

# Can Patient Coaching Reduce Racial/Ethnic Disparities in Cancer Pain Control? Secondary Analysis of a Randomized Controlled Trial

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## ABSTRACT

*Purpose.* Minority patients with cancer experience worse control of their pain than do their white counterparts. This disparity may, in part, reflect more miscommunication between minority patients and their physicians. Therefore, we examined whether patient coaching could reduce disparities in pain control in a secondary analysis of a randomized controlled trial.

*Methods.* Sixty-seven English-speaking adult cancer outpatients, including 15 minorities, with moderate pain over the prior 2 weeks were randomly assigned to the experimental (N = 34) or control group (N = 33). Experimental patients received a 20-minute individualized education and coaching session to increase knowledge of pain self-management, to redress personal misconceptions about pain treatment, and to rehearse an individually scripted patient–physician dialog about pain control. The control group received standardized information on controlling pain. Data on average pain (0–10 scale) were collected at enrollment and 2-week follow-up.

*Results.* At enrollment, minority patients had significantly more pain than their white counterparts (6.0 vs 5.0,  $P = 0.05$ ). At follow-up, minorities in the control group continued to have more pain (6.4 vs 4.7,  $P = 0.01$ ), whereas in the experimental group, disparities were eliminated (4.0 vs 4.3,  $P = 0.71$ ). The effect of the intervention on reducing disparities was significant ( $P = 0.04$ ).

*Conclusions.* Patient coaching offers promise as a means of reducing racial/ethnic disparities in pain control. Larger studies are needed to validate these findings and to explore possible mechanisms.

*Key Words.* Cancer Pain; Racial Disparities; Ethnic Minorities; Communication; Physician–Patient Relations; Patient Activation

## Introduction

Minority patients with cancer are at risk for disparities in quality of care. Manifestations of racial inequities in the quality of medical care have been identified at each step in the evaluation and treatment pathway. Delays in clinical presen-

tation [1,2], cancer detection [1], follow-up after abnormal screening [3], and receipt of cancer treatment [1,4] have been shown among minority groups. The problem appears to be much more complex and pervasive than that of timing of care, however. Minority groups have been shown to have limited enrollment in clinical trials [5,6] and are less likely to comply with recommended diagnostic tests or follow-up examinations [3]. Although adherence to treatment regimens has been reported to be lower in minority groups, further exploration has elucidated the importance of key related factors such as having a usual source of care and having health insurance [7]. Racial

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minorities also tend to underuse hospice and palliative care services [8]. More than simply an issue of limited access, however, underutilization has been attributed to disproportionate gaps in conveyance of information (i.e., what hospice is, how assistance is provided) and barriers posed by cultural and family beliefs [9,10].

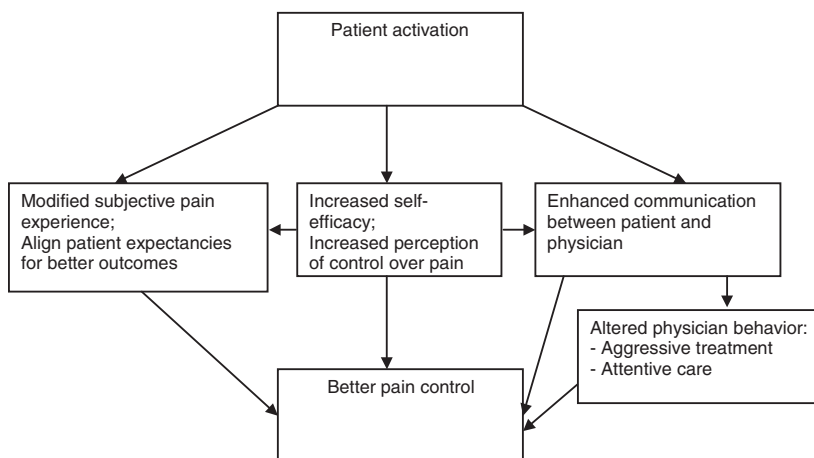
Inequities in opportunities to obtain adequate medical care extend to achieving adequate pain control. There is a high prevalence of uncontrolled cancer pain in all ethnicities [11]. An estimated 90% of patients with cancer experience at least moderate pain at some point in their illness, and 42% of patients do not receive adequate palliation [11]. The proportion of inadequate pain treatment in settings with predominantly racial and ethnic minority patients climbs to 62% [11]. While the presence of racial disparities in pain management is well documented, the reasons are unclear. Both patient and physician factors have been examined focusing on pain perception [12,13], response to pain [14,15], and disparities in pain treatment [16,17].

