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Beliefs and attitudes about lung cancer screening among smokers

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Abstract

The National Lung Screening Trial (NLST) recently reported that annual computed tomography (CT) screening is associated with decreased lung cancer mortality in high-risk smokers. Beliefs about lung cancer and screening, particularly across race and ethnicity, and their influence on CT screening utilization are largely unexamined. Our study recruited asymptomatic, high-risk smokers, 55–74 years of age from primary care clinics in an academic urban hospital. Guided by the self-regulation theory, we evaluated cognitive and affective beliefs about lung cancer. Intention to screen for lung cancer with a CT scan was assessed by self-report. We used univariate and logistic regression analyses to compare beliefs about screening and intention to screen among minority (Blacks and Hispanics) and non-minority participants. Overall, we enrolled 108 participants, of which 40% were Black and 34% were Hispanic; the mean age was 62.3 years, and median pack-years of smoking was 26. We found that intention to screen was similar among minorities and non-minorities ($p = 0.19$); however, Hispanics were less likely to report intention to screen if they had to pay for the test ($p = 0.02$). Fatalistic beliefs, fear of radiation exposure, and anxiety related to CT scans were significantly associated with decreased intention to screen ($p < 0.05$). Several differences were observed in minority versus non-minority participants' beliefs toward lung cancer and screening. In conclusion, we found that concerns about cost, which were particularly prominent among Hispanics, as well as fatalism and radiation exposure fears may

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constitute barriers to lung cancer screening. Lung cancer screening programs should address these factors to ensure broad participation, particularly among minorities.

Keywords

Cancer screening; Cancer; Health behavior; Cultural differences; Race and ethnicity; Health beliefs

1. Introduction

Among the solid organ malignancies, lung cancer is particularly aggressive, lethal, and stigmatized by its strong association with cigarette smoking [1,2]. Prognosis of lung cancer is highly dependent on stage at diagnosis, with advanced stages (III or IV) resulting in poorer outcomes. Recently, the National Lung Screening Trial (NLST) found that annual low-dose computed tomography (CT) screening is associated with a 20% decrease in lung cancer mortality in high-risk smokers [3]. Based on these findings, national guidelines are being revised, and lung cancer screening may become the standard of care in the near future.

The burden of lung cancer in the United States (US) falls disproportionately on minorities. In the US, Blacks have the highest incidence of lung cancer [1,4] and both Black and Hispanic patients have lower survival rates compared to Whites [5–7]. Higher mortality among minorities is explained, in part, by diagnosis at more advanced stage [7,8]. Thus, the potential favorable impact of lung cancer screening may be even greater among minorities.

Research on screening for other cancers, such as breast and colorectal, has shown that barriers to screening involve patient, provider and system level factors [9–11]. Several studies have demonstrated that cultural factors such as knowledge, beliefs and attitudes about the disease or screening process, mistrust of the healthcare system, and fatalistic beliefs may discourage participation in cancer screening programs, particularly among minorities [9,12–14]. Interventions targeting these factors have led to increased use of screening for colorectal and breast cancer [15–17]. As effective screening for lung cancer becomes available, it is important to identify potential barriers to implementation and to assess the role of beliefs and attitudes toward screening across both minority and non-minority populations. This knowledge could help improve screening rates among high-risk smokers as well as attenuate disparities in screening.

In this study we used the Self-Regulation Model (SRM) [18] to assess the influence of health beliefs on lung cancer screening among asymptomatic smokers. We then compared health beliefs held by minority and non-minority participants.

2. Methods

This cross-sectional study recruited patients from the primary care outpatient clinic of a large urban academic medical center from April 1, 2011 to July 31, 2011. The study cohort consisted of asymptomatic, English-speaking individuals between 55 and 74 years of age with a 10 pack-year cigarette smoking history. Individuals with a history of lung cancer or

a recent diagnostic or screening chest CT, and those undergoing work-up for lung nodules, were excluded. Potentially eligible participants were identified from the clinic's electronic registration system daily. After obtaining informed consent, a trained research assistant administered a standardized survey to study subjects in an in-person interview. The study was approved by our Institutional Review Board.

Sociodemographic characteristics were collected using validated questions [19]. Patients were classified into three groups based on their race and ethnicity: non-minority, Black, and Hispanic. All patients of Hispanic or Latino origin were classified as Hispanic regardless of race. Smoking history was ascertained with questions from the Global Adult Tobacco Survey [20].

