

# An Instrument to Measure Patient Satisfaction With Healthcare in an Observational Database: Results of a Validation Study Using Data From CaPSURE™

Deborah P. Lubeck, PhD; Mark S. Litwin, MD, MPH; James M. Henning, MS; Susan D. Mathias, MPH; Lindsey Bloor, MS; and Peter R. Carroll, MD

## Abstract

**Objective:** To validate a satisfaction measure for use in longitudinal, prospective studies of patient care.

**Study Design:** Patients with biopsy-confirmed prostate cancer (n = 228) who were enrolled in CaPSURE™ (Cancer of the Prostate Strategic Urologic Research Endeavor) completed a self-administered questionnaire that included a health-related quality-of-life and satisfaction measure. A subset of patients completed the questionnaire again within 30 days.

**Methods:** The satisfaction measure contained 6 individual subscales: overall satisfaction with care, contact with providers, confidence in providers, communication skills, humaneness, and a summary scale. Six items surveyed patients' willingness to participate in decision making (participatory style), and these were averaged into a single score. Variability, reliability, stability, and validity were evaluated.

**Results:** Responses to the items varied substantially. The overall satisfaction scale demonstrated good internal consistency reliability (Cronbach  $\alpha = 0.82$ )

and moderate test-retest reliability (0.62), and it could discriminate between groups of individuals expected to differ with regard to satisfaction (by age and disease stage). Subscale internal consistency reliability (0.37-0.54) and stability (0.38-0.63) were weaker, suggesting that only a single scale should be reported. The participatory scale performed poorly and could not be recommended for future use.

**Conclusion:** The overall satisfaction measure developed for this study demonstrated good reliability and validity and should be useful in other population-based studies in conjunction with other outcome measures.

(*Am J Manag Care* 2000;6:70-76)

There is increasing interest in patient satisfaction with healthcare services and treatment. Many studies have focused on components of satisfaction such as the physician's technical competence, waiting time, or aspects of specific medical encounters to be used as components of continuous quality improvement or quality assurance programs within hospitals or managed care organizations.<sup>1-3</sup> The alternate focus, satisfaction with treatment, addresses the issues of treatment efficacy and effectiveness.<sup>4,5</sup> These studies, regardless of whether they were directed at quality assurance or evaluation of treatment, identified several factors associated with satisfaction evaluations. They include patient demographic characteristics, patient health status, and patient preferences for being informed or involved in their healthcare.<sup>3,6</sup>

For example, older patients have been found to be more satisfied with their healthcare than younger patients, women tend to be more satisfied than men,

From the Department of Medicine, Division of Immunology, Stanford University, Stanford, CA (DPL); the Department of Urology, University of California, San Francisco, CA (DPL, PRC); the Departments of Urology and Health Services, University of California, Los Angeles, CA (MSL); TAP Holdings Inc, Deerfield, IL (JMH); and Lewin-TAG, Inc, San Francisco, CA (SDM, LB). LB is now with the Center for the Health Professions, University of California, San Francisco, CA.

Funding from TAP Holdings Inc, Deerfield, IL, supported this research.

Address correspondence to: Deborah P. Lubeck, PhD, University of California, San Francisco, 1388 Sutter Street, Suite 700, San Francisco, CA 94109. E-mail: dlubeck@itsa.ucsf.edu.

individuals with low education tend to be more satisfied than those with higher education, and patients with poorer general health are less satisfied than healthier patients.<sup>7-9</sup> Marshall et al observed that general satisfaction with care was associated with greater emotional health, but not with greater physical health.<sup>3</sup>

The role of a participatory decision-making style was studied by Kaplan et al.<sup>10</sup> Physicians who are viewed as sharing information with patients and eliciting patients' participation in their own treatment decisions and care are said to have a high or positive participatory decision-making style. The authors found that higher participatory scores were associated with greater patient satisfaction ( $r = 0.46$ ,  $P < .001$ ).<sup>10</sup>

