Lung cancer stigma predicts timing of medical help-seeking in individuals with lung cancer

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This is the author's manuscript of the article published in final edited form as:
Carter-Harris, L., Hermann, C. P., Schreiber, J., Weaver, M. T., & Rawl, S. M. (2014, May). Lung Cancer Stigma Predicts Timing of Medical Help–Seeking Behavior. In Oncology nursing forum (Vol. 41, No. 3, p. E203). NIH Public Access. http://dx.doi.org/10.1188/14.ONF.E203-E210

Lung Cancer Stigma Predicts Timing of Medical Help-Seeking in Individuals With Lung Cancer

Abstract

Purpose/Objectives: The purpose was to examine relationships between demographic variables, healthcare system distrust, lung cancer stigma, smoking status and timing of medical help-seeking behavior in individuals with symptoms suggestive of lung cancer after controlling for ethnicity, socioeconomic status, and social desirability.

Design: Descriptive, cross-sectional, correlational study.

Setting: Outpatient oncology clinics.

Sample: 94 patients diagnosed in previous 3 weeks to 6 years with all stages of lung cancer.

Methods: Self-report written survey packets were administered in person followed by a semi-structured interview to assess symptoms/timing characteristics of practice-identified lung cancer patients.

Main Research Variables: Timing of medical help-seeking behavior, healthcare system distrust, lung cancer stigma, smoking status.

Findings: Lung cancer stigma was independently associated with timing of medical help-seeking behavior in lung cancer patients. Healthcare system distrust and smoking status were not independently associated with timing of help-seeking behavior.

Conclusions: Findings suggest that stigma is an important factor that influences medical help-seeking behavior for lung cancer symptoms, serving as a barrier to prompt help-seeking behavior.

Implications for Nursing: When designing interventions to promote early medical help-seeking behavior in individuals with symptoms suggestive of lung cancer, it is important to include methods that consider lung cancer stigma as a barrier that can be addressed through public awareness and patient-targeted interventions.

Knowledge Translation: Lung cancer stigma can serve as a barrier to timely diagnosis and treatment and is critical to address in intervention design in this population. Lung cancer is not a smoker-exclusive disease and public health efforts need to increase this knowledge.

Background and Significance

Lung cancer kills more people than any other cancer worldwide with an estimated 1.6 million new diagnoses and 1.4 million deaths annually (Bray, Ren, Masuyer, & Ferlay, 2012). In the United States, it is estimated there will be 228,190 new cases of lung cancer diagnosed and 159,480 people will die from this disease in 2013, representing 27% of all cancer-related deaths (ACS, 2013). Mortality from lung cancer is directly related to stage at diagnosis, with only 5% of lung cancers detected at a stage amenable to curative resection (Luo, Chen, Narsavage, & Ducatman, 2012). The overall five-year relative survival rate is only 16% (ACS, 2013).

Although lung cancer is often diagnosed in asymptomatic individuals who present for other health concerns, some people do experience symptoms. Those who experience symptoms prior to diagnosis may be concerned about their symptoms and seek medical help from a healthcare provider while others may choose to monitor and self-manage for varying lengths of time (Levealahti, Tishelman, & Ohlen, 2007; Tod & Joanne, 2010). When individuals with cancer delay seeking help from healthcare professionals, the probability of a late-stage diagnosis increases. Lung cancer can be asymptomatic until advanced (Corner, Hopkinson, Fitzsimmons, Barclay, & Muers, 2005). However, many individuals with lung cancer, even in early stages, experience symptoms prior to diagnosis, but often do not link the symptom(s) with the possibility of lung cancer (Corner et al., 2005). Common lung cancer symptoms include cough, dyspnea, fatigue, weight loss, hoarseness, and hemoptysis (ACS, 2013). These symptoms are common to smokers, however in the presence of lung cancer, they are increased, persistent, or worsening. Early recognition of lung cancer symptoms, combined with early medical help-seeking behavior has the potential to extend survival and decrease mortality from lung cancer (Goldberg, Mulshine, Hagstrom, & Pyenson, 2010; Tod, Craven, & Allmark, 2008).

