Racial and Ethnic Differences in Beliefs About Lung Cancer Care

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Background: Disparities in lung cancer treatment and palliative care are well documented. However, the mechanisms underlying these disparities are not fully understood. In this study, we evaluated racial and ethnic differences in beliefs and attitudes about lung cancer treatment and palliative care among patients receiving a new diagnosis of lung cancer.

Methods: Patients were recruited from four medical centers in New York City and surveyed about their beliefs regarding lung cancer care, including disease-directed treatments, palliative and end-of-life care, and fatalistic and spiritual beliefs. We used univariate and multiple regression analyses to compare the distribution of beliefs among minority (black and Hispanic) and nonminority patients.

Results: Of the 335 patients, 21% were black, 20% were Hispanic, and 59% were nonminority. Beliefs about chemotherapy and radiotherapy were similar across the three groups ($P > .05$), whereas black patients were more likely to believe that surgery might cause lung cancer to spread ($P = .008$). Fatalistic beliefs potentially affecting cancer treatment were more common among both minority groups ($P \leq .02$). No significant differences were found in attitudes toward clinician communication about cancer prognosis ($P > .05$). However, both blacks and Hispanics were more likely to have misconceptions about advance directives and hospice care ($P \leq .02$).

Conclusions: Similarities and differences in beliefs about disease-directed treatment were observed between minority and nonminority patients with lung cancer. Minority patients hold more fatalistic views about the disease and misperceptions about advance care planning and hospice care. Further research is needed to assess the impact of these beliefs on decisions about lung cancer care and patient outcomes.

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Abbreviations: SRM = Self-Regulation Model

A disproportionate burden of lung cancer morbidity and mortality has been consistently found for black and Hispanic populations in the United States.¹⁻³ Lung cancer incidence is higher among blacks,^{1,2} and survival is lower among both blacks and Hispanics compared with whites.^{3,4} Minority patients are more likely to present at advanced stages of disease and less likely to receive surgical resection, chemotherapy, and radiation therapy.^{5,6} Additionally, studies have demonstrated disparities in pain control, hospice use, and use of intensive treatment at the end of life. Reasons for these disparities are likely multifactorial, including patient, physician, and system-level factors.⁷⁻¹¹

Patient beliefs about lung cancer and treatment can influence use of clinical services and their outcomes.

To the extent that these beliefs differ by race or ethnicity, they may contribute to the disparities observed both for lung cancer treatment and for palliative and end-of-life care.¹²⁻¹⁴ However, differences in beliefs have not yet been fully investigated. Understanding differences in these beliefs is important to help clinicians to provide culturally sensitive care across the trajectory of lung cancer and to inform the design of targeted interventions to reduce disparities in lung cancer care. In the present study, we evaluated differences in beliefs and attitudes about lung cancer treatment, fatalistic and spiritual beliefs, communication about prognosis, and palliative and end-of-life care among minority and nonminority patients with recently diagnosed lung cancer.

MATERIALS AND METHODS

We recruited patients with recently diagnosed lung cancer from Mount Sinai Hospital, Montefiore Hospital, New York Presbyterian Hospital, and Harlem Hospital (all in New York City) between January 23, 2008, and February 9, 2011. The study population consisted of English- or Spanish-speaking patients aged ≥ 18 years who had been given a diagnosis of lung cancer within the past year. Potentially eligible patients were identified from centralized registries maintained by the pathology departments and tumor registries of the participating institutions. We used several of the following additional mechanisms to ensure identification of patients who were treated at the study sites but may have been given a diagnosis elsewhere: (1) regularly contacting lung cancer providers; (2) screening oncology, radiotherapy, and pulmonary clinics weekly; (3) placing flyers in areas where patients with lung cancer receive care; and (4) participating in tumor board meetings. Patients with lung cancer who were given a diagnosis of another malignancy, except for nonmelanoma skin cancer, within the past 5 years were excluded. Informed consent was obtained, and eligible patients underwent a standardized, face-to-face interview administered in English or Spanish by trained research staff. The study was approved by the Institutional Review Boards of Mount Sinai Hospital (05-0834[3]), Montefiore Hospital (07-10-384E), and New York Presbyterian and Harlem Hospitals (AAAC6787).

