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Perceptions and Utilization of Lung Cancer Screening among Smokers Enrolled in a Tobacco Cessation Program

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Abstract

Background: Although lung cancer screening (LCS) with low dose computed tomography (LDCT) reduces lung cancer mortality in high risk patients, most of those eligible are not referred for screening. Tobacco cessation counseling may be an opportune time to educate people about LCS, but little is known about the utilization and perceptions of LCS among people undergoing tobacco cessation treatment.

Materials and Methods: We surveyed 185 current smokers, including 122 smokers between age 55 and 80, who were attending a tobacco cessation class in a large integrated healthcare system regarding lung cancer risk perception and perceived benefits, harms, and barriers to LCS. We analyzed results according to whether participants had already undergone LCS and also whether they had undergone colorectal cancer screening.

Results: A minority of participants (18.9%) had undergone LCS, and no participant who had not undergone LCS was familiar with LCS. Perceived lung cancer risk was high and screening was believed to be beneficial. Common barriers included being a current smoker (56.6%), worrying about test results (52.5%), lack of knowledge about the test (50.8%), absence of symptoms of lung cancer (40.2%), costs of the study (35.2%), and worrying about being blamed for having smoked (33.6%). Perceived risk and barriers to LDCT were similar among people who had or had not previously undergone colorectal cancer screening.

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Conclusions: Utilization of LCS was low and few smokers were aware of LDCT for LCS. A number of patient-related barriers to screening exist among smokers. Tobacco cessation counseling may be an opportune time to provide education regarding LCS with LDCT.

Microabstract

Tobacco cessation counseling may be an opportune time to educate about lung cancer screening (LCS), but little is known about the perception of current smokers regarding LCS. We surveyed 122 current smokers between age 55 and 80 regarding their utilization and perceptions of lung cancer screening. Utilization of LCS was low and few smokers were aware of LCS.

Lung cancer is the most common cause of cancer death in the U.S. and worldwide.¹ Lung cancer screening (LCS) with low dose computed tomography (LDCT) reduces lung cancer mortality.² The National Comprehensive Cancer Network (NCCN) and US Preventive Services Task Force (USPSTF) guidelines recommend LCS in high risk patients, as do a number of other professional organizations.^{3–5} The USPSTF recommends screening current and former smokers aged 55–80 years who have smoked 30 pack-years or more, and who quit within 15 years if a former smoker. While no data exist specifically on the proportion of high risk people who undergo LCS, Pinsky and colleagues estimated, using National Lung Screening Trial (NLST) criteria, that 6.2% of adults over age 40 would be eligible for screening.⁶ Yet the number of patients screened at most LCS centers is anecdotally very low. We recently reported that only 8% of primary care physicians referred most or all high-risk patients to a LCS center over the prior 12 months.⁷

A number of barriers to utilization of LCS in high-risk patients exist. Barriers to health care can be organized into patient, physician, and healthcare system factors. There are relatively few studies on barriers to LCS, in contrast to other cancer screening interventions such as mammography. We previously conducted a survey assessing barriers to LCS among primary care physicians (PCPs) and found the following factors of greatest concern: a) effectiveness of LDCT to prevent death from lung cancer; b) potential risks of LDCT; and c) costs of LDCT. There are several small studies evaluating perceived barriers to LCS among high risk patients, however no study has investigated barriers to screening in people eligible for LCS since screening recommendations were made.^{8–13} Understanding perceived barriers to LCS in people eligible for LDCT screening is important when devising strategies to improve utilization of LCS for those who stand to benefit. Recently a validated survey tool was developed to assess lung cancer screening health beliefs, including perceived barriers to screening.¹⁴ Here, we surveyed current smokers who were enrolled in a tobacco cessation program and who met USPSTF eligibility criteria for LDCT regarding their perceptions of lung cancer risk and LCS.

Methods

Current smokers who attended at least one tobacco cessation group session, part of a four-session course entitled “Freedom from Tobacco,” at one of four participating Kaiser Permanente medical centers in Southern California were eligible to participate between January 2017 and December 2017. These four centers average approximately 693 participants per year. A total of 185 volunteer participants completed surveys at the end

of the class after distribution of the survey by tobacco cessation counselors. The number of people who declined to complete a survey was not recorded. Anonymous surveys were completed on scannable paper forms designed using HP TeleForm (Hewlett Packard, Palo Alto, CA). Completed surveys were collected and mailed to City of Hope for analysis by study staff. Participants were not compensated for survey completion. This study was reviewed and approved by the Kaiser Permanente Institutional Review Board. A waiver of informed consent was obtained as protected health information was not collected.

