Published in final edited form as:

Support Care Cancer. 2014 January ; 22(1): 233–244. doi:10.1007/s00520-013-1958-5.

What do Cancer Patients Worry About When Making Decisions about Treatment? Variation across Racial/Ethnic Groups

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INTRODUCTION

The Institute of Medicine (IOM)'s "Cancer Care for the Whole Patient: Meeting Psychosocial Health Needs," outlines, for cancer patients and survivors, the need for care that addresses their psychosocial needs, including emotional and practical concerns such as anxiety, transportation barriers, and financial assistance [1]. Still, little is known about what patients worry about when making treatment decisions. Moreover, racially/ethnically diverse patients with different cancer types may not share the same concerns, or not have them to the same extent, as previously demonstrated for other patient populations [2-4]. This gap in knowledge is substantial, as these concerns, which influence treatment decisions and compromise well-being, are associated with patient satisfaction [5-8]. Since there is a focus on providing culturally competent care within health care settings [9], it is necessary to identify differences in how patients in different racial and ethnic groups experience worry and anxiety about their treatment decisions. Such an understanding would assist health care providers in delivering better patient-focused care.

In this report, concerning a population-based study of recently diagnosed lung and colorectal cancer patients, two research questions were addressed: i) What do patients worry about when making treatment decisions? ii) How does the pattern of worry vary by sociodemographic, clinical, and psychosocial factors, and, in particular, by race and ethnicity?

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Conflict of Interest

None of the Authors have any Disclosures

This paper was presented in part, at the 32nd Annual Meeting & Scientific Sessions of the Society of Behavioral Medicine. Washington, DC. (2011)

METHODS

Study Design

In 2001, the National Cancer Institute (NCI) established the Cancer Care Outcomes Research and Surveillance (CanCORS) Consortium. The Consortium, which includes five large, geographically based sites; five Cancer Research Network integrated health systems; and 15 veterans hospitals, was formed to identify and understand the reasons underlying variations in cancer treatment and cancer outcomes [10].

Study Population

Recruitment of newly diagnosed lung and colorectal cancer patients began in 2003. Patients were identified through state cancer registries using rapid case ascertainment or were ascertained from health care systems. Minority patients (African American, Asian/Pacific Islander, and Hispanic) were oversampled. The present analysis includes the subset of CanCORS patients who completed the full baseline survey, and excludes those who completed the short survey and those whose survey was completed by surrogates.

Data Collection

The data used in this study were from a survey administered approximately 4 months after diagnosis by telephone interviewers. The survey, conducted in English, Spanish, or Chinese, included previously validated items and scales in addition to items developed specifically for the CanCORS study. In addition, the analysis used clinical data collected from medical records. The development and initial piloting of this survey has been described [11].

Dependent Variables

Five main outcomes, i.e., worry about i) side effects from treatment, ii) the cost of treatment, iii) time away from family, iv) time away from work, and v) transportation to treatment sites, were considered. These variables were derived from the question: “At the time you were making decisions about your treatment for your lung (colorectal) cancer, how much were you worried about each of the following? Would you say that you were not at all worried, a little worried, somewhat worried, or very worried about.....the side effects from treatment, the cost of treatment, time away from your family, taking time away from work, and transportation to treatment.” Individuals who did not respond or who responded “don’t know” to one of these variables were excluded from the analyses for that variable only. Missing responses for the worry variables ranged from a low of 4% for worry about side effects to 8% for worry about time away from work.

For analyses, the worry variable was dichotomized to reflect that some level of worry is an unmet psychosocial need. Patients who indicated that they were “a little worried, somewhat worried, or very worried” were collapsed into a single group, “Worried”; the others were categorized as “Not at all worried.” These categories were used since more than 50% of the participants responded “not at all worried” for three of the five dependent variables. Consistent with the CanCORS study protocol, patients for whom the item was not applicable were coded as “Not at all Worried.” For example, worry about time away from work would not be applicable for a retired patient.

Covariates

In this effort, sociodemographic, clinical, health status, and psychosocial factors (dependent variables) that we hypothesized to be and/or have been previously reported to be associated with worry [3, 4, 7, 12] were examined. Also included were variables associated with barriers to cancer care (e.g., transportation), that may influence worry [13].

Sociodemographic Variables included gender, age, income, adequacy of savings to maintain standard of living if all was income lost (measured in number of months savings could maintain current standard), number of individuals supported by income, education, marital status, number of children in the home under the age of 18 years, and health insurance status. With regard to race and ethnicity, patients were asked “Are you of Latino or Hispanic origin?” Following this question, patients were asked: “Which of the following would you use to describe yourself? Would you describe yourself as Native Hawaiian, Other Pacific Islander, American Indian, Alaska Native, Asian, Black, African American, or White?” Patients who responded Latino/Hispanic origin were included in the Hispanic group. Because of small numbers, American Indian/Native, Native Hawaiian, Other Pacific Islander, individuals who were of more than one race, and individuals who responded “other” were excluded from the study (approximately 5.5% of the total sample).