A different approach to collecting clinical data is now implemented in single institutions and among multiple institutions where patients are followed over time. Examples are observational databases on arthritis, cardiovascular disease, human immunodeficiency virus infection, and prostate cancer.<sup>11-15</sup> The goal of these observational databases is to integrate clinical and patient-reported information on the outcomes of illness and treatment, including health-related quality of life. Because of the observational nature of the data collection, patients may see a variety of providers in different institutions in the period evaluated in the questionnaire. As in other prospective studies, patient satisfaction with healthcare is becoming an essential component of these databases. However, unlike clinical studies, for which questionnaire items on satisfaction can be worded to focus on a specific visit or provider, the measurement of satisfaction with healthcare in observational studies needs to cover longer recall periods, multiple healthcare providers, and various settings of care. For this reason we needed to modify and test an instrument for measuring satisfaction in an observational study.

... METHODS ...

**The CaPSURE™ Database**

CaPSURE (Cancer of the Prostate Strategic Urologic Research Endeavor) is a longitudinal, national, observational database of patients with a biopsy-confirmed diagnosis of prostate cancer followed by community-based and academic urologists.<sup>15</sup> Data are collected from the treating urologist, medical records, and patient self-report. Health-related quality-of-life and satisfaction infor-

mation is collected via serial questionnaires mailed to study participants.<sup>15</sup> The health-related quality-of-life instrument is composed of items from the RAND 36-Item Short Form Health Survey (RAND SF-36) 1.0.<sup>16,17</sup> The RAND SF-36 quantifies quality of life on 8 multi-item scales (physical function, role limitations due to physical health, bodily pain, general health perceptions, emotional well-being, role limitations due to emotional problems, social function, and energy-fatigue). The time frame for reporting on quality of life is the previous 4-week period. Each scale score is the simple arithmetic average of the individual scores, such that a higher score represents better outcomes. All items are transformed to a 0-to-100 scale according to the following formula<sup>18</sup>:

$$\text{Transformed scale} = (\text{actual raw score} - \text{lowest possible raw score}) / \text{possible raw score range}$$

**Satisfaction-With-Care Instrument**

We reviewed the literature on patient satisfaction with healthcare and identified a variety of available measures applicable to serial measurement. The available measures were evaluated according to the following criteria: (1) brevity; (2) demonstrated reliability and validity in an older population similar to the patients in the CaPSURE database; (3) validation in prospective studies; and (4) presence of a global measurement of satisfaction with healthcare, rather than satisfaction with specific healthcare visits or healthcare plans.

Based on the above criteria, we selected the satisfaction-with-healthcare instrument developed by Hall et al.<sup>19</sup> The 12-item measure was used in a prospective study of an elderly health maintenance organization (HMO) population, including baseline and 12-month follow-up assessments, and was evaluated for its psychometric properties. Although the measure is brief and assesses global satisfaction with healthcare, it also has subscales with balanced (positively and negatively phrased) items (Table 1). Patients completing the questionnaire are asked to rate their satisfaction with all the healthcare providers they have seen during the past 3 months. For use in the CaPSURE database, the scale was abbreviated to 9 items, eliminating 3 items that were visit-specific and not applicable in this setting. We also adapted a 6-point scale, ranging from "definitely yes" to "definitely no," that does not incorporate the term "satisfaction." Overall satisfaction, amount of contact with providers, informativeness of providers,

humaneness, technical competence, and relief of worry were the resulting subscales.

As described above, studies have indicated that participatory style was related to, but distinct from, the concept of satisfaction. We included items that emphasize patient participatory style used by Kaplan and colleagues.<sup>10</sup> Two items focus on what participatory style the patient “would like” to use, and the other 4 items are statements regarding what participatory style the patient has actually used in discussions with physicians regarding his treatment. The response options are also 6-point scales, ranging from “definitely yes” to “definitely no” or from “very often” to “not at all” (Table 1).

