

ORIGINAL ARTICLE

Association of Patient–Provider Communication Domains with Lung Cancer Treatment

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Background: Patient–physician communication is critical for helping patients understand and complete the complex steps needed to diagnose stage and treat lung cancer. We assessed which domains of patient–physician communication about lung cancer and its treatment are associated with receipt of disease-directed, stage-appropriate treatment.

Methods: Patients with recently diagnosed lung cancer were recruited from four medical centers in New York City from 2008 to 2011. Participants were surveyed about discussions with physicians regarding treatment, symptoms, and needs. Multiple regression analysis and structural equation modeling were used to assess which communication factors were associated with disease treatment.

Results: Of the 352 participants, 191 (54%) received disease-directed, stage-appropriate treatment. Unadjusted associations between communication items and treatment found that participants who felt that their physicians explained the risks and disadvantages of lung cancer treatment ($p < 0.01$), discussed their chances of cure ($p = 0.02$), discussed goals of treatment ($p < 0.01$), or who were warm and friendly ($p = 0.04$) were more likely to undergo treatment. Three communication domains were identified: treatment information, physician support, and patient symptoms/needs. After adjusting for known

determinants of lung cancer treatment, increased treatment information was associated with higher probability of cancer-directed treatment ($p = 0.003$). Other communication domains (physician support or patient symptoms/needs) were not independent predictors of treatment ($p > 0.05$ for both comparisons).

Conclusion: These data suggest that treatment information is particularly important for increasing the probability of cancer-directed therapy among lung cancer patients. Clinicians should ensure that they clearly discuss treatment goals and options with patients while maintaining empathy, supporting patient needs, and addressing symptoms.

Key Words: Lung cancer, Treatment, Patient–provider communication.

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Despite the high mortality rate and poor overall prognosis of lung cancer, appropriate treatment is associated with decreased morbidity and improved survival, particularly for patients with non-metastatic disease.¹ Even for more advanced disease stages, chemotherapy along with supportive care can increase the median survival and improve quality of life.² The process leading to lung cancer treatment, from initiation to completion, is quite involved. To receive cancer-directed therapy, lung cancer patients need to be diagnosed in a timely manner, appropriately staged, and then may need to undergo multipart treatment procedures such as surgery, chemotherapy, and/or radiation. Successful treatment requires complex care coordination, effective management, and ongoing communication with multiple providers. As a result, patients need a clear understanding of their disease and treatment options to be able to make decisions and initiate treatment.

Several factors such as access to care, the ability to navigate the complexities of the healthcare system, and social support can influence whether lung cancer patients receive treatment.^{3–5} In addition, patients' understanding of diagnostic tests, treatment options, and prognosis, coupled with their ability to adhere to provider recommendations, may affect whether patients ultimately accept and undergo treatment. Therefore, patient–physician communication likely plays a key role in ensuring that lung cancer patients understand the rationale and importance of treatment and complete these complex steps.

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Prior research has shown that while many patients with lung cancer are satisfied with how clinicians discuss diagnosis and treatment options, physicians' communication about treatment goals remains suboptimal.⁶ Moreover, poor communication resulting in unattended patient needs has been reported across all stages of lung cancer.⁷ However, the potential impact of patient–provider communication on lung cancer treatment has not been previously explored. In this study, we assessed which domains of patient–physician communication about lung cancer and its treatment are associated with receipt of stage-appropriate cancer-directed treatment.

PATIENTS AND METHODS

A cohort of lung cancer patients were recruited from four New York City hospitals (Mount Sinai Hospital, Montefiore Hospital, New York-Presbyterian Hospital and Harlem Hospital) between January 11, 2008, and November 9, 2011. We identified potential participants using centralized registries maintained by the hospitals' pathology departments and/or institutional tumor registries. To ensure we captured all potential study subjects, we also regularly contacted lung cancer providers, conducted weekly screenings of oncology, radiotherapy, and pulmonary clinics, posted flyers advertising the study at treatment sites, and communicated with clinicians serving on tumor boards of the participating hospitals.