Clinical and Health Status Variables included cancer type (lung or colorectal) and data collected by abstraction of medical records, i.e., specific medical comorbidities (e.g., cardiovascular disease), a comorbidity score (mild, moderate, or severe, according to the highest ranked single ailment of the 25 ailments in the Adult Comorbidity Evaluation-27, a comorbidity index for patients with cancer) [14], and cancer stage. Health status was assessed by one item from the Short Form 12-item Health Survey [15]; namely, the question “In general, would you say your health is Excellent, Very good, Good, Fair, or Poor.” “Fair and poor” were combined into a single category.

Psychosocial Variables included perceived life expectancy, belief that cancer is curable, perceived quality of care, and social support. Perceived life expectancy was assessed with the following open-ended question: “Based on your understanding about what your doctors have told you about your cancer, your health in general, and the treatments you are receiving, how long do you think you have to live?” Numeric responses were classified as < 5 years and ≥ 5 years. Non-numeric responses were categorized as: “don’t know,” “in God’s hands,” or refused. The belief that cancer is curable was assessed with the question “Now I’d like you to think back to the time before you found out that you have lung (colorectal) cancer. Prior to your diagnosis with lung (colorectal) cancer, how much did you agree or disagree with each of the following statements? Lung (colorectal) cancer is curable.” Respondents could answer with “Strongly agree, agree, disagree, strongly disagree, and don’t know.” Refused responses were excluded from the analysis that included this variable. Perceived quality of care was assessed with the question: “Overall, how would you rate the quality of your health care since your diagnosis of lung (colorectal) cancer? Patients could endorse “Excellent, Very good, Good, Fair, or Poor.” Fair and Poor responses were combined into a single category. Social support was measured with the Medical Outcomes Study Social Support Survey [16].

Analyses

Descriptive statistics were used to summarize dependent variables and sociodemographic, clinical, and psychosocial variables of interest. Multiple variable logistic regression analyses were used to evaluate the association of sociodemographic, clinical, and psychosocial variables with whether or not the individual was worried. Model fit was assessed with the Hosmer-Lemeshow goodness-of-fit statistic, and it was determined that all models fit the data well. Statistical tests, two-sided, were evaluated using a 5% significance level. SAS software (version 9.2; SAS Institute, Inc., Cary, NC) was used to perform all statistical analyses. Whether there was a statistically significant association of race/ethnicity with the dichotomous and the four-category versions of each of the five dependent variables was determined, and also if the p-value obtained for each dichotomous variable was similar to that obtained for the corresponding four-category variable. The small frequencies for most of the racial groups in the “a little worried,” “somewhat worried,” or “very worried” categories precluded meaningful multivariable analyses using the four-category versions of the dependent variables.

Although the analyses were performed separately by disease type (colorectal cancer, lung cancer), the overall results were similar across these cancer types. Thus, the study sample and the analyses included both lung and colorectal cancer patients. Disease type was used as a single covariate in the multivariable analyses. The CanCORS baseline interview did not include a variable that assessed work status. Therefore, for the dependent variable “taking time away from work,” data only from participants who were under the age of 65 was included, to capture the sample that was potentially still employed (N=2288).

RESULTS

The analysis included 5,044 of 5,465 CanCORS participants who completed full surveys at baseline; had no missing responses on the worry outcomes; and were Black, White, Asian, or Hispanic. Table 1 highlights the sociodemographic, clinical, and psychosocial characteristics of the study sample and reflects the diversity of patient characteristics.

Overall, 84.7% of the CanCORS participants had at least one worry (i.e., were a little, somewhat, or very worried); 75% were worried about side effects of treatments, 40% about the cost of treatment, 50% about time away from family, 52% about time away from work, and 22% about transportation to treatment sites. For those with substantial worries, 24% were very worried about side effects, 13% about cost of treatment, 24% about time away from work, 15% about time away from family, and 4.9% about transportation.

There were significant differences across worry domains by race/ethnicity ($p < 0.05$). Asian cancer patients reported worry most frequently across all worry domains, with the exception of worrying about time away from family, which was most reported by Hispanic cancer patients. Moreover, 4% of whites, 15% of Hispanics, 8% of African Americans, and 17% of Asians reported worry about all five of the worry variables ($p < 0.0001$).

In multivariable analyses, race and ethnicity were significantly associated with three domains of worry: cost of treatment, time away from work, and transportation to treatment

(Tables 3, 5, and 6). For cost of treatment and transportation to treatment, Asian cancer patients had greater odds of reporting worry than white cancer patients (ORs: 1.84 and 2.13, respectively). Similarly, Hispanic cancer patients, relative to whites, had greater odds of reporting worry about transportation to treatment. Relative to white cancer patients, African American cancer patients had lower odds of reporting worry about time away from work (OR: 0.68).

