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## A pilot study of prostate cancer knowledge among African American men and their health care advocates: Implications for screening decisions

JoAnn S. Oliver, PhD, RN, ANP-BC, CNE<sup>1,†</sup>, Rebecca S. Allen, PhD, ABPP<sup>2,3</sup>, Morgan K. Eichorst, PhD<sup>4</sup>, Lisa Mieskowski, MA<sup>2,3</sup>, Patrick J. Ewell, PhD<sup>5</sup>, Pamela Payne Foster, MD, MPH<sup>6</sup>, and Camille Ragin, PhD, MPH<sup>7,†</sup>

<sup>1</sup>The University of Alabama, Capstone College of Nursing, Box 870358, Tuscaloosa, AL 35487

<sup>2</sup>The University of Alabama, Alabama Research Institute on Aging, Tuscaloosa, Alabama

<sup>3</sup>The University of Alabama, Department of Psychology, Tuscaloosa, Alabama

<sup>4</sup>Salem Veterans Affairs Medical Center, Salem, Virginia

<sup>5</sup>Kenyon College, Department of Psychology, Gambier, Ohio

<sup>6</sup>The University of Alabama, Institute for Rural Health Research/Community Medicine and Population Health, Tuscaloosa, Alabama

<sup>7</sup>Cancer Prevention and Control Program, Fox Chase Cancer Center-Temple Health, Philadelphia, Pennsylvania

### Abstract

**Purpose**—Prostate cancer (PCa) is the second leading cause of cancer death in U.S. men (American Cancer Society [ACS]), most often affecting men age 50 and older. The study provides information about factors that influence rural AA men in their decision to undergo screening for PCa with a specific focus on PCa knowledge among AA men and their health care advocates.

**Methods**—A longitudinal quantitative study that included AA males and their health care advocates. Participants were from three Alabama rural counties. Measures included demographics, prostate cancer knowledge, decisional conflict and health literacy scales.

**Results**—Thirty-three men with a mean age of 54.61 and 35 health care advocates were included in the study. PROCASE Knowledge Index measure results indicate a lack of prostate cancer knowledge among both male primary participants and their advocates. The knowledge of AA men in the study was somewhat low, with individuals correctly answering approximately 6 questions out of 10 at multiple time points (Baseline Total M = 6.42, SD = 1.52). Decisional conflict responses at 12-months (38.64) were lower than at baseline (M = 62.88) and at 6-months (M = 58.33),  $p < .005$ .

\*Corresponding Author: JoAnn S. Oliver, Phone (205) 348-2916; joliver@ua.edu.

†African Caribbean Cancer Consortium

**Conclusion**—Health care advocates of the 33 male participants were usually women, spouses or significant others, supporting the vital role women play in men’s health specifically in rural underserved communities. Low overall prostate cancer knowledge, including their risk for prostate cancer, among these participants indicates a need for prostate cancer and screening educational interventions and dialogue that include males and their significant others.

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## Prostate Cancer

The American Cancer Society (ACS)<sup>1</sup> estimates that in 2018 there will be 164,690 new cases of prostate cancer and 29,430 deaths from the disease. Prostate cancer (PCa) is the second leading cause of cancer death in U.S. men, most often affecting men age 50 and older<sup>1</sup>. The prostate-specific antigen (PSA) blood test with or without digital rectal examination (DRE) is used to screen for PCa<sup>2</sup>. ACS recommends that men who are age 50 or greater with a 10-year life expectancy or more are of average risk and asymptomatic should have the opportunity to make an informed decision with their health care provider about PCa screening. Potential benefits, risk, and uncertainties associated with PCa screening should be provided before PCa screenings of any type occur. Screening behaviors and socioeconomic factors are some of the issues that have been found to impact variations in cancer incidence.<sup>2</sup>

## Prostate Cancer Screening

Although the American Cancer Society<sup>2</sup> has identified that the greatest chance of cancer survival is dependent on finding cancer at the earliest and most treatable stage, PCa screening is controversial. In a recommendation against population-based screening for PCa, the U. S. Preventive Services Task Force<sup>3</sup> concluded that PCa screening risks out-weigh the benefits and recommends against PSA-based screening for PCa.<sup>3</sup> National PCa screening guideline recommendations are focused on average risk individuals. In a systematic review and meta-analysis of randomized controlled trials, there was insufficient evidence to analyze the impact of PCa screening on African American men and other high risk populations, such as men with a strong family history of PCa.<sup>4</sup> However, McDonald and Parsons<sup>5</sup> suggested that PSA values are a stronger predictor for PCa than race or positive family history. In a recently published qualitative study<sup>6</sup> involving rural African American men, limited knowledge of prostate cancer, poor patient provider communication, and health literacy deficits were identified as themes influencing prostate cancer screening decisions.<sup>6</sup>

