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Factors Associated with Men's Assessment of Prostate Cancer Treatment Choice

Louie E. Ross¹, Daniel L. Howard^{2,5}, Janice V. Bowie^{3,6}, Roland J. Thorpe Jr.^{3,6}, Ballington L. Kinlock^{3,6}, Carol Burt^{3,6}, and Thomas A. LaVeist⁴

¹ Department of Leadership Studies, North Carolina Agricultural and Technical State University, Greensboro, NC, USA

² Public Policy Research Institute, Texas A&M University, College Station, TX, USA

³ Hopkins Center for Health Disparities Solutions, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, USA

⁴ Department of Health Policy and Management, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, USA

⁵ Department of Sociology, Texas A&M University, College Station, TX, USA

⁶ Department of Health, Behavior & Society, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, USA

Abstract

The objective of this study is to examine factors among a group of African American and White men in North Carolina and their assessment of prostate cancer treatment choice or belief that treatment chosen was best. A sample of men ($N=877$) with a history of prostate cancer diagnosis was recruited from the North Carolina Cancer Registry during 2007–2008 and asked to participate in a telephone interview covering several measures about their initial prostate cancer treatment. Logistic regression was used to assess demographic, psychosocial, and clinical factors on whether they felt that they had chosen the best treatment for the disease. Respondents were majority White (52.7 %), married (75.9 %), and had surgery (67.9 %) as their initial treatment. At the bivariate level, factors associated with the belief that the treatment chosen was best were as follows: White race/ethnicity, higher levels of education, a more recent treatment date, having health insurance coverage, type of treatment received, higher levels of bother from side effects, greater contentment with their quality of life, and doctor discussions of the various treatment options. Similarly, the multivariate analysis showed increased odds of belief that the treatment chosen was the best among demographic (i.e., race/ethnicity, level of education, and health insurance coverage) as well as psychosocial and clinical variables (i.e., greater bother from side effects, greater contentment with their quality of life, and initial treatment received). Results suggest that demographic, psychosocial, and clinical factors play an important role for men in assessing their treatment choices for prostate cancer.

Keywords

Race; Prostate cancer; Treatment choice; Survivorship; Disparity; Quality of life

Introduction

There are almost 12 million cancer survivors in the USA, and over 2 million are prostate cancer survivors [1], with a growing number of individuals surviving for longer periods of time. Although there is variation by cancer stage, more than nine of ten men diagnosed with prostate cancer survive at least 5 years post diagnosis [2]. Men with a history of prostate cancer may face psychosocial, physical, and financial burden from their cancer diagnosis and treatment, and issues surrounding their survivorship may affect family members, friends, and caregivers[2].African American (AA)men suffer greater burden of prostate cancer in both incidence and mortality compared to White and other men [3]. As prostate cancer survivors live longer, there is a need to examine physical and psychosocial adjustment from treatment including bother from side effects [4].

Men diagnosed with prostate cancer are generally presented with several treatment options including different types of surgery, radiation, hormonal, and other therapies. Studies examine the factors associated with prostate cancer treatment choice [5, 6]. Regardless of reason, the most common treatments appear to be surgery, some form of radiation, combination treatments, or active surveillance, respectively [5, 6]. However, men may lack crucial information about which procedure(s) to choose.

Further complicating the treatment decision is that it is unclear who may influence men in their treatment decision-making process and whether it is the influence of physician, family, and/or friends in the decision [7]. Therefore, men may face a dilemma in treatment choice decisions [6] and may not fully understand the possible risks including side effects from treatment. Some prostate cancer survivors do not think that their initial treatment was the best [8].

Men's satisfaction with their decision has been linked to a number of factors including higher levels of income and education as well as being married [9]/partnered [10]. Similarly, satisfaction with treatment decision-making has been based on socioeconomic and other factors including involvement in the decision [11]. The primary care physician and/or family members may be involved in the treatment decision as well as the treatment decision-making process [12].

Despite reports of bother from treatment side effects [9] or treatment modality [5], most men reported satisfaction with treatment. In one study of men, approximately 82 % of respondents did not regret their choice of treatment [13]. Similarly, Gwede et al. found that about 74 % had no regrets about treatment choice although about half reported difficulty and distress in making the decision [4]. In other studies, some measure of treatment-related decisional regret existed ranging from 4 [14] to 18 % or more [13, 15, 16]. Correlates of decisional regret included non-White race/ethnicity and more chronic treatment effects [13],

urinary dysfunction and bother [17], lower physical and social functioning, and increased pain [14]. Decisional regret was also inversely linked to better functional quality of life [13].