Several sociodemographic, clinical, and psychosocial variables were significantly associated with worry across all dependent variables (Tables 2-6). For example, across all 5 worry domains, older cancer patients had a lower odds of reporting worry (p values <0.05). Having stage IV cancer and poorer health were associated with having worry about side effects, cost, and transportation (Tables 2, 3, and 6). Having poorer health was also significantly associated with worry about time away from family (Table 4). Respondents with lower incomes had higher odds of worry across all domains and those with no insurance and with more people depending on their income were more likely to worry about cost (Table 3). Moreover, a lower perception of quality of care was significantly associated with worry about time away from family and worry about transportation but was not associated with other worries (Tables 2-6).

DISCUSSION

Optimal cancer care requires that patients receive health services to address psychosocial needs [1]. The current study is among the few to address and quantify practical concerns of cancer patients at the time they make decisions about cancer treatment. Although worry about side effects from cancer treatment was most prevalent across all patient groups (73-82%), a substantial number (22-52%) were also worried about the cost of treatment, time away from family, time away from work, and transportation to treatment sites. Perhaps requiring the greatest clinical attention are those who indicated that they were very worried. Almost a quarter of the patients were very worried about side effects and/or time away from work when making treatment decisions, and almost 15% were very worried about cost of treatment and time away from family.

The findings have implications for cancer patients and for providers of health care. Cancer patients tend to believe that their health care providers do not adequately understand or address their psychosocial needs, are not familiar with psychosocial resources, and do not deem psychosocial support to be important to the care they provide [1]. Health care professionals who provide care for cancer patients cannot ignore the concerns of their patients if they aim to provide patient-center care that reflects the needs of patients. The present results provide evidence that patients have worries other than about the side effects of treatment. Their concerns have implications for the treatment choices they make, their compliance with treatment, and their overall anxiety about the cancer experience. Nevertheless, concerns were not uniform for various groups of patients. For example, there were differences in regard to race/ethnicity. Understanding differences across patients' demographics, disease characteristics, experience with the health care system, and other relevant factors would assist health care providers in meeting the needs of their patients.

The findings speak to the importance of continued efforts to develop programs tailored to contextual factors associated with different patient populations. For example, the worry regarding costs and transportation to treatment, seen more prominently in Asian cancer patients, suggests that this population would benefit from culturally sensitive discussions regarding cancer-related costs, resources available to support their adherence to treatment, and their values and belief systems as they relate to medical treatment and other life priorities. The finding that Hispanic patients were not worried about costs was unexpected, since a previous report indicated that Hispanic cancer patients were more likely to have cost-related barriers relative to White and Black patients [17]. The difference in results may be explained by the fact that the current study controlled for a host of variables before assessing the relationship between race/ethnicity and worry. The present finding that Hispanic patients were worried about transportation to treatment is consistent with an earlier report. As determined in a previous study, Hispanic and Black cancer patients identified lack of an automobile, distance to care, and lack of someone to drive them, as transportation barriers to cancer treatment [18]. Nevertheless, all patients, regardless of race/ethnicity, should be assessed for psychosocial concerns (e.g., using the National Comprehensive Cancer Network Distress Thermometer). Understanding the concerns of different populations would help in delivering resources to meet their needs, make providers more sensitive to issues that patients face, and prepare providers for approaching the topics with their patients. Moreover, when healthcare providers address identified concerns, those conversations should be delivered in a culturally competent manner [9]. For example, how the conversation is structured, who is included in the conversation in addition to the patient, and how a specific worry is conceptualized (including potential solutions) should be accomplished with cultural sensitivity and with an appreciation of broader cultural factors.

Compared to younger patients, older patients, as they made treatment decisions, were concerned less about each worry variable. This is particularly notable since older cancer patients are often undertreated for cancer in practice and in hypothetical scenarios presented to physicians [19-21]. The present results are consistent with previous reports indicating that younger cancer patients are worried primarily about cancer recurrence [4, 12, 22]. Several factors may underlie these findings. On an emotional level, older individuals may process the experience of cancer differently than younger patients. In fact, for most types of cancer, older cancer patients report better mental health than younger survivors [23]. Alternatively, the result may relate to well-developed life skills; older individuals have more experience navigating life challenges and thus may worry less about overcoming barriers and/or be more adept at addressing challenges. Older adults may approach problem-solving more effectively [24, 25]. The present observations, along with those of others, suggest that older cancer patients are more resilient in coping with cancer.

The results generate compelling research questions. For example, the finding that worry about side effects is related to cancer stage may reflect that people with higher stage cancers, relative to patients with less severe disease, worry more about a compromised quality of life or that they are offered more aggressive treatments with more worrisome side effects. The observation that perceived quality of care is associated with worry is consistent with the report that the health care experience can influence worry [4]. As determined in the present investigation, when making decisions about their cancer care, patients with a less positive

perception of the quality of care received since diagnosis were more likely to report worry about their time away from family and worry about transportation to treatment. Future research should seek to understand how perceptions about the quality of cancer care influence worry and treatment decision making and how worry affects the perceived quality of care. Also of interest are some findings that show no statistical differences. For example, although lung and colorectal cancer differ in treatment protocols and in life expectancy, the cancer type did not influence the pattern of worry, suggesting that there are commonalities in the cancer experience that are reflected in psychosocial concerns.

