# Patient satisfaction with physician care**

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*Patient satisfaction is known to be related to many desired outcomes in medical care. This study employs multidimensional scaling techniques to identify factors affecting satisfaction with physician care in 1,210 patients. Stepwise regression analysis of factors that met predetermined criteria showed that accessibility explained the greatest amount of variance in patient satisfaction. The patient's perceived efficacy of physician care and greater continuity of care also have significant correlations with satisfaction. Perceived susceptibility to illness, utilization of physician services, and levels of education have lesser but significant effects on patient satisfaction. Despite methodological constraints, economic and psychological benefits make evaluation of patient satisfaction an important exercise.*

## Introduction

Research indicates that individuals possess the ability to differentiate between various aspects and dimensions of the health care they receive[1]. As a result of the assessment, "satisfaction" represents an appraisal by patients of the extent to which their perceptions and expectations regarding their health care have been met[2,3]. Patient satisfaction manifests itself in many ways that include subsequent utilization of physician services as well as other overt health behavior[4]. For instance, researchers have found that reports of satisfaction correlated positively with patients' compliance with treatment instructions[5,6]. Levels of patient satisfaction can also affect other desired outcomes such as better provider-patient relationship, continuity of care, lower no-show rates, more efficient use of ancillary staff and greater staff satisfaction[7,8].

Generally, the content of patient satisfaction refers to an individual's assessment of health services received. In terms of such a broad conceptual framework, researchers have investigated different combinations of factors that can influence patient satisfaction. Such factors are, for the most part, attributed to characteristics of the provider and/or health care facility, such as providers' communication and interpersonal skills, quality and continuity of care, the physical facilities and other amenities, as well as courtesy extended by the staff and the interest shown toward patients. However, not all factors are dependent on, or interactive with, attributes of the provider or the health care facility. Perceptions by patients of other considerations related to their care-seeking behavior can also be translated into feelings of satisfaction or dissatisfaction with the care they receive.

Our study attempts to identify perceptions concerning medical care, and to examine the influence of such perceptions on the patient's satisfaction with visits to physicians' offices.

## Patients and methods

Data for this study are derived from a regional health survey in the Los Angeles metropolitan area.

The survey design incorporated a 3-stage, random probability, sampling technique[9]. Initially the frame contained approximately 20,000 computer-readable addresses sampled on an area-probability basis. In this sampling, a sophisticated computer procedure ensured that each housing unit had an equal probability of being selected. The first stage involved more than 1600 census tracts called primary sampling units (PSUs), representing the Los Angeles census area. Each PSU was then divided into blocks, and these blocks were then subjected to another sampling procedure. In the third stage, a systematic sampling scheme (with a random start) selected households within the selected blocks.

This multistage sampling procedure resulted in the selection of 2,020 household units. However, this was reduced to 1,883 units because of empty dwellings, etc. One adult individual (age 18 or older) was then randomly selected from each of the remaining household units, using the Kish selection table[10].

Of the 1,883 selected individuals, 1,210 (or 64.3 percent) eventually consented to a 1-hour interview. Of the remaining 36%, 18% refused to participate and 10 percent could not be reached after three consecutive attempts. Those who gave no response made up the remaining 8%.

At the initial face-to-face interview, demographic and

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** Data reported in this paper were collected pursuant to Grant Number 5-R18-CA-18451, "Processes in Health Behavior and Cancer Control," awarded by the National Cancer Institute, Department of Health, Education, and Welfare.

health data were recorded. The health data included health behavior, recent illnesses and disabilities, use of health services, preventive health behavior, as well as information on health insurance. Following these initial interviews, respondents were contacted by telephone every 6 weeks for approximately one year in order to continue the collection of information for this study.

Multidimensional scaling techniques were used to scale multi-item questions in order to identify factors that represent dimensions related to physician care. The use of multi-item questions produces a more homogeneous and reliable measure of a trait in question, as compared to using individual questions as the unit of analysis[11,12].

Questions that contributed to the formulation of factor content are presented in abridged form in Table 1. The dependent variable of patient satisfaction consists of 4 items, whereas the independent variables are made up of between 2 to 5 items each. Response to each question was registered on a Likert scale of "strongly agree", "agree", "disagree" and "strongly disagree", all of which corresponded to numerical scores of 4, 3, 2, and 1 respectively. In alleviating the phenomenon of subconscious acquiescence, items within each variable included both positively and negatively phrased questions.