Three variables — healthcare system distrust, lung cancer stigma, and smoking status — were identified from the investigator's pilot study as potential factors influencing delayed medical help-seeking behavior in individuals with lung cancer symptoms. Studies have shown lung cancer stigma is related to an internal self-blame and may adversely affect health status (Cataldo, Slaughter, Jahan, Pongquan, & Hwang, 2011; Else-Quest, LoConte, Schiller, & Hyde, 2009; Weiss, Ramakrishna, & Somma, 2006). Lung cancer's association with smoking, perceived self-infliction, and high mortality rates have resulted in substantial stigma associated with the disease (Chapple, Ziebland, & McPherson, 2004). Lung cancer patients are more likely to report higher self-blame, poorer self-esteem, and mental maladjustment than breast or prostate cancer patients (Else-Quest et al., 2009). Self-blame and stigma are influential in the timing of medical help-seeking behavior in individuals with lung cancer (Bell, Salmon, Bowers, Bell, & McCullough, 2010; Else-Quest et al., 2009). Findings related to the impact of smoking status on medical help-seeking behavior with lung cancer symptoms vary. One study found that a positive smoking status served as a barrier in an individual's medical help-seeking behavior (Stuber, Galea, & Link, 2008), while another reported that individuals frequently delayed seeking medical help because they expected blame for their illness regardless of their smoking status (Tod et al., 2008). Healthcare system distrust has been identified as a barrier to timely breast and cervical cancer screening and may influence timely medical help-seeking behavior in persons with lung cancer symptoms (Katapodi, Pierce, & Facione, 2010; Yang, Matthews, & Hillemeier, 2011). Specifically, healthcare system distrust was related to both delayed medical help-seeking behavior in symptoms of breast cancer and subsequent advanced breast cancer stage at diagnosis (Friedman et al., 2006; Gould, Fitzgerald, Fergus, Clemons, & Baig, 2010; Taib, Yip, & Low, 2011).

Purpose and Hypotheses

The purpose of this study was to examine relationships between selected sociodemographic variables (ethnicity, annual income, perceived financial status), social desirability, healthcare system distrust, lung cancer stigma, smoking status, and the time from symptom onset to medical help-seeking behavior in individuals with symptoms suggestive of lung cancer. Specific hypotheses tested were:

Hypothesis 1: The set of variables healthcare system distrust, lung cancer stigma, smoking status, annual income, perceived financial status, ethnicity, and social desirability will be associated with time from symptom onset to medical help-seeking behavior in individuals with lung cancer symptoms.

Hypothesis 2: After controlling for annual income, perceived financial status, ethnicity, and social desirability, the subset of variables healthcare system distrust, lung cancer stigma, and smoking status will be associated with time from symptom onset to medical help-seeking behavior in individuals with lung cancer symptoms.

Conceptual Framework

The *Factors Predicting Delayed Help-Seeking Behavior for Lung Cancer* model that guided this study was adapted from the Model for Understanding Delayed Presentation in Breast Cancer (Bish, Ramirez, Burgess, & Hunter, 2005). The Bish et al. conceptual model was derived from components of the Theory of Planned Behavior (Ajzen, 1991), Theory of Implementation Intentions (Gollwitzer, 1993), and Self-Regulation Theory (Leventhal, Nerenz, & Steele, 1984) and was chosen because of its specific focus on delayed presentation. The adapted model suggests that sociodemographic variables (ethnicity, annual income, perceived financial status, gender, age, education level, and insurance status) influence smoking status. In addition,

sociodemographic variables and smoking status influence healthcare system distrust and lung cancer stigma. Finally, smoking status, healthcare system distrust, and lung cancer stigma independently influence time from symptom onset to medical help-seeking behavior in individuals with symptoms suggestive of lung cancer.

Based upon the model, it was hypothesized that greater healthcare system distrust, higher perceived lung cancer stigma levels, and positive smoking status would predict time from symptom onset to medical help-seeking behavior, after controlling for social desirability, socioeconomic status, and ethnicity. Ethnicity and socioeconomic status were identified from the literature as potential covariates (Bibb, 2001; Facione, Miaskowski, Dodd, & Paul, 2002; Friedman et al., 2006; Henderson, Evans-Lacko, Flach, & Thornicroft, 2012; Lowndes et al., 2012). Because healthcare system distrust and lung cancer stigma may be sensitive topics, social desirability was also measured in this study and included as a covariate in the analysis.

