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Race, healthcare access and physician trust among prostate cancer patients

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Abstract

Objective—To study the effect of healthcare access and other characteristics on physician trust among black and white prostate cancer patients.

Methods—A three-timepoint follow-up telephone survey after cancer diagnosis was conducted. This study analyzed data on 474 patients and their 1,320 interviews over three time periods.

Results—Among other subpopulations, black patients who delayed seeking care had physician trust levels that were far lower than that of both Caucasians as well as that of the black patients overall. Black patients had greater variability in their levels of physician trust compared to their white counterparts.

Conclusions—Both race and access are important in explaining overall lower levels and greater variability in physician trust among black prostate cancer patients. Access barriers among black patients may spill over to the clinical encounter in the form of less physician trust, potentially contributing to racial disparities in treatment received and subsequent outcomes. Policy efforts to

address the racial disparities in prostate cancer should prioritize improving healthcare access among minority groups.

Keywords

Race; Disparity; Prostate neoplasm; Healthcare utilization; Trust

Introduction

Prostate cancer mortality is more than twice as high for black men as it is for white men in the United States [1]. The causes of the racial disparity in mortality are still poorly understood, representing a major challenge in prostate cancer disparities research [2]. In order to help explain this mortality gap, several studies have examined racial disparities in prostate cancer care along the cancer continuum. These studies have shown that, first, compared to white men, black men were less likely to be screened for prostate cancer [3,4] and tended to be diagnosed with prostate cancer at a more advanced stage [5–8], with higher prostate-specific antigen (PSA) values [9,10], or with more aggressive disease [8,11,12]. Second, initial management of local-regional stage prostate cancer was found to differ by race, with black men more likely than white men to receive ‘watchful waiting’ rather than undergo aggressive treatment, particularly radical prostatectomy [13–18]. Third, racial disparities also exist in follow-up surveillance after a prostate cancer diagnosis, with black men receiving less frequent PSA surveillance after initial management and lower intensity medical monitoring under watchful waiting [19,20]. Still, even with the same treatment, black patients have shown shorter disease-free and overall survival compared with white patients [21,22].

In general, previous research suggests that black prostate cancer patients may experience greater barriers to timely diagnosis and appropriate care than their white counterparts. While many of the previous studies have focused on black patients’ poorer access, they have also proposed that other factors such as their knowledge, attitudes, and relationships with healthcare providers are potential sources of disparities [23–27]. Among these factors, patients’ trust in their physician may play a prominent role with regard to both care-seeking and care utilization. Mistrust has been found to be pronounced in African Americans [25] and appears to be reinforced in their encounters with providers. The importance of trust could be particularly relevant, especially where uncertainty and justifiable misgivings about the outcomes of medical procedures are high, such as prostate cancer screening and treatment.

Our previous study suggested that healthcare access, not culturally based attitudes or lack of knowledge, is the key factor to explain black–white disparities in prostate cancer care [28]. In a study of 555 newly diagnosed prostate cancer patients in North Carolina, we found that black men had good knowledge about their prostate cancer risk and the importance of treatment. However, they had poorer access to regular healthcare and reported lower rates of regular check-ups, digital rectal exams, and PSA tests than their white counterparts did. Notably, black men reported lower levels of trust in their physicians. The study suggests that black patients’ lower levels of physician trust may result mainly from their reduced access and, thus, limited opportunities to build trust in their own clinical encounters rather than from culturally based attitudes and beliefs.

In order to explicate the role of healthcare access as it may be associated with knowledge and attitudes, we examine the relationship between physician trust and healthcare access among black and white prostate cancer patients. Study findings will help differentiate the component factors associated with both trust and healthcare access and help inform interventions to resolve disparities in prostate cancer mortality through improvements in early detection and treatment.