We used the theoretical framework of the Self-Regulation Model (SRM)^{15,16} to evaluate patients' beliefs and attitudes toward lung cancer treatment and palliative care. The SRM theorizes that actions patients take to solve their health problems are influenced by their conceptualization of the disease.^{15,16} According to this model, representation of the disease consists of the following five components: identity (eg, interpretation of lung cancer symptoms and labels attached to the disease), timeline (duration and trajectory of lung cancer), cause, consequences (perceived impact of lung cancer), and control (extent to which lung cancer can be controlled or cured). These mental representations of illness activate behavioral responses, influence treatment decisions, and guide coping strategies.

We adapted questions about health beliefs from prior work¹⁷ and from the Illness Perception Questionnaire, a validated instrument that includes items for the five cognitive domains of the SRM.¹⁸ Items assessing common folk beliefs about lung cancer and its treatment and about fatalistic and spiritual beliefs were derived from questions developed by Lannin et al¹⁹ and Margolis et al.¹² We also assessed attitudes about communication regarding lung cancer prognosis and information related to medical decision-making and evaluated patients' beliefs about the use of pain medications, advanced directives, CPR, and hospice care. The impact of spirituality on treatment decisions was evaluated with items adapted from Ehman et al,²⁰ the Religious Locus of Control Scale,²¹ and the National Midlife Development Survey.²² Participants were asked for their level of agreement with statements of specific beliefs on a four-point Likert scale (strongly agree, agree, disagree, and strongly disagree); those who responded strongly agree or agree were classified as holding the stated belief.

Sociodemographic data, including age, sex, race (white, black, Asian, or other), ethnicity (Hispanic vs non-Hispanic), educational achievement, marital status, and household income, were also collected. Patients who self-identified as Hispanic or Latino, regardless of race, were classified as Hispanic. We classified patients into the following three groups: black, Hispanic, and nonminority.

Statistical Analysis

Differences in baseline characteristics among the three groups were evaluated using χ^2 test or analysis of variance as appropriate; the distribution of lung cancer beliefs was compared using χ^2 or Fisher exact test. The association between minority status and beliefs about lung cancer treatment, communication, and palliative care was assessed using logistic regression analysis, adjusting for age, sex, marital status, education, and lung cancer stage. Education and socioeconomic status were collinear and, consequently, not included in the same model. All analyses were performed with SPSS (IBM) statistical software using two-tailed *P* values.

RESULTS

We screened 1,470 patients with lung cancer, of whom 953 did not meet eligibility criteria (diagnosed > 1 year ago or did not have lung cancer); 97 were excluded because of language, lack of capacity, or physician assent reasons. Of the 420 eligible patients, 335 (90%) agreed to participate in the study (median time from diagnosis to interview date, 2.9 months). Those who refused were older than the participants (74 vs 66 years). Overall, 21% of patients were black and 20% Hispanic; 46% of Hispanic patients were of Puerto Rican descent. Responses for items about communication preferences and hospice care were obtained for 306 participants because these items were added after the study was initiated. Age, sex, and smoking history were similar among the three groups (Table 1). Minority patients were less likely to be married ($P < .0001$) or employed ($P = .02$), reported lower income ($P < .0001$) and education ($P < .0001$) levels, and were more likely to receive a diagnosis at more advanced stages of disease ($P = .03$).