Scale scores were calculated by the method used for scoring the RAND SF-36. That is, all item responses

were originally scored from 1 to 6. When necessary, scores were reversed so that a 6 indicated the most positive response for all items. For each scale the simple arithmetic sum of the final values was calculated, and scores were transformed to a 0-to-100 scale according to the formula presented above.

The satisfaction and participatory items were placed after the measure of health-related quality of life in the questionnaire. Items and subscales are detailed in Table 1.

### Patient Population

Enrollment in CaPSURE started in June 1995, with study sites brought “on-line” in a lagged fashion over several years. All new patients entering the study in the last quarter of 1996 (n = 228) complet-

**Table 1.** Components of the Satisfaction and Participatory Style Questionnaire

Scale/Subscale	No. of Items	Item
Satisfaction scale*	9	Patients are asked to respond to the following regarding healthcare during the past 3 months.
Overall satisfaction	2	I am satisfied with the healthcare I have been receiving. There are some things about the healthcare I have been receiving that could be better.
Amount of contact	2	I have not had as much contact with healthcare providers as I think I should have had. The amount of time I've spent with healthcare providers is certainly adequate.
Communication	2	My healthcare providers could have listened more carefully to what I had to say. My healthcare providers have explained completely the reasons for examination procedures or medical tests.
Humaneness	2	My healthcare providers have always treated me with the utmost respect. My healthcare providers could have been kinder and more considerate of my feelings.
Competence	1	I have an extraordinary amount of confidence in the healthcare providers I have been seeing.
Participatory style	6	If there were a choice between treatments would you like to help make the decision?*
		Would you like to give your opinion or ask questions regarding your treatment?*
		How often do you make an effort to take control over treatment?†
		How often do you ask to take some of the responsibility for your treatment?†
		How often do you ask questions about your treatment?†
		How often do you give your opinion to your doctor about the care you are receiving?†

\*Scored from 1 = definitely yes to 6 = definitely no.

†Scored from 1 = very often to 6 = not at all.

ed the satisfaction questions. These patients also received a quarterly questionnaire after enrollment. For some individuals, this second questionnaire provided an opportunity to test for stability (test-retest).

**Data Analysis**

The psychometric properties examined included item variability, stability, internal consistency reliability, and discriminant validity. Variability assesses the distribution of responses for each item. Stability was measured through test-retest for individuals who had completed 2 questionnaires administered 21 to 45 days apart. This interval is relatively lengthy for test-retest, but no individuals completed the baseline and second questionnaires less than 21 days apart. The intraclass correlation coefficient was used to assess stability.

Internal consistency reliability was measured by using Cronbach  $\alpha$  to determine the extent to which items within a scale correlate with each other to constitute a multi-item scale.<sup>20</sup> Convergent validity was evaluated by examining Spearman correlation coefficients and was demonstrated when scales or items thought to measure the same attribute had high positive correlations. Divergent validity was demonstrated when items or scales thought to measure different constructs had low correlations. Between-group differences were evaluated by comparing satisfaction scores according to age and disease stage. Data analyses were performed with the SAS system, version 6.12 for Windows (SAS Institute, Cary, NC).

... RESULTS ...

A total of 228 men completed the questionnaire. Demographic characteristics of this group are reported in Table 2. The sample patients were predominantly white men (76.4%) with an average age of 71 years (SD = 7.5 years). Time since diagnosis of prostate cancer averaged 2.6 years (SD = 2.2 years).

The items demonstrated good variability (Table 3), with only a single item having no responses at the lowest end (provider competence, an element of the satisfaction scale). With a range of 0 to 100, 6 of the 9 items from the satisfaction scale had a mean score above 85.0. The other 3 items had lower mean scores (ranging from 62.9 to 73.3) and greater variability. The participatory items showed more variability than the satisfaction items, with mean scores ranging from 40.5 to 85.7. The overall satis-

faction scale had a mean score of 82.8 (SD = 17.1), and the participatory scale had a mean score of 65.0 (SD = 24.4).