Materials and methods

Study sample

From November 2001 to May 2004, the North Carolina Central Cancer Registry (NCCCR) and the University of North Carolina Rapid Case Ascertainment System identified 1,054 black and white men aged 40–75 with newly diagnosed, pathologically confirmed prostate cancer and adequate cognitive, language, and hearing capabilities to permit telephone interviews, as described in detail elsewhere [28]. For patients identified before 1 April 2003, we sent a letter and study description to the primary physician of each subject. A total of 135 patients were excluded because their physician's permission was not obtained. As the NCCCR changed its policy as of 1 April 2003 from requiring physician permission to notification [29], physicians of identified patients after that date were only notified of the planned patient contact.

Accordingly, prior to 1 April 2003, the patients' physicians participated in screening patients, including assessing their capacity to participate. And after that date, the interviewer alone assessed potential subjects. We sent eligible patients a letter describing the study and providing a toll-free number they could call for questions or to decline. Potential subjects were next called by a trained enrollment specialist who explained the study, answered questions, and sought the subject's participation. After excluding 291 patients who declined to participate in the study, we had a total of 555 patients who agreed to participate and completed the first wave of interviews. Follow-up interviews were conducted at two timepoints: three and six months later. In the second and third waves, 512 (92.3% of 555) and 483 (87.05% of 555) interviews were completed, respectively.

Baseline patient characteristics of socioeconomic status and healthcare access were measured only in the first wave interview, whereas trust and treatment decision-making variables were measured in each wave. Observations with missing values for these study variables were excluded. When trust and treatment decision-making variables were missing in the first wave but not for either of the next two waves, we imputed values of baseline characteristics from the first wave to other two waves' observations without missingness for the same individual. Excluding 230 observations with missing data, this present study used 1,320 interview observations nested within a sample of 474 patients (85.4% of the original sample of 555). Because of both attrition from the panel and the exclusion of observations with missingness, our data are unbalanced panel data, in which 474 individuals are observed with different numbers (1–3) of timepoints. We chose not to drop individuals who had missing interviews for three reasons. First, our study does not necessarily require balanced panel data. Second, limiting our study sample to individuals observed at all the three timepoints would significantly reduce the sample size because a few patients were interviewed at only two timepoints. Third, using a balanced panel in our study might exaggerate the potential issue of non-random attrition in our study because subjects with data in all the three waves could be different from their counterparts who did not participate in all the three interviews or who had missing values for the study variables. We examined the issue of non-random attrition in terms of baseline characteristics and will discuss its implication for our study results in the "Discussion" section.

Measures

Trust in one's physician was assessed by the Trust scale of the Primary Care Assessment Survey (PCAS) [30]. The Trust scale is composed of eight items each answered on a 5-point Likert scale: (1) I can tell my doctor anything, (2) My doctor sometimes pretends to know things when he is really not sure (reverse coded), (3) I completely trust my doctor's judgments about my medical care, (4) My doctor cares more about holding down costs than about doing what is needed for my health (reverse coded), (5) My doctor would always tell me the truth about my health, even if it was bad news, (6) My doctor cares as much as I do about my health, (7) If a mistake were made in my treatment, my doctor would try to hide it from me (reverse coded),

and (8) All things considered, how much do you trust your doctor? A summary score was created for each patient-interview observation by standardizing the sum of the eight response values to a 0–100 scale, where higher scores indicate more trust. Trust was measured in each survey wave.

The variables on treatment decision-making included one binary variable of whether the patient received aggressive primary treatment defined as surgery or radiation therapy, and a set of dummy variables of who made the treatment decision. Binary indicators of “decision-making by patient” and “decision-making by both doctor and patient” were created with the analytic reference category being “decision-making by doctor.” Two variables capturing different aspects of perceived access barriers were constructed using questions asked in the section of access to care: “Did you usually see the same doctor or medical person on each visit, or different ones?” and “During the year before you were diagnosed with prostate cancer, did you have a health problem that you wanted to see a doctor about but did not go for some reason?” Socioeconomic status variables included dummy variables for four levels of income and education. Data on these measures were obtained in the first survey wave.