## African American Men

African American (AA) men are considered to be at high risk for PCa. In the United States (US) they have a higher overall cancer incidence compared to non-Hispanic Whites (208.7 vs. 123.0 per 100,000, respectively).<sup>7</sup> In particular, PCa death rates in black men (47.2) are more than double those of any other group, and are 137% higher than non-Hispanic whites (19.9). These numbers provide clear evidence that a significant PCa disparity exists among AA men compared to any other race in the US in both incidence and mortality. In Alabama, black men’s incidence and death rates are 220.9 and 56.7, respectively (per 100,000). Being AA, older, and having a positive family history of PCa are all associated with increased risk of a PCa diagnosis and death.<sup>7-8</sup> Beyond these risk factors, Gilbert et al.<sup>8</sup> concluded that

men of lower social status and educational level were also less likely to participate in PCa screening.

### Prostate Cancer Knowledge and Screening influence

Prostate cancer knowledge has been identified as one of the reasons for low PCa participation among AA men. Perceived barriers and health care provider recommendations have also been reported to have a significant influence on PCa screening behaviors.<sup>9–10</sup> Oliver and colleagues<sup>10</sup> suggested that the influence of family and friends may be another significant factor in men's decision to participate in PCa screening. Furthermore, these rural male participants (N=94) described health care providers, family, and friends as sources of influence that had “more influence” or “lots of influence” on their PCa screening decision. When deciding whether or not to participate in PCa screening, knowledge is crucial to the decision-making process.<sup>9</sup> Wray et al.<sup>11</sup> reported low levels of knowledge among most AA men about PCa, risk factors, screening and treatment options. Oliver, et al.<sup>10</sup> found that “not understanding what was involved in PCa screening”, and beliefs about pain and embarrassment were reported by rural AA men as reasons for not participating in PCa screening. In contrast, another study<sup>12</sup> concluded that there is limited information on how at risk populations make screening decisions.<sup>12</sup>

### Health Care Advocates

Social networks are associated with many positive health behaviors, such as healthy diet, physical activity, and smoking cessation.<sup>13</sup> Moreover, social networks may promote health education and positive health behaviors such as cancer screening among underserved populations as they are more likely to trust interpersonal sources compared to mass media or physicians<sup>14</sup> and may not access health promotion efforts targeting the general population due to lack of access or low health literacy.<sup>15</sup> One's social network is composed of strong ties and weak ties<sup>16</sup>; both may be important in the dissemination of health information and promotion of health-related behaviors. Specifically, strong ties such as spouses, siblings or adult children may serve as “health care advocates” and influence autonomy-related behaviors and health decision-making choices of their loved ones during primary care visits.<sup>17</sup> The purpose of the present study was to provide information about factors that influence rural AA men in their decision to undergo screening for PCa with a specific focus on PCa knowledge among AA men and their health care advocates.

## Methods

### Participants

**Setting and Sample**—Data collection began November 2011 and concluded December 2013 with approval from The University of Alabama Institutional Review Board (R21NR012250). Inclusion criteria were: 1) African American male with an identified “health care advocate,” defined as a person who often helps with medical decisions, or with whom you talk about medical decisions; 2) age 40 to 74 years (corresponding to the age cutoffs for PCa screening recommended by the American Urological Association<sup>18</sup>); 3) no personal history of having a diagnosis of PCa; 4) English speaking; and 5) rural dwelling. The criterion of rural residency was based on rural-urban commuting areas (RUCA) codes.<sup>19</sup>

## Measures

Demographic characteristics included age, highest level of education, marital status, questions about health care and health insurance, and income adequacy, reported as difficulty in paying for basic needs (1 = “not at all difficult”; 2 = “not very difficult”; 3 = “somewhat difficult”; 4 = “very difficult”).

