity that was added to the presentation to help improve self-efficacy for the informed decision making process. Two scenarios were given and the participants were asked to divide into small groups of three or four people to discuss which man they thought should be screened. Then, for the first scenario, personal factors (has diabetes, married, regularly attends a Baptist church, and has an aversion to the digital rectal exam) were introduced. The participants would then be asked to discuss how these personal factors influence this man’s informed decision making process.

The survey for the educational session already included questions relating to attitudes and self-efficacy. Therefore, two questions were added to the pre (questions 17 and 18) and post tests (questions 34 and 35) to evaluate importance of significant others and the individual’s faith community in their decision to be screened before and after the educational session. A third question was added to the pre and post tests (question 19 and 36, respectively) to assess the individual’s self-efficacy regarding the use of the informed decision making process. (Appendix D)

5. Specific Plan to Allow for Adoption and Implementation

Step five of the intervention mapping is the specific plan that will allow for adoption and implementation of the intervention.29 For this intervention, once the materials (the educational module and evaluation) are finalized, the same organizations that were used in Lidell’s 2009 study, which included: Salvation Army Drug and Alcohol Rehabilitation, YMCA Homeless Shelter, Kingdom Embassy Church, Dauphin County Work Release Program, and the Bethesda Mission, would be contacted to implement the adapted Pennsylvania Cancer Education Network program at these facilities. A free prostate cancer screening would also be offered soon after the educational session. In addition to the educational program and evaluation, two focus groups would be held with individuals who
participated in the educational session. During these focus groups, the participants would be asked to discuss their perceptions of the program and be asked specific questions about the slides. The participants will be asked if the adapted slides made the presentation more helpful, if they thought any of the slides should be removed, and if there was any information they would like added to the presentation.

6. Evaluation Plan

The final step of the intervention mapping is creating an evaluation plan. The plan for this intervention is to analyze all the new evaluations and specifically focus on the updated variables and outcomes. The suggestions and comments from the focus groups would also be used in the evaluation. The final adapted educational module and evaluation would then be presented to the Pennsylvania Department of Health for review, and after their review and approval, the intervention would be disseminated through their network.
Chapter 4

CONCLUSION

The screening recommendations for prostate cancer have changed in recent years; they have become controversial and inconsistent. However, most guidelines state that men should make an informed decision.\(^4\)\(^,\)\(^5\) Therefore, public health educational modules have to make changes and adaptations in order to properly inform the public on what exactly informed decision making is and how to make an informed decision about prostate cancer screening. The Attitude-Social Influence-Efficacy theoretical model is useful for helping to guide intervention mapping and plan interventions to improve participants’ knowledge, attitudes, and self-efficacy related to prostate cancer screening.\(^26\)\(^-\)\(^35\) The model will also encourage participants to utilize their significant others, social support, and social contacts to help them with making an informed decision.

Prostate cancer is not the only disease with ambiguous and changing guidelines for screening. Currently, there is much debate about women’s health screenings, particularly breast cancer.\(^36\) Therefore, informed decision making is becoming more of a necessity for individuals when trying to determine whether or not to be screened for a particular disease. This presents a challenge for evaluating public health interventions since there is no exact way to measure whether or not someone has made an informed decision about getting screened for cancer. In order to advance the field of decision making in cancer screening, the development and use of validated measures to assess the main outcomes of informed decision making is critical. Researchers and practitioners need to improve the development and testing of theory-driven methods which will help individuals reach an informed decision. The Attitude-Social Influence-Efficacy theoretical model and intervention mapping can be used to develop and adapt other screening interventions for different target populations and cancers, such as an educational intervention to improve informed decision making for women in Appalachia regarding breast cancer screening.
References

   Atlanta (GA): American Cancer Society; 2012.


   of Health, National Cancer Institute.


   480.


8. Consedine NS, Horton D, Unger T, Joe AK, Ramirez P, Borell L. Fear, Knowledge, and Efficacy
   Beliefs Differentially Predict the Frequency of Digital Rectal Examination Versus
   Prostate Specific Antigen Screening in Ethnically Diverse Samples of Older Men. *Am J


    (second edition).