Conceptual and analytical approach to race

Our approach to estimating the effects of race is informed by arguments advanced by Kilbourne and colleagues [31] and LaVeist [32], in which African Americans comprise a socially vulnerable and heterogeneous population group, not a homogeneous biological group. Such a conceptualization leads to investigating differential effects of black race in combination with other factors, such as poorer healthcare access and low socioeconomic status. One way of implementing this conceptualization in statistical modeling is to introduce interaction terms between black race and other factors in multiple regression models [32]. By applying this conceptualization and statistical guidance to this present study, we can avoid making the implicit assumption that all black prostate cancer patients will demonstrate less physician trust than white patients, and allow for examination of variation among subgroups of this population. Specifically, we can investigate which black subpopulations express lower levels of physician trust, which can put them at potentially greater risk of forgoing quality cancer care.

Statistical methods

Our survey data are composed of observations from each patient at up to three timepoints. In order to account for repeated measurements per patient and increase estimation efficiency, we employ the random-effects model of panel data analysis [33]. This is based on the key assumption that patient-specific intercepts follow a random distribution. In other words, patient-specific intercepts, or heterogeneous scales of reference for physician trust, must not show correlation with any of the explanatory variables. This assumption is justified because we use a well-validated survey instrument, as demonstrated in previous studies employing the same instruments [34,35]. These studies found that Trust scores were not significantly different between black and white primary care patients when adjusting for other sociodemographic, health profile, and delivery system factors [34], and that sociodemographic characteristics alone showed relatively small explanatory power for the PCAS scales, while their interaction terms with provider characteristics explained a considerable portion of the variance in analyses [35]. Accordingly, we have no reason to believe that there is significant correlation between unexplained baseline trust level and the explanatory variables, particularly race. Another important assumption regarding the random-effects model is that a considerable fraction of total variance in the error term is due to patient-specific intercepts. This assumption is confirmed in our results showing high *rho* values for the models (Table 3). All the statistical analyses were performed using Stata 9.2 (StataCorp, College Station, TX).

After conducting exploratory bivariate analyses, we built regression models of physician trust score using explanatory variables on treatment decision-making, healthcare access, and socioeconomic status, as well as age, race, and two dummy variables indicating the second and third waves of data collection. For variables on treatment decision-making, we considered whether the patient underwent aggressive primary treatment, defined as surgery or radiation therapy, and who made the treatment decision because these variables capture patients' experience in their clinical encounters and, thus, are expected to be highly correlated with patients' trust in their physician. To capture healthcare access not explained by socioeconomic status, we included two variables, whether the patient usually saw the same clinician and whether or not having failed to seek care when needed, because these two constitute important ways of measuring healthcare access [36].

We included each of the interaction terms between black race and these explanatory variables and examined the statistical significance at the 5% level (two-sided) in a given set of explanatory variables. Because over-utilization of interaction terms would impede clear interpretation of results, only those interaction terms that were found statistically significant were kept in the model. We present estimation results of three different models to clearly illustrate the association between variables in both parsimonious and more specified models.

Model 1 includes only the treatment decision-making variables, including two interaction terms between black race and variables on treatment decision-making. We present this model to show how the coefficient on black race changes in models, including healthcare access and socioeconomic status variables. Model 2A adds healthcare access and socioeconomic status variables, while Model 2B considers the full set of variables, including statistically significant terms for the interactions of black race and access. Compared with Model 2A, only one additional interaction term was added to Model 2B. By comparing the results between Model 2A and Model 2B, we examine whether the effect of healthcare access might differ by race in predicting the level of physician trust.