The present study has limitations. First, the survey was completed at the time the initial treatment decisions were being considered, although it was completed within a few months after diagnosis. Thus, patients may not perfectly recollect what they worried about at the time decisions were made. In fact, at that time, the extent of worry may have been even greater than reported. Over time, the worries of patients may have diminished. Second, the study design included individuals in the ‘not worried’ category when a particular worry domain was not applicable to them (e.g., a person without a family was coded as ‘not worried’ in the variable relating to time away from family). Third, factors associated with acculturation and English proficiency, which may affect differences in worry, especially for Hispanics and Asians, were not considered [4, 26]. Conceivably, individuals who were less proficient in English may have encountered challenges in the healthcare setting that contributed to increased worry. However, fewer than 5% of study participants required that the CanCORS survey be conducted in a language other than English. Thus, issues related to language likely did not influence the pattern of worry. Fourth, the investigation was not designed to identify factors contributing to worry, to understand how worrying about psychosocial needs influenced decision making, to determine whether patients expressed their worry to providers, or whether worries were successfully addressed by the healthcare system. Nonetheless, the results represent an important step in quantifying worry in a population-based study and indicate where efforts should be directed to address the most common worries in cancer patients. For example, investing in patient navigator programs to address patient psychosocial needs may relieve patients of some of their worry, increase adherence to treatment [27], and improve emotional well-being[28]. Fifth, only a limited set of worry variables was examined. Fears of dying or recurrence, worries that are likely common among cancer survivors were not assessed.

Nevertheless, this investigation of what cancer patients worry about provides direction to clinicians about assessing the psychosocial needs of patients and makes available information that helps fulfill the IOM recommendations for delivering quality cancer care to patients [1]. Further, the results advance science by demonstrating that a broad range of factors, including cultural factors, influence the patterns of worry. Providers should be aware of these in addressing the psychosocial needs of patients and their caregivers.

Acknowledgements

We would like to thank Dr. Don Hill for his review on this manuscript and Shari Lamona for administrative assistance.

Source of Support:

Support Care Cancer. Author manuscript; available in PMC 2017 March 06.

The CanCORS consortium was supported by grants from the National Cancer Institute (NCI) to the Statistical Coordinating Center (U01 CA093344) and the NCI supported Primary Data Collection and Research Centers (Dana-Farber Cancer Institute/Cancer Research Network U01 CA093332, Harvard Medical School/Northern California Cancer Center U01 CA093324, RAND/UCLA U01 CA093348, University of Alabama at Birmingham U01 CA093329, University of Iowa U01 CA.093339, University of North Carolina U01 CA 093326) and by a Department of Veterans Affairs grant to the Durham VA Medical Center CRS 02-164. Morehouse School of Medicine/Tuskegee University/University of Alabama Cancer Center Partnership U54CA118948, University of Alabama at Birmingham P30 AG031054

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Table 1

Sociodemographic Characteristics of Colorectal and Lung Cancer CanCORS Participants (N=5044)

Characteristics	White n = 3722, No. (%)	Hispanic or Latino n = 367, No. (%)	African American n = 712, No. (%)	Asian n = 243, No. (%)
Age				
54	621 (16.7)	140 (38.1)	211 (29.6)	95 (19.1)
55 – 59	452 (12.1)	41 (11.2)	106 (14.9)	24 (9.9)
60 – 64	517 (13.9)	43 (11.7)	109 (15.3)	28 (11.5)
65 – 69	589 (15.8)	52 (14.2)	114 (16.0)	30 (12.3)
70 – 74	589 (15.8)	38 (10.4)	65 (9.1)	31 (12.8)
75 – 79	508 (13.6)	35 (9.5)	59 (8.3)	18 (7.4)
80	446 (12.0)	18 (4.9)	48 (6.7)	17 (7.0)
Gender				
Male	1977 (53.1)	170 (46.3)	378 (53.1)	136 (56.0)
Female	1745 (46.9)	197 (53.7)	334 (46.9)	107 (44.0)
Income				
< 20000	878 (25.4)	105 (35.5)	301 (46.5)	56 (27.3)
20000 to < 40000	1034 (29.9)	76 (25.7)	179 (27.7)	47 (22.9)
40000 to < 60000	620 (17.9)	47 (15.9)	84 (13.0)	37 (18.0)
60000	926 (26.8)	68 (23.0)	83 (12.8)	65 (31.7)
Education				
Less than high school	499 (13.4)	146 (40.9)	180 (25.5)	16 (6.7)
High school graduate/GED	1146 (30.8)	89 (24.9)	242 (34.2)	44 (18.3)
Some college (1 – 3 years)	1086 (29.2)	70 (19.6)	183 (25.9)	65 (27.1)
4-year college degree	987 (26.6)	52 (14.6)	102 (14.4)	118 (47.9)
Marital status				
Married/living with partner	2336 (62.8)	250 (68.1)	344 (48.4)	186 (76.5)
Widowed	661 (17.8)	33 (9.0)	103 (14.5)	18 (7.4)
Divorced/separated	568 (15.3)	59 (16.1)	195 (27.4)	18 (7.4)
Never married	155 (4.2)	25 (6.8)	69 (9.7)	21 (8.6)
Number of children aged <18 years in the home				
None	3376 (90.9)	255 (70.6)	599 (84.4)	180 (75.9)
1 or more	336 (9.1)	106 (29.4)	111 (15.6)	57 (24.1)
Cancer stage				
Stage I	1048 (29.5)	86 (24.5)	158 (23.7)	64 (27.6)
Stage II	723 (20.4)	80 (22.8)	144 (21.6)	41 (17.7)
Stage III	1065 (30.0)	108 (30.8)	209 (31.4)	72 (31.0)
Stage IV	714 (20.1)	77 (21.9)	155 (23.3)	55 (23.7)
Savings				
1 year or more	1562 (49.0)	85 (30.1)	153 (25.6)	84 (48.3)
< 1 year	1623 (51.0)	197 (69.9)	445 (74.4)	90 (51.7)
Number of Individuals Supported by Income				