Unadjusted analysis showed that blacks were more likely than Hispanics and nonminorities to believe

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Table 1—Characteristics of Study Participants by Race and Ethnicity

Characteristic	Race/Ethnicity			P Value
	Nonminority (n = 198)	Black (n = 70)	Hispanic (n = 67)	
Age, y	66.6 ± 12	65.5 ± 10	64.4 ± 10	.36
Female sex	106 (54)	36 (51)	38 (57)	.82
Married	127 (64)	28 (40)	28 (42)	< .0001
Income				< .0001
< \$5,000-\$15,000	23 (12)	23 (33)	20 (30)	
> \$15,000	109 (55)	22 (32)	12 (18)	
Do not know/not reported	65 (33)	24 (35)	34 (52)	
Education				< .0001
Never attended or less than junior high school	4 (2)	4 (6)	14 (23)	
Did not complete high school	18 (10)	22 (34)	17 (28)	
High school graduate or GED degree	47 (26)	14 (21)	17 (28)	
Some college, no degree	32 (17)	16 (24)	9 (15)	
College degree/professional training	82 (45)	10 (15)	4 (6)	
Native language				< .0001
English	174 (88)	70 (100)	27 (41)	
Other	24 (12)	0 (0)	39 (59)	
Employment status				.02
Employed	59 (30)	15 (22)	9 (13)	
Unemployed	18 (9)	12 (17)	5 (8)	
Retired	96 (50)	36 (52)	36 (54)	
Disability	15 (8)	4 (6)	11 (17)	
Other	6 (3)	2 (3)	5 (8)	
History of smoking	178 (90)	63 (90)	59 (88)	.91
Stage at diagnosis				.03
I	98 (53)	24 (36)	23 (39)	
II	18 (9)	9 (13)	3 (5)	
III	37 (20)	18 (27)	12 (20)	
IV	33 (18)	16 (24)	21 (36)	

Data are presented as mean ± SD or No. (%). GED = general educational development.

that surgery can cause lung cancer spread ($P = .008$) (Table 2). However, beliefs about chemotherapy and radiation therapy toxicity were not significantly different across the three groups ($P > .05$). Both blacks and Hispanics were more likely to hold the fatalistic beliefs that bad things are meant to be ($P = .02$) and should be accepted ($P = .0014$) and that everything is part of God's plan ($P < .0001$). Regardless of race or ethnicity, most patients (about 80%) preferred that bad news be communicated to both themselves and their families rather than to themselves or their families alone.

As shown in Table 3, we did not find differences regarding beliefs about pain medication use but did identify significant misperceptions among minorities regarding advance care planning. Hispanics were more likely than other groups to believe that living wills cannot be changed ($P = .002$), that a lawyer is needed to prepare a living will ($P = .0002$), and that it is preferable to have family make medical decisions ($P = .0001$). Blacks were more likely than nonminorities and Hispanics to believe that people with living wills would not receive treatment for their cancer ($P = .03$) and that CPR had a $> 50\%$ chance of success ($P = .006$).

Blacks were also more likely to hold faith-driven beliefs that life-supporting treatments should be

continued ("Should never stop life support because only God can decide when it is time for death," $P = .01$) and that miracles can occur ($P = .006$). Hispanics were more likely to believe that hospice care was not necessary if family can provide care ($P = .006$). Both minority groups were more likely to believe that hospice was restricted to patients expected to die in a few days ($P = .03$).

Multiple regression analysis adjusting for sociodemographic characteristics and lung cancer stage at diagnosis (Table 4) showed that blacks were more likely to believe that surgery causes cancer to spread (OR, 2.3; 95% CI, 1.1-5.0). No differences were found for other beliefs about disease-directed treatment. Differences in fatalistic beliefs remained associated with minority status in adjusted analysis; both blacks (OR, 2.9; 95% CI, 1.5-5.6) and Hispanics (OR, 2.5; 95% CI, 1.3-5.2) had greater odds of believing that things happen according to God's plan. Similarly, blacks (OR, 1.8; 95% CI, 1.0-3.5) and Hispanics (OR, 2.2; 95% CI, 1.1-4.4) were more likely to believe that bad things are meant to be.