To evaluate patients' beliefs and attitudes toward lung cancer and lung cancer screening, our survey included items based on the theoretical framework of the Self-Regulation Model (SRM). According to this model, actions taken by an individual to prevent disease are motivated by perception of risk of acquiring the disease and by the underlying cognitive and emotional representation of the disease and the self [18]. The representation of the disease consists of five components: beliefs about identity (interpretation of symptoms and labels attached to lung cancer), timeline (likely progression and trajectory of the disease), cause (lung cancer etiology), consequences (perceived impact of lung cancer), and control (extent to which the disease can be cured with screening).

Questions reflecting illness representations across these five domains were assessed with items adapted from the Revised Illness Perception Questionnaire [21]. We also included items assessing perceptions about lung cancer risk and beliefs about CT screening based on the Health Belief Model [22–25]. Additional items assessing common folk beliefs about lung cancer, cancer treatment, fatalism and religious beliefs were adapted from questions developed by Lannin et al. [26] and Margolis et al. [27]. We used a 4-point Likert scale to evaluate participants' level of agreement with statements of the beliefs under study. Participants responding “strongly agree” or “agree” to an item were classified as holding the belief.

After providing information about the potential benefits of CT-screening for lung cancer as shown by the NLST trial, the interviewer asked study participants whether, if their doctor recommended it, they would undergo lung cancer screening with a low-dose CT scan within the next 3 months. Participants were also asked how likely they were to undergo screening if they had to pay for the CT scan (“definitely,” “probably yes,” “maybe,” and “probably no”). Those who responded “definitely” or “probably yes” were classified as having the intention to undergo lung cancer screening.

2.1. Statistical analysis

Differences in baseline characteristics among non-minority, Blacks and Hispanics were evaluated with ANOVA or Chi-square tests, as appropriate. Intention to screen was compared among these groups using the Chi-square test. The association between intention to screen and beliefs about lung cancer and CT screening and differences in beliefs about screening by race and ethnicity were evaluated using the Chi-square test.

To identify factors independently associated with intention to screen, a multiple exact logistic regression model was developed adjusting for sex and race/ethnicity. Beliefs were grouped into domains (lung cancer beliefs, fatalism/spirituality, personal control, emotional representations, beliefs about CT screening, self-efficacy, and discrimination) and assessed for collinearity. Given the size of the study cohort, we chose to carry forward into the regression model the best candidate factor for each domain. Selection of these variables was based on the distribution of patients' responses, hypothesized importance based on the SRM, and the results of correlation and univariate analyses.

Analyses were performed with SPSS statistical package (IBM, Chicago, IL) and SAS software (SAS, Cary, NC) using two tailed p-values.

3. Results

Among 221 individuals identified as potential participants, 61 were ineligible (<10 pack-year history, history of CT scan in last 2 years, or undergoing a work-up for lung nodules or other pulmonary condition). Among the 160 eligible individuals, 110 individuals agreed to participate and completed the questionnaire (response rate of 70%). Two individuals of Indian/Alaskan Native origin were excluded; leaving a study cohort of 108 smokers.

The cohort consisted of 34 (32%) non-minority subjects, 40 (37%) Blacks, and 34 (32%) Hispanics. The distribution of age, gender, pack-year history, current smoking, and perceived health status was similar among non-minorities, Blacks, and Hispanics ($p > 0.05$ for all comparisons). Marital status ($p = 0.01$), education ($p < 0.001$), and familiarity with someone with lung cancer ($p = 0.01$) were significantly different across groups (Table 1).

3.1. Intention to screen

Of the 108 participants, 88 (82%) reported intention to undergo CT screening for lung cancer if recommended by their physician. Intention to screen was similar among minorities and non-minority participants (76% non-minority, 90% Black, 77% Hispanic; $p = 0.19$). However, reluctance toward screening and differences across groups emerged when subjects were asked about screening at their own expense. Overall, barely one-third (32%; $n = 37$) would undergo screening if they had to pay for the CT scan. Among non-minorities and Blacks, the proportion reporting intention to screen at their own expense was 42% and 44%, respectively, but 15% for Hispanics ($p = 0.02$).

3.2. Association between health beliefs and intention to screen

Unadjusted analysis showed that beliefs related to perceived impact of lung cancer (the "consequences" component of the SRM) influenced intention to undergo screening: participants who reported understanding the potential impact of lung cancer on their health and lives ("what lung cancer can do to me") were more likely to report an intention to screen ($p = 0.04$). Beliefs reflecting the other main components of the SRM (identity, causes, timeline and emotional representations of the disease) were not significantly associated with intention to screen ($p > 0.05$ for all comparisons; Table 2).