Results

Table 1 presents descriptive statistics for the study variables at the patient level. The overall average of physician trust score was 88.60. The average score of black patients was lower than that of white patients (86.73 vs. 89.65, $p = 0.0329$). Compared to white patients, black patients were less likely to choose aggressive primary treatment and reported that their treatment decisions were made more often by the physician and less often by the patient ($p = 0.019$). Black patients were found to experience access barriers more often than their white counterparts. The proportion of those patients who saw the same clinician for their medical visits was lower among black patients ($p = 0.002$). Black patients also reported that they had failed to seek necessary care more often than white patients did ($p = 0.004$). Furthermore, more black patients experience disadvantaged socioeconomic status by income and education level.

Table 2 presents the distribution of average physician trust scores by race and each of the study variables at the patient-interview observation level. For most categories of examination (i.e., study variable), black patients show lower averages than their white counterparts, although there is wide variation in the magnitude and statistical significance of the differences. Two categories, in particular, demonstrate wide racial differences in trust: black patients who reported that their treatment decisions were made by their physician, and black patients who reported having failed to seek care demonstrate less trust than their white counterparts. Income and education status demonstrated no statistically significant differences when other factors are accounted for.

Table 3 presents estimation results of the three multiple regression models. In all these models, interview wave dummies and age were not statistically significant, whereas choosing aggressive primary treatment was associated with higher levels of physician trust.

In order to interpret the full association between race and trust, one must include the partial effect of the race interaction terms. For example, while the coefficient on black race was -8.35 ($p < 0.001$) in Model 1, this does not mean that black patients as a group had lower levels of physician trust. Rather, if the decision on the primary treatment was made either by the patient or in collaboration with their doctor, then the gap in physician trust scores between black and white patients diminishes by 6.09 and 6.17 points, respectively. Therefore, only the subpopulation of black patients reporting that the treatment decision was made by the doctor still demonstrated a trust score, that is, 8.35 points lower than white patients.

Model 2A presents estimation results when healthcare access and socioeconomic status variables were added. As expected, having a regular source of care was associated with a higher physician trust score, and having failed to seek necessary care was associated with a lower physician trust score. However, income and education levels did not add to the explanation of trust. The coefficient on black race remains statistically significant, although the magnitude has decreased from that in Model 1.

Model 2B shows more striking results by adding further the interaction term between black race and having failed to seek care. The magnitude of the interaction term is even larger than that of the main effect estimated in Model 2A. Furthermore, black race is now statistically significant only at the 10% level, and its magnitude has decreased further to 4.47 from 8.35 (Model 1) or 6.27 (Model 2A). These key findings suggest that, while black patients have generally lower levels of trust in their physician than white patients, much of the effect can be explained by substantially lower trust levels within the subgroup of black patients who reported having failed to seek medically necessary care.

Discussion

In order to understand racial disparities in prostate cancer care, this present study focused on black patients' lower levels of physician trust as a potential barrier to quality cancer care. We specifically examined the relationships between lower levels of physician trust and access barriers between black and white patients. The estimation results reported in Table 3 suggest that healthcare access is important in explaining higher levels of physician trust among prostate cancer patients. This is not surprising at all, since physician trust can only build on a good relationship with a physician, requiring that "potential access" including insurance coverage be met as a precondition [37]. Our results, however, merit more careful consideration with respect to the potential misunderstanding or misinterpretation of the effect of race.

First, the results of Model 2A could lead to the conclusion that, even after controlling for healthcare access and socioeconomic status, black race was independently associated with lower levels of physician trust. However, such a conclusion would be inconsistent with our data. Model 2B shows that only subpopulations of the black patients reported lower levels of physician trust, which, then, were far lower than the average trust level observed in the black patients as a group. Once this heterogeneity within black patients was accounted for by including the interaction term in Model 2B, black race was no longer statistically significantly different from their white counterparts at the 5% level.

The second possible misinterpretation of the results would be to reject the existence of the racial effect based on the lack of a homogeneous racial effect as shown in Model 2B. Although our results suggest the importance of access in explaining prostate cancer patients' trust in their treating physician, this does not imply that race is unimportant. Quite to the contrary, race is

all the more important because black patients were found more vulnerable to access barriers, showing greater variability in their levels of physician trust than their white counterparts.