**PROCASE Knowledge Index (PKI).**<sup>20</sup>—The PKI is a 10-item scale designed to assess knowledge of risks and benefits of PCa screening using a true-false answer format with higher scores indicating greater knowledge of PCa screening. True is the correct answer for items 1, 7, 8, 9, and 10, whereas, items 2-6 are false. The measure has shown good validity and reliability in a large sample of men 50 and older, including African American men<sup>20</sup>

**Decisional Conflict Scale (DCS).**<sup>21</sup>—The DCS is a 12-item measure designed to assess perceptions of options available in healthcare decision-making using a Yes-Unsure-No answer format. The DCS consists of 4 subscales: Informed (to assess how much is known), Values (to assess personal preferences), Support (to assess resources available), and Uncertainty (to assess clarity of choice). Previous research suggests that the measure has good test-retest reliability over a two week period, as well as acceptable internal consistency and discriminability, with very few African Americans included.<sup>21</sup>

**Short Test of Functional Health Literacy in Adults (STOFHLA)**<sup>22</sup>—The STOFHLA is a timed, 7-minute measure of a patient’s ability to read and understand health care information. Two passages are presented, with 16 fill-in-the-blank questions comprising the first passage (about x-ray preparation) and 20 fill-in-the-blank questions comprising the second passage (about Medicaid rights and responsibilities). Each blank presents four options from which to choose. Possible scores range from 0 to 36, with higher scores indicating better health literacy. The STOFHLA has shown good internal consistency and validity over multiple studies and included use with African Americans.<sup>23–25</sup> Cronbach’s alpha in the current sample is .90.

## Procedure

Health care advocates were only asked for data at the baseline collection whereas data were collected over three time-points for the AA men: baseline, 6-month, and 12-months. Written informed consent was obtained at baseline. After completing baseline data collection, all participants were provided a written copy of the Centers for Disease Control and Prevention pamphlet *Prostate Cancer Screening A decision guide for African Americans*<sup>26</sup> with information about PCa and PCa screening. Interviews were conducted in participants’ homes or another convenient location in the rural community (e.g., churches). Survey questions were posed in individual interviews with response cards available to participants to facilitate understanding. In contrast, six- and twelve-month interviews were conducted by telephone. All participants received \$25 for completing baseline. Male participants who completed six- and twelve-month follow-up assessments received \$25 for total of \$75 across the course of the project.

## Data Analysis

Prior to descriptive and inferential analyses, each variable was evaluated for normality, missing data, and outliers to ensure all assumptions were met for each statistical test. Three participants were missing 12 month data and one of these individuals also was missing 6 month data. In analyses involving those time points these participants were excluded. To assess change in PCa screening decisions made by rural AA men across the course of one year, repeated measures analyses of variance (ANOVAs) were conducted. Descriptive statistics were used to illustrate who fills the role of health care advocate for rural AA men. To examine how health care advocates' attitudes and knowledge are related to that of AA men, PCa knowledge, decisional conflict, and health literacy scales were compared both at baseline and at follow up time points. Due to the small sample size, trends at the  $p < .10$  significance level are reported as well as statistically significant results ( $p < .05$ ).

## Results

### Characteristics of AA Men and Health Care Advocates

Participants were recruited in three counties within the Black Belt region of Alabama, a rural area with a large AA population, so named because the area consists of the richest soil and a primarily agricultural economy.<sup>27</sup> Greene, Hale, and Sumter Counties' 2011 median household income was \$24,226; \$30,051 and \$22,186, respectively, compared to \$43,253 for Alabama as a whole.<sup>28</sup> Greater than 80% of Greene County, 58% of Hale County and over 73% of Sumter county residents are AA.<sup>29</sup> Characteristics of these counties are reported in Table 1.

Thirty-three men were recruited from these rural counties with a mean age of 54.61 ( $SD = 8.3$ ; Range 40-71). The majority (82%) of the men were married or partnered. Fifteen percent (15.2%) of the sample had not completed high school. Fifty-one percent of AA men reported at least some difficulty in paying for basic needs whereas 61% of their health care advocates reported similar difficulty. Over 54% of health care advocates were spouses or significant others of the rural AA men participating in this study. Additional demographic data can be found in Table 2.

Thirty out of the total 33 primary male participants who completed the baseline measures also completed the 12 month survey. Twenty-five out of the 30 men reported having been screened or were planning to be screened for PCa at 12 months. No verification of participant's reported PCa screening status was obtained by the researchers in this study. However, at least one of the participants who reported having been screened also reported receiving a diagnosis of PCa during his final survey. He further informed the PI that he and his health care advocate agreed he would seek treatment; this report was corroborated by his health care advocate.