Survey Items and Measures

The survey was structured into five parts (supplementary data). First, participants were asked whether they had heard of or undergone lung cancer screening, colorectal cancer screening, and mammography. Questions on other cancer screening practices were included in order to evaluate potential differences in perception of LCS based on other cancer screening behaviors.

Participants were also asked about the likelihood of developing lung cancer over their lifetime. The next two sections of the survey incorporated portions of the validated Lung Cancer Health Beliefs assessment tool. Specifically, perceived benefits and perceived barriers scales were included in the survey. Finally, sociodemographic characteristics including age, race, income, education, and smoking history were collected.

Data Analysis and Statistical Methods

Although participants were instructed to complete the survey only if they were between ages 55 and 80, 63 (34%) individuals outside that age range completed the survey and those were excluded from this analysis. For this reason we provide a stratified analysis of perceived lung cancer risk, lung cancer screening benefits, and barriers to lung cancer among participants younger than 55 (n=63) and ages 55–80 (n=122).

Data were analyzed using SAS software (SAS Institute, Version 9.4, Cary, NC). Descriptive statistics including counts and percentages were used to summarize participants' sociodemographic information, current smoking status, utilization of screening tests, and knowledge of LCS. For questions pertaining to patients' perceptions of lung cancer risk and screening benefits, as well as patient perceived barriers to LCS, results were summarized after being grouped into agree/strongly agree and disagree/strongly disagree categories. Any differences between the study sample and the combined totals in tables 2–4 were due to missing data.

In addition to the aforementioned descriptive statistics, chi-square analyses were used to compare the distribution of participants' sociodemographic and screening perceptions, stratified by age group and prior receipt of lung cancer CT scan (never had CT scan vs ever had CT scan). Univariate and multivariate logistic regression analysis were used to assess associations between demographics and screening perceptions with prior receipt of lung cancer screening, with results described using odds ratios (ORs), 95% confidence intervals (CIs), and p-values. Included in the multivariate analysis were demographic characteristics and factors significant on univariate analysis (i.e. putting off screening due to lack of symptoms and putting off screening due to lack of knowledge of the test). Due to multiple

comparisons, statistical significance was set at a two-sided alpha 0.003 based on the Bonferroni method.

Results

We included 185 participants, including 122 participants between the ages of 55 and 80, who completed surveys. Most of them (62%) were 55–65 years old, at least 51% had a 30 pack-year or greater history of smoking, 39% were Hispanic or non-white, and 49% had an annual household income less than \$50,000 per year (Table 1). Of respondents older than 55, 98 (80.3%) previously underwent colorectal cancer screening (colonoscopy, sigmoidoscopy, or fecal occult blood test). Twenty-three participants older than 55 (18.9%) reported ever undergoing LDCT of the chest for LCS. The same number of participants reported ever hearing about LCS (no participant who did not undergo LDCT had heard of LCS).

Patient perceptions of lung cancer risk and screening beliefs are summarized in table 2. There were no significant differences between participants age less than 55 and those older than 55. Nearly two thirds of respondents age 55–80 (68%) agreed or strongly agreed that they would develop lung cancer sometime during their lifetime. In general, there was broad agreement (>75% of respondents) that lung cancer screening detects the disease early, decreases mortality, decreases worry for both patients and families, gives peace of mind and helps future planning.

Perceived barriers to lung cancer screening are summarized in table 3. There were no significant differences among participants younger and older than 55, using a p-value threshold adjusted for multiple comparisons. Among participants age 55–80, commonly perceived barriers included being a current smoker (62.5%), worrying about the results (56.1%), lack of knowledge about the test (56.4%), not having a family history of lung cancer (48.6%), lack of symptoms of lung cancer (48.6%), the high cost of the study (38.1%), worrying about being blamed for having smoked (36.9%), and worrying about feeling like a social outcast for smoking (35.7%). Fear of harm from the test was an uncommon perceived barrier (9%). We then restricted the analysis to participants who reported having undergone colorectal cancer screening, and survey responses to questions regarding perceived barriers were similar, including responses on perceived benefits of LCS (data not shown).

When we compared demographic characteristics and perceived barriers among survey respondents who reported undergoing LDCT and those who did not, only lack of knowledge of the test ($p=0.0002$) was significantly different between groups (table 4), after adjusting for multiple comparisons. In multivariate analysis, only lack of knowledge regarding LDCT was negatively associated with obtaining LDCT (OR 0.04 [0.01–0.32], $p=0.002$).