Characteristics	White n = 3722, No. (%)	Hispanic or Latino n = 367, No. (%)	African American n = 712, No. (%)	Asian n = 243, No. (%)
1	1285 (34.6)	81 (22.4)	315 (44.4)	48 (20.3)
2	1951 (52.6)	143 (39.6)	265 (37.3)	99 (41.8)
3 or more	476 (12.8)	137 (38.0)	130 (18.3)	90 (38.0)
Covered by health insurance				
Yes	3661 (98.4)	348 (95.1)	676 (94.9)	233 (96.7)
No	59 (1.6)	18 (4.9)	36 (5.1)	8 (3.3)
Comorbidity				
None	800 (26.2)	89 (39.0)	141 (25.5)	62 (41.1)
Mild	1177 (38.5)	93 (40.8)	244 (44.0)	58 (38.4)
Moderate	600 (19.6)	36 (15.8)	103 (18.6)	18 (11.9)
Severe	480 (15.7)	10 (4.4)	66 (11.9)	13 (8.6)
Perceived quality of health care				
Excellent	2200 (59.4)	180 (49.3)	354 (50.1)	88 (36.4)
Very Good	1024 (27.7)	105 (28.8)	226 (32.0)	95 (39.3)
Good	349 (9.4)	59 (16.2)	92 (13.0)	43 (17.8)
Fair/Poor	129 (3.5)	21 (5.8)	35 (5.0)	16 (6.6)
Self assessed health				
Excellent	488 (13.2)	50 (13.7)	100 (14.1)	34 (14.0)
Very Good	1116 (30.1)	83 (22.7)	203 (28.7)	78 (32.1)
Good	1254 (33.8)	131 (35.9)	252 (35.6)	89 (36.6)
Fair/Poor	851 (22.9)	101 (27.7)	152 (21.5)	42 (17.3)
Cancer is curable				
Strongly Agree/Agree	2628 (70.7)	247 (67.3)	515 (72.3)	186 (76.5)
Strongly Disagree/Disagree	571 (15.4)	51 (13.9)	91 (12.8)	22 (9.1)
Don't Know	519 (14.0)	69 (18.8)	106 (14.9)	35 (14.4)
Social support score				
Mean $\pm$ SD	83.6 $\pm$ 24.3	78.8 $\pm$ 27.0	80.5 $\pm$ 26.0	76.0 $\pm$ 28.2
n	3714	367	711	243
Disease Type				
Lung Cancer	1773 (47.6)	109 (29.7)	277 (38.9)	77 (31.7)
Colorectal Cancer	1949 (52.4)	258 (70.3)	435 (61.1)	166 (68.3)

CanCORS indicates Cancer Care Outcomes Research and Surveillance Consortium.

Table 2

Adjusted Odds Ratios and 95% Confidence Intervals for Worry about Side Effects due to Treatment