Methods

A descriptive, cross-sectional, correlational study was conducted. Individuals were eligible for the study if they were age 22 or older, able to speak and understand English, primary diagnosis of lung cancer, and had knowledge of their lung cancer stage at diagnosis. Although the American Cancer Society (2013) reports that greater than 60% of lung cancer diagnoses are in individuals age 65 or older, capturing data from adult patients less than 65 years of age provided a more inclusive opportunity to understand predictor variables of delayed help-seeking behavior in lung cancer patients. The age of 22 was chosen because the primary recruitment site defined the adult age as 22 or older.

A convenience sample of 94 patients who were diagnosed with lung cancer at any stage was recruited from two outpatient sites in Louisville, Kentucky: 1) a thoracic oncology clinic in

an urban, academic medical center; and 2) a radiation oncology clinic in a private, community-based hospital. The university institutional review board and review committees at both recruitment sites approved the study. Ninety-five patients were approached about the study. Ninety-four (99%) agreed to participate and completed questionnaires and the in-person interview. Written informed consent was obtained from each participant after the investigator detailed the study requirements and answered questions.

Sample Size

Using G*Power version 3.1.4 (Faul, Erdfelder, Lang, & Buchner, 2009), a sample of 93 provided a power of .80 to identify a medium effect size (Cohen's f^2=.19) using 10 numerator degrees of freedom and a .05 level of significance.

Data Collection

Data were collected in the clinic prior to an oncology visit by two methods: (a) self-administered questionnaires measuring healthcare system distrust, lung cancer stigma, and social desirability; and (b) an in-person, semi-structured interview to assess demographic information, initial symptoms and time from symptom onset to medical help-seeking behavior. Due to the retrospective nature of the data, semi-structured interview was chosen to allow the investigator to assist with participant recall using key event mapping. This technique uses a calendar to assist participant recall by asking about symptom onset in relation to key personal events and common key events (Molassiotis, Wilson, Brunton, & Chandler, 2010). Participants were asked to recall, to the best of their ability, the date they experienced their initial symptom(s) and the date they actually sought medical help by calling to make an appointment with a healthcare provider for those symptoms. If the participant had difficulty recalling these events, key event mapping was used. Dates of their first symptom(s), when they first sought medical help by calling to make an

appointment, and when help was actually received were recorded in month/day/year format. If participants had difficulty recalling the specific day of the month, the first day of the month was used.

Measures

Time from symptom onset to medical help-seeking behavior for symptoms suggestive of lung cancer was the main outcome variable. This outcome was measured as the self-reported number of days between the date of first symptom(s) and the date the individual called to make a medical appointment for those symptoms.

Healthcare system distrust was measured using the nine-item **Revised Health Care System Distrust Scale** (Shea et al., 2008). Total scores ranged from 9-45 with higher scores indicating higher levels of healthcare system distrust. Cronbach's alpha for the distrust scale was .91 in this study, indicating excellent reliability. Validity has been supported in a previous study (Shea et al., 2008).

Self-perceived lung cancer stigma was measured using the **Cataldo Lung Cancer Stigma Scale** (Cataldo et al., 2011). The Cataldo Lung Cancer Stigma Scale is a 31-item scale with total scores ranging from 31-124; higher scores indicate higher levels of self-perceived lung cancer stigma. Cronbach's alpha for the stigma scale was .95 in this study, indicating excellent reliability. Cataldo and colleagues (2011; 2012) have supported validity of this measure.

Smoking status was assessed with four items taken from the Centers for Disease Control and Prevention's Behavioral Risk Factor Surveillance System (2008). Participants were classified as a never smoker, former smoker, or current smoker at the time of diagnosis. Social desirability was measured using the 20-item **Modified Marlowe-Crowne Social Desirability Scale** (Strahan & Gerbasi, 1972). This instrument has well-established reliability and validity

with reliability estimates using the Kuder-Richardson-20 formula ranging from .74 to .76 (Reynolds, 1982). The Kuder-Richardson-20 reliability estimate for the social desirability scale was .74 in this study, indicating an acceptable level of reliability.