Patients were eligible for the study if they were English or Spanish speaking, older than 18 years, and diagnosed with primary lung cancer within the previous 12 months. Potential participants were excluded if they were without decisional capacity or had been diagnosed with another malignancy (other than non-melanoma skin cancer) within the past 5 years. Eligible patients were undergoing staging work-up or treatment when they were approached by the study team. Once participants signed informed consent, they underwent a standardized in-person baseline interview in their preferred language. Follow-up phone interviews were conducted to collect data on primary, cancer-directed treatment. Medical record review was conducted using a standardized instrument to obtain and confirm information about patients' diagnostic evaluation, cancer stage, and treatment. The study was approved by the Institutional Review Boards of all participating institutions.

Sociodemographic characteristics, including age, sex, race, ethnicity, marital status, primary language, education, insurance status, and income were collected by patient self-report. Patients were classified according to the Tumor, Node, and Metastasis staging criteria of the American Joint Committee on Cancer (7th edition) through review of medical records, pathology reports, and tumor registry data. Information about comorbidities was collected by self-report and confirmed by chart review. Performance status was assessed by patient report using the Eastern Cooperative Oncology Group (ECOG) instrument.⁸

Questions regarding physician communication covered several domains (Table 2). The first group of questions focused on lung cancer treatment and goals of care and included items inquiring if lung cancer doctors explained

the disease itself; the benefits and disadvantages, potential complications and goals of treatment; and the chances of cure. The second domain focused on patients' physical, emotional, spiritual and practical needs. Items inquired about whether doctors discussed emotional issues (sadness, anxiety, etc.), physical symptoms, spiritual concerns, or practical needs (transportation to appointments, homemaking assistance). The third domain included items about physician support, such as whether their doctors encouraged patients to ask questions, used simple language, showed they care, and were warm and friendly. Questions were developed with input from an interdisciplinary team of experts in lung cancer, patient–physician communication, psychology and palliative care; details about survey development have been previously described.⁷ Responses rated level of agreement with statements either on a 4-point Likert scale, ranging from “strongly agree” to “strongly disagree” or on a 5-point Likert scale from discussed “not at all,” “a little bit,” “somewhat,” “quite a bit,” or “a lot.” Responses were dichotomized: strongly agree and agree were combined into one category versus disagree and strongly disagree and quite a bit and a lot were combined versus somewhat, a little bit, and not at all.

The study outcome, receipt of disease-directed, stage-appropriate treatment (including surgery, chemotherapy, and/or radiation therapy), was defined based on the National Comprehensive Cancer Network (NCCN) recommendations for lung cancer management.⁹ Treatment was ascertained through medical chart review, and patients were classified as having received such treatment if they underwent NCCN-concordant primary lung cancer-directed therapy within a year of diagnosis (see supplemental table, Supplemental Digital Content, <http://links.lww.com/JTO/A639>).

Statistical Analysis

We used descriptive statistics to summarize sociodemographic characteristics of participants. The unadjusted association between patient–physician communication items within each domain and receipt of cancer-directed, stage-appropriate treatment was assessed using the χ^2 or Fisher's exact test, as appropriate. We used exploratory factor analysis to identify latent factors representing different communication domains. Based on the scree plot and eigenvalues (values >1), we identified three latent factors. Items with absolute loadings greater than 0.5 and that were theoretically congruent with prior knowledge were assigned to specific factors. We then used structural equation modeling (SEM) to evaluate which communication factors were associated with receipt of stage-appropriate treatment. The SEM was adjusted for age, gender, race/ethnicity, primary language, marital status, income, insurance, comorbidities, lung cancer stage, and performance status. Effect estimates from the latent communication factors leading into treatment represent the increase in the probit of the likelihood of receiving treatment with a one standard deviation increase in the communication factor score. Model fit was assessed with the root mean square error of approximation and the comparative fit index. Analyses were conducted with SAS9.2 (SAS

Institute Inc., Cary, NC) and Mplus7 (Muthen & Muthen, Los Angeles, CA).

RESULTS

During the study period, we screened 1542 patients, of whom 484 were eligible for and 368 (76%) were enrolled in the study. Cancer stage information was missing for 16 patients who were excluded from the analysis, leaving a final cohort of 352 lung cancer patients.