A stronger sense of self-efficacy, reflected by the expression of confidence that “I can discuss a CT scan with my doctor,” was significantly associated with an increased intention to screen ($p = 0.003$).

Subjects endorsing fatalistic beliefs (e.g., “If I develop lung cancer, I am not supposed to know why, I am just supposed to accept it,” $p = 0.002$; and “if I have lung cancer, it is better not to find out,” $p = 0.01$) expressed greater reluctance to undergo screening (Table 2). Mistrust in health care workers was also significantly associated with reluctance to screen ($p = 0.01$).

Some beliefs about the CT screening procedure itself diminished enthusiasm for screening (Table 2). For example, concerns about radiation effects ($p < 0.001$) and about discomforts of screening ($p = 0.03$) were negatively associated with intention to screen.

Exact regression analysis showed that beliefs reflecting fatalism (OR: 0.24; 95% CI: 0.05–0.96) and concerns about radiation exposure (OR: 0.10; 95% CI: 0.02–0.46) were independently and negatively associated with intention to screen after controlling for gender and race/ethnicity.

3.3. Racial and ethnic differences in beliefs and attitudes toward lung cancer and CT screening

Across racial and ethnic groups, we observed several differences in beliefs (Table 3). Blacks and Hispanics were more likely than non-minorities to report difficulty understanding lung cancer (“puzzling to me;” $p = 0.04$) and to hold misconceptions about lung cancer etiology (belief that microwave ovens can cause lung cancer; $p = 0.01$). However, beliefs related to other components of the SRM (timeline and personal control) were not significantly different by minority or non-minority status ($p > 0.05$ for all comparisons).

Beliefs reflecting fatalism and spirituality (e.g., “God will help if I have lung cancer,” $p < 0.0001$; “I believe if I have lung cancer, it was meant to be,” $p = 0.03$) were endorsed more often by minority compared to non-minority subjects. In addition, Blacks and Hispanics were more likely than non-minorities to believe that radiation from a CT scan could cause lung cancer ($p = 0.01$) and to report being afraid ($p = 0.01$) and nervous ($p = 0.02$) about CT scans. Treatment beliefs such as “lung cancer spreads so quickly that even if it is diagnosed by CT screening, it has already spread,” ($p = 0.03$) or “exposure of lung cancer to air during surgery can cause it to spread,” ($p = 0.02$) were more frequently reported by Blacks. Beliefs about lung cancer consequences such as “if I get lung cancer, I will lose my independence,” ($p = 0.02$) or “if I get lung cancer, it will cause difficulties for those close to me,” were held more frequently by non-minorities and Blacks compared to Hispanics ($p = 0.01$).

4. Discussion

Recent data have documented a reduction in lung cancer mortality with use of low-dose CT screening for high-risk groups such as heavy smokers. Already, the National Comprehensive Cancer Network recommends that high-risk smokers 55–74 years of age undergo lung cancer screening [28], and national screening guidelines are expected in the near future.

Although screening promises significant favorable impact given the high incidence and mortality associated with lung cancer, this potential can only be realized if individuals at risk actually participate in screening programs. In this study of a diverse sample of smokers at increased risk for lung cancer, we found that financial burdens of screening were perceived as a significant disincentive to such participation, particularly among Hispanics. In addition, we observed several differences between non-minority and minority smokers in beliefs and attitudes that might deter high-risk individuals from participating in screening, even if screening were recommended by a physician. These findings may be helpful in developing targeted approaches for broad participation in lung cancer screening, including minorities who have been difficult to engage in screening programs for other cancers.

Among subjects in this cohort, overall receptivity to screening was high, but diminished dramatically when participants faced the prospect of undergoing screening at their own expense. Intention to screen dropped by 50% across the entire cohort and even more substantially among Hispanics. Similar patterns have been observed in studies of the impact of costs on screening utilization for other cancers [29–33]. The decreased intention to screen when required to pay for the test may be explained in part by financial burden and/or lack of insurance and, as such, illustrates the importance of insurance coverage or other payment programs for cancer screening, especially for minorities with lower socioeconomic status.