Discussion

In this study, we reported on lung cancer screening adoption, lung cancer risk perception, and perceived barriers to LCS among current smokers who attended a tobacco cessation counseling class. We found that eligible smokers in this healthcare system had high rates of colorectal cancer screening and that a minority had already undergone at least one LDCT

for LCS. No survey respondent who had not already undergone LDCT was familiar with LCS. We identified a number of barriers that were important to a large proportion of eligible participants, as well as possible barriers that were of concern to only a small minority of participants. Overall, there was little difference in perceived barriers to LDCT among those who did or did not report receiving colorectal or lung cancer screening, and the only significant difference was lack of knowledge of the test when comparing those who did or did not report undergoing LDCT in the past. Although we had intended to survey participants age 55–80 only, some participants younger than 55 completed surveys. Upon stratified analysis, there were no significant differences comparing the two groups with respect to perception of lung cancer risk, LCS benefits, and barriers to LCS.

Although other studies have reported findings on perceived barriers to LDCT, this study reported perceived barriers among participants eligible for LCS after LDCT was recommended by the USPSTF. These results are important because they can be used to design educational interventions to improve understanding of LDCT. Such educational interventions are critical, as almost 80% of survey respondents, most of whom were eligible for LDCT based on age and smoking history, had never heard of LCS. Some of the most commonly perceived barriers were surprising and could be straightforward targets for educational interventions. For example, 35% of participants responded that high cost may be a reason that they would not undergo LDCT, despite the fact that LDCT is covered without co-pay for most insured people who meet eligibility criteria for LCS. Forty percent reported that a lack of symptoms was a reason not to undergo LCS, even though cancer screening targets asymptomatic people. Many participants cited being a current smoker (57%), worrying about feeling like a social outcast for smoking (33%), and worrying about being blamed for having smoked (34%) as reasons they may not undergo LDCT. The shame and stigma from being a current smoker is an important issue to address during education about LDCT. Moreover, this provides important insight into health perceptions of smokers within the healthcare system studied and more broadly. For example, outreach and educational interventions for other smoking-related diseases such as heart disease and chronic obstructive pulmonary disease (COPD) should address the stigma so commonly felt in older smokers who disproportionately have these diseases. In contrast, few participants were concerned about the risks of LDCT. Although it is critical to educate people on potential harms of LDCT, there are a number of other important concerns that our study suggests should also be addressed during education about LDCT in order to improve the utilization of LDCT, which has been shown to decrease mortality from lung cancer.

Our results are consistent with other studies investigating patient barriers to LCS. One survey of current and former smokers, which included some participants over 55, was conducted before the USPSTF recommended LDCT.¹¹ That study, which did not collect pack-years information, reported that cost, specifically lack of insurance coverage, and fear of a lung cancer diagnosis were the two biggest barriers to LCS. Although we also found that cost was a commonly reported barrier to LCS for patients, almost all people who meet Medicare or USPSTF eligibility criteria for LCS have coverage for LDCT with no out-of-pocket expense, although they may be responsible for out of pocket costs associated with follow-up testing and treatment. Several investigators have reported on findings from focus groups where interviews with current and former smokers were

performed to further understand barriers to LCS.^{12,13,15} These studies, which asked open ended questions about LCS, found that cost, fatalistic beliefs regarding lung cancer, and lack of knowledge surrounding LDCT were common concerns. One of these studies, conducted by Carter-Harris et al., led to the development of the Lung Cancer Screening Health Belief Model tool, which was incorporated into this study.^{14,15} Other qualitative studies evaluated why participants declined LDCT. These studies identified a host of concerns including inconvenience, lack of knowledge, perceived low value of the test, and emotional barriers to LDCT.^{8,9}

There are several limitations to this study. First, the study cohort includes members of a large managed care organization with very high rates of preventive care. The rates of colorectal cancer screening and LCS may be higher than in other health care settings. Moreover, all study participants were current smokers who were enrolled and attended at least one tobacco cessation group counseling. These participants may have somewhat different risk beliefs and perceived barriers to LCS compared to former smokers or current smokers who did not seek out tobacco cessation counseling. While our results may not be generalizable to all practice settings, this information is still useful for development of educational interventions to promote LCS awareness, particularly among smokers who are participating in a tobacco cessation program.