Among the many postulated reasons for disparities in pain control, patient passivity—and how this potentially affects communication and interaction during the clinical encounter—may be particularly important. Being actively engaged in one's own care is linked to better health outcomes in patients with chronic pain conditions [18,19]. Assessment of different aspects of activation, such as health locus of control [20], self-efficacy in self-managing behaviors [21], and readiness to change health-related behaviors [22,23], has elucidated their important relationship to clinical outcomes including pain control. Using a broader, inclusive conceptual model, Hibbard and colleagues pro-

pose *activation* as encompassing “knowledge, skills, beliefs, and behaviors that a patient needs to manage a chronic illness” [24]. Because minority patients may disproportionately lack self-efficacy [25,26], have a lower perception of control over pain [14,27]; exhibit more disability or have a greater perception of harm due to pain [14], and utilize more passive coping strategies [28,29], addressing such passive tendencies through “activation” could have beneficial effects.

Expansion of the patient's role in treatment decisions has been shown to improve both physiologic and functional outcomes [18,19,30–32]. The mechanism through which these interventions affect health status is not known, and potential differential effects across racial groups are unclear. But, as effective change agents, minority patients may modify physicians' communication behavior [33], inducing a more participatory style that is less likely to support patient passivity [29]. Thus, clinical outcomes including pain control may be influenced not only by changes that occur within the individual (i.e., enhanced self-efficacy, increased coping, etc.), but also by a potentially transformed interaction with their physician. The key pathways are illustrated in Figure 1.

In this study we sought to examine the effect on racial disparities of an education and coaching intervention aimed at teaching patients with cancer-related pain practical pain management techniques and empowering them to participate actively in their own care. We hypothesized that 1) pain levels at baseline would be higher in minorities than white patients; and 2) the intervention would significantly reduce the racial/ethnic disparity in pain levels.



**Figure 1** Hypothesized pathways linking patient activation to improved pain control.

## Methods

### Overview

This is a subanalysis of data obtained from a randomized controlled trial conducted at two oncology clinics [34]. Patients with cancer-related pain (as indicated by a baseline verbal analog scale average pain score of 3 or greater on a 10-point scale over the previous 2 weeks) completed baseline telephone assessments, were randomly assigned to the experimental or control group, and received individualized education and coaching (experimental intervention) or a standard educational session (control intervention) right before their scheduled oncology visit. Patients who had major surgical procedures during the follow-up interval were enrolled in hospice, or were under the care of the Pain Management Service were excluded, because such patients would already have access to aggressive pain management services and would therefore be less likely to benefit from the intervention. Outcomes were assessed with a telephone interview 2 weeks later. The University of California Davis Institutional Review Board and the Northern California Kaiser Institutional Review Board approved the project. Details about the randomized controlled trial have been published elsewhere [34]. The secondary analysis reported here sought to identify whether the intervention would reduce racial disparities in pain control.

### Intervention

Each patient in the experimental group participated in an education and coaching session designed to address misconceptions about pain treatment and to encourage talking to the oncologist about pain control. Sessions lasted approximately 20 minutes and consisted of four key components: 1) education about identified misconceptions; 2) explanation of the World Health Organization pain control guidelines [35]; 3) identification of the patient's own treatment goals; and 4) coaching in practicing dialoging with the physician.

Prior to the appointment, one of two health educators (a master's level psychology student and a fourth-year medical student) reviewed the pain-related knowledge section of the patient's baseline questionnaire to identify important misconceptions. Misconceptions addressed included concerns about addiction, beliefs that pain medications simply cannot control pain, fears of being viewed as a "bad" patient, concerns that treating pain could distract the physician from treating the

cancer, misunderstanding how to take analgesics, and the assumptions that analgesic side-effects cannot be controlled and are worse than the pain. Instruction was reinforced through a specially prepared 11-page booklet. The booklet also provided information on cancer pain treatments, guidelines for discussing pain with the physician, space to write down pain control goals and questions, and a set of pain control algorithms. The algorithms were based on World Health Organization guidelines for cancer pain treatment [35] and emphasized 1) identification of the type of pain; 2) quantification of pain severity; and 3) application of appropriate self-management strategies (including use of analgesic medications).