Both the satisfaction and participatory scales demonstrated acceptable internal consistency; the Cronbach  $\alpha$  was 0.82 and 0.77, respectively. On the subscales of the satisfaction measure, however, the Cronbach  $\alpha$  was lower, ranging from 0.37 to 0.54 (Table 3).

We identified 26 individuals who had received both baseline and follow-up questionnaires within 45 days for a test-retest evaluation. Intraclass correlation coefficients were moderate for the overall satisfaction scale (0.62) but poor for the 4 subscales

**Table 2.** Patient Demographic Characteristics at Enrollment

Characteristic	Percentage of Validation Study Group (n = 228)
<b>Current age (y)*</b>	
< 65	21.4
65-70	23.2
71-80	46.4
>80	8.9
<b>Ethnicity</b>	
Nonwhite	23.6
White	76.4
<b>Education level</b>	
Some high school	21.4
High school graduate	21.4
Some college	28.6
College graduate	10.7
Graduate school	17.9
<b>Comorbid conditions</b>	
None	14.3
One	23.2
Two	23.2
Three or more	39.3
<b>Marital status</b>	
Married/partner	74.5
Other	25.5
<b>Localized disease<sup>†</sup></b>	
Other	87.7
	12.3

\*The mean ( $\pm$ SD) patient age was 70.7 (7.5) years.

<sup>†</sup>The mean ( $\pm$ SD) time since diagnosis of prostate cancer was 2.6 (2.2) years.

... PATIENT SATISFACTION ...

**Table 3.** Descriptive Statistics for Satisfaction Items and Scale Scores at Baseline (n = 228)\*

Scale/Subscale/Item	Median Score	Mean Score	SD	Percent Ceiling <sup>†</sup>	Percent Floor <sup>‡</sup>	Cronbach $\alpha$
<b>Satisfaction scale</b>	88.9	82.8	17.1	25.9	0.0	0.82
Overall satisfaction subscale	90.0	77.2	23.8	40.3	12.28	0.54
Satisfied with care overall	100.0	91.4	17.1	72.3	0.4	
Overall care could be better	80.0	62.9	38.7	39.3	14.8	
Amount of contact subscale	100.0	80.0	24.2	51.1	0.0	0.37
Contact with providers	100.0	73.1	37.1	58.2	12.6	
Amount of time spent with providers	100.0	87.2	23.5	69.0	1.6	
Communication subscale	90.0	81.4	23.1	0.0	0.8	0.50
Providers listen more carefully	100.0	73.3	34.9	52.9	8.8	
Providers' explanation to patient	100.0	89.5	20.6	70.5	1.2	
Humaneness subscale	100.0	86.9	20.2	58.4	0.8	0.50
Being treated with respect	100.0	94.9	15.2	84.3	1.2	
Providers considerate of feelings	80.0	78.4	33.6	59.4	9.8	
Competence (1 item)	100.0	91.2	16.6	72.9	0.0	NA
<b>Participatory style scale</b>	50.0	65.0	24.4	11.5	1.3	0.77
Would like to help make decision	100.0	85.7	31.1	76.7	9.2	
Would like to give opinion or ask questions	100.0	82.6	33.6	72.2	10.6	
Frequency of taking control	40.0	47.3	39.6	24.2	30.1	
Frequency of taking responsibility	40.0	40.5	39.5	18.9	37.8	
Frequency of asking questions	80.0	76.6	29.8	48.4	7.0	
Frequency of giving opinion	60.0	55.6	38.7	28.8	21.7	

\*All scales have been rescored from 0 to 100 with higher scores equal to higher satisfaction or a more active participatory style.

<sup>†</sup>Values represent the percentage of subjects who scored the highest possible dimension score.