Finally, it is challenging to accurately assess perceived barriers to a screening study which most participants surveyed have not heard of. However, we introduce LCS as a study to identify lung cancer and use a validated survey tool developed to identify perceptions and barriers to LCS. Our study suggests that by reaching out to current smokers who are referred for smoking cessation, we might be able to improve LCS education and uptake. This approach would complement existing efforts to capitalize on referral for LCS as an opportunity to positively change smoking behavior. Additional studies are needed to understand the interplay of LCS and smoking cessation in current smokers, in order to achieve the aims of reducing smoking and decreasing mortality from lung cancer.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Conflict of interest:

DR: Merck, grant funding

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Clinical Practice Points

Lung cancer screening is recommended in high-risk current and former smokers age 55–80, but it is severely underutilized. Millions of tobacco smokers utilize various tobacco cessation programs annually in the United States, but education regarding lung cancer screening is not typically included in tobacco cessation education, and little is known about what potential barriers to lung cancer screening smokers may have. In this study, we surveyed current smokers who were 55 to 80 years old regarding whether they had undergone lung cancer screening, and what their beliefs were regarding an exam to detect lung cancer early. We identified several potential barriers to screening among smokers that may be addressed during counseling, including not knowing much about lung cancer screening, concern regarding costs of screening, and perceived stigma for being a smoker. Meanwhile, knowledge about the efficacy of the test and risks of the test seemed to be less concerning to smokers. These data provide valuable information to facilitate addressing lung cancer screening education during tobacco cessation counseling.

Table 1.

Demographics of survey respondents (n=185)

Patient characteristic		Respondents N (%)
Age (y)	<=54	63 (34.1)
	55–65	76 (41.1)
	66–75	40 (21.6)
	>=76	6 (3.2)
Race/Ethnicity (n %)	White/Caucasian	110 (59.5)
	Black/African American	37 (20.0)
	Hispanic/Latino/Latina	24 (13.0)
	Asian/Pacific Islander	4 (2.2)
	Multiracial/Other	8 (4.3)
	Missing	2 (1.1)
Annual Household Income (\$)	Less than \$25,000	30 (16.2)
	\$25,000 – \$49,999	62 (33.5)
	\$50,000 – \$100,000	52 (28.1)
	More than \$100,000	28 (15.1)
	Missing	13 (7.0)
Highest Education	Some high school or less	16 (8.6)
	Completed high school/GED	33 (17.8)
	Some college, no degree	83 (44.9)
	Completed college	28 (15.1)
	Some post-college	7 (3.8)
	Postgraduate (some or degree)	13 (7.0)
	Missing	5 (2.7)
Pack-years	<30	77 (41.6)
	30	95 (51.4)
	Missing	13 (7.0)
Colonoscopy/sigmoidoscopy/stool test	Yes	116 (62.7)
	No	61 (33.0)
	Don't know	3 (1.6)
	Does not apply	2 (1.1)
	Missing	3 (1.6)
LDCT of chest	Yes	30 (16.2)
	No	139 (75.1)
	Don't know	11 (5.9)
	Missing	5 (2.7)
Patient has heard of lung cancer screening	Yes	30 (16.2)

Patient characteristic	Respondents N (%)
No	155 (83.8)

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Table 2.

Patient perceptions of lung cancer risk and screening benefits, patients aged <55 and 55 to 80 (n=185)

		Age Group		p value [†]
		<55 (total n=63) N (%)	55+ (total n=122) N (%)	
Patient perception of lung cancer risk				
It is likely to get lung cancer in his or her lifetime	Agree/strongly agree	46 (74.2)	81 (68.1)	0.3926
	Disagree/strongly disagree	16 (25.8)	38 (31.9)	
Patient perceptions regarding lung cancer screening benefits				
Detects lung cancer early	Agree/strongly agree	61 (98.4)	114 (98.3)	0.9562
	Disagree/strongly disagree	1 (1.6)	2 (1.7)	
Decreases lung cancer mortality	Agree/strongly agree	56 (90.3)	100 (86.2)	0.4267
	Disagree/strongly disagree	6 (9.7)	16 (13.8)	
Decreases worry about lung cancer	Agree/strongly agree	54 (88.5)	96 (82.1)	0.2602
	Disagree/strongly disagree	7 (11.5)	21 (17.9)	
Helps plan for future	Agree/strongly agree	57 (93.4)	101 (88.6)	0.3023
	Disagree/strongly disagree	4 (6.6)	13 (11.4)	
Decreases worry in family	Agree/strongly agree	54 (88.5)	101 (88.6)	0.9886
	Disagree/strongly disagree	7 (11.5)	13 (11.4)	
Gives peace of mind	Agree/strongly agree	59 (98.3)	104 (91.2)	0.0672
	Disagree/strongly disagree	1 (1.7)	10 (8.8)	

[†]Missing data are excluded from the analyses.[†]P-values based on chi-squared tests of association.