There appears to be limited data about the factors associated with treatment choice as well as belief of having had the best treatment for prostate cancer by race [6]. This study examined factors associated with initial prostate cancer treatment choice among a group of AA and White men ($N=877$). Specifically, the study examined selected demographic, psychosocial, and clinical factors associated with whether men with a history of prostate cancer believed that their initial treatment received was best (or not).

Methods

The Diagnosis and Decisions in Prostate Cancer Treatment Outcomes (DAD) Study is a cross-sectional study designed to examine factors that influence the selection of prostate cancer treatment modality and explore race differences in disease burden and quality of life. We retrospectively recruited 877 men (462 White and 415 AA) ages 40–81 that entered the North Carolina Central Cancer Registry (NCCCR) during the years 2007–2008 using a rapid case ascertainment (RCA) procedure. Eligibility criteria included being 35 years of age and older, diagnosed and treated for prostate cancer, and self-identify as White or AA. Recruitment began in October 2009 and ended in December 2011. On a monthly basis, RCA staff contacted the primary research network hospitals to request reports identifying their patients meeting the eligibility criteria. The NCCCR core mailed these prospective study participants a pamphlet describing the study and informing them that they may be contacted in the future to participate.

After the study team confirmed the eligibility of the patients, they mailed the physician of record of each eligible study participant a notification of intent to contact the prospective participant about enrolling in the study. Physicians were given 3 weeks to reply with a request that the patient not be contacted. If the physician did not refuse patient contact, we sent the eligible study participant a packet containing a recruitment letter describing the study, NCCCR brochure, and a copy of the consent and HIPPA forms. In the letter, we provided a phone number that perspective participants could call for questions or to decline. Interviewers contacted the eligible study participants by telephone, screened them for study eligibility, explained the study, answered questions, and sought their participation. If the eligible study participant expressed interest, the interviewer reviewed the consent form and obtained verbal consent and proceeded with the survey questionnaire.

The survey consisted of a series of questions to men related to prostate cancer and their adjustment and included both social and health-related factors associated with the belief of having had the best treatment for prostate cancer. The study was approved by Institutional Review Boards of Johns Hopkins' Bloomberg School of Public Health, Department of Defense, and NCCCR.

Measures

The independent variables included in the study were as follows: race/ethnicity (AA or White), marital status (married vs. not married), level of education (less than high school,

some college and 2-year degree, college graduate, and beyond), employment status (working or retired), age (coded in tertiles), and health insurance coverage (yes or no). Psychosocial- or clinical-related variables included the following: year and month of initial treatment (coded in tertiles), initial treatment received (surgery, radiation, other treatments, active surveillance), treatment decision (self only or shared with others), bother from side effects (not at all=1/a little bit=2/somewhat=3/quite a bit=4/very much=5), doctor discussion of the various treatments (yes and do not know/no), and contentment with their quality of life (not at all=1/a little bit=2/somewhat=3/quite a bit=4/very much=5). Two variables, bother from side effects and contentment with the quality of life, were recoded to prevent low or empty cells. Bother from side effects was recoded into two categories (not at all to moderate=1 and quite a bit to very much bother=2). Contentment with the quality of life was also recoded into two categories (not at all/a little/somewhat=1 or quite a bit/very much=2).

The outcome variable was the question, “Do you now believe that the treatment you got was the one that was best for you?” Responses were as follows: yes, no, and do not know. The attribute of interest, belief that the treatment received was best, was recoded to yes=2 and no/do not know=1. Twelve respondents who failed to answer the question were dropped from the analysis.

Analysis

Descriptive statistics were used to assess characteristics of the variables used in the study. Bivariate associations using chi-square tests compared selected social, psychosocial, and clinical variables with the outcome variable, belief that the treatment chosen was the best (or not). Multivariate logistic regression analysis examined the strongest predictors of the dependent variable with selected variables of interest and those with the alpha value set at the 0.05 significance level (two-sided test). The analysis helped to clarify factors associated with having had the best treatment for this disease. Data were analyzed with the IBM Statistical Package for the Social Sciences (SPSS 22.0 for Windows).

Results

The distribution of characteristics of men with a history of prostate cancer is displayed in Table 1. Of the 877 men, majorities were White (52.7 %), married (75.9 %), working full or part-time (59.7 %), and had recent health insurance coverage (93.2 %). Also, a majority of the men had surgery as their initial treatment (67.9 %), made the final decision (themselves) about treatment (74.8 %), and reported being bothered (quite a bit and very much) by side effects from treatment (72.9 %). Two thirds of the men mentioned that they were quite a bit to very much content with their quality of life (67.4). More than nine of ten reported that the doctor discussed the various treatments for prostate cancer (92.4 %). A majority also reported having had the best treatment for prostate cancer (89.7 %).