Table 1. Multidimensional scaling of variables.

| Variables | Range of scores | Cronbach's alpha |
|---|---|---|
| **Patient satisfaction** | 4-16 | 0.7693 |
| Satisfied with medical care I received | | |
| Medical care I received could be better | | |
| Medical received is just about perfect | | |
| Doctors concerned about my feelings | | |
| **Accessibility** | 2-8 | 0.7963 |
| Often difficult to see doctor when I can go | | |
| Easy to see a doctor when I am able to go | | |
| **Patient's availability** | 2-8 | 0.6620 |
| Need special arrangements to get care | | |
| Usually free to go see a doctor | | |
| **Cost concern** | 2-8 | 0.7973 |
| Concerned about cost when seeing a doctor | | |
| Do not worry much about doctor's cost | | |
| **Perceived susceptibility** | 5-20 | 0.6562 |
| Seem to get sick more than others | | |
| I can avoid almost any illness | | |
| I resist illness better than others | | |
| Most people get sick more often than I | | |
| Cannot do much to keep from getting sick | | |
| **Motivation** | 5-20 | 0.7181 |
| I think about my health a lot | | |
| When I get sick, it concerns me a lot | | |
| When I am ill, I take it seriously | | |
| Health is the most important thing to me | | |
| I think about my health only occasionally | | |
| **Efficacy** | 3-12 | 0.6032 |
| If sick, I do not think doctor can do much | | |
| I can take care of illness as well as doctor | | |
| Doctor is good for most of my illness | | |

Each variable is derived from the listed items. Each of the items has a possible score of "1" to "4" on the Likert Scale. Those items that were not asked in affirmative expressions have their scores reflected. The expressions listed here may have been shortened to save space.

All independent variables were constructed using multidimensional scaling techniques except for continuity of care and physician visits. An index of continuity of care was constructed by assessing whether the respondent had a "regular person" and/or a "regular place" for medical care.

In scaling the variables, both dependent and independent, the zero-order correlations of the items that made up each scale were examined critically. Only those items that met the criteria of having a correlation coefficient (r) of $> 0.2$ at $p<0.01$ (one-tailed significance test) with every item in that scale were included. This strategy eliminated the number of uncorrelated or poorly correlated items. To ensure that no false correlations occurred as a result of misinterpretations of the coded responses, the scores for negatively phrased items were reflected. Once the items for each scale had been decided, reliability tests based on Cronbach's alpha were conducted. In order to ensure an adequate level of internal consistency of the resulting scales, the value of Cronbach's alpha had to be no less than 0.4 (see Table 1). Subsequently, principal component factor analysis was used to determine how the items clustered together. Factor analysis with oblique rotation produced a total of 7 distinct factors (see Table 2).

Selection of independent variables for regression analysis involved 2 stages. At the first stage, only variables having a correlation coefficient (r) of $> 0.1$ at $p<0.01$ with the dependent variable of patient satisfaction were considered for the regression procedure. After completing the stepwise regression procedure, any of the independent variables that did not produce a significant multiple correlation coefficient ($R^2$) change at $p<0.05$ were dropped when entering the final regression. This way, only variables illustrating a significant amount of variance in patient satisfaction were included in the final equation. In order to get conservative estimates of the variance, the reported $R^2$ was adjusted for the number of independent variables in the equation as well as for the number of cases.

## Results

The zero-order correlation analysis of items that made up each scale showed high reliability as indicated by the values of Cronbach's alpha (see Table 1). All items had significant correlation with every item in the scale. Principal component factor analysis of the items produced 7 distinct factors (see Table 2). Variables with similar factor content had comparable factor loadings.

The strongest predictor of satisfaction in the set of independent variables (including sociodemographic variables and physician visits) was determined to be access to care ($b=0.249$ at $p<0.001$) (see Table 3). Among the health belief factors, perceived efficacy of care showed a moderate relationship with satisfaction ($b=0.200$ at $p<0.001$). Another strong predic-

tor was continuity of care (b=0.182 at p<0.001). Perceived susceptibility to illness and utilization of physician services were lesser predictors of satisfaction. Among sociodemographic variables, only the level of education of the patient was significantly related to satisfaction. An interesting finding was the convergence of concern with cost with satisfaction. Factors introduced into the regression procedure but did not meet predetermined criteria included patients' availability and motivation to seek care, as well as other sociodemographic variables.

## Discussion

Previous studies of the effect of sociodemographic factors on patient satisfaction showed conflicting results[13-16]. However, level of education seemed to have the most consistent correlation with satisfaction[17]; this was confirmed in our study. A logical explanation would be that persons with more years of education understand the health care system better and can relate to it better.

Another group of factors that have had a consistent influence on satisfaction was the patients' perception of their vulnerability to illnesses and the benefits they perceived could be derived from care by physician. In our study, those who believed their physicians would do them some good felt more satisfied, and those who thought they were more susceptible to illnesses were more likely to be less satisfied with physician visits.

