

## An account for system influence in the analysis of patient satisfaction

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Despite the voluminous literature examining patient satisfaction with physicians, few studies have examined patient satisfaction with health systems. We argue that there is a need for such research and propose a uni-dimensional measure of system satisfaction. We also report on the independence of the constructs of physician satisfaction and system satisfaction and examine the association between patient self-efficacy and system satisfaction.

### INTRODUCTION

According to the Centers for Disease Control and Prevention (CDC), there were more than 900 million visits to physician offices in 2004 (National Center for Health Statistics fast stats, 2004). Further, the CDC estimates that approximately 80% of adults make an office visit to a physician or health care professional, and 6% experience an overnight stay in a hospital each year (U.S. Department of Health and Human Services, 2006, 2007). With so many people interacting with physicians, it is not surprising that an enormous amount of research has examined patients' satisfaction with these encounters. The present study seeks to broaden the scope of previous research on patient satisfaction with physician interactions by investigating satisfaction with the healthcare system.

Numerous aspects of physician behavior influence patient reports of satisfaction, including the ability to balance professionalism with affective warmth, being understanding and attentive to client needs, providing advice at a level that the patient can comprehend, involving the patient in healthcare decisions, respecting the patient's autonomy, and displaying a sense of humor when interacting with the patient (Beach, Sugarman, Arbelaez, Duggan & Cooper, 2005; Bowers, Swan & Koehler, 1994; Buller & Buller, 1987; Caplan & Sussman, 1966; Donahue, Ashkin & Pathman, 2005; Forrest, Shi, von Schrader, & Ng, 2002; Greenley & Schoenherr, 1981; Lutby, Cedraschi, Perrin & Allaz, 2005; Pope, 1978; Ross, Wheaton & Duff, 1981; Ross & Duff, 1982; Saultz & Albedaiwi, 2004; Schattner, Rudin & Jellin, 2004; Wrench & Booth-Butterfield, 2003).

While we acknowledge the importance of this program of research, we believe that health communication scholars have focused on patient satisfaction with physicians while ignoring their satisfaction with the system within which these doctors operate. When patients require healthcare, the care they receive is not determined solely by interactions with a primary physician. Rather, it is contingent upon the functioning of an organization composed of interdependent departments,

bureaucracies and sub-systems (Back & Hutchinson, 2006; Ledlow, O'Hair, & Moore, 2003). During the course of their care, patients may come into contact with many staff members and be forced to navigate a complex bureaucracy, simultaneously interacting with various components of the healthcare system.

Research suggests that patients' perceptions of the overall health organization are important, as these perceptions influence compliance with health-provider instructions (Moore, O'Hair & Ledlow, 2002). To date, several factors have been linked to system satisfaction, including perceptions of overall system quality, the amount and quality of information available, and the ease with which the patient is able to navigate a complex organization (Wixom & Todd, 2005). A health system could conceivably encompass all elements involved in health delivery including government agencies, insurance providers, various hospitals, clinics and private practices. For the purposes of parsimony, the present inquiry defines the health system as the services rendered and experiences encompassed in a long-term care hospital visit. We contrast patients' satisfaction with the hospital system with the subjective experience of satisfaction they report and the professional performance and personal demeanor of their consulting physician.

Although satisfaction with the health care system is a burgeoning research area, there is not currently an instrument with which to assess patient satisfaction with the health system. Consequently, the primary objective of this study is to report on the development, factor structure, and reliability of an instrument we devised with which to measure the construct of system satisfaction.

While we believe it is important to be able to measure this variable, it is also necessary to determine whether it is meaningful to measure satisfaction with the healthcare system separately from satisfaction with a physician. We suspect that in many instances patients may have a highly satisfying impression of a specific health interaction but be highly dissatisfied with the health system itself. To determine

whether these constructs should be measured independently, we propose the following research questions:

RQ1: What relationship exists between patients' satisfaction with their physician, and the patients' satisfaction with the health care system in which the physician operates?

Studies of patient satisfaction with physicians suggest that satisfaction is not solely a function of physician behaviors. Rather, it appears that satisfaction with one's physician is also influenced by the degree to which a patient reports high levels of self-efficacy (Adinoff, 2002; Bandura, 1997a & b; Grembowski et al., 1993; Krause et al., 2006; Moore et al., 2002; Seeman & Seeman, 1983). Self-efficacy refers to a person's belief that they possess the ability to execute the necessary behaviors successfully in order to achieve specific goals (Bandura, 1977, 1997a, 1997b, 2000). In order to explore whether a consistent predictor of satisfaction with a specific physician is also associated with satisfaction with the healthcare system, we propose a second research question:

RQ2: What is the relationship between self-efficacy and patient satisfaction with the healthcare system?