Active smoking has also been shown to be a barrier to undergoing screening for lung cancer [34]. In a study by Silvestri et al., age-adjusted analyses showed that current smokers were less willing to undergo or pay for screening [34]. However, current smokers in this study were more likely to be male, non-White, and less educated compared to non-smokers, which may explain part of the variation in willingness to undergo screening. In our study, 37% of our participants were current smokers, a factor that may also explain their attitudes toward screening. Additionally, national data shows that individuals with lower SES or educational achievement are more likely to smoke [35]. Future studies are needed to further assess the interactions between socioeconomic status and active smoking on attitudes toward lung cancer screening.

We also found that fatalistic beliefs and fears related to the screening test were independently associated with decreased intention to undergo screening and were more common among minority subjects. Fatalistic beliefs have been associated with lower utilization of screening for early detection of other malignancies such as breast [36–38], colorectal [39,40], and cervical cancer [41,42]. Similarly, other studies have found an association between fear and anxiety related to the procedure and underutilization of colonoscopy and Pap smears [43–45]. Fear of radiation has also been associated with decreased mammogram screening [46,47], and similar to our study, has been reported as more commonly held by minorities [46,48]. For lung cancer screening, available data indicate that low-dose CT scanning is relatively safe from the standpoint of radiation exposure. The average dose radiation from a low-dose CT scan is approximately 2 mSv [49], considerably lower than from a standard CT (7 mSv), and comparable to the annual background radiation dose received by an average US citizen (approximately 3.5 mSv) [50]. A study by de Gonzalez et al. examined the risk of radiation-induced cancer in cystic fibrosis patients undergoing annual low-dose CT scans [51]. Considering yearly monitoring

beginning at age 18 years, the risk of radiation-induced cancer by 50 years of age was calculated to be less than 0.25%. Since some of the concerns expressed by subjects in our study reflected misconceptions about CT screening, it will be important to couple recommendations for lung cancer screening with education about the risks and benefits of the procedure.

Our study also addresses minority beliefs about lung cancer and CT screening. Different cultural perspectives on disease and medical care exist [9,27,52–54] and have the ability to result in underutilization of potentially life-saving preventive services. Consequently, these beliefs are important to understand when addressing screening recommendations, especially among minorities. Similar to Margolis et al., we found that African Americans were more likely than Whites to believe air exposure during lung cancer surgery causes tumor spread [27]. We also found that decreased knowledge of what lung cancer can do and beliefs about causes of lung cancer were suboptimal among minorities. Other studies have shown that factors such as poor knowledge of causes of cancer [53,54] and screening tests [9,52] are more common among minority groups and, in turn, have emphasized the beliefs' potential role in health care decisions.

We acknowledge limitations of our study. We sampled individuals from a single academic urban institution and excluded participants who did not speak English, limiting the generalizability of our findings. We also did not assess the potential effect of other cultural factors that have been linked to willingness to screen for other cancers, such as health literacy or English proficiency. However, the sample enrolled in the present study is representative of the patient population of our area. In addition, willingness to screen may be higher in our population as we had a larger proportion of participants that reported having undergone colorectal cancer screening in comparison to the general population (75% versus 59%) [55]. Furthermore, while the NLST found spiral CT scans decreased morbidity and mortality among individuals with 30 pack-years, we evaluated patients with 10 pack-years as included in prior lung cancer screening observational studies. However, individuals with a greater pack history of smoking may have different beliefs about undergoing lung cancer screening due to their increased risk.

We also measured the intention to screen, rather than directly observing actual screening completion. We recognize that there may be a discrepancy between intent and action, most likely resulting in fewer actual screenings compared to reports of intention to screen. Because lung cancer screening is not yet the standard of care, we proposed a hypothetical situation where a physician would recommend the screening. Studies have shown that actual discussions between a patient and a physician concerning cancer screening increase the likelihood that screening will be completed [56–59]. Lastly, the limited size of our cohort might have diminished the power to identify beliefs associated with intention to undergo lung cancer screening or with minority status. Still, our study provides evidence of potential barriers and cultural differences in beliefs and attitudes toward lung cancer screening as well as suggestions for further study and targeted development of strategies to optimize screening participation.

In summary, with new guidelines advising low-dose CT scans to screen for lung cancer in high-risk individuals [28], it is important to identify factors influencing utilization, particularly among minorities. We found that the requirement to pay was strongly associated with decreased intention to screen in our population, especially among Hispanics. In addition, our study showed a significant association between various beliefs and lung cancer screening intention that may direct the focus of education efforts or physician discussions about screening. Culturally appropriate discussions should address the beliefs more commonly held by minorities. Our findings suggest that national screening policies should provide appropriate insurance coverage to ensure adequate minority participation in lung cancer screening programs.

