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## Lung Cancer Screening Decisional Needs Among African American Smokers of Lower Socioeconomic Status

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### Abstract

**Objectives:** Adherence to most evidence-based cancer screenings is lower among African Americans due to system- and individual-level factors that contribute to persistent disparities. Given the recommendation for low-dose computed tomography (LDCT) screening among individuals at high risk for lung cancer, we sought to describe aspects of decision-making for LDCT among African Americans and to examine associations between select components of decision-making and screening-related intentions.

**Design:** African Americans (N=119) with a long-term smoking history, aged 55 to 80 years, and without lung cancer were recruited to participate in a cross-sectional survey. We measured knowledge, awareness, decisional conflict, preferences, and values related to lung cancer screening.

**Results:** The majority of the study population was of lower socioeconomic status (67.2% had an annual income of \$20,000) and long-term current (79%) smokers. Participants had a median 20 pack-years smoking history. Most participants (65.8%) had not heard of LDCT and the total lung cancer screening knowledge score was  $M=7.1/15.0$  ( $SD=1.8$ ). Participants with higher scores on the importance of the pros and cons of screening expressed greater likelihood of talking with a doctor, family, and friends about screening ( $p$ 's  $<.10$ ).

**Conclusions:** Findings have implications for addressing the decisional needs of lower socioeconomic African American current and former smokers to promote informed decision-making for LDCT.

### Keywords

Lung cancer screening; low-dose computed tomography; informed decision-making; African Americans

## Introduction

The burden of lung cancer is significant for African Americans, especially African American men, who have the highest lung cancer death rates compared to all other racial and ethnic groups (American Cancer Society 2019). An evidence-based screening test, low computed tomography (LDCT), has been shown to detect lung cancer early and reduce lung cancer-specific mortality for individuals at high risk for lung cancer. The findings from the National Lung Screening Trial showed that LDCT (vs. chest x-ray) reduced lung cancer mortality by 20% and informed the United States Preventive Services Task Force (USPSTF) recommendation for annual screening of asymptomatic high risk individuals, defined as 55–80 years old, 30+ pack-years, current smoker, or former smoker who quit within the past 15 years (Aberle 2011). A secondary data analysis revealed LDCT reduced lung cancer mortality more in African Americans compared with all racial groups (hazard ratio, 0.61 vs. 0.86) (Tanner et al. 2015). Despite the potential for benefit, it is estimated that only 14.4% of eligible individuals across all racial and ethnic groups and 12.6% of African Americans are being screened annually via LDCT (Zahnd and Eberth 2019). Reasons cited for poor adherence are multi-faceted and include need for more information about the test, issues concerning access to care, and low physician awareness of the current screening recommendations and reimbursement policies (Jemal and Fedewa 2017).

These initial reported reasons for underuse of LDCT are consistent with factors that have traditionally contributed to cancer-related disparities among African Americans (e.g., lack of medical coverage, barriers to early detection and screening) (Artiga and Hinton 2018; Fiscella and Sanders 2016). This screening modality requires informed and shared decision-making to effectively communicate the test's established benefits, harms, and uncertainties. These complexities present additional difficulties for engaging diverse patient populations (Richmond et al. 2018). The current eligibility requirements for screening may also further exacerbate disparities, because African Americans smoke a lower number of cigarettes per day and are more likely to be non-daily smokers compared to white smokers (Kitts 2019; Aldrich et al. 2019; Pasquinelli et al. 2018).

The Ottawa Decision Support Framework, which guided the current study, operationalizes decisional needs as 'what a patient population requires to make better health decisions' (The Ottawa Hospital Research Institute 2015). We conducted a cross-sectional study among 119 long-term African American smokers to identify the decisional needs concerning LDCT. The research aims were to: 1) describe knowledge and awareness about LDCT, personal values about screening, uncertainty about the test, as well as decisional control and resources among high-risk African American adults; and 2) examine the extent to which decisional needs are associated with participant intentions to discuss screening with others and, among those at higher risk, to undergo lung cancer screening.