The coaching involved having the patient 1) identify treatment goals (e.g., "I want to be able to sleep through the night without being awakened by pain"); 2) formulate questions that would help achieve those goals (e.g., "What pain medication can I take that will last through the night?"); and 3) practice question-asking, how to talk to the doctor about pain, and how to negotiate a satisfactory pain treatment plan. The intervention, as it was conceived, had two objectives around self-efficacy: 1) increase self-efficacy for pain management ("your pain can be controlled and there are specific things you can do to help control it"); and 2) increase self-efficacy for active participation in care ("it is good to ask questions and make requests around pain, your doctor wants to hear from you, and you'll be better off as a result. You might not be used to speaking up but you can do it! Let's practice").

Control patients met with the health educator for approximately the same length of time as intervention patients. However, instead of individualized education and coaching, patients in the control group received standardized education emphasizing fundamental principles of cancer pain control (e.g., taking long-acting medicines even when there is no pain, using appropriate adjunctive medications to avert or control side-effects, etc.), following the outline of a pamphlet produced by the Agency for Healthcare Policy and Research (now the Agency for Healthcare Research and Quality) [36].

### Measures

Patient race/ethnicity, age, gender, living status, and education were collected at baseline. Information on patients' average pain and pain-related misconceptions were obtained at baseline and at follow-up. Baseline data were also used to individ-

ualize the content of the education and coaching intervention.

Average pain was assessed with a previously validated single-item scale [37,38]: “On a scale of 0–10, with 0 being no pain and 10 being the worst pain imaginable, how would you rate your average level of pain over the past 2 weeks?” Misconceptions were assessed with six Likert scale (five options, from strongly agree to strongly disagree) questions, such as “Pain medicine cannot really control pain” and “People get addicted to pain medicine easily” (Cronbach’s alpha = 0.61 at baseline and 0.77 at follow-up). Health status was assessed with the Medical Outcomes Study Short Form 12-Item Health Survey Questionnaire physical and mental health component scores (Physical Component Summary Score of the Short Form 12 and Mental Component Summary Score of the Short Form 12), which have demonstrated reliability and validity for assessing differences in functional status and well-being among groups of patients [39]. *Disease status* (no evident disease, local/regional disease, advanced disease) and *treatment status* (starting active chemo- or radiotherapy, continuing therapy, not on therapy) were ascertained using medical records. *Comorbidities* (presence or absence of the following conditions: congestive heart failure, chronic lung disease, vision problems, deafness, diabetes, asthma, peptic ulcer, arthritis, sciatica, hypertension, angina, or myocardial infarction) were solicited through the patient questionnaire.

### Statistical Analysis

Analyses were conducted using Stata (version 9.1, StataCorp, College Station, TX, USA). Baseline demographic and clinical characteristics of the control and experimental patients and between minority and white patients were compared using unpaired *t*-tests for continuous data and chi-square tests for categorical data. Average follow-up pain was compared between minority and white patients using unpaired *t*-tests, separately for the control and experimental groups.

The impact of the intervention on reducing racial/ethnic disparities in average pain at follow-up was examined using linear regression analysis. The dependent variable was average follow-up pain. The independent variables were baseline pain, minority status (minority vs white), study group (experimental vs control), and an interaction term between study group and minority status.

Education was not included in the primary analyses because of its complex relationships with the

likely response to the intervention, pain levels, and race/ethnicity. However, we conducted secondary analyses to explore the extent to which study findings could be explained by educational level. We also explored the extent to which pain misconceptions were related to the outcomes. The large number of potential baseline covariate confounders precluded including them all individually in the regression analysis, given the small sample size. To circumvent this problem, while still attempting to explore the potential effect of covariate confounding, we developed a propensity score [40]. Using logistic regression, minority status was regressed on all other baseline covariates (age, gender, living status, education, MCS-12, PCS-12, disease status, treatment status, comorbidities, and study site). The predicted probability from that regression was used as an additional covariate in the regression analysis described above.

### Results

The final panel included 67 (15 minority) patients, with 33 (7 minority) patients in the control group and 34 (8 minority) patients in the experimental group. Minority patients comprised the following racial/ethnic groups: six Latinos, four Asians, two blacks, and three other. Overall, the mean age of participants was 55 years, over 60% were women, and two thirds had completed at least some college. The experimental and control groups were quite similar on their baseline measures, including baseline pain, although there were some imbalances in education, tumor type, and treatment status (Table 1). Also, minority and white patients were similar in baseline characteristics indicators, except minority patients had a higher prevalence of diabetes, and worse average baseline pain (6.000 vs 5.038, difference = 0.962, 95% confidence interval [CI] = 0.004, 1.919,  $P = 0.049$ ).