11. Pennsylvania Cancer Education Network (PCEN). Fast Fact Sheet. Pennsylvania Department of
    Health. 2009.


What Is Prostate Cancer?

- Prostate cancer is an abnormal growth of cells in the prostate gland.
- This mass of unhealthy cells - known as a tumor - causes the prostate to swell and enlarge.
How Common Is Prostate Cancer?

- Prostate cancer is the most common cancer among men in the United States and in Pennsylvania.
- 9,435 cases were diagnosed in Pennsylvania in 2005.
- Prostate cancer is the 2nd leading cause of cancer death in men in Pennsylvania.
What Causes Prostate Cancer?

- The causes of prostate cancer are unknown, but several risk factors have been linked to the disease.

- A risk factor is anything that increases a person’s chance of getting a disease.
What Are the Risk Factors for Prostate Cancer?

- **Age**
  - Risk increases with age
- **Family History**
  - Father or brother had prostate cancer
- **Race**
  - More common among African American men
- **Diet high in fat**

African American Men Have Higher Risks for Prostate Cancer

- African American men have higher risk for getting and dying from prostate cancer.
  - 19% chance (1 in 5) of being diagnosed with prostate cancer.
  - 5% chance (1 in 20) of dying from prostate cancer.
Are There Any Factors that Protect You from Prostate Cancer?

- Eat a diet high in fruits and vegetables
- Live a healthy lifestyle with proper exercise, diet, and rest
- Do not abuse tobacco, alcohol, or other substances
- Get screened for prostate cancer

What Are the Symptoms of Prostate Cancer?

Be aware of any bodily changes.

- Having to rush to the toilet to urinate
- Weak urine flow
- Difficulty starting or stopping urine flow
- Pain or burning when urinating
- Need to urinate frequently, especially at night
- Blood in urine or semen
- Difficulty getting an erection (impotence)
- Feeling that the bladder does not empty completely
- Frequent pain or stiffness in lower back, pelvis, or upper thighs
What Can I Do if I Am at Risk for Prostate Cancer?

- If you are having any of the symptoms for prostate cancer, contact your doctor right away.
- Improve your lifestyle habits – diet, exercise, avoid addictive substances.
- Talk to a doctor or nurse about your risks for prostate cancer.
- If you are at high risk for prostate cancer, additional screening will be recommended.

Prostate Cancer Screening

What does “screening” mean?

- Screening is looking for signs of disease in people who have no symptoms.

"I like getting more information so I can ask my doctor more questions."
When Should I Be Screened for Prostate Cancer?

- Men beginning at age 50 should get tested for prostate cancer even if they do not have any symptoms.
- African American males 45 years and over and high risk men should get tested.
- Men at higher risk could begin testing at age 40.
- *Talk to your doctor* about your personal risk factors to help decide if you need to get tested sooner.

American Cancer Society Guidelines for Early Detection of Cancer

http://www.cancer.org

What Are the Tests for Prostate Cancer Screening?

**Screening Tests**

1) **Prostate-specific antigen (PSA) - blood test** – A blood test to measure and monitor tests the level of PSA.

2) **Digital rectal exam (DRE)** - Your doctor can actually feel the size of the prostate gland.
What If My Test Result Is Abnormal?

- Your doctor will suggest additional tests and physical exams to confirm or rule out prostate cancer

Other Tests That Diagnose Prostate Cancer

Biopsy

Ultrasound
Treatment Options for Prostate Cancer

- Surgery
- Radiation (Radiotherapy)
- Hormone Therapy
- Implant Radiation (Brachytherapy)
- Watchful Waiting

What Is Right for You?

- It is important to talk to your doctor about which option is right for you.
Prostate Cancer Can Be Treated

• The earlier the cancer is diagnosed, the higher your chance of survival.

• Your doctor will consider all the things that could affect the cancer and its treatment.

Prostate Cancer
SUMMARY

• The most common cancer in men
• Know the symptoms
• Many treatment options
• Screening is important because....