Data Analysis

Data were analyzed using SPSS®, version 20.0 (SPSS, 2012) and SAS software, Version 9.3 (SAS, 2010). Descriptive statistics were calculated to examine participants' characteristics, scale scores on the healthcare system distrust and lung cancer stigma scales, prevalence of socially desirable responding, time from symptom onset to medical help-seeking behavior, and associations among study variables. After preliminary analysis, one case was excluded from the final analysis because it represented an extreme outlier on the outcome variable of time from symptom onset to medical help-seeking behavior, leaving a final sample size of 93. Variables were coded, scale scores were computed as appropriate, and assumptions of normality, linearity, and homoscedasticity were examined and were not violated, except for the outcome variable. The outcome variable revealed a positively skewed distribution. The decision was made to apply a log transformation, resulting in a more normally distributed outcome variable. The strength of relationships between time from symptom onset to medical help-seeking behavior and the independent variables, after controlling for covariates, were examined using general linear modeling with hierarchical regression.

Results

Sample Characteristics

The median number of days from symptom onset to medical help-seeking behavior for symptoms suggestive of lung cancer was 41 days (range = 0-366 days). In particular, 39 (42%) participants sought medical help within 30 days, 27 (29%) sought medical help in 31 to 90 days,

and 27 (29%) sought medical help after more than 90 days. The majority of participants were female, Caucasian, married, had a mean age 62 years (SD = 8.7; range = 44-83 years), and had completed high school or a higher level of education. More than three-fourths had been diagnosed with lung cancer at an advanced stage; 31% were diagnosed with stage III disease and 46% had stage IV cancer. Smoking status was fairly evenly distributed with 32.3% never smokers, 35.5% former smokers, and 32.3% current smokers at diagnosis. While some participants experienced more than one symptom, the most prevalent initial symptom reported by participants was cough or respiratory symptoms (44; 47.3%). Seventeen percent reported having two symptoms and 5.4% reported having three symptoms when first seeking medical evaluation prior to diagnosis. There was no relationship between smoking status and time from symptom onset to medical help-seeking behavior in individuals with lung cancer symptoms. One-way between-groups analysis of variance was performed between never smokers, former smokers, and current smokers and time from symptom onset to medical help-seeking behavior. There was no significant difference in mean time to medical help-seeking behavior across the three groups ($F (2, 90) = 1.529$, $p = .222$). Characteristics of the sample are summarized in Table 1. Descriptive statistics of healthcare system distrust and lung cancer stigma scores are reported in Table 2.

Hypothesis 1: The set of variables healthcare system distrust, lung cancer stigma, smoking status, annual income, perceived financial status, ethnicity, and social desirability will be associated with time from symptom onset to medical help-seeking behavior in individuals with lung cancer symptoms.

General linear models were used to determine strength of the relationship for healthcare system distrust, lung cancer stigma, smoking status, annual income, perceived financial status,

ethnicity, and social desirability with time from symptom onset to medical help-seeking behavior in individuals with lung cancer symptoms. The null hypothesis was rejected; there was a linear association between time from symptom onset to medical help-seeking behavior and healthcare system distrust, lung cancer stigma, smoking status, annual income, perceived financial status, ethnicity, and social desirability, supporting the hypothesis. The full model explained 22.5% of the variance in the time from symptom onset to medical help-seeking behavior in individuals with lung cancer symptoms ($F_{10, 82} = 2.37$, $p = .02$). Of the variables in the full model, lung cancer stigma was the only statistically significant predictor ($F_{1, 82} = 12.44$, $p = .00$; see Table 3).

Hypothesis 2: After controlling for annual income, perceived financial status, ethnicity, and social desirability, the subset of variables healthcare system distrust, lung cancer stigma, and smoking status will be associated with time from symptom onset to medical help-seeking behavior in individuals with lung cancer symptoms.