After the intervention, minority patients in the control group had worse pain than their white counterparts (6.42 vs 4.65, difference = 1.78, 95% CI = 0.42, 3.13,  $P = 0.012$ ). In the experimental group, minority patients had less average pain than their white counterparts, although this difference was nonsignificant (4.00 vs 4.31, difference = 0.31, 95% CI = -1.39, 2.00,  $P = 0.71$ ). Regression analysis, adjusting for baseline pain, revealed a significant interaction between minority status and study group indicating a greater effect of the intervention in minorities (interaction effect = -1.73, 95% CI = -0.06, -3.41,  $P = 0.043$ ); thus, minorities in the experimental group, compared with

**Table 1** Baseline demographic and clinical characteristics of control and experimental subjects

	Control N = 33	Experimental N = 34
Age, years (SD)	54.8 (12.8)	55.8 (12.5)
Female (%)	63.6	64.7
Lives alone (%)	18.2	17.6
Non-white (%)	21.2	23.5
Some college education (%)	57.6	76.5
University of California Davis Cancer Center (%)	69.7	70.6
Leukemia or lymphoma (%) (vs solid tumor)	6.1	20.6
Disease status (%)		
No evidence disease	7.7	0.0
Local/regional	26.9	25.0
Advanced	65.4	75.0
Treatment status (%)		
No cytoreductive therapy	25.0	53.6
Beginning therapy	20.8	10.7
Continuing therapy	54.2	35.7
MOS SF-12 physical component score (0–100 scale) (SD)	29.1 (8.0)	26.1 (8.5)
MOS SF-12 mental component score (0–100 scale) (SD)	44.6 (9.6)	43.9 (9.4)
Average baseline pain (SD)	5.2 (1.6)	5.3 (1.8)

minorities in the control group and all whites, experienced an additional reduction in average pain equal to 1.73 points on a 10-point scale. These effects are illustrated in Figure 2.

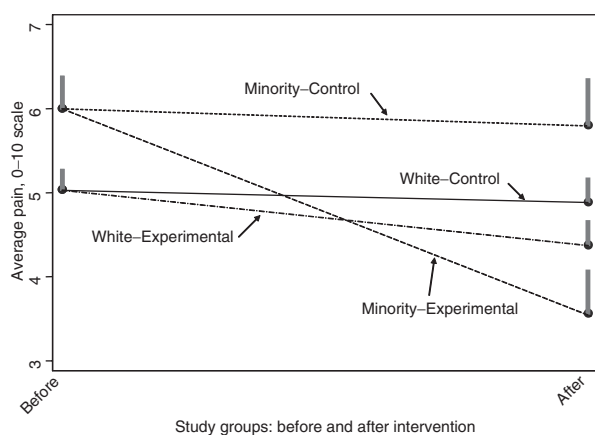
In a secondary set of analyses, there was no significant relationship between education level and baseline pain. There was no significant interaction between education level and the effectiveness of the intervention ( $P = 0.53$ ). Adjusting for education did not notably affect the significance of the interaction effect between minority status and study group ( $P = 0.039$ ). There was no apparent effect of the intervention—overall or in minorities—on pain misconception scores ( $P = 0.92$ ), although, both before and after the intervention,

minorities had significantly higher pain misconception scores ( $P < 0.02$  for both, details available from authors). The regression analysis including the propensity score produced results quite similar to those reported above (interaction effect =  $-1.73$ , 95% CI =  $-0.04, -3.40$ ,  $P = 0.045$ , details available from the authors).

### Comment

This secondary analysis confirms prior reports that minorities with cancer suffer higher levels of pain [11,41] and provides preliminary evidence that a carefully structured, one-time individualized education and coaching intervention has the potential to reduce disparities in cancer pain control for minority patients. Within the intervention group, reductions in average pain at follow-up were greater among minorities than whites. Assuming that minorities in our study were predisposed to participate less actively in clinical encounters than their white counterparts, the observed interaction between the intervention and minority status seems consistent with the notion that an activating intervention would have a larger effect on those who are more passive at baseline. Although we assessed misconceptions and attitudes to assist with tailoring the intervention, we did not directly measure levels of activation. Other research suggests that education alone is insufficient to reduce pain in minority patients [42].