Participants' sociodemographic and lung cancer characteristics are shown in Table 1. The mean (SD) age of participants was 65.7 (11) years, 168 (48%) were men and 193 (55%) were married. Twenty-one percent were black, 20% were Hispanic and 55% were white. Eighty percent of participants were native English speakers and 75% had a high school or greater education. Overall, 191 (54%) of participants received disease-directed, stage-appropriate treatment.

TABLE 1. Characteristics of the Study Participants (*n* = 352)^a

Characteristic	Value
Age, yr, mean ± SD	66 ± 11
Male, <i>n</i> (%)	168 (48)
Married, <i>n</i> (%)	193 (55)
Native English-speaking, <i>n</i> (%)	284 (81)
Race/ethnicity, <i>n</i> (%)	
White	181 (55)
Black	68 (21)
Hispanic	64 (20)
Other	14 (4)
Education, <i>n</i> (%)	
Did not graduate high school	83 (25)
High school graduate	146 (45)
College graduate	98 (30)
Income, <i>n</i> (%)	
≤\$15,000	69 (20)
\$15,000–50,000	74 (21)
≥\$50,000	72 (21)
Refused/do not know	133 (38)
Insurance, <i>n</i> (%)	
Commercial	168 (51)
Medicare	131 (39)
Medicaid/none	34 (10)
TNM stage, <i>n</i> (%)	
IA	118 (34)
IB	43 (12)
IIA	11 (3)
IIB	22 (6)
IIIA	40 (11)
IIIB	35 (10)
IV/extensive	83 (24)
ECOG performance status: fully active, <i>n</i> (%)	173 (50)
Received stage-appropriate treatment, <i>n</i> (%)	191 (54)

^a For some characteristics, totals are <352 due to missing responses. ECOG, Eastern Cooperative Oncology Group; TNM, tumor, node, metastasis.

Unadjusted Association of Communication and Treatment

The unadjusted associations between communication items and receipt of cancer-directed, stage-appropriate treatment are shown in Table 2. Several items in the treatment and goals of care domain were associated with treatment rates. Participants who felt that their physicians explained to their satisfaction the risks and disadvantages of lung cancer treatment were more likely to undergo treatment (*p* < 0.01). Similarly, treatment was more frequent among those who reported that their doctors discussed their chances of cure (*p* = 0.02) and goals of treatment (*p* < 0.01). Other items in this domain were not associated with treatment rates (*p* > 0.05 for all comparisons).

One item in the provider support domain was associated with cancer-directed, stage-appropriate treatment. Patients who felt that their doctors were warm and friendly were more likely to undergo treatment (*p* = 0.04). None of the items in the domain assessing communication about patient needs was associated with stage-appropriate treatment rates (*p* > 0.05 for all comparisons).

Exploratory Factor Analysis and Structural Equation Modeling

All items assessing patient–provider communication were entered into an exploratory factor analysis. Factor loadings are shown in Table 3. Based on factor loadings and theoretical considerations, the three communication factors selected for SEM were: (1) physician support (comprising

TABLE 2. Unadjusted Associations between Patient–Physician Communication and Receipt of Stage-Appropriate Cancer-Directed Treatment

Communication Items, <i>n</i> (%)	Treatment		<i>p</i> Value
	Yes (<i>n</i> = 191)	No (<i>n</i> = 161)	
Treatment and goals of care			
Explained benefits and disadvantages of treatments	173 (92)	125 (83)	<0.01
Talked about chances of curing cancer	126 (67)	82 (54)	0.02
Explained what lung cancer is	166 (87)	141 (89)	0.59
Discussed goals of treatment	152 (80)	99 (68)	<0.01
Discussed complications of treatment	134 (71)	101 (64)	0.22
Physician support			
Showed care about me	186 (98)	155 (98)	0.90 ^a
Warm and friendly	190 (100)	154 (97)	0.04 ^a
Used simple language	184 (97)	152 (96)	0.74 ^a
Encouraged asking questions	180 (95)	145 (93)	0.49
Patient needs			
Discussed emotional symptoms	88 (47)	69 (45)	0.79
Discussed physical symptoms	148 (78)	113 (73)	0.24
Discussed practical needs	60 (32)	50 (32)	0.92
Discussed spiritual concerns	39 (21)	34 (22)	0.85

^aFisher's exact test.