## Materials and Methods

### Participants.

This study sought to include individuals who met the USPSTF eligibility criteria for LDCT screening. However, during the early stages of recruitment, we determined that long-term

smokers (N=34) were being excluded due to the 30+ pack-year criterion (pack-year provides a numerical value of lifetime tobacco exposure, e.g., 20 cigarettes every day for 30 years). Given the lower quantity of cigarettes smoked by African Americans (CDC TobaccoFree 2018), we removed the pack-year smoking history as an eligibility criterion.

The eligibility criteria included: 1) self-identifying as African American, 2) 55–80 years old, 3) currently smoking or having quit within the past 15 years, and 4) no prior diagnosis of lung cancer. Participants received \$10 and the American Lung Association’s “Is Lung Cancer Screening Right for Me?” leaflet after completing the survey. The survey required approximately 20 minutes and was administered online (19%), by phone (16%), or in-person (65%). A copy of the survey can be found in the Appendix. The study was approved by the University of Maryland’s Institutional Review Board (#1300307–1).

### Procedure.

Participants were recruited through advertisements in a local newspaper, flyers in health clinics and other community-based settings (e.g., libraries, recreational centers), and speaking engagements at local health departments’ smoking cessation clinics, and at five District of Columbia Housing Authority public housing communities. Additionally, we mailed an invitation letter to participants from a previous study (N=583) (Holt et al. 2015) who had agreed to be re-contacted about similar research and who were potentially eligible for this project.

### Measures

**Knowledge & Awareness.**—We assessed participants’ general awareness about the test: ‘Low-dose computed tomography (CT) screening is used to detect lung cancer. Have you read or heard about this type of lung cancer screening before taking this survey?’ (Lau et al. 2014). The response options included: Yes, No, Don’t Know/Not Sure. A 15-item measure was used to assess LDCT informed decision-making concepts (Lau et al. 2014). Correct items were summed (unsure was coded as incorrect) with higher scores indicating greater knowledge. The internal consistency reliability was measured using Cronbach’s alpha that assesses the extent to which a measure yields the same score each time it is administered (Cronbach 1951). In the current sample, Cronbach’s alpha was calculated for each knowledge domain and the internal consistency reliability ranged from fair to good. The reliability was .58 for risk factor items (e.g., ‘smoking tobacco increases the chance of getting lung cancer’), .62 for benefits and harms (e.g., ‘it lowers your chances of dying from lung cancer’, ‘you may need to get extra tests that can cause complications’) and .85 for age eligibility domains (e.g., ‘individuals would be eligible for lung cancer screening based on the following ages...’).

**Decisional Values.**—Decisional values in this context is defined as the “desirability or personal importance a respondent places on the benefits and risks of an option” (O’Connor et al. 1999). We developed a 12-item measure of the pros and cons of getting screened for lung cancer that is described in detail elsewhere (Williams et al. 2020). The items were adapted from a validated decisional values scale and other values items used in the literature (O’Connor et al. 1999). Individuals responded to the statements using a 5-point Likert-type

scale (5 =Extremely important to 1=Not at all important). Sample ‘pro’ items include: ‘How important is lowering your risk of dying from lung cancer?’; ‘How important is knowing the test has little risk?’. Sample ‘con’ items include: ‘How important is the idea that lung cancer screening may lead to more testing if there is an abnormal result?’; ‘How important is the idea that getting screened for lung cancer would make you feel badly about your smoking history?’. The 7-item cons scale ranged from 1–35 and the 5-item pros scale ranged from 1– 25, with higher scores suggesting greater importance. In the current study sample, the measure had very good internal consistency reliability ( $\alpha=.86$  and  $.88$  for pros and cons subscales, respectively) (Cronbach 1951).