Both the reasons why minority patients suffer more pain and the mechanism by which the inter-



**Figure 2** Mean pain (with standard error bars), by minority status, at baseline and after intervention (control vs experimental). Postintervention values are adjusted for baseline pain.

vention affected patients' experiences of pain are uncertain. Individual enhancements in self-efficacy or perception of control may have contributed to the effects of the intervention. Although the intervention included components directed at enhancing patients' perceptions of their ability to control their pain, we did not directly measure this outcome. In other contexts, patient activation has improved outcomes by inducing positive self-care behavior [30,31]. Specific change that occurs at the patient level resulting from activation is an area for further exploration.

Another plausible mechanism responsible for the observed outcomes is that the intervention helped patients to interact more effectively with their physicians (i.e., negotiate mutually acceptable treatment plans). Prior research suggests that minority patients have lower trust in their physicians [43], and have less interactive encounters [44,45]. Minority patients who become more engaged as a result of the intervention may, in turn, catalyze changes in the dynamics of the encounter including physician attitudes and behaviors. While specific changes in physician stereotypes or behaviors were not measured, coached patients may have stimulated more engaging behavior from their physician. Physicians with an engaging participatory style (i.e., involving patients in treatment decisions) have been shown to provide better interpersonal care and greater patient loyalty and continuity [46]. Thus, patient activation may help directly combat barriers to optimal communication between physicians and their minority patients.

There are several limitations of this study worth noting. Using existing data sets for exploratory secondary analyses is fraught with a number of problems. The original trial was not planned or powered to examine the differential effects of the intervention on minority patients. Therefore, our ability to explore potential mechanisms for the observed effects is limited. For example, although the benefit of the intervention did not appear to be attained via increasing patient knowledge in the parent trial [34], our ability to examine the potentially differential effects of increasing knowledge of cancer pain and its management in minorities (as influenced by education and coaching) is limited by sample size. However, this remains an important mechanistic query worthy of further exploration. Similarly, there was no apparent evidence that the improvement was mediated through better adherence to analgesic therapy in the parent trial, but differential effects

on minorities may have been missed by small sample size and crude adherence measures. Next, follow-up was limited to 2 weeks, making the durability of the findings uncertain. Finally, it is also possible that the findings reflect some unmeasured effect of the health educators specifically, and not the intervention. The small sample size precluded meaningful adjustment for this possibility.

These limitations notwithstanding, the results of this secondary analysis are promising and suggest areas for further inquiry. Apart from individual patient and physician factors, there are likely important elements of their interaction that may have substantial impact on clinical outcomes. If these findings can be replicated in larger studies, the approach has the potential for application to a wide range of clinical situations where disparities may be related to problems in physician–patient communication. Further characterization of these problems can help to guide development and implementation of specific activating interventions to reduce disparities in pain control.

These findings may also have broader implications for physician–patient communication. Physicians should consider encouraging all patients, regardless of race/ethnicity, to participate more actively in care by eliciting their entire slate of concerns (e.g., “What sort of things are bothering you today?” and when silence ensues, “Anything else?”); normalizing shared decision making (“Some patients are most concerned about reducing pain to a minimum and prefer treatment A, while others are more concerned about not getting too sleepy and prefer treatment B; how do you feel about this?”); and confirming that the plan is acceptable (“So we’re going to go with a mild pain pill for now, but you will call me if things get worse. How does that sound?”). Educators may consider incorporating similar techniques in their teaching. In general, optimizing patient communication and interaction with the physician can be incorporated into the comprehensive treatment of cancer pain and has the potential to reduce disparities and improve the quality of care for all patients.