The bivariate association between the selected factors and belief that treatment choice was best is shown in Table 2. White men, men with higher levels of education, and health insurance coverage were more likely to believe that the treatment chosen was best compared to others. Also, men who had surgery, radiation, or other treatments as their initial treatment;

those men who reported moderate to very much bother from treatment side effects; and men who reported being quite a bit to very much content with their overall quality of life were more likely to believe that the treatment chosen was best compared to others. Finally, men whose doctor discussed the various treatment options before treatment also believed that their treatment chosen was best compared to those whose doctor did not discuss.

The multivariate association between the belief that prostate cancer treatment received was best and select factors is presented in Table 3. After adjustment, AAmen had decreased odds (odds ratio (OR)=0.57, confidence interval (CI) 0.32–0.99) in the belief that the treatment chosen was best compared to White men. Men with college degrees or higher had twice the odds of the belief that they had chosen the best treatment compared to men with high school diplomas or less (OR=2.19, CI 1.15–4.17). Also, men with recent health insurance coverage (compared to men with no health insurance coverage) had more than twice the odds ((OR=2.35, CI (1.10–4.99) in the belief that the treatment chosen was the best. Men who had surgery (OR=4.26, CI 1.92–9.44), any type of radiation (OR 4.91, CI 1.89–12.82), or other treatments (OR=3.79, CI 1.12–12.88) all had higher odds of the belief that the treatment chosen was the best compared to active surveillance. Men who reported moderate to very much bother of side effects also had higher odds of belief about their treatment experience (OR=2.57 CI 1.48–4.48) compared to men with no or a little bother. Finally, men who reported that they were quite a bit to very much content with their quality of life (compared to men who were either not at all to somewhat content with their quality of life) had more than three times the odds of the belief that the chosen treatment was best. The variable, doctor discuss the various treatments before treatment, was significant at the bivariate level and entered into the multivariate analysis. However, this variable suppressed the significant associations for both race and level of education. Therefore, due to multicollinearity, it was dropped from the analysis.

Discussion

With almost 12 million persons with a history of cancer living and of these, over two million men surviving prostate cancer, it is important to address the physical, psychosocial, and economic issues of cancer, from diagnosis until the end of life [1]. Considering that AA men suffer greater burden of prostate cancer in both incidence and mortality compared to White and other men [3], a focus on the health and life of a person with cancer beyond the diagnosis and treatment phases is of paramount importance. Long-term survival is often quite favorable with the growing array of treatment options for men diagnosed with prostate cancer. However, the decision of treatment choice is one that can be associated with satisfaction or regret due to the possibility of benign or chronic side effects that may result and affect quality of life [6].

The objective of the current study was to explore treatment choice for a cohort of men who were diagnosed, treated, and now living as prostate cancer survivors. This study examined selected demographic, psychosocial, and clinical factors related to whether men with a history of prostate cancer believed that the initial treatment received was the best. Consistent with earlier studies [5, 9–11], approximately 90 % of study participants reported belief that they chose the best treatment option. Our results showed that demographic (White race/

ethnicity, college graduate or above, having health insurance), psychosocial, and clinical variables (any treatment received versus active surveillance, moderate to very much bother, higher levels of content with the quality of life, and doctor discussions of the various treatments) were associated with belief that the treatment chosen was the best. And, these factors may play an important role in men's belief that the initial treatment chosen for prostate cancer was best. However, the link between treatment choice and satisfaction was not examined in this study but in others [6, 18].

A similar study suggested that demographic, psychosocial, and clinical predictors play an important role for men choosing a prostate cancer treatment [7]. Our study is consistent with this finding. Gwede et al. suggested that longer follow-up is needed because there may be some regret after the first couple of years [4]. Our study found no significant association by date of treatment and best treatment. However, urinary dysfunction and having had recent treatment (in the prior 6 months) were associated with greater regret in another study [17]. The majority of men in the current study had their treatments from 1994 to 2011. Perhaps, a longer follow-up time period may be needed for the men in the current study. Results from the current study were also similar to Sommers et al. who found that patients' treatment preferences varied by behavioral, demographic, and health factors [19].

Overall, men in the current study chose surgery as the preferred treatment choice followed by radiation and this is consistent with other studies [5, 20]. The majority of men in the current study reported that any treatment versus active surveillance was associated with reporting that they had the best treatment. Few men reported that they did not have the best treatment [6, 21].