**Decisional Conflict.**—The SURE tool assessed uncertainty about the choice of screening (Ferron Parayre et al. 2014; Légaré et al. 2010). The 4-item measure asks: ‘Do you feel sure about the best choice for you?’; ‘Do you know the benefits and risks of each option?’; ‘Are you clear about which benefits and risks matter most to you?’; and ‘Do you have enough support and advice to make a choice?’. The response options were ‘yes’ or ‘no’. The items were reverse coded such that higher scores indicate greater decisional conflict. In the present sample, the Kuder-Richardson Formula (KR-20) was  $.62$  which is a measure of internal consistency reliability for measures with dichotomous response options (Kuder and Richardson 1937).

**Decisional Control & Resources.**—We assessed preferences regarding the amount of control individuals want in making a decision about screening using the Control Preferences Scale (Degner et al 1997). This is a widely-used measure with evidence of construct validity (Singh et al. 2011; Adams et al 2007). A single item asks, ‘Please select the statement that sounds like you’: 1) I prefer to make the decision about lung cancer screening; 2) I prefer to make the final decision about lung cancer screening after seriously considering my doctor’s opinion; 3) I prefer that my doctor and I share responsibility for deciding whether to get screened for lung cancer; 4) I prefer that my doctor makes the final decision about lung cancer screening, but seriously considers my opinion; and 5) I prefer to leave all decisions regarding lung screening to my doctor. To assess resources, we asked: 1) ‘Do you feel you have all of the information that you need to make an informed decision about whether to be screened for lung cancer using CT?’ The response options included: Yes, No, Don’t Know/Not Sure.

**Lung Cancer Screening-Related Intentions.**—Participants reported intentions to talk with their doctor, family, or friends about lung cancer screening by responding to three separate items. Among those participants with 20+ pack-years, a single item was included to measure intention to be screened in the future, ‘How likely is it that you will get tested for lung cancer using low-dose computed tomography (CT) in the next six months?’ (Duong et al. 2017). Response options for all intention-related items were: 5=Extremely likely to 1=Extremely unlikely.

**Smoking History.**—To assess smoking history, participants responded to the following items: ‘Do you currently smoke cigarettes?’ (Yes/No); ‘Have you quit within the past 15 years?’ (Yes/No); ‘Please enter the total number of years you smoked’ (number of years

smoked); ‘Please enter the average number of packs (20 cigarettes = 1 pack) you smoked per day during the years you have smoked’ (average number of packs). Pack-years were calculated in Qualtrics by multiplying the total number of years smoked by the average number of packs. Participants also responded to, ‘When did you last smoke a cigarette (even one or two puffs)?’. The response options included: I smoked a cigarette today (at least one puff), 1 to 7 days ago, 8 days to 1 month ago, More than 1 month ago to 1 year ago, or More than 1 year ago.

**Covariates.**—Standard measures characterized key sociodemographic variables, including age, gender, education, employment, marital status, income, and health insurance status.

## Data Analysis

We conducted descriptive statistics to characterize the sample. Bivariate analyses using the Mann-Whitney *U*-test examined associations between the decisional needs variables and the screening-related intention items. SPSS Version 26.0 was used for all analyses.

## Results

### Participant Characteristics

Participants were a mean age of 62.7 (SD=6.3), 36.2% completed some college or more, 35.3% were never married, 26.1% were retired, and more than two-thirds (67.2%) had an annual income of \$20,000 or less (Table 1). This was largely a Medicaid and Medicare beneficiary group with 76.5% reporting going to their primary care physician for routine medical care. Regarding smoking status, 79% of participants currently smoked, and the average number of pack-years was 23.7 (SD=19.9), median=20, and range=0 to 112.5 pack-years. Approximately one-half of the sample (53.8%) had a 20+ pack-year smoking history and 25.2% met the USPSTF criteria for lung cancer screening eligibility. The National Comprehensive Cancer Network (NCCN) identifies two groups eligible for lung cancer screening: 1) Group 1: 55–74 years old, 30+ pack-year, quit smoking < 15 years and 2) Group 2: 50+ years old, 20+ pack-year, other factors (e.g., family history). We used the NCCN’s broader 20+ pack-year criteria to identify those at greater risk in the current sample. Comparing individuals who met the USPSTF guidelines (n=30) versus the other study participants (n=89), no significant demographic differences in age, gender, education, employment, or marital status were present (all *p*’s > .05).