### PROCASE Knowledge Index (PKI)

The PKI has a total of 10 items to assess knowledge of risk and benefits of PCa and PCa screening. Higher scores indicated greater knowledge. The correct answer for items 1, 7, 8, 9, and 10 was "true". Items 2-6 "false" was the correct answer and these were reverse coded

for the purpose of scoring. Table 3 displays differences by item in the percentage of correct responses at baseline between AA men and health care advocates' knowledge of PCa screening. Notably, on item 4 at baseline, the AA men (42.4%) participants answered more accurately than their advocates (22.9%), and this difference trended toward statistical significance ( $p = .085$ ). Participants frequently responded incorrectly to items four and five, "Prostate cancer NEVER causes problems with urination" and "Prostate cancer is one of the LEAST common cancers among men" respectively. In contrast, most participants answered correctly to items 3, 7, 8, 9, and 10. Items 1, 2, and 6 were answered correctly roughly half of the time by all participants.

Correct item responses of AA men across time are shown in Table 4. Knowledge of risks and benefits of PCa and PCa screening among AA men in the study was somewhat low, with individuals correctly answering approximately 6 questions out of 10 across multiple time points (Baseline Total  $M = 6.42$ ,  $SD = 1.52$ ). Overall, PCa knowledge in men was fairly stable across time,  $F(2, 28) = 0.10$ ,  $p > .05$ , with only two items showing statistically significant differences in percentage of correct responses (see Table 4).

### Decisional Conflict Scale (DCS)

High numbers indicate greater conflict and low numbers indicate greater ease in making decisions. African American men's report of decisional conflict decreased across 12 months,  $F(2, 29) = 7.40$ ,  $p < .005$ , with a significant difference between baseline ( $M = 40.67$ ) and 12-months ( $M = 25.00$ ). Moreover, lower decisional conflict predicted how likely men were to report a desire to engage in preventive PCa screening,  $t(29) = 2.68$ ,  $p = .013$ .

The DCS is composed of four subscales: informed, values, support, and uncertainty. In the present sample of all African Americans, the overall alpha was .81, with all scales ranging between .68 and .86, except for Support which had a low alpha (.59). African American men's responses on the values subscale did not vary across time. Therefore, only results of the informed and uncertainty subscales are reported here. Across time, AA men's responses to the informed subscale decreased,  $F(2, 29) = 3.53$ ,  $p = .036$ . Responses at 12 months ( $M = 45.00$ ) were lower than at baseline ( $M = 60.00$ ) and at 6-months ( $M = 59.44$ ), indicating decreasing conflict regarding information at 12 months but no difference between baseline and 6-months. Responses to the uncertainty subscale decreased over time,  $F(2, 29) = 5.81$ ,  $p < .005$ , with a significant difference between baseline ( $M = 37.50$ ) and 12-months ( $M = 11.67$ ) but no difference between either of these time points and 6-months ( $M = 20.83$ ) (see Table 5).

### Correlations within and between AA Men and Health Care Advocates

We examined bivariate correlations between AA men's demographic characteristics, knowledge (PKI scores) and health literacy (STOFHLA scores) at baseline. Not surprisingly, education level was significantly and positively associated with health literacy ( $r = .42$ ;  $p < .02$ ). Health literacy also was associated with income adequacy as reported by AA men ( $r = -.39$ ;  $p < .02$ ), indicating that men with lower health literacy also perceived more difficulty paying for basic needs. Regarding associations between AA men's knowledge and attitudes and that of their health care advocates, there were no significant associations noted. There

were no significant associations between AA men and advocates' PCa knowledge or their health literacy.

## Discussion

The purpose of this study was to identify factors that influence rural AA men in their decision to screen for prostate cancer with a specific focus on the knowledge of these men and their health care advocates. One important finding from this study was that health care advocates were usually women, spouses or significant others. There was only one male health care advocate. Education and health literacy (STOFHLA scores) were significantly associated. That is, participants in this study with more education had higher health literacy scores. No income or household salary data was obtained; instead questions were asked about any difficulty paying for basic needs. Fifty-one percent of the AA men reported at least some difficulty in paying for basic needs with a larger percentage (61%) of health care advocates reporting similar difficulties. Due to the economic county data reported for the three counties, this reported finding was not surprising. However, as noted in previous studies socioeconomic status and educational level have been found to negatively impact prostate cancer screening and overall cancer outcomes.<sup>1,8,9,30</sup>