Accessibility usually means physical and financial accessibility to care, as well as physicians being available[16]. In our study we focused only on the availability of physicians and of

Table 2. Factor analysis of questionnaire items.*

| Items | Patient's satisfaction | Access to care | Patient's availability | Perceived susceptibility | Motivation to seek care | Perceived efficacy | Cost concern |
|---|---|---|---|---|---|---|---|
| Satisfied with medical care I received | 0.808 | | | | | | |
| Medical care I received could be better | 0.737 | | | | | | |
| Doctor's care is just about perfect | 0.798 | | | | | | |
| Doctors are concerned about my feelings | 0.767 | | | | | | |
| Often difficult to see doctors when I can go | | 0.763 | | | | | |
| Easy to see a doctor when I am able to | | 0.729 | | | | | |
| Have to make special arrangements to get care | | | 0.661 | | | | |
| Usually free to see or go to see a doctor | | | 0.719 | | | | |
| Seem to get sick more than others | | | | 0.684 | | | |
| I can avoid almost any illness | | | | 0.340 | | | |
| I resist illness better than others | | | | 0.840 | | | |
| Most people get sick more often than I | | | | 0.811 | | | |
| Cannot do much to keep getting sick | | | | 0.345 | | | |
| I think about my health a lot | | | | | 0.645 | | |
| When I get sick, it concerns me a lot | | | | | 0.747 | | |
| When I am ill, I take it seriously | | | | | 0.672 | | |
| Health is the most important thing to me | | | | | 0.741 | | |
| I think about my health only occasionally | | | | | 0.389 | | |
| If sick, I do not think doctor can do very much | | | | | | -0.721 | |
| I can take care of illness as well as doctor | | | | | | -0.696 | |
| Doctor is good for most of my illnesses | | | | | | -0.680 | |
| Concerned about costs when I see a doctor | | | | | | | 0.900 |
| Do not worry much about doctor's cost | | | | | | | 0.906 |

*Using iterative principal component factor analysis with oblique rotation.

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Table 3. Stepwise multiple regression on patient satisfaction.**

| Steps | Correlation with satisfaction | Standardized coefficient | Adjusted $R^2$ |
|---|---|---|---|
| Step 1 | | | |
| Accessibility | 0.363* | 0.249* | 0.130 |
| Step 2 | | | |
| Perceived efficacy | 0.298* | 0.200* | 0.176 |
| Step 3 | | | |
| Continuity of care | 0.265* | 0.182* | 0.210 |
| Step 4 | | | |
| Perceived susceptibility | -0.165* | -0.095* | 0.221 |
| Step 5 | | | |
| Physician visits | -0.099* | -0.083* | 0.230 |
| Step 6 | | | |
| Education | -0.039* | -0.089* | 0.232 |
| Step 7 | | | |
| Cost concern | 0.201* | 0.094* | 0.236 |

*Statistically significant at $p<0.05$
**Independent variables presented in the order of entry into the equation, which is based on the criterion of $p<0.05$.

the physical accessibility to a health care facility. Those patients who could get appointments to see their physicians whenever they needed to, and experienced less difficulty getting to physicians' offices reported greater satisfaction with physician care.

Continuity of care contributed a great deal to the degree of patient satisfaction by having a personal physician and a regular place for care. A simple explanation would be that familiarity with a regular source of care helped patients relate better to both provider and facility.

Studies also have shown that a reciprocal relationship exists between satisfaction and utilization[17]. The more satisfied people were with their physicians, the more frequently did they use their services; but only up to a certain point because the increase in frequency of contact resulted in a higher probability of unmet expectations and dissatisfaction[17]. Although the level of satisfaction resulted in increased utilization, the reverse was not found in our study.

There is no simple explanation as to why those patients who were more concerned with the cost of physician care reported greater satisfaction. However, those who enrolled in capitation plans expressed an appreciation of the lower cost.

## Conclusion

Presently, there is still no generally accepted conceptual framework for evaluating patient satisfaction. Current approaches serve only as general guidelines at best, rather than as empirical tools of analysis. Two common approaches involve either obtaining feedback from patients about various factors associated with medical care, or focusing on behavioral correlates of satisfaction. Our study is biased toward the former approach. Besides presenting serious challenges to validity and reliability in statistical testing, measures of global satisfaction have been criticized as being inadequate in representing patients' opinion, because the level of satisfaction varies with different aspects of medical care[18]. However, it would be unwise to allow a lack of perfection in methodology to make us indifferent to the factors that create more satisfaction on the part of our patients.

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