– The earlier cancer is found, the greater your chances of survival
Appendix B

Pennsylvania Cancer Education Network Survey
## Prostate Cancer Education - Learning About You

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>○ Male</td>
<td>○ Under 50</td>
<td>○ White</td>
<td>○ Grades 11 or less</td>
</tr>
<tr>
<td>○ Female</td>
<td>○ 50-54</td>
<td>○ African American</td>
<td>○ Grade 12 or GED (High school graduate)</td>
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<tr>
<td></td>
<td>○ 55-59</td>
<td>○ Hispanic or Latino</td>
<td>○ College 1 year to 3 years (Some college)</td>
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<tr>
<td></td>
<td>○ 60-64</td>
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<td>○ College 4 years or more (College graduate)</td>
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<td></td>
<td>○ 65+</td>
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</tr>
</tbody>
</table>

5. How would you describe your health?  
○ Excellent  
○ Very Good  
○ Good  
○ Fair  
○ Poor

6. Do you have any kind of health care coverage, including: health insurance, prepaid plans such as HMOs, or government plans such as Medicare?  
○ Yes  
○ No

7. What would you do if a health care provider told you to make lifestyle changes to improve your health?  
   *Lifestyle changes may include eating healthier, exercising more, reducing stress, cutting down smoking, or cutting down alcohol.*  
○ I would not consider changing  
○ I would consider changing  
○ I would start to make a few changes  
○ I would change for awhile  
○ I would change permanently

### Men - please answer all questions

8. Men with a father or brother with prostate cancer have lower risk of prostate cancer  
   ○ True  
   ○ False

9. African American men do not have higher risk of prostate cancer  
   ○ True  
   ○ False

10. A PSA blood test is one of the screening tests for prostate cancer  
    ○ True  
    ○ False

11. A digital rectal exam is one of the tests to screen for prostate cancer  
    ○ True  
    ○ False

12. Needing to urinate frequently, especially at night, is a symptom of prostate cancer  
    ○ True  
    ○ False

13. Difficulty starting or stopping urine flow is a symptom of prostate cancer  
    ○ True  
    ○ False

14. Compared to others my age, my chances of getting prostate cancer are...  
    ○ Much Less  
    ○ Less  
    ○ The Same  
    ○ More  
    ○ Much More

15. Prostate cancer is a serious disease  
    ○ Strongly Agree  
    ○ Agree  
    ○ Not Sure  
    ○ Disagree  
    ○ Strongly Disagree

16. Screening can identify early stage prostate cancer  
    ○ Strongly Agree  
    ○ Agree  
    ○ Not Sure  
    ○ Disagree  
    ○ Strongly Disagree

17. I am confident that I can get screened for prostate cancer  
    ○ Strongly Agree  
    ○ Agree  
    ○ Not Sure  
    ○ Disagree  
    ○ Strongly Disagree

18. I am worried that screening might be embarrassing or painful  
    ○ Strongly Agree  
    ○ Agree  
    ○ Not Sure  
    ○ Disagree  
    ○ Strongly Disagree

19. I intend to be screened for prostate cancer  
    ○ Strongly Agree  
    ○ Agree  
    ○ Not Sure  
    ○ Disagree  
    ○ Strongly Disagree

### Women - please answer # 8-13 only

14. Compared to others my age, my chances of getting prostate cancer are...  
   ○ Much Less  
   ○ Less  
   ○ The Same  
   ○ More  
   ○ Much More

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19. I intend to be screened for prostate cancer  
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    ○ Agree  
    ○ Not Sure  
    ○ Disagree  
    ○ Strongly Disagree
### 20. A Prostate-Specific Antigen test, also called a PSA test, is a blood test used to check men for prostate cancer. Have you ever had a PSA test?
- **No**
- **Yes** How long has it been since you had your last PSA test?
  - Within the past year
  - 1 year to less than 2 years ago
  - 2 years to less than 3 years ago
  - 3 years to less than 5 years ago
  - 5 or more years ago

### 21. A digital rectal exam is an exam in which a doctor, nurse, or other health professional places a gloved finger into the rectum to feel the size, shape, and hardness of the prostate gland. Have you ever had a digital rectal exam?
- **No**
- **Yes** How long has it been since you had your last digital rectal exam?
  - Within the past year
  - 1 year to less than 2 years ago
  - 2 years to less than 3 years ago
  - 3 years to less than 5 years ago