Frequency distributions of the decisional needs variables are presented in Table 2. Most (65.8%) had not heard of LDCT and the total lung cancer screening knowledge score was M=7.1 (SD=1.8) out of a possible 15. Individuals rated both the pros and cons of screening as high (M=22.1/25, SD=3.8; M=28.4/35, SD=6.1, respectively). For decisional conflict, the mean was 2.8/4 (SD=1.3), suggesting participants were experiencing uncertainty regarding their decision to be screened. Less than half (37%) of the participants felt they had all the information they needed to make an informed decision about getting screened for lung cancer. Despite only one-third (33.6%) preferring to share the LDCT screening decision with their doctor, more than half of participants reported being extremely likely to talk with their doctor about screening in the next 6 months (52.9%). Less than half planned to talk

with family (39.5%) and a quarter intended to discuss screening with their friends (24.4%). Among those individuals with a 20+ pack-year smoking history, 40.6% reported intentions to get tested for lung cancer via LDCT in the next 6 months.

### Bivariate Associations

Associations between the decisional needs components and the lung cancer screening-related variables are displayed in Table 3. Greater endorsement of the pros of screening was associated with greater intention to talk with a doctor, family, and friends about screening ( $p$ 's < .05). There was a significant association between the pros subscale and screening intention, such that the endorsement of screening pros was higher ( $M=22.2$ ,  $SD=4.3$ ) among those reporting being 'likely' to be screened in the next six months versus those who reported 'not likely' ( $M=20.1$ ,  $SD=3.8$ ;  $U=183$ ,  $p=.008$ ). Greater importance of the cons of screening was associated with greater intention to talk with their doctor, family, and friends about LDCT ( $p$ 's < .10). Among individuals in the sample at higher risk for lung cancer (> 20 pack-years), the cons of screening were not associated with intentions to get LDCT. Those who intended to talk with friends about screening had higher decisional conflict ( $M=3.0$ ,  $SD=1.1$ ) versus those who did not intend to talk with friends about screening ( $M=2.3$ ,  $SD=1.3$ ;  $U=885$ ,  $p=.007$ ). There was a marginally significant association between intention to screen and decisional conflict, such that those who intended to get screened reported higher decisional conflict ( $M=2.8$ ,  $SD=1.2$ ) compared to those not intending to get screened ( $M=2.2$ ,  $SD=1.1$ ;  $U=229.5$ ,  $p=.07$ ). Knowledge scores were not significantly associated with intentions to discuss screening with one's doctor, family, or friends, nor to get screened. The control preferences and resource items were not significantly associated with the screening-related items (all  $p$ 's > .05).

### Exploratory Analysis

As an exploratory step, we evaluated whether the decisional needs and screening-related intention variables varied by education level, income, insurance status, and gender. There were marginal associations between higher education and higher knowledge scores ( $p=.06$ ) and low education and higher rated cons of screening ( $p=.09$ ). Lower income level was marginally associated with higher ratings of the pros of screening ( $p=.05$ ) and being more likely to report planning to talk with their doctor about LDCT ( $p=.08$ ). Because Medicaid programs do not uniformly cover LDCT screening services, we examined insurance status (Medicaid vs. Other type vs. None) and found a marginal association indicating those with no coverage rated the pros of screening the lowest ( $M=20.7$  ( $SD=3.8$ )), those with Medicaid endorsed the pros slightly higher ( $M=21.2$  ( $SD=4.7$ )), and those with another form of insurance (e.g., Medicare, employer) rated the pros of screening the highest ( $M=22.7$  ( $SD=3.0$ );  $p=.09$ ). African American men are disproportionately impacted by lung cancer having the highest lung cancer death rates in comparison to all other racial/ethnic groups (ACS, 2019). Because of this disparity, we analyzed the variables of interest stratified by gender, but found no statistically significant differences between men and women in this sample.