Compared with nonminorities, Hispanics were more likely to believe that a living will cannot be changed (OR, 9.5; 95% CI, 2.4-37.0), that a lawyer is needed to prepare a living will (OR, 4.7; 95% CI, 1.9-12.1),

Table 2—Beliefs and Attitudes About Lung Cancer Care Among Minority and Nonminority Patients With Lung Cancer

Beliefs and Attitudes	Race/Ethnicity			P Value
	Nonminority (n = 198)	Black (n = 70)	Hispanic (n = 67)	
Lung cancer treatment				
Surgery will have bad side effects or complications.	88 (48)	36 (54)	27 (43)	.46
Surgery causes cancer to spread.	30 (17)	20 (30)	6 (10)	.008
Surgery for lung cancer is worse than the disease itself.	13 (7)	7 (11)	8 (13)	.30
Radiation therapy will have bad side effects or complications.	110 (66)	38 (61)	35 (58)	.58
Radiation therapy weakens body's ability to fight cancer.	52 (32)	24 (39)	19 (34)	.56
Radiation therapy is worse than lung cancer itself.	22 (13)	11 (18)	4 (7)	.23
Chemotherapy will have bad side effects or complications.	137 (75)	44 (68)	38 (69)	.46
Chemotherapy weakens body's ability to fight cancer.	57 (32)	23 (37)	25 (45)	.23
Chemotherapy is worse than lung cancer itself.	36 (20)	11 (18)	7 (12)	.34
Fatalism				
We are supposed to accept bad things when they happen.	80 (42)	36 (52)	40 (62)	.02
Everything that happens is part of God's plan.	84 (44)	50 (74)	46 (70)	< .0001
Bad things happen because they were meant to be.	73 (38)	37 (54)	40 (62)	.0014
Receiving cancer-related information ^a				
I will not like to be given bad news.	4 (2)	0 (0)	3 (7)	.16
I want bad news to be given to me and my family.	104 (78)	42 (82)	34 (76)	0.69
I want bad news to be given only to me, not my family.	23 (17)	10 (20)	5 (11)	.54
I want bad news to be given only to my family, not me.	3 (2)	4 (8)	4 (9)	.07

Data are presented as No. (%).

^aResponses to these items are based on fewer observations (n = 306) because these questions were added to the survey after the study was initiated.

and that it is preferable for family to make decisions (OR, 4.6; 95% CI, 1.5-13.5) (Table 5). Similar results were obtained for blacks, but the strength of the association was not as strong. Blacks were twice as likely (OR, 2.4; 95% CI, 1.0-5.8) to believe that life-supporting treatments should be sustained for religious reasons and 6.7 times (95% CI, 2.1-21.9) as likely to believe that treatment should not be declined because miracles can happen. Blacks also had 2.4 times the odds (95% CI, 1.0-5.7) to believe that hospice care must be received in a facility and was only for people who will die in a few days (OR, 2.5; 95% CI, 1.1-6.0). Hispanics had 5.5 times the odds (95% CI, 1.7-17.7) to believe that hospice care is not necessary if family can provide care. Analyses controlling for income showed similar results.

DISCUSSION

Disparities in lung cancer incidence, treatment, palliative care, and mortality have been well documented in the United States.^{4,7-9,23,24} Although access to care and system factors play a likely role, previous research has shown that disparities persist after controlling for these determinants.²⁵ We found multiple differences in beliefs and attitudes toward both lung cancer treatment and palliative care held by minority vs nonminority patients. Minorities also held more fatalistic views that might influence their approach to lung cancer care. These findings provide insight into potential mechanisms for observed disparities in lung

cancer care and may guide patient-provider communication about lung cancer treatment and use of palliative care services.

Prior studies suggested that disparities in lung cancer treatment among minority patients may be due to cultural factors, such as beliefs and attitudes toward treatment.^{6,12,26,27} However, these beliefs have not been fully explored. Consistent with prior studies, we found that blacks endorsed the belief that surgery can cause lung cancer to spread, a potential barrier to accepting surgical resection. We did not, however, identify significant differences regarding beliefs about chemotherapy or radiation therapy, both also underused by minorities. These findings suggest that factors other than patients' beliefs about chemotherapy and radiation mediate observed disparities.