## METHODS

### Subjects

A total of 603 surveys were placed in health care facilities throughout the community known to have ties to long-term facilities, such as a rehabilitation clinic for people with back injuries. Additional surveys were distributed to individuals known to use specialized health services in a local community surrounding a large west-coast university. Survey packets included an informed-consent form approved by the institutional review board, and a pre-paid return envelope. Subjects were given four weeks to respond, after which 192 (32%) of the surveys had been returned. Given that many surveys were left in different locations rather than direct-mailed to specific individuals, it is impossible to know the actual number distributed to possible participants. Further, this strategy did not permit the use of tactics frequently used to obtain higher response rates, such as follow-up mailings or telephone requests for completion. Thus, the estimation that the return rate is 32% is probably quite conservative. These sampling techniques and response rates are generally consistent with research protocols in this applied health communication context (e.g., Frey, Botan & Kreps 2000; Wright & Moore, 2008).

Of the 192 surveys returned, 11 were incomplete to the point of being unusable and therefore were excluded from analysis. Analysis was therefore performed upon the remaining 181

surveys. All but 5 respondents reported their sex. Of those who provided this information, 62% were female and 38% were male. The median income of our sample median was \$36,000, which was slightly higher than that of the local population as a whole (\$32,236, U.S. Census Bureau, 2008). Based on data provided by the U.S. Census Bureau, Caucasians were overrepresented in our sample (Sample = 74%, Population = 50%) while Hispanics, African-Americans, and Asians were underrepresented. The mean age of our respondents was 38 years. The relatively youthful nature of the sample may appear surprising. However, although it is tempting to associate long-term hospital visits with the aged, only 38% of inpatients are aged 65 or older (DeFrances & Hall, 2007). Indeed, data from the CDC reveal that fully 31% of inpatient visits are by people aged 15-44 (ibid), suggesting there is no need to be concerned about the age composition of the sample. Additional statistical tests validating the suitability of the data set were performed and are discussed in greater detail in the Results section. Additional statistical tests validating the suitability of the data set were performed and are discussed in greater detail in the Results section.

## Materials

The research questions called for the measurement of three variables: patients' satisfaction with their primary physician, patient self-efficacy, and patient satisfaction with the healthcare system. Patients' satisfaction with their physician was measured using a 19-item scale previously validated by Moore, O'Hair & Ledlow (2002) including items such as "*I was very pleased with the conversation.*" This scale is presented in a Likert format using a 1-7 scale. The scale achieved a high level of reliability ( $\alpha = 0.95$ ), consistent with previous findings. Results indicated relatively high satisfaction, ( $M = 5.10$ ,  $SD = 1.22$ ). Participants' self-efficacy was measured with a Bandura's (2000) self-efficacy scale comprising 17 statements, such as "*When I make plans, I am certain I can make them work.*" Item responses use a seven point Likert scale. The scale demonstrated good reliability ( $\alpha = 0.88$ ) and suggested that respondents felt a high level of self-efficacy ( $M = 5.56$ ,  $SD = 0.87$ ). A median split technique was used to categorize respondents as being high or low in self-efficacy. To measure patients' satisfaction with the health care system, we self-constructed a nine-item scale, including statements such as "*The hospital had good facilities.*"

## RESULTS

One research objective was to assess the factor structure and reliability of a measure we constructed with which to measure patient satisfaction with healthcare system satisfaction. In order to determine the suitability of this data set for factor analysis, a Kaiser-Meyer-Olkin (KMO) measure of sampling

adequacy was performed. Results indicate that the sample was suitable for factor analysis (KMO = 0.918). Bartlett's test of sphericity was significant ( $\chi^2 = 882.44$ ,  $df = 21$ ,  $p = 0.001$ ).

The results of a principle component exploratory factor analysis (varimax rotation), and a review of a scree plot suggest the measure is uni-dimensional. Items were retained if they loaded at least 0.6 on the factor. Two items were discarded as they did not meet this criterion. Review of the scale itself suggested that these two items failed to load with the other seven items due to ambiguity in the original language. Reliability for the resultant seven-item scale was strong ( $\alpha = 0.94$ ,  $M = 4.737$ ,  $SD = 1.460$ ). The retained scale items are presented in Table 1.

RQ1 sought to determine whether a relationship existed between satisfaction with one's physician and satisfaction with the wider healthcare system contextualizing physician-patient interactions. To explore this relationship, we conducted a 2-tailed Pearson's correlation between the two variables. Our results revealed only a weak correlation ( $r = 0.16$ ,  $p < 0.05$ ), suggesting that the constructs are sufficiently independent to warrant separate measurement.

RQ2 assessed the relationship between patient self-efficacy and satisfaction with the healthcare system. We found no association between the two variables ( $r = 0.006$ ,  $p = 0.946$ ).