## Discussion

The present study identified a priority population consisting of lower socioeconomic status, long-term current and former smokers and surveyed them regarding their needs, values, and preferences for lung cancer screening via LDCT. The current sample was slightly younger (Mean Age = 62.7 vs. 65.4), was more likely to have received a high school education (37.0% vs. 28.9%), were more likely to be never married (35.3% vs. 14.7%), and more likely to have an income less than \$20,000 (67.2% vs. 22.6%) compared to a national sample of African American current and former smokers 55–80 years old with a 20 pack-year smoking history from the Centers for Disease Control and Prevention's Behavior Risk Factor Surveillance 2017 survey (CDC, BRFSS). National data indicate higher smoking prevalence among lower education and income groups and the demographic makeup of our sample aligns with these data (CDC 2018). Despite a quarter of the sample being eligible for screening, most had not heard of LDCT and their knowledge about lung cancer and screening was limited, which is consistent with the reported literature (Carter-Harris et al. 2018; Lau et al. 2014). This study used a knowledge scale previously developed by Lau and colleagues. In their study of majority white participants eligible for lung cancer screening, their overall baseline knowledge score was comparable to the present study (M=7.5 (SD=1.9) vs. M=7.1 (SD=1.8) respectively) (Lau et al. 2014). The researchers also recently evaluated the impact of a web-based lung screening decision aid among African Americans of lower socioeconomic status and the baseline knowledge score was lower than the current sample (M=5.7 (SD=1.94); Lau et al., under review). Although lung cancer screening awareness and knowledge were limited, participants could identify the pros and cons of their personal values related to screening. Individuals who rated either the pros or cons of screening as important were more likely to have plans to talk with someone about screening. Interestingly, only one-third (35%) reported a willingness to share this decision with their doctors. This percentage is slightly lower than previous research concerning shared decision-making preferences among African Americans (Williams et al. 2008). This finding is particularly important given the Center for Medicare and Medicaid Services shared decision-making requirement within the context of lung cancer screening via LDCT. Not surprisingly, almost two-thirds of participants stated they were either unsure or did not feel they had all the information they needed to make an informed decision about screening. In a randomized trial that tested the impact of a patient decision aid on lung cancer screening among a mostly White sample (70.2%), only 28.3% of those in the comparison group reported feeling informed about the decision and just under half (47.4%) expressed values clarity (Volk et al., 2020). This finding is consistent with other samples of smokers that expressed decisional conflict about lung screening (Lau et al. 2014). Individuals who were experiencing greater uncertainty about screening were likely to talk with friends about the test. The findings point to associations between decisional needs variables and likelihood of engaging in discussions with others about a health behavior. Specifically, decisional conflict and participants' values regarding the pros and cons of LDCT were significantly associated with the likelihood of talking with friends and family (including a marginal association) about LDCT. These results suggest that despite participants' uncertainty about lung screening, they reported wanting to talk with others about the test. Similarly, participants who rated either the pros or cons of screening as

important planned to talk with family or friends about screening. These findings highlight that for some groups of people, they may want to involve those close to them in these decisions. Future research should consider the role family and friends could play in helping patients weigh the pros and cons of the options and help work through any uncertainty. The exploratory analyses revealed important sub-groups that should be considered in future research. Although these findings were not statistically significant, they point to further exploration of how education, income, and insurance relate to individuals' informational and support needs. These trends are also consistent with the literature on factors contributing to other cancer screening disparities (Carter-Harris and Gould 2017).

The results should be considered in light of study limitations. Although a multi-pronged approach was used to recruit participants, this was a convenience sample and thus the findings may not be generalizable to other samples of African American long term smokers as evidenced by differences noted in the samples' characteristics and the BRFSS data. However, this study surveyed lower socioeconomic long term smokers who may be at risk for lung cancer and whom are an understudied group in lung screening studies to date (Pasquinelli et al. 2018). The cross-sectional study design provided only a snapshot of screening intentions and was not able to capture actual behaviors. Future studies that can follow participants longitudinally will be important to understand how aspects of decision-making impact screening behaviors. Marginal findings emerged from these analyses that may be due to limited statistical power. Future studies should aim to study a larger sample who are eligible for lung screening, however, it must be acknowledged that smoking patterns among African Americans differ and it may be harder to identify individuals who meet the 30 pack-year smoking criteria.