Table 3.

Patient perceived barriers to lung cancer screening, patients aged <55 and 55 to 80 (n=185)

Reasons Patients Delay Lung Cancer Screening		Age Group		p value †
		<55 (total n=63) N (%)	55+ (total n=122) N (%)	
Worry about result	Agree/strongly agree	29 (46.8)	64 (56.1)	0.2344
	Disagree/strongly disagree	33 (53.2)	50 (43.9)	
Lack of time	Agree/strongly agree	20 (32.3)	18 (16.2)	0.0145
	Disagree/strongly disagree	42 (67.7)	93 (83.8)	
Lack of regular health care provider	Agree/strongly agree	5 (8.2)	10 (9.1)	0.8430
	Disagree/strongly disagree	56 (91.8)	100 (90.9)	
No family history of lung cancer	Agree/strongly agree	29 (47.5)	54 (48.6)	0.8894
	Disagree/strongly disagree	32 (52.5)	57 (51.4)	
High cost	Agree/strongly agree	26 (41.9)	43 (38.1)	0.6152
	Disagree/strongly disagree	36 (58.1)	70 (61.9)	
No symptoms of lung disease	Agree/strongly agree	33 (53.2)	49 (45.0)	0.2979
	Disagree/strongly disagree	29 (46.8)	60 (55.0)	
Lack of transportation	Agree/strongly agree	5 (8.1)	9 (8.0)	0.9947
	Disagree/strongly disagree	57 (91.9)	103 (92.0)	
Fear of harm from LDCT	Agree/strongly agree	7 (11.3)	10 (9.0)	0.6288
	Disagree/strongly disagree	55 (88.7)	101 (91.0)	
Bad experience with healthcare	Agree/strongly agree	7 (11.3)	7 (6.3)	0.2491
	Disagree/strongly disagree	55 (88.7)	104 (93.7)	
Lack of knowledge about the test	Agree/strongly agree	39 (62.9)	62 (56.4)	0.4029
	Disagree/strongly disagree	23 (37.1)	48 (43.6)	
Believes too old to benefit from screening	Agree/strongly agree	3 (4.8)	13 (11.6)	0.1389
	Disagree/strongly disagree	59 (95.2)	99 (88.4)	
Current smoker	Agree/strongly agree	40 (64.5)	69 (62.2)	0.7584
	Disagree/strongly disagree	22 (35.5)	42 (37.8)	
Prefers not to know about any lung problems	Agree/strongly agree	10 (16.1)	25 (22.1)	0.3430
	Disagree/strongly disagree	52 (83.9)	88 (77.9)	
Worry about feeling like social outcast for smoking	Agree/strongly agree	24 (39.3)	40 (35.7)	0.6366
	Disagree/strongly disagree	37 (60.7)	72 (64.3)	

		Age Group		
		<55 (total n=63) N (%)	55+ (total n=122) N (%)	p value [†]
Reasons Patients Delay Lung Cancer Screening	Agree/strongly agree	30 (48.4)	41 (36.9)	0.1421
	Disagree/strongly disagree	32 (51.6)	70 (63.1)	
Worry about being blamed for having smoked	Agree/strongly agree	7 (11.3)	12 (10.7)	0.9071
	Disagree/strongly disagree	55 (88.7)	100 (89.3)	
Not worth the effort	Agree/strongly agree	6 (9.7)	10 (9.0)	0.8843
	Disagree/strongly disagree	56 (90.3)	101 (91.0)	

[†]Missing data are excluded from the analyses.

[†]P-values based on chi-squared tests of association.

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Table 4.