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Table 1

Characteristics of study participants according to race and ethnicity.

Characteristic	Total (N = 108)	Race/ethnicity			p-Value
		Non-minority (N = 34)	Black (N = 40)	Hispanic (N = 34)	
Age , years, mean $\pm$ SD	62.3 $\pm$ 5	63.5 $\pm$ 5	62.0 $\pm$ 4	61.6 $\pm$ 4	0.20
Female , N (%)	64 (59)	17 (52)	29 (71)	18 (53)	0.16
Income , N (%)					0.08
\$15,000	58 (54)	12 (36)	22 (54)	24 (71)	
>\$15,001	44 (41)	19 (58)	16 (39)	9 (27)	
Not reported	6 (6)	2 (6)	3 (7)	1 (3)	
Education , N (%)					<0.001
<Junior high school	10 (9)	1 (3)	5 (12)	4 (12)	
Did not complete high school	23 (21)	1 (3)	8 (20)	14 (41)	
High school graduate/GED ^a	25 (23)	3 (9)	11 (27)	11 (32)	
Some college, no degree	16 (15)	5 (15)	8 (20)	3 (9)	
College degree/professional training	34 (32)	23 (70)	9 (22)	2 (6)	
Smoking , pack years, median (IQR)	26 (25)	23 (25)	25 (29)	29 (28)	0.44
Current smoker , N (%)	40 (37)	8 (24)	17 (42)	15 (44)	0.18
Perceived health status , N (%)					0.13
Excellent	18 (17)	8 (24)	5 (13)	5 (15)	
Very good	24 (22)	11 (33)	6 (15)	7 (21)	
Good	51 (48)	13 (39)	22 (58)	15 (44)	
Poor	14 (13)	1 (3)	6 (15)	7 (21)	
Know lung cancer patient , N (%)	53 (49)	23 (70)	18 (44)	12 (35)	0.01

Bold items indicate *p*-value < 0.05.^aGED: General Education Diploma.

Table 2

Univariate association between beliefs and attitudes and self-reported intention to screen for lung cancer.

Beliefs and attitudes	Intention to screen, <i>N</i> = 88	No intention to screen, <i>N</i> = 20	<i>p</i> -Value
<i>Beliefs about lung cancer</i>			
Identity			
Lung cancer is puzzling to me	34 (39)	6 (30)	0.47
Causes			
Cigarettes cause lung cancer	78 (89)	15 (79)	0.20
My mental attitude/thinking negatively causes lung cancer	17 (20)	7 (39)	0.08
Microwave ovens cause lung cancer	29 (37)	8 (44)	0.54
Timeline			
If get lung cancer, will have to live with it for rest of life	64 (75)	15 (79)	0.74
If get lung cancer, will get very sick quickly	40 (47)	12 (67)	0.13
If get lung cancer, will die from it	45 (54)	15 (75)	0.09
Consequences of lung cancer and treatment			
Understand what lung cancer can do to me	85 (97)	17 (85)	0.04
If get lung cancer, will lose independence	40 (46)	13 (65)	0.13
If get lung cancer, will cause difficulties for those close to me	65 (77)	17 (85)	0.41
Lung cancer spreads so quickly, that CT screen would not help	36 (55)	9 (64)	0.51
Exposure of lung cancer to air during surgery causes it to spread	30 (41)	11 (61)	0.12
Fatalism/spirituality			
God will help if have lung cancer	61 (72)	10 (53)	0.11
If have lung cancer, was meant to be	29 (34)	6 (32)	0.86
Develop lung cancer, not supposed to know why, just accept it	22 (25)	12 (60)	0.002
Personal control			
If have lung cancer, better to not know	5 (6)	5 (26)	0.01
Lung cancer emotional representations			
Worried about lung cancer	49 (56)	9 (45)	0.39
Thoughts of lung cancer scare me	46 (52)	11 (55)	0.83
<i>Beliefs about CT screening</i>			
Health effects			
Radiation from a CT scan could cause lung cancer	23 (32)	13 (81)	<0.001
CT scan will not decrease risk of dying from lung cancer	28 (34)	9 (56)	0.09
Negative CT scan will decrease worry about developing cancer	51 (59)	13 (65)	0.60
If CT is negative, can continue to smoke without worrying	5 (6)	3 (17)	0.11
CT scan is uncomfortable/painful	8 (9)	5 (28)	0.03
CT scan emotional representations			
Afraid CT scan will find cancer	25 (29)	9 (45)	0.17
CT scans scare me	27 (31)	6 (32)	0.96
CT scans make me nervous	27 (31)	8 (42)	0.34
Self-efficacy			
Can arrange transportation for CT	85 (97)	20 (100)	0.40