To our knowledge, this is one of the first studies to describe the decisional needs of an entirely African American sample of lower socioeconomic smokers for lung cancer screening using LDCT and to examine the associations between these components of decision-making and screening intentions. This study contributes to our understanding of what this population may require to gain additional information about the test, what factors may be important when considering testing, and preferences for involvement in the screening decision. The implications of these findings highlight a call to address the decisional needs of African American smokers to promote informed decision-making for LDCT. This study also outlines possible targets for future decision aids or decision support interventions to enhance high quality decisions and to prevent racial disparities in screening for lung cancer.

## Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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**Table 1.**

## Characteristics of Cross-Sectional Study Participants (N = 119)

| <b>Characteristic</b>     |            |
|---------------------------|------------|
| Age (mean, sd)            | 62.7 (6.3) |
| Age, N (%)                |            |
| 55–65                     | 79 (66.4%) |
| 66–75                     | 37 (31.1%) |
| 76–80                     | 3 (2.5%)   |
| Gender, N (%)             |            |
| Male                      | 54 (45.4%) |
| Female                    | 63 (52.9%) |
| Missing                   | 2 (1.7%)   |
| Education, N (%)          |            |
| Grade 8 or less           | 6 (5.0%)   |
| Grades 9 through 11       | 23 (19.3%) |
| Grade 12 or GED           | 44 (37.0%) |
| College 1 year to 3 years | 34 (28.6%) |
| College 4 years or more   | 9 (7.6%)   |
| Missing                   | 3 (2.5%)   |
| Marital Status, N (%)     |            |
| Never been married        | 42 (35.3%) |
| Currently married         | 15 (12.6%) |
| Living with partner       | 13 (10.9%) |
| Separated or divorced     | 23 (19.3%) |
| Widowed                   | 16 (13.4%) |
| Missing                   | 10 (8.4%)  |
| Employment, N (%)         |            |
| Full-time employed        | 11 (9.2%)  |
| Part-time employed        | 12 (10.1%) |
| Not currently employed    | 20 (16.8%) |
| Retired                   | 31 (26.1%) |
| Receiving disability      | 42 (35.3%) |
| Missing                   | 3 (2.5%)   |
| Income, N (%)             |            |
| < \$5, 000                | 25 (21.0%) |
| \$5,001 - \$10,000        | 32 (26.9%) |
| \$10,001 - \$20,000       | 23 (19.3%) |
| \$20,001 - \$30,000       | 8 (6.7%)   |
| \$30,001 - \$40,000       | 5 (4.2%)   |
| \$40,001 - \$50,000       | 4 (3.4%)   |
| > \$50,000                | 10 (8.4%)  |
| Refused                   | 12 (10.1%) |