TABLE 3. Exploratory Factor Analysis of Patient–Physician Communication Items

Communication Items	Factor Loadings		
	1	2	3
Providing information			
Explained benefits and disadvantages of treatments ^a	0.123	-0.566	0.102
Talked about chances of curing cancer	0.024	0.315	0.309
Explained what lung cancer is	0.619	-0.316	-0.012
Discussed goals of treatment ^a	0.012	0.524	0.234
Discussed complications of treatment ^a	-0.006	0.545	0.163
Physician support			
Showed they care about me ^a	0.946	0.004	-0.004
Was warm and friendly ^a	0.966	0.023	0.036
Used simple language ^a	0.775	-0.135	-0.001
Encouraged asking questions ^a	0.765	-0.208	-0.001
Patient symptoms and needs			
Discussed emotional symptoms ^a	0.010	0.102	0.700
Discussed physical symptoms	-0.012	0.374	0.455
Discussed practical needs ^a	-0.008	0.000	0.733
Discussed spiritual concerns	-0.008	-0.173	0.792

^a Items included in final structural equation modeling with latent communication factors.

four items), (2) treatment information (comprising three items), and (3) patient symptoms and needs (comprising two items).

After adjusting for race/ethnicity, native language, marital status, income, insurance, comorbidities, lung cancer stage, and performance status, SEM showed that higher scores in the treatment information latent factor were associated with increased probability of receiving cancer-directed, stage-appropriate treatment (estimate = 0.59, *p* = 0.004; Fig. 1). Conversely, the latent communication factors representing physician support (estimate = 0.11, *p* = 0.58) and patient symptoms/needs (estimate = -0.28, *p* = 0.07) were not significantly associated with treatment. The model fit was good with a root mean square error of approximation = 0.023 and comparative fit index = 0.936.

DISCUSSION

Prior studies have shown that effective patient–physician communication improves patients’ knowledge and control over treatment decisions.^{10,11} We found that after adjusting for known determinants of treatment, better perceived communication about lung cancer management and goals of care was associated with increased probability of cancer-directed, stage-appropriate treatment. Other communication domains such as physician support or discussions about patients’ symptoms/needs were not independently associated with treatment rates. Our findings emphasize the importance of physicians’ role in effectively explaining information about treatment goals and options to lung cancer patients while maintaining empathy.

The impact of a new lung cancer diagnosis, compounded by the subsequent staging process and discussion of complex treatment recommendations, can be overwhelming for patients.¹² Many patients fail to understand the prognosis and goals of their treatment, and most physicians are unaware of these misunderstandings.¹ In addition, while patients with early-stage lung cancer can be cured by surgical resection, metastatic disease can be only ameliorated with chemotherapy.¹³ Thus, for patients with advanced disease, physicians need to engage in potentially difficult discussions about goals of care and overall prognosis.² Unfortunately, most patients do not receive enough information to make informed decisions,¹⁴ a factor that may contribute to lack of appropriate treatment with consequent decreased survival and poorer quality of life.

While the literature shows that communication is related to treatment rates,^{15–17} which domains of communication are most important remains unclear. Cykert et al.¹⁷ showed that lower overall patient–physician communication scores were associated with decreased rates of surgery for lung cancer, but did not evaluate particular communication domains that were related to surgery rates or explore other treatment types. Accurately providing information about treatment benefits and risks and goals of treatment may increase the likelihood that cancer patients undergo the complex steps needed to stage and treat their disease. In support, we found that the communication domain of providing information about treatment options and goals was associated with receipt of cancer-directed stage-appropriate treatment.