Previous research<sup>31</sup> has demonstrated a lack of knowledge regarding prostate cancer screening. For example, Carter and colleagues<sup>31</sup> reported that participants sometimes confused prostate and colon cancer screening, and Oliver et al.<sup>10</sup> reported a lack of understanding of what is involved in PCa screening among rural AA men.<sup>10</sup> Similarly in this study, PKI results indicate a lack of knowledge among both participants and their advocates. The PKI measure results indicated there was only one item that men answered more accurately than their health care advocates, item four, which reads "*Prostate cancer NEVER causes problems with urination.*" While AA men responded to this statement accurately 42.4% of the time compared to their advocates 22.9%, this difference was not statistically significant. However, the majority of the male participants and their accompanying advocates responded incorrectly to both items four and five, "*Prostate cancer NEVER causes problems with urination*" and "*Prostate cancer is one of the LEAST common cancers among men,*" respectively.

Increasingly inaccurate responses were noted in regards to PKI items two and three over time. These items were "*Men are more likely to die because of Prostate cancer than because of heart disease*" and "*Prostate cancer is the most common cause of problems with urination.*" Although these findings did not reach statistical significance, they could indicate some type of confusion among the men related to the effects prostate cancer has on urination, confusion regarding overall mortality rates associated with prostate cancer, and/or confusion regarding the prevalence of cardiovascular disease, the leading cause of mortality for both men and women.<sup>32</sup> These findings also suggest that a one-time distribution of written prostate cancer information may not be effective in increasing PCa knowledge. Longitudinal educational and supportive interventions that include dialogue and strategic communication methods may be required to instill accurate and reliable knowledge about PCa. Building individuals' and families' PCa knowledge (i.e., making it reliable) through such longitudinal educational and supportive interventions may ensure that individuals have

information they can trust and draw upon when making informed and confident decisions about their healthcare. Both the inclusion of women or gender inclusive PCa education and an increase in informed communication regarding PCa had successful outcomes in a community-based participatory study by Carter and colleagues.<sup>31</sup>

The DCS, composed of four subscales: informed, values, support, and uncertainty, provided a snap shot of the ease in screening decision making. High numbers indicate greater conflict and low numbers indicate greater ease in making decisions. African American men's report of decisional conflict decreased across 12 months. Specifically, there was a significant difference across time (Baseline vs. 1 year) in AA men's response to the informed and uncertainty subscales. This indicated that the men had decreased conflict in perceived knowledge and in their clarity of screening choice. In support of the DCS results, a total of 25 out of the 30 male participants who completed the study reported either participating or intentions to participate in prostate cancer screening.

### Limitations

A limitation of the current study was the small sample size obtained from one specific geographic region, which limits the generalizability. Another limitation was that no written confirmation or proof of PCa screening participation was obtained by the researchers in this study. A convenience sample was used. Some participants were referred by other study participants and were included in the study if they met the inclusion criteria. Also, some of the measures used in this study were used in previous studies that included few or no African American participants so validity and reliability of the tests in this population needs further research.

### Implications and Future Directions

There are very few studies which address PCa knowledge in rural AA men in the Deep South. Though a few questions arose that men and advocates tended to answer correctly, accuracy varied across time among other questions. This suggests that knowledge of PCa risk is erratic and uncertain. This uncertainty may have a significant impact on men's confidence in making future decisions about obtaining PCa screening. Furthermore, questions that men and advocates typically answered correctly related primarily to procedural follow-up after potentially positive test results were received. This suggests that knowledge of how to react to concrete medical feedback is intact, but knowledge about overall risk of PCa diagnosis is low.

In order to create effective interventions, as well as to affirm known facts and dispel misunderstandings, obtaining a better understanding of specific and actual PCa knowledge is necessary. Continued conversations with medical professionals about the risks and signs associated with PCa are warranted. Furthermore, in populations where PCa knowledge is low, certainty about what is known and unknown may have a greater impact on the decision-making process of AA men and their "health care advocates."

