The Relative Influence of Patients’ Pre-Visit Global Satisfaction with Medical Care on Patients’ Post-Visit Satisfaction with Physicians’ Communication


According to social judgment theory, patients’ pre-visit global satisfaction with medical care should be positively associated with patients’ post-visit satisfaction with physicians’ communication. Data were collected from 171 patients visiting 26 primary-care physicians. The aforementioned association was tested with one multiple linear regression including 10 covariates: patients’ age, sex, income, education, payment type, illness type, and physical and mental health status, as well as physicians’ experience and visit length. Although a variety of variables were positively associated with patients’ post-visit satisfaction, by far the strongest association was with patients’ pre-visit satisfaction.

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Over time, patients develop global levels of satisfaction with medical care, especially that delivered by primary-care physicians. Because global satisfaction is a type of

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attitude, social judgment theory (Sherif, Sherif, & Nebergall, 1965) predicts that it, along with other variables, will affect patients’ post-visit satisfaction with particular physicians. Although there are many types of patients’ post-visit satisfaction, communication scholars have been primarily interested in patients’ post-visit evaluations of physicians’ communication (Cegala, Coleman, & Turner, 1998). The goal of this study is to test the relative influence of patients’ pre-visit global satisfaction with medical care. That is, relative to other variables that affect post-visit satisfaction with physician’s communication (e.g., demographics, health status), how substantial is the influence of pre-visit satisfaction with medical care? This article begins by detailing the medical and practical importance of post-visit satisfaction, and then describes the theoretical justification for its being associated with pre-visit satisfaction.

Patients’ post-visit satisfaction with physicians’ communication is important because it is positively associated with objective measures of physicians’ task proficiency (Roter, Hall, & Katz, 1987), patients’ adherence to medical recommendations (Bartlett et al., 1984), and patients’ continuity of care (Kasteler, Kane, Olsen, & Thetford, 1976). Consequently, communication satisfaction has become an important determinant of health-care organizations’ and medical schools’ objectives for communication training (Duffy et al., 2004), and is also now being used to adjust merit increases to physicians’ salaries (Grumbach et al., 1998).

Attitudes are summary evaluations of people/objects along positive-to-negative dimensions (Petty, Wegener, & Fabrigar, 1997). Thus, many measures of patient satisfaction are measures of attitudes (for review, see Kane, Maciejewski, & Finch, 1997). For example, measures of patients’ pre-visit global satisfaction with medical care include rating-scale questions such as The care that I’ve received from doctors in the last few years is just about perfect. Social judgment theory (Sherif, Sherif, & Nebergall, 1965) has been used to explain the well-documented empirical finding that pre-existing attitudes are relatively resistant to change. Specifically, Lord, Ross, and Lepper (1979) developed the ideas of biased assimilation and attitude polarization, in which people have a tendency to perceive attitude-consistent information as more positive and valid than attitude-inconsistent information. When people encounter new information that is related to pre-existing attitudes, they do not evaluate the new information on the basis of source, message, and context factors alone. Rather, people are biased toward assimilating new information to their existing attitudes in a manner that increases the probability that existing attitudes persevere.

Over the course of repeated contact with multiple physicians (especially primary-care physicians), patients develop global levels of satisfaction with physicians’ medical care (for review, see O’Hair, Allman, & Moore, 1996). By “global,” we mean satisfaction that is abstracted from particular physicians and communication episodes. Social judgment theory predicts that this global level of pre-visit satisfaction should positively bias patients’ post-visit satisfaction. Although this prediction has rarely been examined in studies of physician-patient communication, it has empirical support in other contextual arenas. For example, Szymanski and Henard (2001) conducted a meta-analysis of studies examining customer/consumer satisfaction and found
that customers’ pre-interaction anticipation of salespersons’ positive performances was directly, positively associated with customers’ post-interaction satisfaction. Yanovitsky and Blitz (2000) longitudinally demonstrated that female patients’ decisions to obtain mammograms are affected both by pre-visit, media-generated attitudes about mammography and by physicians’ advice to get a mammogram.

Within the arena of physician-patient communication, Tierney et al. (2001) found that patients’ post-visit satisfaction during Time 1 visits was positively associated with patients’ post-visit satisfaction during Time 2 visits. However, Tierney et al. examined a specialized type of visit (i.e., chronically ill patients discussing end-of-life care), and Tierney et al.’s measure of post-visit satisfaction did not focus directly or exclusively on physician communication behavior (e.g., it asked patients to rate their satisfaction with “this visit overall”). Perhaps closest to the present investigation is a study by Robbins et al. (1993), who examined a similar primary-care context and who used similar pre- and post-measures of patients’ satisfaction. Surprisingly, Robbins et al. found no significant associations between patients’ pre-visit global satisfaction with medical care and patients’ post-visit satisfaction. However, because Robbins et al.’s study is relatively dated, their regression model did not include a variety of covariates now known to be important, such as patients’ payment type, illness type, and health status. Furthermore, Robbins et al. did not statistically control for the fact that patients are nested (or clustered) within physicians, even though evidence suggests that physicians with the same sub-specialty (e.g., family practitioners) can have significantly different communication styles (Verhaak, 1988). Both of these issues have since been discussed as serious limitations (Bertakis & Callahan, 1992; Carr-Hill, 1992; Street, 2003).