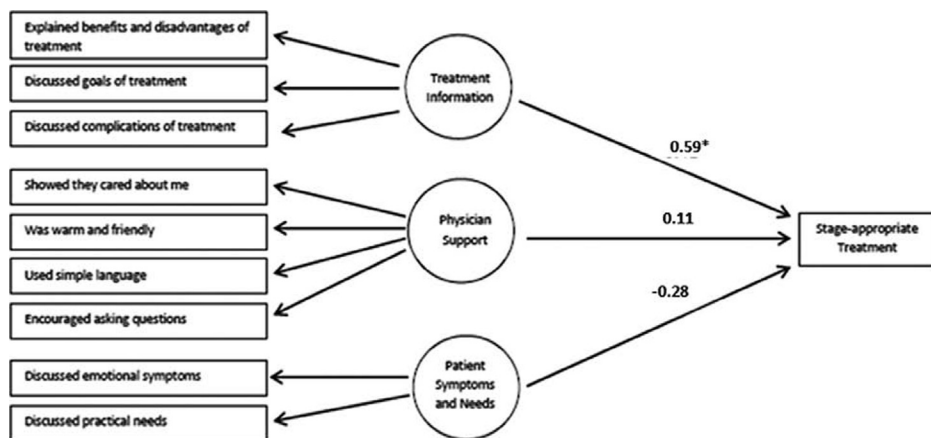


FIGURE 1. Structural equation model of communication factors and cancer-directed, stage-appropriate treatment. Model adjusted for age, gender, marital status, income, insurance, native language, comorbidities, lung cancer stage, and performance status. **p* value < 0.05.

Studies have shown that effective communication is correlated with improved health outcomes, may reduce uncertainty, and alleviate patient concerns about treatment.^{18–21} Specifically, providing information about treatment side effects, extent of the disease, prognosis, and chances of cure can help meet patients' informational needs.^{22,23} In addition, patient satisfaction is influenced by physicians' ability to exhibit friendly and compassionate behavior,²⁴ and a warm communication style is important in making patients feel comfortable asking questions.²⁵ Prior studies have shown that empathic communication is important for reducing anxiety and fear, providing support and reassurance, improving patient satisfaction, and adherence to physician recommendations.^{26–29} However, we did not find that physician support was associated with increased cancer-directed treatment rates. This lack of association may have been due, in part, to the low variability in physician support items, as most patients in our cohort reported very high levels of physician empathic support. Certainly, a warm communication style is critical for establishing patient rapport and trust, and can help patients modulate their emotions so that they are able to absorb and process information about prognosis and weigh the benefits and burdens of treatment options. However, empathic communication itself may not be sufficient for ensuring that patients undergo treatment.

Consideration of patients' symptoms, functioning, coping strategies, and social support is key in addressing these important needs that can substantially impact quality of life in lung cancer patients.^{30–32} Helping patients navigate a complex medical system, facilitating transportation to appointments, ensuring adequate social and/or emotional support can help patients adhere to treatment recommendations. However, we did not find that addressing patients' symptoms or needs was associated with increased rates of treatment. Perhaps this was due to the low percentage of physicians who discussed practical, spiritual and emotional needs with patients. Alternatively, patients may have already been receiving support from family, friends, social workers, or other non-physician members of the healthcare team. Physicians should nonetheless ensure that the healthcare team addresses these important issues, which have been associated improved treatment adherence in other chronic diseases and in cancer screening practices.^{33–35}

There are some limitations to our study. Communication was measured through patient report, rather than by directly observing and/or recording of patient–physician conversations. However, given that most lung cancer patients interact with multiple different providers during their course of diagnosis, staging, and treatment, it would be difficult to directly observe all these encounters to assess patient–physician communication. Thus, a self-reported measure may be more helpful capturing the overall communication process. Furthermore, patients' perception of how their providers communicate often affects their medical decision-making behaviors.^{36,37} Although we attempted to enroll patients early in the course of the disease (median time from diagnosis to enrollment was 3 months), some patients may have been interviewed during their treatment course. Thus, we cannot establish a causal link between communication and treatment. We were also not able

to assess whether some patients did not receive stage-appropriate therapy due to lack of physician recommendation and we did not take into account comorbidities or performance status when deciding whether or not a patient should have received adjuvant therapy but we did adjust for comorbidities and performance status in the analysis. We recruited lung cancer patients from a single urban area so our results may not be generalizable to other settings. However, we conducted the study at several sites that provide care to a large segment of the community. Our sample had an overrepresentation of patients with early-stage lung cancer, compared with national rates. However, communication processes should be important regardless of disease stage and we controlled for stage in our adjusted analyses. Finally, our sample size may not have been sufficient to detect communication factors that had weaker associations with treatment. Future studies should aim to objectively assess communication before treatment decisions to more firmly establish the relationship between communication factors and receipt of cancer treatment.