The researchers recommend replication and expansion of the current study with a larger sample size, longitudinal methodology, educational and supportive interventions that include spouses or significant others, and evidence-based methods of communication that will be



appropriate for the specific population. Further beneficial changes would be the inclusion of a more diverse sample of black men from varying geographic regions; for example black men from Caribbean and African populations to compare cultural, social, and behavioral differences. Last, we recommend more research to assess health care provider communication and obtaining confirmation of actual PCa screening participation. It is hoped that this study strengthens the foundation for future such studies that work to eliminate disparities in prostate cancer in US men, with a recognition of the increased vulnerability of rural dwelling AA men.

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## References

1. American Cancer Society. Key statistics for prostate cancer. 2018. Available online at: <https://www.cancer.org/cancer/prostate-cancer/about/key-statistics.html>
2. American Cancer Society. Cancer Facts and Figures 2016. Atlanta, Ga: American Cancer Society; 2016. Available online at: <http://www.cancer.org/acs/groups/content/@research/documents/document/acspc-047079.pdf>
3. U.S. Preventive Services Task Force. Final recommendation prostate cancer: Screening. 2012. retrieved from: <https://www.uspreventiveservicestaskforce.org/Page/Document/RecommendationStatementFinal/prostate-cancer-screening>
4. Djulbegovic M, Beyth RJ, Neuberger MM, Stoffs TL, Vieweg J, Djulbegovic B, Dahm P. 2010; Screening for prostate cancer: systematic review and meta-analysis of randomized controlled trials. *British Medical Journal*. 341:1–9. DOI: 10.1136/bmj.c4543
5. McDonald ML, Parsons JK. 2015; The Case for Tailored Prostate Cancer Screening: An NCCN Perspective. *Journal of the National Comprehensive Cancer Network*. 13(12):1576–1583. [PubMed: 26656524]
6. Hooper GL, Allen RS, Payne-Foster P, Oliver JS. 2017; A qualitative study to determine barriers for prostate cancer screening in rural African American men. *Urologic Nursing*. 37(6):285–291.
7. U.S. Cancer Statistics Working Group. United States Cancer Statistics: 1999–2013 Incidence and Mortality Web-based Report. Atlanta: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute; 2016. Available at: [www.cdc.gov/uscs](http://www.cdc.gov/uscs)
8. Gilbert SM, Pow-Sang JM, Xiao H. 2016; Geographical factors Associated with health disparities in prostate cancer. *Cancer Control*. 23(4):401–408. [PubMed: 27842329]
9. Odedina FT, Campbell ES, LaRose-Pierre M, Scivens J, Hill A. 2008; Personal factors affecting African American men's prostate cancer screening behaviors. *Journal of The National Medical Association*. 100(6):724–733. [PubMed: 18595577]
10. Oliver JS, Grindel CG, DeCoster J, Ford CD, Martin MY. 2011; Benefits, barriers, sources of influence, and prostate cancer screening among rural men. *Public Health Nursing*. 28(6):515–522. DOI: 10.1111/j.1525-1446.2011.00956.x [PubMed: 22092461]
11. Wray RJ, Vijaykumar S, Jupka K, Zellin S, Shahid M. 2011; Addressing the challenge of informed decision making in prostate cancer community outreach to African American men. *American Journal of Men's Health*. 5(6):508–16. DOI: 10.1177/1557988311411909
12. Havey D, Pertl M, Thomas K, Maher L, Chuinneagain SN, Craig A. 2009; The relationship between prostate cancer knowledge and beliefs and intentions to attend PSA screening among at-risk men. *Patient Education and Counseling*. 74:244–249. [PubMed: 18848753]