Variable	Colorectal and Lung Cancer Patients (n=3511)	
	Odds Ratio	95% Confidence Interval
Racial Group		
African American (vs. White)	0.81	0.63 - 1.02
Hispanic (vs. White)	1.16	0.77 - 1.75
Asian (vs. White)	1.19	0.72 - 1.94
Female (vs. Male)	1.18	0.99 - 1.40
Age		
55-59 (vs. 54)	0.54	0.39 - 0.75
60-64 (vs. 54)	0.60	0.44 - 0.83
65-69 (vs. 54)	0.49	0.36 - 0.68
70-74 (vs. 54)	0.43	0.31 - 0.60
75-79 (vs. 54)	0.37	0.27 - 0.51
80 + (vs. 54)	0.25	0.18 - 0.35
Income		
20,000 - < 40,000 (vs. <20,000)	1.30	1.05 - 1.61
40,000 - < 60,000 (vs. <20,000)	1.39	1.07 - 1.82
60,000 (vs. <20,000)	1.90	1.43 - 2.53
Educational Level		
High School Graduate (vs. Did Not Complete High School)	1.08	0.84 - 1.38
Some College (1-3 years) (vs. Did Not Complete High School)	0.95	0.74 - 1.23
Four Year College Degree or More (vs. Did Not Complete High School)	1.04	0.78 - 1.38
Marital status		
Never Married (vs. Married/Living with Partner)	1.09	0.73 - 1.62
Divorced/Separated (vs. Married/ Living with Partner)	1.04	0.82 - 1.32
Widowed (vs. Married/Living with Partner)	1.13	0.88 - 1.45
Cancer Stage		
II (vs. I)	1.00	0.79 - 1.25
III (vs. I)	1.36	1.10 - 1.68
IV (vs. I)	1.35	1.07 - 1.72
Perceived Quality of Health Care		
Very Good (vs. excellent)	1.49	1.22 - 1.82
Good (vs. excellent)	1.09	0.83 - 1.45
Fair/Poor (vs. excellent)	1.18	0.75 - 1.86
Self-Assessed Health Status		

Variable	Colorectal and Lung Cancer Patients (n=3511)	
	Odds Ratio	95% Confidence Interval
Very Good (vs. excellent)	1.78	1.38 - 2.28
Good (vs. excellent)	2.10	1.62 - 2.71
Fair/Poor (vs. excellent)	2.05	1.54 - 2.73
Cancer is Curable		
Don't Know (vs. Strongly Agree/Agree)	0.68	0.54 - 0.85
Strongly Disagree/Disagree (vs. Strongly Agree/Agree)	1.15	0.90 - 1.47
Comorbidity Score		
Mild (vs. none)	1.05	0.85 - 1.30
Moderate (vs. none)	0.97	0.76 - 1.26
Severe (vs. none)	1.19	0.89 - 1.59
Heart Disease (CVD vs. No CVD)	0.99	0.81 - 1.20
Lung Disease (Yes or No)	1.03	0.84 - 1.26
Diabetes (Yes or No)	0.95	0.76 - 1.18
Kidney Disease (Yes or No)	0.91	0.71 - 1.18
Disease Type (Colorectal vs. Lung)	1.16	0.97 - 1.39

† Overall model P-value is < 0.001.

Table 3

Adjusted Odds Ratios and 95% Confidence Intervals for Worry about Cost of Treatment

Variable	Colorectal and Lung Cancer Patients (n=3657)	
	Odds Ratio	95% Confidence Interval
Racial Group		
African American (vs. White)	0.90	0.72 - 1.11
Hispanic (vs. White)	1.13	0.84 - 1.53
Asian (vs. White)	1.84	1.27 - 2.65
Female (vs. Male)	1.11	0.96 - 1.29
Age		
55-59 (vs. 54)	0.80	0.62 - 1.02
60-64 (vs. 54)	0.72	0.56 - 0.92
65-69 (vs. 54)	0.58	0.45 - 0.75
70-74 (vs. 54)	0.51	0.38 - 0.66
75-79 (vs. 54)	0.42	0.31 - 0.56
80 + (vs. 54)	0.41	0.30 - 0.57
Income		
20,000 - < 40,000 (vs. <20,000)	0.79	0.65 - 0.96
40,000 - < 60,000 (vs. <20,000)	0.55	0.43 - 0.70
60,000 (vs. <20,000)	0.36	0.28 - 0.47
Educational Level		
High School Graduate (vs. Did Not Complete High School)	0.78	0.63 - 0.98
Some College (1-3 years) (vs. Did Not Complete High School)	0.84	0.67 - 1.06
Four Year College Degree or More (vs. Did Not Complete High School)	0.87	0.68 - 1.13
Marital status		
Never Married (vs. Married/Living with Partner)	1.02	0.70 - 1.49
Divorced/Separated (vs. Married/ Living with Partner)	0.93	0.71 - 1.22
Widowed (vs. Married/Living with Partner)	0.98	0.73 - 1.33
Cancer Stage		
II (vs. I)	1.05	0.85 - 1.30
III (vs. I)	1.15	0.95 - 1.39
IV (vs. I)	1.53	1.24 - 1.89
Perceived Quality of Health Care		
Very Good (vs. excellent)	1.15	0.98 - 1.36
Good (vs. excellent)	0.97	0.75 - 1.24
Fair/Poor (vs. excellent)	1.39	0.95 - 2.03
Self-Assessed Health Status		