Also, this study highlights the importance of doctor discussions of the various treatment options to men. More than nine of ten men reported having these discussions, and the treatment options chosen were associated with men's reports of having had the best treatment. Physicians may play an important role in patient reports of having had the best treatment for prostate cancer. Doctor recommendation was the strongest predictor of treatment modality in a similar study [5].

We did note that the variable, reported bother from side effects of treatment, was positively associated with the belief that the treatment chosen was best. Studies showed that increased bother with sexual and urinary function was associated with less satisfaction with treatment [9] and decisional regret [10] but not treatment choice in the current study. It is unclear why the men in this study reported having increased bother but also felt that they had the best treatment for prostate cancer. Perhaps, these men were satisfied with their treatment choice and expected some bother from side effects regardless of treatment modality.

Mentioned earlier was that AAs have lower survival from prostate cancer compared to Whites and other racial/ethnic groups. This may pose additional issues because AA men were less likely than Whites to believe that they received the best treatment for their cancer. This is somewhat consistent with other studies that examined AA men and found less treatment satisfaction and more decisional regret [18, 22]. However, whether AA men felt

that they had the best treatment was not asked in the reviewed studies. The reasons behind these findings should be further investigated.

Comparisons were made by treatment type versus active surveillance (which is not considered a treatment but may lead to one or more treatments). Results from this study showed that men thought that any treatment was “best” compared to active surveillance. This close monitoring with no treatment may, in fact, delay both the treatment decision as well as the intervention itself. In a related study, few men chose active surveillance [6]. Further research is required to examine within treatment therapies and which actual treatment is considered best among treatment modalities (surgery, radiation, or other treatments) rather than any treatment versus active surveillance.

Several strengths were noted in the study, that is, the importance of demographic, psychosocial, and clinical variables when examining belief in best initial treatment for prostate cancer. This gives a better picture of correlates of treatment decisions and having made the best choice for that treatment. The study used AA and White men who were entered into the NCCCR after their treatment. The sample also had more robust numbers of AA and White men. This larger sample size allows comparisons both within and between groups among several aspects of prostate cancer treatment, psychosocial adjustment, and survivorship. The study also gives some insight on AA men, a group that has been underrepresented in the survivorship literature, and adds some insight into the racial and ethnic disparities in treatment decision-making and quality of life literature.

Some limitations of the study are that we only examined AA and White men and have no information of Hispanic, Asian, and other men. Also, we presumed that many who felt that they did not make the best choice experienced some degree of regret [10]; however, we did not measure this directly. The variable bother from side effects presented an additional limitation. Bother can be very much subjective, and in some cases, men might experience a given side effect but not consider it a bother because either the side effect was expected from a given treatment or because the side effect was not severe enough to consider it a bother. Finally, this study did not address additional treatments that men may have undergone after their initial treatment. We noted earlier that the variable, doctor discussed the various treatments, was significant at the bivariate level and entered into the multivariate analysis. However, it suppressed the significant associations for both race and level of education. Therefore, due to multicollinearity, it was dropped from the analysis but should be further studied [5].

Results demonstrate specific factors such as race/ethnicity, level of education, health insurance coverage, initial treatment type, bother from treatment side effects, quality of life, and whether the doctor discussed the various treatment options may be associated with the belief that they received the best treatment. Clinicians and other practitioners should also be aware of these factors as they discuss and, perhaps, recommend treatment options with their male patients and their families. Men’s report of having received the best treatment for prostate cancer was found to be high; however, perceived best treatment may vary based on factors including follow-up over time [4] within treatment modality [9]; doctor recommendation [5]; and other physical, psychosocial, and economic issues beyond the

treatment phase [1]. In the future, various treatment options for prostate cancer will increase. And, belief about having had the best treatment for prostate cancer is also expected to be an important issue. The challenge is to educate practitioners, men diagnosed with prostate cancer, their families, and others in the community so that more informed decision-making practices and choices take place.