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## References

- 1 Elmore JG, Nakano CY, Linden HM, et al. Racial inequities in the timing of breast cancer detection, diagnosis, and initiation of treatment. *Med Care* 2005;43:141–8.
- 2 Shavers VL, Harlan LC, Stevens JL. Racial/ethnic variation in clinical presentation, treatment, and survival among breast cancer patients under age 35. *Cancer* 2003;97:134–47.
- 3 Kerner JF, Yedidia M, Padgett D, et al. Realizing the promise of breast cancer screening: Clinical follow-up after abnormal screening among Black women. *Prev Med* 2003;37:92–101.
- 4 Shavers VL, Brown ML. Racial and ethnic disparities in the receipt of cancer treatment. *J Natl Cancer Inst* 2002;94:334–57.
- 5 Nicholas SB, Tareen N, Zadshir A, et al. Management of early chronic kidney disease in indigenous populations and ethnic minorities. *Kidney Int Suppl* 2005;97:S78–81.
- 6 Simon C, Zyzanski SJ, Eder M, et al. Groups potentially at risk for making poorly informed decisions about entry into clinical trials for childhood cancer. *J Clin Oncol* 2003;21:2173–8.
- 7 Selvin E, Brett KM. Breast and cervical cancer screening: Sociodemographic predictors among White, Black, and Hispanic women. *Am J Public Health* 2003;93:618–23.
- 8 Payne R, Medina E, Hampton JW. Quality of life concerns in patients with breast cancer: Evidence for disparity of outcomes and experiences in pain management and palliative care among African-American women. *Cancer* 2003;97(1 suppl):311–7.
- 9 Reese DJ, Ahern RE, Nair S, O’Faite JD, Warren C. Hospice access and use by African Americans: Addressing cultural and institutional barriers through participatory action research. *Soc Work* 1999;44:549–59.
- 10 Crawley L, Payne R, Bolden J, et al. Palliative and end-of-life care in the African American community. *JAMA* 2000;284:2518–21.
- 11 Cleeland CS, Gonin R, Hatfield AK, et al. Pain and its treatment in outpatients with metastatic cancer. *N Engl J Med* 1994;330:592–6.
- 12 Weisse CS, Foster KK, Fisher EA. The influence of experimenter gender and race on pain reporting: Does racial or gender concordance matter? *Pain Med* 2005;6:80–7.
- 13 Edwards RR, Moric M, Husfeldt B, Buvanendran A, Ivankovich O. Ethnic similarities and differences in the chronic pain experience: A comparison of African American, Hispanic, and white patients. *Pain Med* 2005;6:88–98.
- 14 Tan G, Jensen MP, Thornby J, Anderson KO. Ethnicity, control appraisal, coping, and adjustment to chronic pain among black and white Americans. *Pain Med* 2005;6:18–28.
- 15 Baker TA, Green CR. Intra-race differences among black and white Americans presenting for chronic pain management: The influence of age, physical health, and psychosocial factors. *Pain Med* 2005;6:29–38.
- 16 Shaya FT, Blume S. Prescriptions for cyclooxygenase-2 inhibitors and other nonsteroidal anti-inflammatory agents in a medicaid managed care population: African Americans versus Caucasians. *Pain Med* 2005;6:11–7.
- 17 Chibnall JT, Tait RC. Disparities in occupational low back injuries: Predicting pain-related disability from satisfaction with case management in African Americans and Caucasians. *Pain Med* 2005;6:39–48.
- 18 Lorig KR, Sobel DS, Stewart AL, et al. Evidence suggesting that a chronic disease self-management program can improve health status while reducing hospitalization: A randomized trial. *Med Care* 1999;37:5–14.
- 19 Von Korff M, Moore JE, Lorig K, et al. A randomized trial of a lay person-led self-management group intervention for back pain patients in primary care. *Spine* 1998;23:2608–15.
- 20 Wallston KA, Stein MJ, Smith CA. Form C of the MHLC scales: A condition-specific measure of locus of control. *J Pers Assess* 1994;63:534–53.
- 21 Lorig K. Outcome Measures for Health Education and Other Health Care Interventions. Thousand Oaks, CA: Sage Publications; 1996.
- 22 DiClemente CC, Prochaska JO, Fairhurst SK, et al. The process of smoking cessation: An analysis of precontemplation, contemplation, and preparation stages of change. *J Consult Clin Psychol* 1991;59:295–304.
- 23 Glanz K, Lewis FM, Rimer BK. *Health Behavior and Health Education: Theory, Research, and Practice*, 2nd edition. San Francisco, CA: Jossey-Bass; 1997 (Jossey-Bass health series).
- 24 Hibbard JH, Stockard J, Mahoney ER, Tulser M. Development of the patient activation measure (PAM): Conceptualizing and measuring activation in patients and consumers. *Health Serv Res* 2004;39:1005–26.
- 25 Buckelew SP, Parker JC, Keefe FJ, et al. Self-efficacy and pain behavior among subjects with fibromyalgia. *Pain* 1994;59:377–84.
- 26 Arnstein P, Caudill M, Mandle CL, Norris A, Beasley R. Self efficacy as a mediator of the relationship between pain intensity, disability and depression in chronic pain patients. *Pain* 1999;80:483–91.
- 27 Vallerand AH, Hasenau S, Templin T, Collins-Bohler D. Disparities between black and white patients with cancer pain: The effect of perception of control over pain. *Pain Med* 2005;6:242–50.
- 28 Hastie BA, Riley JL, Fillingim RB. Ethnic differences and responses to pain in healthy young adults. *Pain Med* 2005;6:61–71.