<sup>‡</sup>Values represent the percentage of subjects who scored the lowest possible dimension score.

**Table 4.** Interitem Correlations (Spearman's Coefficient): Satisfaction and Participatory Style Items\*

Item	1	2	3	4	5	6	7	8	9	10	11	12	13	14
(1) I'm satisfied with care	—													
(2) Care could be better	0.37 <sup>†</sup>	—												
(3) Not much contact	0.27 <sup>†</sup>	0.54 <sup>†</sup>	—											
(4) Time is adequate	0.49 <sup>†</sup>	0.31 <sup>†</sup>	0.22 <sup>†</sup>	—										
(5) MDs need to listen	0.45 <sup>†</sup>	0.59 <sup>†</sup>	0.47 <sup>†</sup>	0.33 <sup>†</sup>	—									
(6) Explained completely	0.33 <sup>†</sup>	0.25 <sup>†</sup>	0.09	0.31 <sup>†</sup>	0.36 <sup>†</sup>	—								
(7) Treat me with respect	0.39 <sup>†</sup>	0.24 <sup>†</sup>	0.12	0.37 <sup>†</sup>	0.32 <sup>†</sup>	0.37 <sup>†</sup>	—							
(8) Could be kinder	0.34 <sup>†</sup>	0.45 <sup>†</sup>	0.37 <sup>†</sup>	0.25 <sup>†</sup>	0.52 <sup>†</sup>	0.19 <sup>†</sup>	0.35 <sup>†</sup>	—						
(9) I have confidence	0.52 <sup>†</sup>	0.32 <sup>†</sup>	0.17	0.43 <sup>†</sup>	0.26 <sup>†</sup>	0.41 <sup>†</sup>	0.42 <sup>†</sup>	0.18 <sup>†</sup>	—					
(10) MD gives me treatment choice	-0.07	-0.05	0.03	0.03	-0.05	0.11	0.00	0.12	0.05	—				
(11) MD asks my opinion	-0.09	0.02	0.10	0.00	-0.05	0.05	0.02	-0.06	-0.05	0.45 <sup>†</sup>	—			
(12) I want more control	-0.06	-0.17	-0.12	-0.06	-0.15	0.11	0.02	-0.08	-0.11	0.19 <sup>†</sup>	0.22 <sup>†</sup>	—		
(13) I want responsibility	0.01	-0.08	0.02	-0.02	-0.07	0.15	0.02	-0.02	-0.05	0.24 <sup>†</sup>	0.21 <sup>†</sup>	0.76 <sup>†</sup>	—	
(14) I ask questions	0.09	-0.00	-0.00	0.03	-0.04	0.16	0.03	-0.00	0.07	0.16	0.26 <sup>†</sup>	0.38 <sup>†</sup>	0.37 <sup>†</sup>	—
(15) Give my opinion(s)	0.06	-0.04	-0.01	-0.04	-0.07	0.11	0.03	-0.00	0.02	0.19 <sup>†</sup>	0.25 <sup>†</sup>	0.53 <sup>†</sup>	0.50 <sup>†</sup>	0.57 <sup>†</sup>

\*In all cases, higher scores represent higher satisfaction or a more active participatory style.

<sup>†</sup>P < .01.

For items with —, value cannot be calculated.

and the participatory style scale, ranging from 0.38 to 0.63 for the satisfaction subscales and 0.42 for the participatory style scale (data not shown).

We evaluated interitem relationships (Table 4). Many statistically significant positive correlations were observed. The 2 items measuring overall satisfaction (items 1 and 2) each correlated positively with the other items in the satisfaction scale. Items 3, 4, and 5 (amount of contact and communication subscales) each had significant positive correlations with the other satisfaction items. Five significant correlations were observed for the item "being treated with respect" from the humaneness subscale. From the 6-item participatory scale (items numbered 10-15 in Table 4), the items "MD asks my opinion regarding treatment," "I want to take responsibility," and "I want to give my opinion" had the strongest positive association with other participatory scale items.