13. Sahyoun NR, Zhang XL. 2005; Dietary quality and social contact among a nationally representative sample of the older adult population in the United States. *The Journal of Nutrition, Health & Aging.* 9(3):177–183.
14. Cheong PH, Edwards R, Goulbourne H, Solomos J. 2007; Immigration, social cohesion and social capital: A critical review. *Critical Social Policy.* 27(1):24–49. DOI: 10.1177/0261018307072206
15. Tang L, Mieskowski LM, Oliver JS, Eichorst M, Allen RS. 2015; Promoting cancer screening among rural African Americans: A social network approach. *Journal of Cultural Diversity.* 22(3): 88–94. [PubMed: 26647487]
16. Granovetter MS. 1973; The Strength of Weak Ties. *American Journal of Sociology.* 78(6):1360–1380.
17. Clayman M, Roter D, Wissow L, Bandeen-Roche K. 2005; Autonomy-related behaviors of patient companions and their effect on decision-making activity in geriatric primary care visits. *Social Science Medicine.* 60(7):1583–1591. [PubMed: 15652689]
18. American Urological Association. Detection of prostate cancer. 2013. Retrieved from <http://www.auanet.org/education/guidelines/prostate-cancer-detection.cfm>
19. United States Department of Agriculture. Rural-urban commuting area codes. 2005. Retrieved at <http://www.ers.usda.gov/Data/RuralUrbanCommutingAreaCodes/>
20. Radosevich DM, Partin MR, et al. 2004; Measuring patient knowledge of the risks and benefits of prostate cancer screening. *Patient Education and Counseling.* 54(2):143–152. [PubMed: 15288907]
21. O'Connor AM. 1995; Validation of a decisional conflict scale. *Medical Decision Making.* 15(1): 25–30. [PubMed: 7898294]
22. Parker RM, Baker DW, Williams MV, Nurss JR. 1995; The test of functional health literacy in adults: A new instrument for measuring patients' literacy skills. *Journal of General Internal Medicine.* 10(10):537–541. [PubMed: 8576769]
23. Baker DW, Williams MV, Parker RM, Gazmararian JA, Nuss J. 1999; Development of a brief test to measure functional health literacy. *Patient Education Counseling.* 38:33–42. [PubMed: 14528569]
24. Barber MN, Staples M, Osborne RH, Clerehan R, Elder C, Buchbinder R. 2009; Up to a quarter of the Australian population may have suboptimal health literacy depending upon the measurement tool: Results from a population-based survey. *Health Promotion International.* 24:252–261. [PubMed: 19531559]
25. Briggs AM, Jordan JE, Buchbinder R, Burnett AF, O'Sullivan PB, Chua JY, Osborne RH, Straker LM. 2010; Health literacy and beliefs among a community cohort with and without chronic low back pain. *PAIN.* 150(2):275–283. DOI: 10.1016/j.pain.2010.04.031 [PubMed: 20603025]
26. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention. Prostate Cancer Screening A decision guide for African Americans. 2011. [http://www.ustoo.org/PDFs/CDC\\_PCa\\_Screen\\_Guide\\_AA.pdf](http://www.ustoo.org/PDFs/CDC_PCa_Screen_Guide_AA.pdf)
27. Alabama Department of Public Health. Alabama comprehensive cancer control 2006–2010 plan. Montgomery AL: Alabama Department of Public Health; Available at: <http://www.alabamacancercontrol.org/pdfs/plan2.pdf>
28. U.S. Census Bureau. 2011–2015 American Community Survey 5-Year Estimates. 2015. Retrieved from: [https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS\\_15\\_5YR\\_DP03&src=pt](https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_15_5YR_DP03&src=pt)
29. Alabama Rural Health Association. selected Indicators of Health Status in Alabama. 2013. Retrieved at <http://www.adph.org/ruralhealth/Default.asp?id=1798>
30. Ragin C, Blackmon E, Roberts R, Butler R, Gatherer S, Halliday D, Ashing K. 2017; Cancer in populations of African Ancestry: studies of the African Caribbean Cancer Consortium. *Cancer Causes & Control.* 28:1173–1176. [PubMed: 29086217]
31. Carter VL, Tippet F, Anderson DL, Tameru B. 2010; Increasing prostate cancer screening among African American men. *Journal of Health Care for the Poor and Underserved.* 21:91–106. [PubMed: 20675948]

32. Center for Disease Control and prevention. Heart Disease Facts. 2015. Retrieved from: <https://www.cdc.gov/heartdisease/facts.htm>

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**Table 1**

## Black Belt County Characteristics

County	Greene	Hale	Sumter
% NHW	18	40	25
% African American	80.1	58.0	73.2
% Rural	100	89.2	100
% Unemployed	14.2	12.0	14.5
% Uninsured adults	23	21	23
Population to primary care physicians	3,002 to 1	15,736 to 1	2,293 to 1

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**Table 2**

## Demographics

Variable	African American Men (N=33)		Advocates (N=35)	
	Mean (SD)	Range	Mean (SD)	Range
Age	54.61 (8.3)	40-71	54.15 (10.7)	31-79
Variable	N	Percentage	N	Percentage
Marital Status	–	–	–	–
Married	25	75.8	23	67.6
Partnered	2	6.1	2	5.9
Single or divorced	6	18.2	7	20.6
Education	–	–	–	–
Some High	5	15.2	2	5.8
School	14	42.4	11	32.4
High	6	18.2	2	5.9
School/GED	4	12.1	10	29.4
Trade School	0	0	3	8.8
1-3 years of college	4	12.1	6	17.6
Associate's degree				
Bachelor's or post-grad				
Health-Related	–	–	–	–
Possess health insurance	29	87.9	28	82.4
Have chronic illness that requires regular doctor visits	27	81.8	20	58.8