In summary, we found that perceived communication about benefits, disadvantages and goals of treatment to lung cancer patients was associated with an increased rate of undergoing stage-appropriate, cancer-directed treatment. In contrast, we observed that physician support and communication about patients' symptoms or needs, while important components of patient-centered care, were not associated with disease-directed treatment. Nevertheless, physician empathy remains critical to supporting patients during decision-making about and throughout cancer treatment. These data highlight the importance of ensuring that clear discussion about treatment goals and options with lung cancer patients occur while maintaining empathy, supporting patient needs, and addressing symptoms. Future steps may include specific interventions to improve this important aspect of care.

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REFERENCES

1. Quirt CF, Mackillop WJ, Ginsburg AD, et al. Do doctors know when their patients don't? A survey of doctor-patient communication in lung cancer. *Lung Cancer* 1997;18:1–20.
2. Ihde DC. Drug-therapy—chemotherapy of lung-cancer. *N Engl J Med* 1992;327:1434–1441.
3. Greenberg ER, Chute CG, Stukel T, et al. Social and economic-factors in the choice of lung-cancer treatment. A population-based study in 2 rural states. *N Engl J Med* 1988;318:612–617.
4. Groth SS, Al-Refaie WB, Zhong W, et al. Effect of insurance status on the surgical treatment of early-stage non-small cell lung cancer. *Ann Thorac Surg* 2013;95:1221–1226.
5. Forrest LF, Adams J, Wareham H, Rubin G, White M. Socioeconomic inequalities in lung cancer treatment: systematic review and meta-analysis. *PLoS Med* 2013;10:e1001376.
6. Gabrijel S, Grize L, Helffenstein E, et al. Receiving the diagnosis of lung cancer: Patient recall of information and satisfaction with physician communication. *J Clin Oncol* 2008;26:297–302.