Fatalistic beliefs have been cited as a potential reason for disparities in treatment and cancer stage at diagnosis.²⁸ A focus group of patients with lung cancer who declined treatment identified fatalism and faith, among other factors, as reasons for forgoing treatment.²⁸ The present study extends these results by showing that fatalistic views about lung cancer are more commonly held by minorities. It is important that clinicians appreciate these differences in order to provide culturally sensitive care and assist in treatment decisions.

Open prognostic communication allows for informed decision-making and is preferred by most patients with cancer; however, some studies have suggested that Hispanics with cancer may be less receptive to

Table 3—Beliefs and Attitudes About Palliative Care Among Minority and Nonminority Patients With Lung Cancer

Beliefs and Attitudes	Race/Ethnicity			P Value
	Nonminority (n = 198)	Black (n = 70)	Hispanic (n = 67)	
Pain control ^a				
Use of pain medications will shorten life.	1 (1)	0 (0)	2 (4)	.13
A person with lung cancer should be strong and avoid pain medications.	23 (12)	5 (7)	9 (15)	.38
Advance care planning				
Once you complete a living will, you cannot change it.	6 (5)	7 (14)	9 (22)	.002
A lawyer is needed to do a living will.	20 (16)	16 (31)	19 (46)	.0002
It is better to have family make decisions.	12 (9)	11 (23)	15 (38)	.0001
If you have a living will, you will not receive cancer treatment.	1 (1)	4 (8)	0 (0)	.03
Doctors must follow the wishes in a living will.	106 (83)	40 (80)	32 (80)	.87
CPR				
CPR is likely to succeed (> 50-50 chance).	100 (89)	40 (95)	21 (78)	.006
CPR should always be performed.	87 (78)	34 (77)	23 (89)	.47
Treatment of lung cancer stops after patient is made DNR.	51 (45)	20 (47)	7 (29)	.32
Should never stop life support because only God can decide when it is time for death.	36 (32)	23 (52)	16 (57)	.01
Removing life support is like killing the person.	31 (28)	11 (27)	7 (28)	.99
Patients with lung cancer should be left alive as long as possible, even if quality of life is poor.	36 (32)	17 (41)	14 (54)	.10
Never decline treatments because miracles can happen.	69 (60)	34 (85)	21 (78)	.006
If patient is DNR, doctors will not treat cancer.	28 (14)	10 (14)	8 (13)	.93
Hospice care ^a				
A person on hospice care must be placed in a facility like a hospital or nursing home.	36 (33)	22 (51)	9 (32)	.09
There is no need for hospice care if a patient has family to care for them.	22 (19)	13 (30)	13 (48)	.006
Hospice care is only for people who will die in a few days.	61 (53)	32 (73)	20 (71)	.03
Do not want home health care because do not want strangers in the home.	17 (15)	6 (14)	1 (4)	.30
Home health services would make my family feel they had not fulfilled their responsibilities.	5 (4)	4 (9)	1 (4)	.47

Data are presented as No. (%). DNR = do not resuscitate.

^aResponses to these items are based on fewer observations (n = 306) because these questions were added to the survey after the study was initiated.

discussions about death and palliative care.²⁹⁻³¹ Hispanics have been shown to favor a family-centered model and may prefer that information be given to their family instead of themselves.^{30,31} However, we found that minority patients with lung cancer had similar preferences as nonminority patients regarding discussions about prognosis. It may be that the Hispanic patients we interviewed, who were mainly Puerto Rican, are distinct in this regard from those studied previously, who were mainly Mexican.^{30,31}

Racial disparities in pain assessment and treatment have been described across various medical settings.³² Physician bias in prescribing analgesic medications and patient access to care or pain medications have been identified as possible reasons for these disparities.^{32,33} A study of 31 patients with cancer identified patient beliefs that may contribute to inadequate management of cancer pain among minorities.³⁴ In particular, minorities overwhelmingly agreed that they should stay strong and not depend on pain medications. These attitudes, however, were not observed

among minorities in the present study, suggesting that other factors contribute to disparities in pain management.