Variable	Colorectal and Lung Cancer Patients (n=3657)	
	Odds Ratio	95% Confidence Interval
Very Good (vs. excellent)	1.30	1.02 - 1.66
Good (vs. excellent)	1.54	1.21 - 1.96
Fair/Poor (vs. excellent)	1.38	1.06 - 1.79
Cancer is Curable		
Don't Know (vs. Strongly Agree/Agree)	0.83	0.67 - 1.04
Strongly Disagree/Disagree (vs. Strongly Agree/Agree)	1.00	0.81 - 1.23
Number of Individuals Supported by Income		
2 (vs. 1)	1.35	1.05 - 1.75
3 (vs. 1)	1.40	1.04 - 1.89
Covered by Health Insurance		
Yes (vs. No)	0.47	0.29 - 0.78
Savings		
1 Year (vs. 1 Year)	0.61	0.52 - 0.71
Perceived Time to Live		
<5 Years (vs. Don't Know)	0.88	0.68 - 1.13
5 Years (vs. Don't Know)	1.03	0.86 - 1.23
In God's Hands (vs. Don't Know)	0.93	0.72 - 1.21
Disease Type (Colorectal vs. Lung)	1.04	0.89 - 1.22

† Overall model P-value is < 0.001.

Table 4

Adjusted Odds Ratios and 95% Confidence Intervals for Worry about Time Away From Your Family

Variable	Colorectal and Lung Cancer Patients (n=4221)	
	Odds Ratio	95% Confidence Interval
Racial Group		
African American (vs. White)	1.08	0.89 - 1.31
Hispanic (vs. White)	1.27	0.95 - 1.67
Asian (vs. White)	1.07	0.77 - 1.48
Female (vs. Male)	0.92	0.80 - 1.05
Age		
55-59 (vs. 54)	0.64	0.51 - 0.81
60-64 (vs. 54)	0.54	0.43 - 0.68
65-69 (vs. 54)	0.47	0.37 - 0.60
70-74 (vs. 54)	0.33	0.26 - 0.43
75-79 (vs. 54)	0.26	0.20 - 0.33
80 + (vs. 54)	0.24	0.18 - 0.32
Income		
20,000 - < 40,000 (vs. <20,000)	0.79	0.66 - 0.94
40,000 - < 60,000 (vs. <20,000)	0.77	0.62 - 0.96
60,000 (vs. <20,000)	0.68	0.54 - 0.85
Educational Level		
High School Graduate (vs. Did Not Complete High School)	0.82	0.66 - 1.00
Some College (1-3 years) (vs. Did Not Complete High School)	0.82	0.66 - 1.01
Four Year College Degree or More (vs. Did Not Complete High School)	0.67	0.53 - 0.85
Marital status		
Never Married (vs. Married/Living with Partner)	0.49	0.36 - 0.66
Divorced/Separated (vs. Married/ Living with Partner)	0.42	0.34 - 0.51
Widowed (vs. Married/Living with Partner)	0.53	0.43 - 0.65
Cancer Stage		
II (vs. I)	0.90	0.74 - 1.08
III (vs. I)	1.01	0.85 - 1.20
IV (vs. I)	1.16	0.96 - 1.40
Perceived Quality of Health Care		
Very Good (vs. excellent)	1.28	1.10 - 1.49
Good (vs. excellent)	1.31	1.05 - 1.64
Fair/Poor (vs. excellent)	1.81	1.27 - 2.58

Variable	Colorectal and Lung Cancer Patients (n=4221)	
	Odds Ratio	95% Confidence Interval
Self-Assessed Health Status		
Very Good (vs. excellent)	1.49	1.20 - 1.89
Good (vs. excellent)	1.68	1.35 - 2.09
Fair/Poor (vs. excellent)	1.57	1.24 - 2.00
Cancer is Curable		
Don't Know (vs. Strongly Agree/Agree)	0.88	0.72 - 1.07
Strongly Disagree/Disagree (vs. Strongly Agree/Agree)	1.09	0.90 - 1.33
Number of Children Under 18 in the Home		
1 or more (vs. 0)	1.78	1.41 - 2.24
Social Support Score	1.00	0.99 - 1.00
Disease Type (Colorectal vs. Lung)	0.98	0.85 - 1.12

† Overall model P-value is < 0.001.

Table 5

Adjusted Odds Ratios and 95% Confidence Intervals for Worry about Time Away From Work