Given the above results, our study suggests that prostate cancer patients' physician trust may be affected by a more complex interplay between race and healthcare access, in which minority patients are more likely to mistrust healthcare providers and the medical establishment [25]. This study suggests that such mistrust among minority patients dramatically intensifies when combined with poorer healthcare access. Studies on health inequality have increasingly underscored the importance of understanding variability and vulnerability rather than the absolute level or average differences in health status [38,39]. By conceptualizing black race as a socially vulnerable and heterogeneous minority group and implementing that in statistical models, this present study allows us to move away from dichotomous examination of both race and access, which is so commonly practiced.

Our study suggests how racial disparities in access might translate into racial disparities in the utilization and quality of prostate cancer care. Access is, after all, mostly about enabling factors on the patient's side. Utilization and quality of care take place through the clinical encounter. Much of the previous literature has examined the relationships between potential access factors such as insurance coverage and the quality of prostate cancer care received by patients. Our study contributes to a better understanding of the link between patients' access barriers and quality problems at the clinical encounter. This was made possible only by capturing patients' experience with the care process through a community-based survey as in other initiatives [40]. The importance of capturing patients' experience in assessing the quality of care has been increasingly emphasized in recent years [30,41–43], particularly among racial and ethnic minority groups [44]. While prostate cancer patients' self-reported symptoms, quality of life, and satisfaction with their care have frequently been studied [45–52], patient–provider relationship at the clinical encounter has not been sufficiently investigated. Physician trust is probably more salient for high-quality prostate cancer care, given the clinical uncertainties governing much of the care process along the cancer continuum, the need for shared decision making, and the importance of follow-up after initial management.

This study suggests that the negative effect of black patients' access barriers may spill over to the clinical encounter in the form of lower levels of physician trust, potentially contributing to racial disparities in care and treatment outcomes. Therefore, access barriers may have even greater negative effects on the quality of care received by black patients than that are estimated as the direct effects of financial, organizational, or geographical barriers. As commonly seen in the prostate cancer disparities literature, approaching race and access as dichotomous characteristics may translate to policy recommendations centering on either reducing cultural barriers or access barriers. The main policy implication of this study is that concerted efforts are warranted to address both kinds of barriers among black men with prostate cancer and potentially to those who do not have it, in consideration of the implications for improved utilization of preventive care.

Several limitations should be noted in this present study. First, while this study has postulated the direction of causation from healthcare access to physician trust, we acknowledge the possibility of reverse causation. Even though the two access variables in our models were constructed for the period before cancer diagnosis, reverse causation is still theoretically possible. For example, patients whose physician trust levels were already lower might have chosen not to see the same clinician on each visit. However, it is much less plausible to presume that, because of their lower levels of physician trust, patients with reduced access to care were more willing and able to change physicians than other patients. In other words, it would be naïve to assume that such poorer healthcare access was both a readier option and more often *chosen* as the result of lower levels of physician trust. Thus, while acknowledging the

possibility of reverse causation, we do not believe that our results were practically affected by such issues. Fixed-effects estimation, which could be used to statistically control for individual heterogeneity in baseline trust levels, is not appropriate for this study because the variables of primary interest, race, and access are all time-invariant.

Second, the problem of attrition is a concern in this study, as with most longitudinal studies. In our study sample, the number of observations in the second and third interviews was 90 and 79%, respectively, among the observations in the first wave of black patients, compared with 96 and 96% for white patients. If this high attrition among black patients was concentrated predominantly among those with different levels of physician trust and poorer access, this study results may have underestimated the true effects of race, access, treatment decision-making, and other factors. For example, patients who chose aggressive primary treatment may develop more trust in their physicians due to their enforced partnership in a potentially life-saving but high-risk intervention. Conversely, patients who do not favor aggressive treatment may be repelled by physician recommendations in favor of them, eroding trust. When baseline characteristics are compared between the lost-to-follow-up group and the group of patients interviewed at all the three timepoints, the lost-to-follow-up group was less likely to have received aggressive treatment, has seen the same clinician, and has had college-level education (all $p < 0.05$). Nevertheless, the two groups did not exhibit statistically significant differences in trust scores and age. These findings suggest that, while the two groups may be different in important respects, the consequence of attrition for the main results of this study is not clear.