There were no statistically significant correlations between the satisfaction and participatory items. Many of the correlations were negative. The low correlations between the individual items indicated divergent validity, suggesting the 2 concepts are distinct and unrelated.

We evaluated demographic characteristics and scores for general health status as represented by the RAND SF-36 to ascertain whether the observed differences were similar to those found in other studies. Patients were grouped according to whether they were "highly satisfied" or "less highly satisfied" on the overall satisfaction scale. "Highly satisfied" was defined as a score of 85 or greater of a possible 100. Of 228 patients, 118 were defined as highly satisfied. No significant differences were found between the highly satisfied and less highly satisfied groups with respect to age, ethnicity, education level, or number of comorbid conditions (data not shown). Patients who were more highly satisfied were found to have significantly higher scores for general health, physical functioning, and bodily pain. For emotional functioning, role

function—physical, and role function-emotional, respondents who were highly satisfied reported higher function, but the differences were not statistically significant (Table 5).

...DISCUSSION...

Today, with increased emphasis on the quality of physicians' and other providers' services, there is greater recognition of the breadth of patient outcomes. Patient outcome is concerned with not just clinical status but the ability to function, as well as satisfaction with healthcare in general and treatment in particular. Prostate cancer is a chronic condition in which the outcomes of treatment have a significant impact both on quality of life and satisfaction with care. However, in previous studies researchers observed that most patient satisfaction instruments yielded few distinctions between high- and low-quality care.

Our goal in this research was to select, refine, and evaluate an instrument to measure patient satisfaction with healthcare in observational studies. The instrument was pilot-tested among a group of prostate cancer patients. Two domains were covered: satisfaction and patient participatory style. These measures emphasize patient perceptions of the thoroughness of treatment, competence of the provider, and communication skills. Also evaluated were the patient's and the physician's willingness to share the decision making regarding treatment. When such data have been collected in other studies, providers have seen

**Table 5.** Mean SF-36 Scores of "Highly Satisfied" and "Less Highly Satisfied" Respondents\*

SF-36 Scale	Mean (SD) Score		P Value (t Test)
	Highly Satisfied (n = 118)	Less Highly Satisfied (n = 109)	
General health	65.5 (18.8)	52.2 (16.9)	.046
Physical functioning	76.0 (24.7)	60.0 (23.0)	.007
Emotional functioning	82.0 (23.3)	75.5 (23.5)	.13
Bodily pain	86.8 (24.3)	75.0 (24.0)	.001
Role function—physical	55.8 (20.9)	55.0 (20.9)	.13
Role function—emotional	88.3 (22.4)	75.0 (21.3)	.056

SF-36 Scale = 36-Item Short Form Health Survey.

\*All scales are scored from 0 to 100 with 100 = higher functioning or reduced pain.

opportunities for improvement in the delivery of health-care.

All the items had good variability, indicating that the response choices that did not include the term "satisfaction" were not all positively skewed compared with responses in the earlier studies reported by Hall and Dornan.<sup>1</sup> Good variability indicates that the full range of scores are reported. The overall satisfaction scale did not have any patients at the lowest point of the scale, but 11 of the 12 items comprising the scale did have responses at the lowest level, as well as at all other values.

Our satisfaction measure has demonstrated reliability and validity. However, in part because of the low  $\alpha$  and intraclass correlation coefficients for the individual subscales (not unusual when only 2 items are contained in each subscale), our results suggest that the satisfaction items are best reported as a single scale.

The participatory scale did not perform as well as expected. Correlations with the satisfaction scale items were weak and indicated an inverse relationship, suggesting that increased participation was associated with decreased satisfaction. This may be a result of the mean age of the patients, who were predominantly older and less likely to take the initiative in decision making. Future studies of this scale need to be conducted, including focusing more on physician, rather than patient, participatory style.