Black and Hispanic patients with cancer are more likely to undergo intensive treatment at the end of life.⁷ We found that attitudes of blacks regarding intensive end-of-life treatment were related to faith-driven beliefs, namely that God decides the time for death and that miracles occur. A prospective, multicenter study showed that patients with advanced-stage cancer whose religious and spiritual needs were not adequately addressed had higher palliative care costs at the end of life.³⁵ These findings were more common among minorities and suggest that underuse of palliative care may be partly attributable to spiritual beliefs.

We also found that some beliefs regarding advance directives and hospice care held by minorities reflect misperceptions. Such misperceptions may underlie the decreased use of these resources among minorities.³⁶ Decreased access to health care, absence of appropriate surrogates, and concerns about placing

Table 4—Adjusted Association Between Beliefs and Attitudes About Lung Cancer Care and Minority Status

Beliefs and Attitudes	Race/Ethnicity	
	Black vs Nonminority	Hispanic vs Nonminority
Lung cancer treatment		
Surgery will have bad side effects or complications.	1.7 (0.9-3.2)	0.7 (0.4-1.5)
Surgery causes cancer to spread.	2.5 (1.2-5.4)	0.3 (0.1-1.2)
Surgery for lung cancer is worse than the disease itself.	1.9 (0.6-6.2)	2.7 (0.8-8.7)
Radiation therapy will have bad side effects or complications.	0.9 (0.4-1.8)	0.8 (0.4-1.8)
Radiation therapy weakens body's ability to fight cancer.	1.4 (0.7-2.9)	1.4 (0.6-2.9)
Radiation therapy is worse than lung cancer itself.	1.0 (0.4-2.7)	0.3 (0.1-1.6)
Chemotherapy will have bad side effects or complications.	0.8 (0.4-1.8)	0.7 (0.3-1.6)
Chemotherapy weakens body's ability to fight cancer.	1.3 (0.6-2.7)	1.7 (0.8-3.5)
Chemotherapy is worse than lung cancer itself.	0.9 (0.4-2.0)	0.5 (0.2-1.6)
Fatalism		
We are supposed to accept bad things when they happen.	1.7 (0.9-3.2)	1.8 (0.9-3.6)
Everything that happens is part of God's plan.	2.9 (1.5-5.6)	2.5 (1.3-5.2)
Bad things happen because they were meant to be.	1.8 (1.0-3.5)	2.2 (1.1-4.4)
Receiving cancer-related information		
I will not like to be given bad news.	... ^a	4.5 (0.6-31.3)
I want bad news to be given to me and my family.	1.2 (0.5-3.1)	0.8 (0.3-1.9)
I want bad news to be given only to me, not my family.	1.3 (0.5-3.5)	0.6 (0.2-2.1)
I want bad news to be given only to my family, not me.	2.4 (0.4-12.6)	9.3 (1.4-61.3)

Data are presented as OR (95% CI). Models adjusted for patient age, sex, education, and lung cancer stage at diagnosis.

^aAdjusted models were not conducted for this item given the low number of patients with lung cancer who held the belief.

Table 5—Adjusted Association Between Beliefs and Attitudes About Palliative Care for Lung Cancer and Minority Status