Third, this study focused on physician trust and used a summary score adopted from the Trust scale component of the PCAS scales. This scale alone cannot capture all the important dimensions that may affect the care process and quality at the clinical encounter. Also, although our models of physician trust score found somewhat large effect magnitudes with statistical significance, clinical or policy significance cannot be drawn directly from the estimated coefficients. Further research is required to develop ways of capturing prostate cancer patients' interpersonal care process, as well as to examine the relationships between the characteristics studied here and their association with prostate cancer outcomes.

Fourth, although having a usual source of care is generally used as an indicator of healthcare access, it is also possible that, for some patients in this study sample, seeing multiple clinicians could imply more, rather than less, access to the healthcare system. To the extent that this is the case, it becomes challenging to interpret the coefficient estimate of the variable as the effect of improved access. This uncertainty in the results may also explain why the interaction term between the usual source of care variable and black race was not statistically significant, whereas the interaction term between having failed to seek care and black race produced a large and statistically significant coefficient.

Despite these limitations, our study adds to knowledge about the racial disparities in prostate cancer care, both by providing a closer look at patients' experience with cancer care focusing on the doctor-patient relationship and by examining the interplay between race and access. Our results suggest that both race and access are important in explaining the overall lower levels and greater variability in physician trust among black prostate cancer patients. Black patients' poorer healthcare access may also have greater negative effects on the quality of care at the clinical encounter. As such, policy efforts to address the racial disparities in prostate cancer outcomes should prioritize improving healthcare access among minority groups.

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Table 1

Descriptive statistics of the study sample

Variables	All (<i>n</i> = 474)	Black (<i>n</i> = 170)	White (<i>n</i> = 304)	<i>p</i> -Value ^a
Physician trust score mean (S.D.)	88.60 (14.31)	86.73 (16.67)	89.65 (12.71)	0.0329
Age (years) mean (S.D.)	62.83 (7.26)	61.03 (7.43)	63.84 (6.97)	< 0.0001
Treatment decision-making				
Aggressive primary treatment (%)	84.60	80.59	86.84	0.070
Who made the treatment decision				0.019
Decision made by doctor (%)	8.86	11.76	7.24	
Decision made by patient (%)	46.84	38.24	51.64	
Decision made by both (%)	44.30	50.00	41.12	
Access to healthcare				
Usually saw same clinician (%)	87.97	81.76	91.45	0.002
Having failed to seek care (%)	6.75	11.18	4.28	0.004
Socioeconomic status				
Income				< 0.0001
Annual income < \$20,000 (%)	17.67	33.13	8.80	
Annual income \$20,000–40,000 (%)	20.81	28.22	16.55	
Annual income \$40,000–60,000 (%)	23.49	20.86	25.00	
Annual income > \$60,000 (%)	38.03	17.79	49.65	
Education				< 0.0001
Less than high school graduate (%)	17.51	32.35	9.21	
High school graduate (%)	26.16	36.47	20.39	
Some college (%)	22.57	18.82	24.67	
College graduate and more (%)	33.76	12.35	45.72	

Notes: Patient-level statistics for the sample used in the Model 1. Aggressive primary treatment is defined as surgery or radiation therapy

^aTwo-sided *t*-tests of means between black and white, or χ^2 tests of categorical variables