### 22. Has a doctor, nurse, or other health professional EVER told you that you had prostate cancer?
- **No**
- **Yes**

### Post-Presentation – Please tell us what you learned about prostate cancer
Men – please answer all questions
Women – please answer #23-28 only

<table>
<thead>
<tr>
<th>Question</th>
<th>True</th>
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<tr>
<td>23. Men with a father or brother with prostate cancer have lower risk of prostate cancer</td>
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<td>Strongly Agree</td>
<td>Agree</td>
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<tr>
<td>31. Screening can identify early stage prostate cancer</td>
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</tr>
<tr>
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</tr>
<tr>
<td>34. I intend to be screened for prostate cancer</td>
<td>Strongly Agree</td>
<td>Agree</td>
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### Please give us feedback about the presentation and brochures

<table>
<thead>
<tr>
<th>Feedback Area</th>
<th>Excellent</th>
<th>Good</th>
<th>Fair</th>
<th>Poor</th>
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<tr>
<td>35. Educator's knowledge about cancer</td>
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<tr>
<td>36. Educator's ability to encourage questions and discussion</td>
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<td>37. Cancer Brochures</td>
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</table>
Appendix C

Adapted Pennsylvania Cancer Education Network Educational Module

Slide 1:

Prostate Cancer Screening

What does “screening” mean?

– Screening is looking for signs of disease in people who have no symptoms.

“I like getting more information so I can ask my doctor more questions.”

Should I be screened?

Slide 2:

When Should I Be Screened for Prostate Cancer?

• Recommends that men with no symptoms and at least a 10-year life expectancy be given the opportunity to make an informed decision about being screened for prostate cancer

• Men should not be screened unless they have been given information about the uncertainties, risks, and potential benefits of prostate cancer screening

• Discussion about screening should take place at:
  – Age 50 for men who are at average risk and expected to live at least 10 more years
  – Age 45 for men at high risk (AA, first-degree relative diagnosed younger than 65)
  – Age 40 for men at even higher risk (those with more than one first-degree relative with prostate cancer at an early age)

American Cancer Society Guidelines for Early Detection of Cancer
http://www.cancer.org

PENNSTATE HERSHEY Cancer Institute
Slide 3:

Steps to Informed/Shared Decision Making

1. Understanding the screening test (risks, benefits, and alternatives)
2. Understanding personal values and preferences
3. Weighing the pros and cons of the test
4. Clarifying decisional preferences
5. Finding additional information
6. Deciding on an action plan

Slide 4:

Elements of Decision Making

- Clinical Factors
  - Risk assessment
  - Screening tests
  - Treatment
- Personal Factors
  - Knowledge
  - Cultural beliefs
  - Cost
  - Social support
Slide 5:

**Clinical Factors**

- **Benefits of screening**
  - Screening will give me peace of mind
  - Screening allows treating a potentially serious cancer
  - Treatments may be effective if the cancer is found early
  - If positive, will have choice between treatment and watching

- **Harms of screening and potential treatment**
  - Results may lead to treatment of condition which may never cause someone symptoms
    - False Positive
    - Over-diagnosis
  - Treatment may lead to impotence
  - Treatment may lead to involuntary urination
  - No evidence that treatment will decrease mortality rate
  - Discomfort
  - Psychological Distress

Slide 6:

**Accuracy of Screening Tests**

- The PSA test and DRE are not right all the time

- If 100 men over age 50 take the PSA test:
  - 85 will have a normal PSA level
  - 15 will have a higher than normal PSA level and require further tests
    - 12 do not have prostate cancer
    - 3 have prostate cancer
Slide 7:

**Personal Factors**

- Social Support
- Religious guidance
- Social contacts
- Positive Attitudes
- Self-efficacy
  - An individual’s perceived ability to overcome environmental barriers preventing the behavior

Slide 8:

**Outcomes of Informed Decision Making**

- Get screened now
- Do not get screened
- Wait and get screened at a certain age
- Consult with physician
Barriers to Screening

- Lack of access to health care
- Low socioeconomic status
- Lack of knowledge
- Fear
- Discomfort
- Poor patient-provider communication
- Distrust of the medical profession
- Aversion to DRE
- Inconvenience of screening locations
- Lack of transportation

Discussion
Group Activity

- 45 year old African American man with poor health and a father with prostate cancer.