7. Nelson JE, Gay EB, Berman AR, Powell CA, Salazar-Schicchi J, Wisnivesky JP. Patients rate physician communication about lung cancer. *Cancer* 2011;117:5212–5220.
8. Oken MM, Creech RH, Tormey DC, et al. Toxicity and response criteria of the Eastern Cooperative Oncology Group. *Am J Clin Oncol* 1982;5:649–655.
9. Underwood JM, Townsend JS, Tai E, et al. Racial and regional disparities in lung cancer incidence. *Cancer* 2012;118:1910–1918.
10. Charles C, Gafni A, Whelan T. Shared decision-making in the medical encounter: what does it mean? (or it takes at least two to tango). *Soc Sci Med* 1997;44:681–692.
11. Eddy DM. Clinical decision making: from theory to practice. Anatomy of a decision. *JAMA* 1990;263:441–443.
12. Marbach TJ, Griffie J. Patient preferences concerning treatment plans, survivorship care plans, education, and support services. *Oncol Nurs Forum* 2011;38:335–342.
13. Handy JR Jr. Functional outcomes after lung cancer resection: who cares as long as you are cured? *Chest* 2009;135:258–259.
14. Koedoot CG, Oort FJ, de Haan RJ, Bakker PJM, de Graeff A, de Haes J. The content and amount of information given by medical oncologists when telling patients with advanced cancer what their treatment options are: palliative chemotherapy and watchful-waiting. *Eur J Cancer* 2004;40:225–235.
15. Zolnierok KB, Dimatteo MR. Physician communication and patient adherence to treatment: a meta-analysis. *Med Care* 2009;47:826–834.
16. Liang WH, Burnett CB, Rowland JH, et al. Communication between physicians and older women with localized breast cancer: Implications for treatment and patient satisfaction. *J Clin Oncol* 2002;20:1008–1016.
17. Cykert S, Dilworth-Anderson P, Monroe MH, et al. Factors associated with decisions to undergo surgery among patients with newly diagnosed early-stage lung cancer. *JAMA* 2010;303:2368–2376.
18. Street RL, Gordon HS, Ward MM, Krupat E, Kravitz RL. Patient participation in medical consultations—why some patients are more involved than others. *Med Care* 2005;43:960–969.
19. Stewart MA. Effective physician–patient communication and health outcomes: a review. *CMAJ* 1995;152:1423–1433.
20. Heszen-Klemens I, Lapińska E. Doctor-patient interaction, patients' health behavior and effects of treatment. *Soc Sci Med* 1984;19:9–18.
21. Street RL Jr. Information-giving in medical consultations: the influence of patients' communicative styles and personal characteristics. *Soc Sci Med* 1991;32:541–548.
22. Graydon J, Galloway S, PalmerWickham S, et al. Information needs of women during early treatment for breast cancer. *J Adv Nurs* 1997;26:59–64.
23. Mills ME, Sullivan K. The importance of information giving for patients newly diagnosed with cancer: a review of the literature. *J Clin Nurs* 1999;8:631–42.
24. Comstock LM, Hooper EM, Goodwin JM, Goodwin JS. Physician behaviors that correlate with patient satisfaction. *J Med Educ* 1982;57:105–112.
25. Ishikawa H, Takayama T, Yamazaki Y, Seki Y, Katsumata N, Aoki Y. The interaction between physician and patient communication behaviors in Japanese cancer consultations and the influence of personal and consultation characteristics. *Patient Educ Couns* 2002;46:277–285.
26. Di Blasi Z, Harkness E, Ernst E, Georgiou A, Kleijnen J. Influence of context effects on health outcomes: a systematic review. *Lancet* 2001;357:757–762.
27. Baile WF, Aaron J. Patient–physician communication in oncology: past, present, and future. *Curr Opin Oncol* 2005;17:331–335.
28. Zinn W. The empathic physician. *Arch Intern Med* 1993;153:306–12.
29. Morse DS, Edwardsen EA, Gordon HS. Missed opportunities for interval empathy in lung cancer communication. *Arch of Intern Med* 2008;168:1853–1858.
30. Henoeh I, Bergman B, Gustafsson M, Gaston-Johansson F, Danielson E. The impact of symptoms, coping capacity, and social support on quality of life experience over time in patients with lung cancer. *J Pain Symptom Manage* 2007;34:370–379.
31. Sanders SL, Bantum EO, Owen JE, Thornton AA, Stanton AL. Supportive care needs in patients with lung cancer. *Psychooncology* 2010;19:480–489.
32. Walker MS, Zona DM, Fisher EB. Depressive symptoms after lung cancer surgery: their relation to coping style and social support. *Psychooncology* 2006;15:684–693.
33. Voils CI, Steffens DC, Flint EP, Bosworth HB. Social support and locus of control as predictors of adherence to antidepressant medication in an elderly population. *Am J Geriatr Psychiatry* 2005;13:157–165.
34. Naylor K, Ward J, Polite BN. Interventions to improve care related to colorectal cancer among racial and ethnic minorities: a systematic review. *J Gen Intern Med* 2012;27:1033–1046.
35. Lee JH, Fulp W, Wells KJ, Meade CD, Calcagno E, Roetzheim R. Patient navigation and time to diagnostic resolution: results for a cluster randomized trial evaluating the efficacy of patient navigation among patients with breast cancer screening abnormalities, Tampa, FL. *PLoS ONE* 2013;8:e74542.
36. Schoenthaler A, Chaplin WF, Allegrante JP, et al. Provider communication effects medication adherence in hypertensive African Americans. *Patient Educ Couns* 2009;75:185–191.
37. Epstein RM. Making communication research matter: what do patients notice, what do patients want, and what do patients need? *Patient Educ Couns* 2006;60:272–278.