Table 2

Distribution of average physician trust score by race and study variables

Variables	All (<i>n</i> = 1,242)	Black (<i>n</i> = 424)	White (<i>n</i> = 818)	<i>p</i> -Value ^a
Overall	88.86	86.79	89.93	0.0001
Treatment decision-making				
Primary treatment				
Aggressive	89.47	87.44	90.47	0.0003
Conservative	85.08	83.31	86.24	0.2679
Who made the treatment decision				
Decision made by doctor	83.19	78.13	87.50	0.0321
Decision made by patient	88.60	87.08	89.23	0.0963
Decision made by both	90.19	88.74	90.99	0.0255
Access to healthcare				
Usually saw same clinician				
Yes	89.37	87.63	90.19	0.0024
No	85.00	82.81	87.24	0.1089
Having failed to seek care				
Yes	78.81	67.03	91.20	< 0.0001
No	89.53	88.84	89.87	0.1891
Socioeconomic status				
Income				
Annual income < \$20,000	87.28	85.77	90.15	0.0435
Annual income \$20,000–40,000	87.21	86.52	87.86	0.4809
Annual income \$40,000–60,000	87.98	86.48	88.64	0.2279
Annual income > \$60,000	90.68	88.62	91.10	0.0238
Education				
Less than high school graduate	86.45	85.10	89.33	0.0643
High school graduate	89.25	88.03	90.33	0.0781
Some college	87.89	85.42	88.88	0.0638
College graduate and more	90.40	90.40	90.41	0.9963

Notes: Patient-interview observation level statistics for the sample used in Models 2A and 2B. Aggressive primary treatment is defined as surgery or radiation therapy

^aTwo-sided *t*-tests of means between black and white

Table 3

Regression analysis of physician trust score

Variables	Model 1			Model 2A			Model 2B		
	Coeff.	p-Value		Coeff.	p-Value		Coeff.	p-Value	
Constant	90.71**	< 0.001		90.10**	< 0.001		89.06**	< 0.001	
Interview 1 (Ref.)									
Interview 2	0.58	0.285		0.49	0.376		0.45	0.416	
Interview 3	0.06	0.917		0.10	0.863		0.06	0.918	
Age (years)	-0.08	0.318		-0.10	0.227		-0.08	0.342	
Black (vs. White)	-8.35**	< 0.001		-6.27**	0.009		-4.47	0.063	
Treatment decision-making									
Aggressive primary treatment	4.79**	0.002		3.57*	0.024		3.29*	0.033	
Decision made by doctor (Ref.)									
Decision made by patient	-0.52	0.731		-0.04	0.978		0.03	0.986	
Decision made by both	-0.08	0.954		0.57	0.704		0.60	0.689	
Black × (Decision made by patient)	6.09**	0.009		5.05*	0.034		4.54	0.056	
Black × (Decision made by both)	6.17**	0.005		5.06*	0.024		4.79*	0.032	
Access to healthcare									
Usually saw same clinician				4.82**	0.006		4.25*	0.013	
Having failed to seek care				-10.56**	< 0.001		0.08	0.981	
Black × (Having failed to seek care)							-19.35**	< 0.001	
Socioeconomic status									
Annual income <\$20,000				-0.86	0.689		-1.83	0.390	
Annual income \$20,000–40,000				-1.82	0.287		-2.25	0.180	
Annual income \$40,000–60,000				-2.47	0.108		-2.88	0.056	
Annual income >\$60,000 (Ref.)									
Less than high school graduate				-0.62	0.778		0.23	0.914	
High school graduate				1.54	0.350		1.45	0.370	
Some college				-2.28	0.140		-2.13	0.159	
College graduate and more (Ref.)									

Variables	Model 1		Model 2A		Model 2B	
	Coeff.	p-Value	Coeff.	p-Value	Coeff.	p-Value
Overall R^2	0.0459		0.0955		0.1299	
ρ	0.65		0.64		0.63	
Number of observations (patients)	1,320 (474)		1,242 (447)		1,242 (447)	

Notes: Model 2A and 2B used fewer observations than Model 1 because of missing values for income and education variables. Aggressive primary treatment is defined as surgery or radiation therapy

* Statistically significant at the 5% level

** Statistically significant at the 1% level