We confirmed results reported elsewhere—that increased function is associated with greater satisfaction. At the same time, we did not observe any relationship between satisfaction and age, education, or the presence of comorbidity. This may be a result of the relatively homogeneous population of older white males.

We found the overall satisfaction scale to be reliable and valid. Future analyses, with larger sample sizes to test for stability and longitudinal data for investigation of responsiveness to clinical change over time, will further support the psychometric properties of this instrument.

... REFERENCES ...

1. Hall JA, Dornan MC. Meta-analysis of satisfaction with medical care: Description of research domain and analysis of overall satisfaction levels. *Soc Sci Med* 1988;27:637-644.
2. Epstein AM, Hall JA, Fretwell M, et al. Consultative geriatric assessment for ambulatory patients: A randomized trial in

- a health maintenance organization. *JAMA* 1990;263:538-544.
3. Marshall GN, Hays RD, Mazel R. Health status and satisfaction with healthcare: Results from the Medical Outcomes Study. *J Consult Clin Psychol* 1996;64:380-390.
4. Klein EA, Grass JA, Calabrese RN, et al. Maintaining quality of care and patient satisfaction with radical prostatectomy in the era of cost containment. *Urology* 1996;48:1261-1265.
5. Litwin MS, Shpall AT, Dorey F. Patient satisfaction with short stays for radical prostatectomy. *Urology* 1997;49:898-906.
6. Desbiens NA, Wu AW, Broste SK, et al. Pain and satisfaction with pain control in seriously ill hospitalized adults: Findings from the SUPPORT research investigations. *Crit Care Med* 1996;24:1953-1961.
7. Ross CK, Steward CA, Sinacore JM. A comparator study of seven measures of patient satisfaction. *Med Care* 1995;33:392-406.
8. Ware JE, Hays RD. Methods for measuring patient satisfaction with specific medical encounters. *Med Care* 1988;26:393-402.
9. Hall JA, Dornan MC. Patient sociodemographic characteristics as predictors of satisfaction with medical care: A meta-analysis. *Soc Sci Med* 1990;30:811-818.
10. Kaplan SH, Greenfield S, Gandek B, et al. Characteristics of physicians with participatory decision-making styles. *Ann Intern Med* 1996;124:497-504.
11. Fries JF. The chronic disease databank model: A conceptual framework for the computer-based medical record. *Comp Biomed Res* 1992;25:586-601.
12. Fries JF, Spitz PW, Young DY. The dimensions of health outcomes: The Health Assessment Questionnaire, disability, and pain scales. *J Rheumatol* 1982;9:789-793.
13. Pryor DB, Califf RM, Harrell FE, et al. Clinical data bases: Accomplishments and unrealized potential. *Med Care* 1985;23:623-647.
14. Lubeck DP, Fries JF. Health status among persons infected with human immunodeficiency virus: A community-based study. *Med Care* 1993;31:269-276.
15. Lubeck DP, Litwin MS, Henning JM, et al. The CaPSURE™ database: A methodology for clinical practice and research in prostate cancer. *Urology* 1996;48:773-777.
16. Litwin MS, Hays RD, Fink A, et al. Quality-of-life outcomes in men treated for localized prostate cancer. *JAMA* 1995;273:129-135.
17. Litwin MS, Hays RD, Fink A, et al. The UCLA prostate cancer index: Development, reliability, and validity of a health-related quality of life measure. *Med Care* 1998;36:1002-1012.
18. Ware JE. *SF-36 Health Survey: Manual and Interpretation Guide*. 2nd ed. Boston, MA: The Health Institute; 1997.
19. Hall JA, Feldstein M, Fretwell MD, et al. Older patients' health status and satisfaction with medical care in an HMO population. *Med Care* 1990;28:261-269.
20. Lohr KN, Aaronson NK, Alonso J, et al. Evaluating quality of life and health status instruments: Development of scientific review criteria. *Clin Ther* 1996;18:979-992.