Beliefs and Attitudes	Race/Ethnicity	
	Black vs Nonminority	Hispanic vs Nonminority
Pain control		
Use of pain medications will shorten life.	... ^a	... ^a
A person with lung cancer should be strong and avoid pain medications.	0.5 (0.2-1.4)	0.8 (0.3-2.3)
Advance care planning		
Once you complete a living will, you cannot change it.	3.8 (1.0-14.4)	9.5 (2.4-37.0)
A lawyer is needed to do a living will.	2.4 (1.0-5.7)	4.7 (1.9-12.1)
It is better to have family make decisions.	3.2 (1.1-8.8)	4.6 (1.5-13.5)
If you have a living will, you will not receive cancer treatment.	15.7 (1.0-240.6)	... ^a
Doctors must follow the wishes in a living will.	1.1 (0.5-2.9)	1.1 (0.4-3.2)
CPR		
CPR is likely (> 50-50 chance) to succeed.	2.9 (0.6-15.1)	0.3 (0.1-1.0)
CPR should always be performed.	1.0 (0.4-2.9)	2.3 (0.5-9.4)
Treatment of lung cancer stops after patient is made DNR.	1.0 (0.4-2.1)	0.5 (0.2-1.5)
Should never stop life support because only God can decide when it is time for death.	2.4 (1.0-5.8)	1.5 (0.5-4.5)
Removing life support is like killing the person.	1.4 (0.5-3.4)	1.2 (0.4-3.8)
Patients with lung cancer should be left alive as long as possible, even if quality of life is poor.	1.8 (0.8-4.2)	1.6 (0.6-4.5)
Never decline treatments because miracles can happen.	6.7 (2.1-21.9)	1.9 (0.6-5.6)
If patient is DNR, doctors will not treat cancer.	1.0 (0.4-2.4)	0.8 (0.3-2.2)
Hospice care		
A person on hospice care must be placed in a facility like a hospital or nursing home.	2.4 (1.0-5.7)	0.7 (0.2-2.0)
There is no need for hospice care if a patient has family to care for them.	1.9 (0.8-4.9)	5.5 (1.7-17.7)
Hospice care is only for people who will die in a few days.	2.5 (1.1-6.0)	2.5 (0.8-7.1)
Do not want home health care because do not want strangers in the home.	1.0 (0.3-3.1)	0.2 (0.0-1.8)
Home health services would make my family feel they had not fulfilled their responsibilities.	4.7 (0.7-30.5)	... ^a

Data are presented as OR (95% CI). Models adjusted for patient age, sex, education, and lung cancer stage at diagnosis. See Table 3 legend for expansion of abbreviation.

^aAdjusted models were not conducted for these items given the low number of patients with lung cancer patients who held the belief.

burdens on surrogates may also explain lower rates of advance directive completion among minorities.³⁷⁻³⁹ Education about advance directives and palliative care options early in the treatment course may promote use of these resources and potentially result in improved quality of life, mood, and survival.⁴⁰

There are some limitations to the present study. Although we enrolled a diverse cohort, including 80% of eligible patients, their views may not represent those of patients who did not participate in the study. We enrolled patients with lung cancer within 1 year of diagnosis. It is possible that some patients' beliefs may have changed as a consequence of their treatment experience, side effects, complications, disease progression, or exposure to the health-care system. However, the median time from diagnosis to enrollment was <3 months, suggesting that most patients responded before completing cancer treatment. The study was limited to patients from four hospitals in New York City; thus, the generalizability of the findings may be limited. Additionally, men were slightly underrepresented. Although the study shows that minority and nonminority patients with lung cancer hold different beliefs and attitudes toward lung cancer care, further research is needed to assess the role of these beliefs on lung cancer treatment; palliative care use; and, eventually, patient outcomes.

In conclusion, the study shows racial and ethnic differences in a broad range of beliefs and attitudes toward lung cancer treatment and palliative care, with more pronounced differences in beliefs related to palliative than to disease-directed treatment. These differences may influence minority patients' treatment decisions and contribute to disparities in lung cancer treatment, survival, and palliative care. Recognition of cultural differences toward lung cancer may help to improve communication with these patients and can inform the development of interventions aimed at reducing disparities in cancer care.

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Dr Nelson: contributed to study design and manuscript preparation.

Dr Powell: contributed to data collection and manuscript revision.

Dr Salazar-Schicchi: contributed to data collection and manuscript revision.

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Dr Smith: contributed to data collection and manuscript revision.

Ms Lurslurchachai: contributed to data collection and manuscript revision.

Dr Halm: contributed to writing and revision of the manuscript.

Dr Leventhal: contributed to study design and manuscript revision.

Dr Wisnivesky: contributed to study design, data collection and interpretation, manuscript writing and revision.

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