Beliefs and attitudes	Intention to screen, <i>N</i> = 88	No intention to screen, <i>N</i> = 20	<i>p</i> -Value
Confident can talk to doctor about CT	88 (100)	18 (90)	0.003
<i>Discrimination</i>			
My ethnic group cannot trust doctors and health care workers	4 (5)	4 (22)	0.01
People of different ethnic groups receive same care in hospitals	61 (72)	10 (50)	0.06

Table 3

Association between race/ethnicity with beliefs and attitudes toward lung cancer and lung cancer screening.

Beliefs and attitudes	Race/ethnicity			p-Value
	Non-minority, N = 34	Black, N = 40	Hispanic, N = 34	
<i>Beliefs about lung cancer</i>				
Identity				
Lung cancer is puzzling to me	7 (21)	16 (39)	17 (50)	0.04
Causes				
Cigarettes cause lung cancer	31 (94)	36 (92)	26 (77)	0.051
My mental attitude/thinking negatively causes lung cancer	8 (26)	9 (23)	7 (21)	0.90
Microwave ovens cause lung cancer	5 (16)	17 (46)	15 (52)	0.01
Timeline				
If get lung cancer, will have to live with it for rest of life	29 (91)	28 (72)	22 (67)	0.06
If get lung cancer, will get very sick quickly	16 (53)	17 (44)	19 (56)	0.54
If get lung cancer, will die from it	23 (74)	19 (50)	18 (53)	0.10
Consequences of lung cancer and treatment				
Understand what lung cancer can do to me	32 (97)	38 (93)	32 (94)	0.72
If get lung cancer, will lose independence	23 (70)	16 (40)	14 (41)	0.02
If get lung cancer, will cause difficulties for those close to me	30 (91)	32 (82)	20 (61)	0.01
Lung cancer spreads so quickly, that CT screen would not help	7 (32)	19 (66)	19 (66)	0.03
Exposure of lung cancer to air during surgery causes it to spread	7 (25)	20 (61)	14 (45)	0.02
Fatalism/spirituality				
God will help if have lung cancer	11 (33)	33 (87)	27 (82)	<0.001
If have lung cancer, was meant to be	5 (16)	14 (35)	16 (47)	0.03
Develop lung cancer, not supposed to know why, just accept it	9 (27)	10 (24)	15 (44)	0.15
Personal control				
If have lung cancer, better to not know	2 (7)	4 (10)	4 (12)	0.76
Lung cancer Emotional representations				
Worried about lung cancer	18 (55)	19 (46)	21 (62)	0.41
Thoughts of lung cancer scare me	21 (64)	19 (46)	17 (50)	0.31
<i>Beliefs about CT screening</i>				
Health effects				
Radiation from a CT scan could cause lung cancer	5 (18)	15 (47)	16 (55)	0.01
CT scan will not decrease risk of dying from lung cancer	9 (29)	15 (43)	13 (39)	0.49
Negative CT scan will decrease worry about developing cancer	23 (70)	20 (50)	21 (62)	0.22
CT scan with no lung cancer, can continue to smoke without worrying	0 (0)	4 (10)	4 (12)	0.17
CT scan is uncomfortable/painful	1 (3)	6 (16)	6 (18)	0.14
CT scan Emotional representations				
Afraid CT scan will find cancer	12 (36)	7 (18)	15 (44)	0.047
CT scans scare me	4 (13)	13 (32)	16 (47)	0.01
CT scans make me nervous	5 (16)	14 (34)	16 (47)	0.02
Self-efficacy				

Beliefs and attitudes	Race/ethnicity			p-Value
	Non-minority, N = 34	Black, N = 40	Hispanic, N = 34	
Can arrange transportation for CT	32 (97)	40 (98)	33 (97)	0.99
Confident can talk to doctor about CT	32 (97)	41 (100)	33 (97)	0.54
<i>Discrimination</i>				
My ethnic group cannot trust doctors and health care workers	1 (3)	2 (5)	5 (15)	0.16
People of different ethnic groups receive same care in hospitals	23 (70)	23 (58)	25 (78)	0.17