Change in R^2 between the full (Hypothesis 1) and a reduced general linear model was used to test if the variables of interest of healthcare system distrust, lung cancer stigma, and smoking status were associated with time from symptom onset to medical help-seeking behavior in individuals with lung cancer symptoms after controlling for annual income, perceived financial status, ethnicity, and social desirability covariates. After controlling for covariates, the variables of interest explained 14.5% of the variance ($F (4, 82) = 3.83$, $p = .007$). The hypothesis was partially supported because each variable — healthcare system distrust, lung cancer stigma, and smoking status — was not *independently* associated with time from symptom onset to medical help-seeking behavior in individuals with lung cancer symptoms.

Discussion

We hypothesized that higher levels of healthcare system distrust, perceived lung cancer stigma, and positive smoking status would predict time from symptom onset to medical help-seeking behavior after controlling for social desirability, socioeconomic status, and ethnicity. Analyses revealed that lung cancer stigma was a significant predictor of increased time from symptom onset to medical help-seeking behavior in lung cancer symptoms while healthcare system distrust and smoking status were not. While the authors had hoped to explain more than 22.5% (*full model*) and 14.5% (*reduced model*) of the variance respectively in time from symptom onset to medical help-seeking behavior, this was an exploratory study and perhaps there are key variables that were not examined in this study. Variables such as geographic location, access to transportation, family history of lung cancer, and knowledge level of lung cancer could be important predictors of time to seek medical help in symptoms suggestive of lung cancer and should be included in future studies.

The unexpected finding that healthcare system distrust did not predict time from symptom onset to medical help-seeking behavior conflicts with results of other studies where healthcare system distrust predicted delayed breast and cervical cancer screening behaviors (Katapodi et al., 2010; Yang et al., 2011). Distrust has also been identified as a barrier to obtaining healthcare services when medical problems arise (Shea et al., 2008). However, it is important to note that healthcare system distrust scores were moderately high in this sample with a mean score of 30.37 (SD = 6.1). While healthcare system distrust did not achieve statistical significance in this study, the *p* value was borderline ($p = .06$). Had the sample been larger, this relationship may have reached significance, which would have been consistent with other studies in patients with breast and cervical cancers. One alternative explanation for why healthcare

system distrust may not predict timing of medical help-seeking behavior in lung cancer could be related to the salience of lung cancer symptoms, which are more noticeable by individuals or others in their social environment compared to a breast lump or cervical discharge. Studies with other cancer patients point to a possible inverse relationship between age at diagnosis and healthcare system distrust (Katapodi et al., 2010). Given the overall younger age of participants in this study (mean age 62 years; SD = 8.7) and borderline significance of the association of healthcare system distrust and timing of medical help-seeking behavior, future research is needed to expand our understanding of the influence of healthcare system distrust in lung cancer patients as well as identify interventions that can effectively reduce levels of distrust in lung cancer patients.

The primary outcome of interest was time from symptom onset to medical help-seeking behavior for symptoms suggestive of lung cancer. Although the median number of days an individual waited to seek help for their lung cancer symptoms was 41, time from symptom onset to medical help-seeking behavior was fairly equally distributed across three time categories. Forty-two percent sought help within 30 days, 29% sought help in 31 to 90 days, and 29% waited more than 90 days to seek medical help for their lung cancer symptoms. Patient delay after symptom awareness has been defined as waiting to seek medical help for three months or longer in the context of breast cancer (Facione, 1993; Pack & Gallo, 1938). More research is needed to adequately define patient delay in the context of lung cancer. The growth of a lung tumor once symptoms are discerned can be exponential (Salomaa, Sallinen, Hiekkanen, & Liippo, 2005). Lung cancer is associated with a high mortality rate when diagnosed at an advanced stage (Ferlay et al., 2010; Jemal et al., 2011). Five-year relative survival rates for stage IIIB and stage IV lung cancer are 5% and 1% respectively (ACS, 2013). Therefore, detection of

lung cancer as early as possible after symptom onset presents the opportunity for earlier initiation of treatment and, potentially, longer survival (Salomaa et al., 2005).