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Table 1

Selected characteristics of 877 men with a history of prostate cancer

Characteristic	Frequency	Percent
Race		
White	462	52.7
African American	415	47.3
Marital		
Married	666	75.9
Not married	211	24.1
Education		
High school	317	36.3
Some college and 2-year degree	198	22.7
College graduate (4 years) and beyond	358	41.0
Employment		
Working full/part-time	520	59.7
Retired	351	40.3
Age (tertiles)		
1. 61 (youngest)	287	32.7
2. 62–68 (middle)	277	31.6
3. 69+ (oldest)	313	35.7
Health insurance coverage in past 2 years		
No	59	6.8
Yes	813	93.2
Year and month of initial treatment (tertiles)		
Recent treatment (2009 Dec.–2011 Mar.)	274	31.2
Middle (2009 Apr.–2009 Nov.)	319	36.4
Earlier treatment (1994 Jan.–2009 Mar.)	284	32.4
Initial treatment received		
Surgery	567	67.9
Radiation	147	17.6
Other treatments	46	5.5
Active surveillance	75	9.0
Treatment decision		
Subject 100 % decision	648	74.8
Shared or others' decision	218	25.2
Bother from side effects		
Not at all–a little bother–moderate	233	27.1
Quite a bit–very much bother	626	72.9
Content with quality of life		
Not at all–a little–somewhat content	285	32.6
Quite a bit–very much content	590	67.4
Doctor discussed various treatments		

Characteristic	Frequency	Percent
No	66	7.6
Yes	808	92.4
Believe that the treatment you got was the one that was best for you?		
No	89	10.3
Yes	776	89.7

N=877

Table 2

Selected characteristics of men with a history of prostate cancer and belief that treatment chosen was best

	Believe treatment chosen was best	<i>p</i> value
Characteristics	<i>N</i> (%) ^a	
Race		0.019
White	417 (92.1)	
African American	359 (87.1)	
Marital		0.238
Married	595 (90.4)	
Not married	181 (87.4)	
Education		0.002
High school	268 (85.6)	
Some college and 2-year degree	174 (89.2)	
College graduate (4 years) and beyond	331 (93.8)	
Employment		0.211
Working full or part-time	468 (90.7)	
Retired	302 (88.0)	
Age (tertiles)		0.260
1. 61 (youngest)	250 (87.7)	
2. 62–68 (middle)	246 (89.5)	
3. 69+ (oldest)	280 (91.8)	
Year and month of initial treatment		0.086
1. Recent treatment (2009 Dec.–2011 Mar.)	226 (86.3)	
2. Middle (2009 Apr.–2009 Nov.)	290 (90.9)	
3. Earlier treatment (1994 Jan.–2009 Mar.)	260 (91.5)	
Health insurance coverage in past 2 years		<0.001
No	43 (74.1)	
Yes	728 (90.8)	
Initial treatment received		0.001
Surgery	520 (91.7)	
Radiation	133 (91.1)	
Other treatments	40 (87.0)	
Active surveillance	52 (76.5)	
Treatment decision		0.793
Subject 100 % decision	577 (90.0)	
Shared or others' decision	197 (90.8)	
Bother from side effects		<0.001
Not at all to somewhat a bother	194 (83.6)	
Moderate–very much bother	572 (92.7)	
Content with quality of life		<0.001
Not at all to somewhat content	232 (82.3)	
Quite a bit to very much content	543 (93.3)	

	Believe treatment chosen was best	<i>p</i> value
Doctor discussed various treatments		
No	52 (6.7)	0.002
Yes	721 (93.3)	
Believe that the treatment you got was the one that was best for you?		
No	–	
Yes	–	

N=877

Table 3

Adjusted odds for belief that prostate cancer treatment received was best by selected characteristics

Characteristics	Believe treatment chosen was best AOR (95 % CI) ^b	p value
Race ^a		0.048
Caucasian American	Ref	
African American	0.57 (0.32, 0.99)	
Education ^a		0.041
High school	Ref	
Some college and 2-year degree	1.08 (0.57, 2.04)	
College graduate (4 years) and beyond	2.19 (1.15, 4.17)	
Employment		0.365
Working full or part-time	1.29 (0.75, 2.23)	
Retired	Ref	
Health insurance coverage in past 2 years		0.027
No	Ref	
Yes	2.35 (1.10, 4.99)	
Initial treatment received		<0.001
Surgery	4.26 (1.92, 9.44)	
Radiation	4.91 (1.89, 12.82)	
Other treatments	3.79 (1.12, 12.88)	
Active surveillance	Ref	
Bother from side effects		0.032
Not at all—a little bother	Ref	
Moderate—very much bother	2.57 (1.48, 4.48)	
Content with quality of life		<0.001
Not at all—somewhat	Ref	
Quite a bit—very much	3.34 (1.97, 5.65)	

N=877

^aThe variable, doctor discuss the various treatments before treatment, was entered into the analysis but was dropped due to multicollinearity with both race and level of education^b AOR adjusted odds ratio; CI confidence interval