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| <b>Characteristic</b>                        |                 |
|----------------------------------------------|-----------------|
| Insurance Status, N (%)                      |                 |
| Medicaid only                                | 43 (36.1%)      |
| Medicare only                                | 18 (15.1%)      |
| Through an employer                          | 7 (5.9%)        |
| Other form of insurance                      | 3 (2.5%)        |
| Medicaid + Medicare                          | 33 (27.7%)      |
| Medicare + Employer                          | 4 (3.4%)        |
| Other combination                            | 5 (4.2%)        |
| None                                         | 3 (2.5%)        |
| Missing                                      | 3 (2.5%)        |
| Typically go to receive medical care, N (%)  |                 |
| Primary care physician's office              | 91 (76.5%)      |
| Urgent care                                  | 2 (1.7%)        |
| Emergency room at the hospital               | 8 (6.7%)        |
| Other                                        | 6 (5.0%)        |
| Missing                                      | 12 (10.1%)      |
| Current smoker (% yes)                       | 94 (79.0%)      |
| Pack-Years, N (%)                            |                 |
| <10                                          | 22 (18.5%)      |
| 19-Oct                                       | 33 (27.7%)      |
| 20–29                                        | 34 (28.6%)      |
| 30+                                          | 30 (25.2%)      |
| Years smoked (mean, sd, median)              | 33.7 (15.4), 35 |
| Cigarettes smoked per day (mean, sd, median) | 13.4 (8.4), 10  |
| Pack-years (mean, sd, median)                | 23.7 (19.9), 20 |
| Cigarette Use, N (%)                         |                 |
| Smoked a cigarette today (at least one Puff) | 72 (60.5%)      |
| 1 to 7 days ago                              | 10 (8.4%)       |
| 8 days to 1 month ago                        | 4 (3.4%)        |
| More than 1 month ago to 1 year ago          | 4 (3.4%)        |
| More than 1 year ago                         | 18 (15.1%)      |
| Missing                                      | 4 (3.4%)        |
| Recruitment Source, N (%)                    |                 |
| Public housing                               | 78 (65%)        |
| Newspaper ad                                 | 21 (18%)        |
| Community setting (i.e., library)            | 10 (8%)         |
| Past study participant                       | 7 (6%)          |
| Smoking cessation clinic                     | 3 (3%)          |

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**Table 2.**

Distributions of the Decisional Needs and Screening Intention Variables (N = 119)

| <b>Decisional Needs Variable</b>                                                                 | <b>Total</b> |
|--------------------------------------------------------------------------------------------------|--------------|
| Lung Cancer Knowledge (N = 92), out of 15 (mean, sd)                                             | 7.1 (1.8)    |
| SURE Decisional Conflict (N = 112), out of 4 (mean, sd)                                          | 2.8 (1.3)    |
| Decisional Values, (mean, sd)                                                                    |              |
| Pros of Screening (N = 113), out of 25                                                           | 22.1 (3.8)   |
| Cons of Screening (N = 110), out of 35                                                           | 28.4 (6.1)   |
| Control Preference, N (%)                                                                        |              |
| Make the decision alone                                                                          | 26 (21.8%)   |
| Make final decision                                                                              | 28 (23.5%)   |
| Share the decision                                                                               | 40 (33.6%)   |
| Doctor make final decision                                                                       | 6 (5.0%)     |
| Doctor alone                                                                                     | 14 (11.8%)   |
| Missing                                                                                          | 5 (4.2%)     |
| Do you feel you have all of the information you need to make an informed decision, N (%)         |              |
| Yes                                                                                              | 44 (37.0%)   |
| No                                                                                               | 32 (26.9%)   |
| Don't know/Not sure                                                                              | 34 (28.6%)   |
| Missing                                                                                          | 9 (7.6%)     |
| <i>Screening Intention Variables</i>                                                             |              |
| How likely is that you will talk with your <u>doctor</u> about LDCT in the next 6 months, N (%)  |              |
| Extremely Likely                                                                                 | 63 (52.9%)   |
| Somewhat Likely                                                                                  | 32 (26.9%)   |
| Neither Likely nor Unlikely                                                                      | 5 (4.2%)     |
| Somewhat Unlikely                                                                                | 12 (10.1%)   |
| Extremely Unlikely                                                                               | 2 (1.7%)     |
| Missing                                                                                          | 5 (4.2%)     |
| How likely is that you will talk with your <u>family</u> about LDCT in the next 6 months, N (%)  |              |
| Extremely Likely                                                                                 | 47 (39.5%)   |
| Somewhat Likely                                                                                  | 38 (31.9%)   |
| Neither Likely nor Unlikely                                                                      | 14 (11.8%)   |
| Somewhat Unlikely                                                                                | 9 (7.6%)     |
| Extremely Unlikely                                                                               | 8 (6.7%)     |
| Missing                                                                                          | 3 (2.5%)     |
| How likely is that you will talk with your <u>friends</u> about LDCT in the next 6 months, N (%) |              |
| Extremely Likely                                                                                 | 29 (24.4%)   |
| Somewhat Likely                                                                                  | 39 (32.8%)   |
| Neither Likely nor Unlikely                                                                      | 16 (13.4%)   |
| Somewhat Unlikely                                                                                | 14 (11.8%)   |
| Extremely Unlikely                                                                               | 11 (9.2%)    |
| Missing                                                                                          | 10 (8.4%)    |