The sample's younger age may have influenced the results of the study. This sample was younger (mean = 62.0 years) than most individuals diagnosed with lung cancer; the average lung cancer patient is 71 at diagnosis (ACS, 2013). The sample's younger age may be reflective of the relatively higher percentage of smokers in Kentucky compared to the nation - 29% versus 21%, respectively (Centers for Disease Control and Prevention, 2012). Kentucky also has a higher teen smoking rate, which may increase the risk for lung cancer at a younger age (CDC, 2012).

Smoking is the greatest risk factor for the development of lung cancer (ACS, 2013; Cataldo et al., 2012). However, the proportion of lung cancer patients in this study who had never smoked was considerably higher than the national average (32.3% vs. 10-15%; Thun et al., 2006). One potential explanation for the higher proportion of never smokers may be linked to the higher smoking rates in Kentucky. As a result, never smokers in our sample may have had higher levels of exposure to secondhand smoke compared to other studies. Another plausible explanation for this unique and surprising sample characteristic could be higher levels of exposure to radon, the second leading cause of lung cancer (Sethi, El-Ghamry, & Kloecker, 2012). This study was conducted in an area known for relatively high radon levels. Data were not collected on participants' residences or on radon exposure specifically, so we were unable to estimate the influence of this environmental carcinogen. However, it is conceivable that many participants in this study had significant radon exposure during their lives. This high level of radon exposure may account for lung cancer development in both younger individuals and those who have never smoked cigarettes.

Another unexpected finding was that smoking status did not predict time from symptom onset to medical help-seeking behavior. Previous studies demonstrated an association between smoking and delayed medical help-seeking behavior in individuals with lung cancer (Cataldo et al., 2012; Stuber et al., 2008). This delay was thought to be related to the masking of symptoms by tobacco use or people attributing any symptoms they experience to tobacco smoking. Further investigation is needed to better understand the relationship between smoking status and time from symptom onset to medical help-seeking behavior for lung cancer symptoms.

Strengths and Limitations

To our knowledge, this is the first study to identify lung cancer stigma as a predictor of time from onset of symptom(s) to medical help-seeking behavior in people with lung cancer. This study expanded understanding of the factors that contribute to delayed medical help-seeking behavior for symptoms suggestive of lung cancer. Understanding barriers to timely medical help-seeking behavior in lung cancer is a critical prerequisite to developing interventions to reduce delays. Although an oncogenic process can progress at rates that vary from person to person, promotion of early lung cancer symptom recognition and medical help-seeking behavior immediately when such symptoms present offers the potential for earlier initiation of treatment and enhanced survival.

Several limitations of this study should be recognized. The sample size of 93 participants is relatively small for a descriptive study. In addition, participants were recruited from two outpatient clinical sites located in Louisville, Kentucky. As discussed previously, it is possible that lung cancer patients in this region of the country differ from other lung cancer patients in important ways that could have influenced study results. The average participant was almost ten years younger than most individuals diagnosed with lung cancer in the United States. Younger

individuals may perceive symptoms differently than older counterparts and this may affect recognition and behavioral response to symptoms. Future studies should aim to recruit participants who reflect the national lung cancer population more closely.

Another limitation was the potential for recall bias. Data related to symptom awareness and the time from symptom onset to medical help-seeking behavior was collected retrospectively. Key event mapping was used to increase the accuracy of recall of important dates in this study. It is important to note, however, that most participants did not have difficulty recalling symptoms or timing of these events. For the few who did have difficulty with recall, key event mapping was successful. Several variables that may be associated with the time from symptom onset to medical help-seeking behavior among these patients were not examined in this study. Variables that should be examined in future studies include family history of lung cancer, exposure to secondhand smoke, primary care provider access, geographic location/residence history (as a proxy for radon exposure), access to transportation, and number of people living in the household.