Demographics of Survey Respondents by Lung Cancer CT Scan Status, Age 55 to 80 (n=122)

	CT scan to look for lung cancer		
	No LDCT N (%)	Had LDCT N (%)	p value
Age (y)			
55–65	58 (65.2)	13 (56.5)	0.6551
66–75	26 (29.2)	9 (39.1)	
76–80	5 (5.6)	1 (4.3)	
Race/Ethnicity (n %)			
White/Caucasian	50 (56.8)	17 (73.9)	0.2765
Black/African American	24 (27.3)	2 (8.7)	
Hispanic/Latino/Latina	12 (13.6)	3 (13.0)	
API/Multiracial/Other	2 (2.3)	1 (4.3)	
Annual Household Income (\$)			
Less than \$25,000	10 (12.7)	6 (27.3)	0.0344
\$25,000 – \$49,999	25 (31.6)	11 (50.0)	
\$50,000 – \$100,000	30 (38.0)	2 (9.1)	
More than \$100,000	14 (17.7)	3 (13.6)	
Highest Education			
Some high school or less	8 (9.2)	2 (8.7)	0.5313
Completed high school/GED	13 (14.9)	3 (13.0)	
Some college, no degree	45 (51.7)	11 (47.8)	
Completed college	11 (12.6)	6 (26.1)	
Postgraduate (some or degree)	10 (11.5)	1 (4.3)	
Mammogram (excluding NA)			
Yes	52 (59.1)	10 (52.6)	0.4700
No	23 (26.1)	4 (21.1)	
Does not apply	13 (14.8)	5 (26.3)	
Colonoscopy/sigmoidoscopy/stool test			
Yes	68 (78.2)	21 (91.3)	0.1538
No	19 (21.8)	2 (8.7)	
It is likely that I will lung cancer in my lifetime			
Disagree	28 (31.8)	8 (36.4)	0.6844
Agree	60 (68.2)	14 (63.6)	
Might put off scan because I worry about result			
Disagree	41 (50.6)	7 (30.4)	0.0866
Agree	40 (49.4)	16 (69.6)	
Might put off scan due to lack of time			
Disagree	66 (82.5)	21 (95.5)	0.1287
Agree	14 (17.5)	1 (4.5)	

	CT scan to look for lung cancer		
	No LDCT N (%)	Had LDCT N (%)	p value
Might put off scan because I lack a regular health care provider			
Disagree	70 (88.6)	22 (100.0)	0.0972
Agree	9 (11.4)	0 (0.0)	
Might put off scan because I have no family history of lung cancer			
Disagree	40 (49.4)	15 (65.2)	0.1794
Agree	41 (50.6)	8 (34.8)	
Might put off scan because due to high cost			
Disagree	49 (60.5)	17 (73.9)	0.2382
Agree	32 (39.5)	6 (26.1)	
Might put off scan because i have no symptoms of lung disease			
Disagree	39 (50.0)	17 (77.3)	0.0228
Agree	39 (50.0)	5 (22.7)	
Might put off scan because I lack transportation			
Disagree	76 (95.0)	21 (91.3)	0.5048
Agree	4 (5.0)	2 (8.7)	
Might put off scan because I fear of harm from LDCT			
Disagree	73 (91.3)	20 (90.9)	0.9602
Agree	7 (8.8)	2 (9.1)	
Might put off scan because I had a bad experience with healthcare			
Disagree	73 (92.4)	23 (100.0)	0.1731
Agree	6 (7.6)	0 (0.0)	
Might put off scan because I lack knowledge about the test			
Disagree	28 (35.0)	17 (81.0)	0.0002
Agree	52 (65.0)	4 (19.0)	
Might put off scan because I believe I am too old to benefit from screening			
Disagree	68 (85.0)	23 (100.0)	0.0481
Agree	12 (15.0)	0 (0.0)	
Might put off scan because I am a smoker			
Disagree	28 (35.4)	10 (43.5)	0.4830
Agree	51 (64.6)	13 (56.5)	
Might put off scan because I prefer not to know about any lung problems			
Disagree	62 (76.5)	18 (78.3)	0.8630
Agree	19 (23.5)	5 (21.7)	
Might put off scan because I worry about feeling like social outcast for smoking			
Disagree	52 (65.0)	15 (65.2)	0.9846
Agree	28 (35.0)	8 (34.8)	
Might put off scan because I worry about being blamed for having smoked			
Disagree	51 (65.4)	16 (69.6)	0.7093

	CT scan to look for lung cancer		
	No LDCT N (%)	Had LDCT N (%)	p value
Agree	27 (34.6)	7 (30.4)	
Might put off scan because it is not worth the effort			
Disagree	70 (87.5)	21 (91.3)	0.6162
Agree	10 (12.5)	2 (8.7)	
Might put off scan because do not trust in healthcare system			
Disagree	72 (91.1)	21 (91.3)	0.9804
Agree	7 (8.9)	2 (8.7)	

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