- 80 year old white man with poor health and no relatives with prostate cancer.
Appendix D

Adapted Pennsylvania Cancer Education Network Survey
<table>
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5. How would you describe your health?  
□ Excellent  
□ Very Good  
□ Good  
□ Fair  
□ Poor

6. Do you have any kind of health care coverage, including: health insurance, prepaid plans such as HMOs, or government plans such as Medicare?  
□ Yes  
□ No

7. What would you do if a health care provider told you to make lifestyle changes to improve your health?  
*Lifestyle changes may include eating healthier, exercising more, reducing stress, cutting down smoking, or cutting down alcohol.*  
□ I would not consider changing  
□ I would consider changing  
□ I would start to make a few changes  
□ I would change for awhile  
□ I would change permanently

---

### Men – please answer all questions

<table>
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### Women – please answer # 8-13 only

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□ Much Less  
□ Less  
□ The Same  
□ More  
□ Much More

15. Prostate cancer is a serious disease  
□ Strongly Agree  
□ Agree  
□ Not Sure  
□ Disagree  
□ Strongly Disagree

16. Screening can identify early stage prostate cancer  
□ Strongly Agree  
□ Agree  
□ Not Sure  
□ Disagree  
□ Strongly Disagree

17. It is important to discuss screening with my significant other  
□ Strongly Agree  
□ Agree  
□ Not Sure  
□ Disagree  
□ Strongly Disagree

18. It is important to discuss screening with my faith community  
□ Strongly Agree  
□ Agree  
□ Not Sure  
□ Disagree  
□ Strongly Disagree

19. I am confident that I can use informed decision making to make a decision about getting screened  
□ Strongly Agree  
□ Agree  
□ Not Sure  
□ Disagree  
□ Strongly Disagree

20. I am worried that screening might be embarrassing or painful  
□ Strongly Agree  
□ Agree  
□ Not Sure  
□ Disagree  
□ Strongly Disagree

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□ Agree  
□ Not Sure  
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  - Within the past year
  - 1 year to less than 2 years ago
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  - Within the past year
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  - 2 years to less than 3 years ago
  - 3 years to less than 5 years ago

24. Has a doctor, nurse, or other health professional EVER told you that you had prostate cancer?
- No
- Yes

25. Men with a father or brother with prostate cancer have lower risk of prostate cancer
- True
- False

26. African American men do not have higher risk of prostate cancer
- True
- False

27. A PSA blood test is one of the screening tests for prostate cancer
- True
- False

28. A digital rectal exam is one of the tests to screen for prostate cancer
- True
- False

29. Needing to urinate frequently, especially at night, is a symptom of prostate cancer
- True
- False

30. Difficulty starting or stopping urine flow is a symptom of prostate cancer
- True
- False

31. Compared to others my age, my chances of getting prostate cancer are...
- Much Less
- Less
- The Same
- More
- Much More

32. Prostate cancer is a serious disease
- Strongly Agree
- Agree
- Not Sure
- Disagree
- Strongly Disagree

33. Screening can identify early stage prostate cancer
- Strongly Agree
- Agree
- Not Sure
- Disagree
- Strongly Disagree

34. It is important to discuss screening with my significant other
- Strongly Agree
- Agree
- Not Sure
- Disagree
- Strongly Disagree

35. It is important to discuss screening with my faith community
- Strongly Agree
- Agree
- Not Sure
- Disagree
- Strongly Disagree

36. I am confident that I can use informed decision making to make a decision about getting screened
- Strongly Agree
- Agree
- Not Sure
- Disagree
- Strongly Disagree

37. I am worried that screening might be embarrassing or painful
- Strongly Agree
- Agree
- Not Sure
- Disagree
- Strongly Disagree

38. I intend to be screened for prostate cancer
- Strongly Agree
- Agree
- Not Sure
- Disagree
- Strongly Disagree

39. Educator's knowledge about cancer
- Excellent
- Good
- Fair
- Poor

40. Educator's ability to encourage questions and discussion
- Excellent
- Good
- Fair
- Poor

41. Cancer Brochures
- Excellent
- Good
- Fair
- Poor