Implications for Nursing

Lung cancer stigma is a significant predictor of the timing of medical help-seeking behavior in individuals with symptoms suggestive of lung cancer. Awareness that many lung cancer patients worry about the stigma associated with having a lung cancer diagnosis is important to consider when designing interventions to promote early recognition of symptoms and prompt medical help-seeking behavior. These concerns can serve as barriers to a timely diagnosis and treatment. The findings from this study support the need for a concerted public health awareness effort targeting lung cancer stigma. Because lung cancer stigma has historically grown out of the misconception that lung cancer is a self-inflicted disease that affects cigarette

smokers, mass media and educational messages about other risk factors (such as radon, secondhand smoke, environmental exposures, and genetic susceptibility) are essential to disseminate. Specifically, messages that convey the fact that people who have never smoked also develop lung cancer may be an effective approach to decrease lung cancer stigma. Educational messages also should be designed to increase public awareness about lung cancer symptoms, risk factors, staging, and implications of early versus late stage diagnoses. While current lung cancer public health efforts focus primarily on smoking cessation and prevention, awareness that lung cancer has causes other than smoking may be equally important.

Conclusion

Few people survive lung cancer primarily because it is diagnosed at an advanced stage (ACS, 2013). When individuals experience symptoms suggestive of lung cancer but wait to seek evaluation, lung cancer advances. Lung cancer stigma is an important predictor of delayed medical help-seeking behavior. Addressing this critical barrier to help-seeking is essential to improving outcomes for patients with lung cancer.

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Table 1. *Sample Characteristics of Study Participants*

Variable	**Study Participants N=93 (%)**
Gender	
Male	35 (37.6)
Female	58 (62.4)
Ethnicity	
Caucasian	77 (82.8)
African-American	16 (17.2)
Education	
Less than High School	3 (3.2)
High School Graduate	37 (39.8)
Some College	20 (21.5)
College Graduate or Higher	33 (35.5)
Marital Status	
Not Married/Separated	33 (35.5)
Married	60 (64.5)
Employment Status	
Employed	26 (28.0)
Unemployed/Retired	67 (72.0)
Insurance Status	
Medicare/Medicaid	41 (44.0)
Private Health Insurance	40 (43.0)
Uninsured	12 (12.9)
Stage at Diagnosis:	
Stage I	7 (7.5)

Stage II	14 (15.1)
Stage III	29 (31.2)
Stage IV	43 (46.2)
Smoker at Diagnosis	
Yes	30 (32.3)
No	63 (67.7)
Smoking Status	
Never Smoker	30 (32.3)
Former Smoker	33 (35.5)
Current Smoker	30 (32.3)
Do you now smoke?	
Every Day	6 (6.5)
Some Days	4 (4.3)
Not at All	53 (57.0)
How long since last smoked regularly?	
Within the past month	12 (12.9)
Within the past 3 months	3 (3.2)
Within the past 6 months	5 (5.4)
Within the past year	4 (4.3)
Within the past 5 years	8 (8.6)
Within the past 10 years	10 (10.8)
10 years or more	21 (22.6)
Packs per day (PPD) of current smokers at diagnosis	
Less than 1 PPD	5 (5.4)

1 PPD	12 (12.9)
1.5 PPD	1 (1.1)
2 PPD	10 (10.8)
3 PPD	2 (2.2)

Table 2

Descriptive Statistics of Healthcare System Distrust and Lung Cancer Stigma Scores (N = 93)

Measure	# of Items	Mean (SD)	Potential Range	Actual Range
Revised Healthcare System Distrust Scale	9	30.37 (6.1)	9 - 45	17 - 45
Cataldo Lung Cancer Stigma Scale	31	68.60 (11.49)	31 - 124	31 - 98

Table 3

ANOVA Table Testing Full General Linear Model for Variables Predicting Time to Seek Help in Days (Lg10) in Lung Cancer (N = 93)

Variable	*Degrees of Freedom*	*Mean Square*	*F Statistic*	*p value*
Perceived Financial Status	2	0.83	2.17	0.12
Annual Income	2	0.01	0.04	0.96
Ethnicity	1	0.29	0.75	0.39
Social Desirability	1	0.08	0.20	0.65
Smoking Status	2	0.43	1.12	0.33
Healthcare System Distrust	1	1.44	3.77	0.06
Lung Cancer Stigma	**1**	**4.75**	**12.44**	**>0.01**
Residual (Error)	82	.382		