## DISCUSSION

Many of the predictors of patient satisfaction with physicians are relational in nature. For instance, individuals' satisfaction with their doctors seems to be enhanced when those physicians demonstrate attention to patient needs (Schattner et al., 2004), use active listening strategies (Buller & Buller, 1987), smile, laugh, joke, and maintain a warm demeanor (Greenley & Schoenherr, 1981; Wrench & Booth-Butterfield, 2003). In contrast to the human warmth of one's primary physician, the health system as a whole may seem to be cold, unsympathetic, and capricious. Consequently, we argue that it is conceptually meaningful to treat patients' satisfaction with their physicians,

and their satisfaction with the health system as independent constructs. Our primary objective, therefore, was to examine the factor structure and reliability of an inductively derived measure of patient satisfaction with health systems. Our results confirmed the uni-dimensional factor structure of the instrument, and suggest that the measure is reliable. Further, the low correlation ( $r = 0.16$ ) between physician-satisfaction and system satisfaction provides support for our contention that it is meaningful to treat these variables as independent constructs.

A consistent predictor of satisfaction with one's physician is the patient's level of self-efficacy. We were curious, then, whether there would be a similar relationship between patient self-efficacy and satisfaction with the health system. The complete absence of a relationship ( $r = 0.006$ ,  $p = 0.946$ ) between the variables is noteworthy, and further strengthens the argument for treating satisfaction with physicians and health systems independently. It is striking that while patients' sense of capability appears to enhance satisfaction with doctor-patient interactions, satisfaction with health systems is unaffected by such feelings of confidence. Thus, when confronted with unfamiliar staff members and unyielding bureaucracies, a person's belief that they are able to achieve his/her goals is largely irrelevant. Certainly, a person may be less able to exert control over the outcomes of dealing with a health system than they are to guide the outcomes of physician consultations to a satisfactory conclusion.

While no association was found between self-efficacy and system satisfaction, we did find correlations between several background variables and system satisfaction. For instance, participants' reports of how long they had to wait for care during previous emergency room visits was inversely related to system satisfaction ( $r = -0.201$ ,  $p = 0.014$ ). In this regard, the association parallels that found for wait time and satisfaction with physician. Research has consistently shown the less time one waits for health services, the more likely they are to be satisfied with the interaction, and conversely that lower satisfaction is directly correlated to longer wait time (Blizzard, 2005; Buller & Buller, 1987; Eilers, 2004; Forrest et al., 2002; Hendershot et al., 2005; Kurata et al., 1992; Oermann et al., 2002). It may not be surprising that one's satisfaction with a specific physician visit declines when one is forced to wait long after an appointment time for the consultation to begin. However, what our findings suggest is that perceptions of subsequent hospital visits may be colored and contextualized by earlier experiences with medical personnel.

We also found a positive relationship between system satisfaction and both age ( $r = 0.271$ ,  $p = 0.001$ ) and income ( $r = 0.212$ ,  $p = 0.009$ ). The association between system satisfaction and age may be partially accounted for by a

Table 1. System satisfaction questions.

I was satisfied with the overall experience with the hospital and its staff
The hospital staff was competent in answering questions
The hospital staff was competent in caring for me or my family member
The day to day care and services were performed consistently
The hospital had good facilities
I was satisfied with the level of care delivered by the physicians
I was satisfied with the level of care delivered by the nurses

selection effect. It seems probable that older patients may have used the same health providers and maintained the same insurance plan for many years. If these patients were not satisfied, they would have switched providers or plans until they found a preferable option. At the same time, however, older individuals may have learned through experience how to interact with health systems in order to achieve more satisfactory outcomes, especially if they have a well-established relationship with their personal physician.

The correlation for system satisfaction and respondent age indicates that higher earning abilities are positively associated with system satisfaction. This finding makes intuitive sense, for as an individual earns more money, he/she will also secure access to better healthcare services. Having more discretionary income to spend or invest in healthcare services provides the individual with increased ability to choose his/her health care plan(s), and gives the individual increased flexibility to change plans or providers when not satisfied with the health service he/she is receiving. Moore et al. (2002) found that the ability of individuals in stronger financial positions to purchase and maintain their preferred choice of health insurance resulted in higher levels of satisfaction with their physician. It seems that the same may be true for satisfaction with the health system as a whole.

#### LIMITATIONS AND FUTURE RESEARCH

Clearly, some limitations exist to this research. First, while the sample matched sex, age and income levels of the studied area, Caucasians were overrepresented in our sample. Consequently, future research might further examine differences in system satisfaction as a function of ethnicity. We also recognize that any new instrument needs to be validated through additional studies, and hope that other researchers would further explore the nature of health system satisfaction. Just as numerous variables have been associated with patients' satisfaction with primary physicians, we believe that many predictors of satisfaction may exist, and hope that communication scholars could discover what they might be.

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