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| <b>Decisional Needs Variable</b>                                                         | <b>Total</b> |
|------------------------------------------------------------------------------------------|--------------|
| How likely is that you will get tested via LDCT in the next 6 months, N (%) <sup>I</sup> |              |
| Extremely Likely                                                                         | 26 (42.6%)   |
| Somewhat Likely                                                                          | 20 (32.8%)   |
| Neither Likely nor Unlikely                                                              | 4 (6.6%)     |
| Somewhat Unlikely                                                                        | 8 (13.1%)    |
| Extremely Unlikely                                                                       | 3 (4.9%)     |
| Missing                                                                                  |              |

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<sup>I</sup> Among participants with 20+ pack year (N=64)

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**Table 3.** Bivariate Associations between Decisional Needs and Screening-Related Intention Variables (N = 119)

| Decisional Needs Variable        | Discuss Screening with Doctor<br>N=95 |                                       |                           | Discuss Screening with Family<br>N=85 |                           |                                       | Discuss Screening with Friends<br>N=68 |                                       |  | Screening Intention <sup>J</sup> N = 64<br>N=46 |  |  |
|----------------------------------|---------------------------------------|---------------------------------------|---------------------------|---------------------------------------|---------------------------|---------------------------------------|----------------------------------------|---------------------------------------|--|-------------------------------------------------|--|--|
|                                  | Neutral/<br>Unlikely N=19             | Extremely/<br>Somewhat Likely<br>N=95 | Neutral/<br>Unlikely N=31 | Extremely/<br>Somewhat Likely<br>N=85 | Neutral/<br>Unlikely N=41 | Extremely/<br>Somewhat Likely<br>N=68 | Neutral/<br>Unlikely N=15              | Extremely/<br>Somewhat Likely<br>N=46 |  |                                                 |  |  |
| Lung Cancer Knowledge, mean (sd) | 7.6 (2.0)                             | 7.1 (1.7)                             | 7.2 (1.8)                 | 7.1 (1.8)                             | 7.3 (1.7)                 | 7.2 (1.7)                             | 7.8 (1.5)                              | 7.0 (1.7)                             |  |                                                 |  |  |
| Decisional Conflict, mean (sd)   | 2.5 (1.3)                             | 2.8 (1.2)                             | 2.4 (1.3)                 | 2.9 (1.2) <sup>+</sup>                | 2.3 (1.3)                 | 3.0 (1.1)**                           | 2.2 (1.1)                              | 2.8 (1.2) <sup>+</sup>                |  |                                                 |  |  |
| Decisional Values, mean (sd)     | 19.1 (3.9)                            | 22.9 (2.9)***                         | 20.3 (4.8)                | 22.7 (3.2)**                          | 20.7 (4.2)                | 23.2 (2.2)***                         | 20.1 (3.8)                             | 22.2 (4.3)**                          |  |                                                 |  |  |
| Cons of Screening                | 25.6 (7.0)                            | 29.1 (5.3)*                           | 26.3 (7.3)                | 29.1 (5.4) <sup>+</sup>               | 25.8 (6.3)                | 30.0 (4.7)***                         | 26.3 (7.4)                             | 27.7 (6.5)                            |  |                                                 |  |  |

Note. Groups were compared by Mann-Whitney *U*-test  $\alpha = .10$ . Discuss screening with doctor (N=5 missing); Discuss screening with family (N=3 missing); Discuss screening with friends (N=10 missing); Screening intention (N=3 missing)

<sup>J</sup> Among participants with 20+ pack years (N=64)

<sup>+</sup>  $p < .10$

\*  $p < .05$

\*\*  $p < .01$

\*\*\*  $p < .001$