Variable	Colorectal and Lung Cancer Patients (n=1863)	
	Odds Ratio	95% Confidence Interval
Racial Group		
African American (vs. White)	0.68	0.52 - 0.88
Hispanic (vs. White)	1.34	0.92 - 1.97
Asian (vs. White)	1.37	0.85 - 2.21
Female (vs. Male)	0.78	0.64 - 0.94
Age		
55-59 (vs. 54)	0.58	0.45 - 0.75
60-64 (vs. 54)	0.36	0.28 - 0.46
Income		
20,000 - < 40,000 (vs. <20,000)	1.32	0.98 - 1.77
40,000 - < 60,000 (vs. <20,000)	1.73	1.24 - 2.40
60,000 (vs. <20,000)	1.77	1.26 - 2.47
Educational Level		
High School Graduate (vs. Did Not Complete High School)	0.81	0.58 - 1.14
Some College (1-3 years) (vs. Did Not Complete High School)	0.88	0.62 - 1.23
Four Year College Degree or More (vs. Did Not Complete High School)	1.03	0.71 - 1.49
Marital status		
Never Married (vs. Married/Living with Partner)	0.96	0.62 - 1.50
Divorced/Separated (vs. Married/ Living with Partner)	1.01	0.73 - 1.41
Widowed (vs. Married/Living with Partner)	0.70	0.43 - 1.18
Cancer Stage		
II (vs. I)	1.03	0.76 - 1.39
III (vs. I)	1.12	0.87 - 1.45
IV (vs. I)	0.94	0.71 - 1.25
Perceived Quality of Health Care		
Very Good (vs. excellent)	1.26	1.00 - 1.59
Good (vs. excellent)	1.28	0.91 - 1.78
Fair/Poor (vs. excellent)	1.22	0.72 - 2.05
Self-Assessed Health Status		
Very Good (vs. excellent)	1.08	0.79 - 1.49
Good (vs. excellent)	1.45	1.06 - 1.98
Fair/Poor (vs. excellent)	1.21	0.86 - 1.71

Variable	Colorectal and Lung Cancer Patients (n=1863)	
	Odds Ratio	95% Confidence Interval
Cancer is Curable		
Don't Know (vs. Strongly Agree/Agree)	1.06	0.78 - 1.46
Strongly Disagree/Disagree (vs. Strongly Agree/Agree)	0.98	0.74 - 1.30
Savings		
1 Year (vs. 1 Year)	0.65	0.52 - 0.80
Number of Individuals Supported by Income		
2 (vs. 1)	0.93	0.66 - 1.29
3 (vs. 1)	0.80	0.56 - 1.14
Disease Type (Colorectal vs. Lung)	1.14	0.92 - 1.42

† Overall model P-value is < 0.001.

Table 6

Adjusted Odds Ratios and 95% Confidence Intervals for Worry about Transportation to Treatment

Variable	Colorectal and Lung Cancer Patients (n=4162)	
	Odds Ratio	95% Confidence Interval
Racial Group		
African American (vs. White)	1.08	0.86 - 1.35
Hispanic (vs. White)	1.59	1.18 - 2.15
Asian (vs. White)	2.13	1.52 - 3.01
Female (vs. Male)	0.84	0.71 - 0.99
Age		
55-59 (vs. 54)	0.90	0.69 - 1.18
60-64 (vs. 54)	0.60	0.45 - 0.78
65-69 (vs. 54)	0.54	0.41 - 0.70
70-74 (vs. 54)	0.54	0.40 - 0.72
75-79 (vs. 54)	0.56	0.41 - 0.75
80 + (vs. 54)	0.54	0.39 - 0.75
Income		
20,000 - < 40,000 (vs. <20,000)	0.76	0.62 - 0.93
40,000 - < 60,000 (vs. <20,000)	0.65	0.50 - 0.84
60,000 (vs. <20,000)	0.43	0.33 - 0.57
Educational Level		
High School Graduate (vs. Did Not Complete High School)	0.78	0.62 - 0.99
Some College (1-3 years) (vs. Did Not Complete High School)	0.85	0.67 - 1.08
Four Year College Degree or More (vs. Did Not Complete High School)	0.90	0.68 - 1.18
Marital status		
Never Married (vs. Married/Living with Partner)	1.75	1.27 - 2.42
Divorced/Separated (vs. Married/ Living with Partner)	1.47	1.18 - 1.82
Widowed (vs. Married/Living with Partner)	1.84	1.44 - 2.34
Cancer Stage		
II (vs. I)	1.10	0.87 - 1.39
III (vs. I)	1.08	0.88 - 1.33
IV (vs. I)	1.28	1.03 - 1.61
Perceived Quality of Health Care		
Very Good (vs. excellent)	1.39	1.16 - 1.66
Good (vs. excellent)	1.77	1.34 - 2.25
Fair/Poor (vs. excellent)	1.94	1.34 - 2.78
Self-Assessed Health Status		

Variable	Colorectal and Lung Cancer Patients (n=4162)	
	Odds Ratio	95% Confidence Interval
Very Good (vs. excellent)	1.76	1.27 - 2.42
Good (vs. excellent)	2.17	1.58 - 2.98
Fair/Poor (vs. excellent)	2.75	1.98 - 3.83
Cancer is Curable		
Don't Know (vs. Strongly Agree/Agree)	0.91	0.72 - 1.15
Strongly Disagree/Disagree (vs. Strongly Agree/Agree)	1.09	0.87 - 1.36
Disease Type (Colorectal vs. Lung)	0.93	0.78 - 1.10

† Overall model P-value is < 0.001.