- 29 Gordon HS, Street RL Jr, Kelly PA, Soucek J, Wray NP. Physician-patient communication following invasive procedures: An analysis of post-angiogram consultations. *Soc Sci Med* 2005;61:1015-25.
- 30 Greenfield S, Kaplan SH, Ware JE Jr, Yano EM, Frank HJ. Patients' participation in medical care: Effects on blood sugar control and quality of life in diabetes. *J Gen Intern Med* 1988;3:448-57.
- 31 Rost KM, Flavin KS, Cole K, McGill JB. Change in metabolic control and functional status after hospitalization. Impact of patient activation intervention in diabetic patients. *Diabetes Care* 1991;14:881-9.
- 32 Greenfield S, Kaplan S, Ware JE Jr. Expanding patient involvement in care: Effects on patient outcomes. *Ann Intern Med* 1985;102:520-8.
- 33 Ashton CM, Haidet P, Paterniti DA, et al. Racial and ethnic disparities in the use of health services. Bias, preferences, or poor communication? *J Gen Intern Med* 2003;18:146-52.
- 34 Oliver JW, Kravitz RL, Kaplan SH, Meyers FJ. Individualized patient education and coaching to improve pain control among cancer outpatients. *J Clin Oncol* 2001;19:2206-12.
- 35 Jadad AR, Browman GP. The WHO analgesic ladder for cancer pain management. Stepping up the quality of its evaluation. *JAMA* 1995;274:1870-3.
- 36 United States. Agency for Health Care Policy and Research. *Managing Cancer Pain: Management of Cancer Pain: Patient Guide* [Rockville, MD] (Executive Office Center, Suite 501, 2101 East Jefferson St., Rockville 20852). U.S. Department of Health and Human Services Public Health Service Agency for Health Care Policy and Research; 1994 clinical practice guideline. Consumer version, No. 9.
- 37 Jensen MP, Miller L, Fisher LD. Assessment of pain during medical procedures: A comparison of three scales. *Clin J Pain* 1998;14:343-9.
- 38 DeLoach LJ, Higgins MS, Caplan AB, Stiff JL. The visual analog scale in the immediate postoperative period: Intrasubject variability and correlation with a numeric scale. *Anesth Analg* 1998;86:102-6.
- 39 Ware JE, Kosinski M, Keller SD. *SF-12: How to Score the SF-12 Physical and Mental Health Summary Scales*. Boston, MA: The Health Institute; 1995.
- 40 D'Agostino RB Jr. Propensity score methods for bias reduction in the comparison of a treatment to a non-randomized control group. *Stat Med* 1998;17:2265-81.
- 41 Green CR, Anderson KO, Baker TA, et al. The unequal burden of pain: Confronting racial and ethnic disparities in pain. *Pain Med* 2003;4:277-94.
- 42 Anderson KO, Mendoza TR, Payne R, et al. Pain education for underserved minority cancer patients: A randomized controlled trial. *J Clin Oncol* 2004;22:4918-25.
- 43 Doescher MP, Saver BG, Franks P, Fiscella K. Racial and ethnic disparities in perceptions of physician style and trust. *Arch Fam Med* 2000;9:1156-63.
- 44 Cooper-Patrick L, Gallo JJ, Gonzales JJ, et al. Race, gender, and partnership in the patient-physician relationship. *JAMA* 1999;282:583-9.
- 45 Street RL Jr, Gordon HS, Ward MM, Krupat E, Kravitz RL. Patient participation in medical consultations: Why some patients are more involved than others. *Med Care* 2005;43:960-9.
- 46 Kaplan SH, Greenfield S, Gandek B, Rogers WH, Ware JE Jr. Characteristics of physicians with participatory decision-making styles. *Ann Intern Med* 1996;124:497-504.