**Table 3**

Prostate Cancer Knowledge Index Percent Correct by Item for AA Men and Health Advocates

Item	Baseline (n = 33)	Advocate (n = 33)*	Chi-Square (p value)
1. Most men diagnosed as having prostate cancer die of something else.	48.5	40.0	0.496 (.481)
2. Men are more likely to die because of Prostate cancer than because of heart disease.	51.5	51.4	0.00 (.994)
3. Prostate cancer is the MOST COMMON cause of problems with urination.	75.8	68.6	0.436 (.509)
4. Prostate cancer NEVER causes problems with urination. **	42.4	22.9	2.97** (.085)
5. Prostate cancer is one of the LEAST common cancers among men.	45.5	34.3	0.885 (.347)
6. The PSA (prostate-specific antigen) test will pick up ALL prostate cancers.	51.5	45.7	0.229 (.632)
7. A prostate biopsy can tell you with more certainty whether you have prostate cancer than a PSA (prostate-specific antigen) test can.	90.9	85.7	0.442 (.506)
8. If you have an ABNORMAL PSA (prostate specific antigen) test result, your doctor may recommend that you have a prostate biopsy.	84.8	94.3	1.638 (.201)
9. Loss of sexual function is a common side effect of prostate cancer treatments.	69.7	74.3	0.178 (.673)
10. Problems with urination are common side effects of prostate cancer treatments.	81.8	85.7 6.06	0.190 (.663)
Total number of correct knowledge items.	6.52	6.52	

\* missing data (n=2)

\*\*  
p < .10

**Table 4**

Prostate Cancer Knowledge Index Percent Correct by Item for AA Men across Time

	<b>Baseline (n = 33)</b>	<b>Six-Month (n = 32)</b>	<b>One Year (n = 30)</b>	<b>Wilk's Lambda (p value)</b>
1. Most men diagnosed as having prostate cancer die of something else.	48.5	46.9	46.7	0.037 (.963)
2. Men are more likely to die because of Prostate cancer than because of heart disease.	51.5	40.6	36.7	1.153 (.33)
3. Prostate cancer is the MOST COMMON cause of problems with urination.	75.8	3.1	10.0	38.5** (.0001)
4. Prostate cancer NEVER causes problems with urination.	42.4	90.6	81.8	8.65** (.001)
5. Prostate cancer is one of the LEAST common cancers among men.	45.5	68.8	63.3	0.895 (.42)
6. The PSA (prostate-specific antigen) test will pick up ALL prostate cancers.	51.5	40.6	50.0	0.938 (.403)
7. A prostate biopsy can tell you with more certainty whether you have prostate cancer than a PSA (prostate-specific antigen) test can.	90.9	93.8	93.3	0.00 (1.00)
8. If you have an ABNORMAL PSA (prostate specific antigen) test result, your doctor may recommend that you have a prostate biopsy.	84.8	96.9	93.3	2.15 (.135)
9. Loss of sexual function is a common side effect of prostate cancer treatments.	69.7	87.5	86.7	2.54 (.097)
10. Problems with urination are common side effects of prostate cancer treatments.	81.8	87.5	90.0	1.17 (.324)
Total number of correct knowledge items.	6.52	6.52	6.66	0.087 (.917)

**Table 5**  
 Decisional Conflict Scale Differences between Men and Advocates and within Men over Time.

	Baseline (n = 33)	Advocate (n = 33)*	Sig Between AA & Adv	Six-Month (n = 32)	One Year (n = 30)	Sig over time
1. Decisional Conflict Scale Total	40.7	51.4	.108	29.3	25.0	.001
2. DCS Informed Subscale	60.0	54.2	.500	59.4	45.0	.036
3. DCS Values Subscale	48.3	53.9	.568	30	33.3	.075
4. DCS Support Subscale	18.3	54.2	.001	4.4	8.3	.007
5. DCS Uncertainty Subscale	37.5	40.6	.758	20.8	11.7	.005