The present study is one of the first to examine the relative influence of patients’ pre-visit global satisfaction with medical care on patients’ post-visit satisfaction with physicians’ communication per se. This study fills a gap in prior research by including a large number of covariates and statistically controlling for patient clustering. Results should aid the development of a more comprehensive, parsimonious, and explanatory model of physician-patient communication (Ong et al., 1995; Street, 2003).

Method

Sample

All participants were drawn from a large, multispecialty group practice that provides health services to more than two million patients across 40 counties of one large northeast state. Data were collected from nine clinics across six counties. Thirty-seven primary-care physicians were asked to participate, and 26 agreed (20 males and 6 females; 13 family practitioners and 13 internists). For each physician, 5–7 \((M = 6.2; SD = 1.8)\) randomly selected patients were asked to participate (after being told of their physicians’ participation), and 171 out of 216 agreed (76 males and 95 females). Physicians and patients were offered $50 and $20 to participate, respectively. Patients’ questionnaire response rate was 99\%. Patients were adults dealing with either
an acute problem (e.g., sore throat, rash, bee sting) or a chronic-routine problem (e.g., hypertension, diabetes, chronic pain). Forty-four acute-visit patients (46%) visited on Saturdays, when patients do not typically see their “usual” physicians. All patients had pre-existing histories with their clinics (but not necessarily with physicians), and thus patients’ visits were not “new-intakes” (cf. Bertakis & Callahan, 1992).

Procedure

This study was approved by all relevant Human Subjects Protection Committees. The stated purpose of the study was to examine how physicians and patients communicate. Participating patients filled out a pre-visit survey, after which they were escorted to a visit room and seen by a physician. Visits were videotaped. Physicians and patients interacted naturally, and researchers were not present during visits. Immediately after visits, patients filled out post-visit questionnaires and were paid for their participation.

Measures

In the pre-visit questionnaire, we measured patients’ global satisfaction with medical care with Ware et al.’s (1983) single-factor, four-item, General Satisfaction Scale ($z = .72; M = 3.43$ out of $5; SD = .74$), which asks patients to rate medical care in general, without reference to particular time frames or instances of care. The four items in this scale are:

1. “The care that I’ve received from doctors in the last few years is just about perfect”;
2. “Most people receive medical care that could be better” (reverse coded);
3. “I’m very satisfied with the medical care that I receive”; and
4. “There are things about the medical care that I receive that could be better” (reverse coded).

Research shows that this measure is a more reliable index of patients’ satisfaction with physicians’ care than with other aspects of care that are not associated with physicians per se, such as affordability and access (Ware et al., 1983). Additionally, research shows that this measure is significantly but moderately related to measures of visit-specific satisfaction, indicating that it is related to, but distinct from, satisfaction with specific services (Ware et al., 1994). The salience of this measure was minimized by disbursing its four items among 15 others dealing with contact information and health status. Finally, the pre-visit questionnaire measured patients’ physical-health status ($z = .91$) and mental-health status ($z = .91$) with the Medical Outcome Study’s Short Form Health Survey (Ware & Sherbourne, 1992).

In the post-visit questionnaire, we measured patients’ satisfaction with physicians’ communication using the Medical Interview Satisfaction Scale (Kinnersley et al., 1996; Wolf et al., 1978; $z = .96; M = 4.19$ out of $5; SD = .55$). Patients were asked to evaluate “the physician they just saw” in terms of a number of communication features. The post-visit questionnaire also measured patients’ age ($M = 52.4; SD = 18.54$), sex (56% female; 44% male), education (56% ≤ high school, 44% >
high school), and total household income (56% ≤ $39,000, 44% > $39,000). Additionally, from videotapes we measured visit length in minutes (M = 20.44; SD = 9.64); from hospital records, we measured physicians’ experience in years of practice after residency (M = 16.0; SD = 8.47); from patients’ medical records, we measured patients’ payment type (54% federally supported plans, including Medicare/Medicaid; 46% privately supported plans, including HMOs, PPOs, etc.) and illness type (56% acute; 44% chronic-routine). Finally, we measured whether or not patients had seen these physicians before (as a proxy for “prior relationship”).

**Factor Analysis and Patients’ Post-Visit Satisfaction with Physicians’ Communication**

As originally conceived, the Medical Interview Satisfaction Scale contains three, nine-item subscales mapping onto three factors: patients’ perceptions of “cognitive” and “affective” components of physicians’ communication, as well as of medical-technical behaviors (e.g., physical examination). Because this study focused on communication, we only used the first two subscales. Prior research has argued that these subscales may not actually represent two distinct/coherent factors because they, and their individual items, are highly intercorrelated (Kinnersley et al., 1996; Wolf et al., 1978). As such, Meakin and Weinman (2002) advised that factor analysis be used to retest their coherence within different patient populations. We initially ran a confirmatory factor analysis, but this produced weak, two-item factors. Thus, we ultimately merged the two subscales and ran an exploratory (i.e., principle) factor analysis with an oblique (vs. orthogonal) rotation (Fabrigar et al., 1999). The parameters for item inclusion were a loading of .60 or greater on the primary factor and less than .40 on secondary factors. The result was a final solution containing one robust and reliable five-item factor (α = .86; eigenvalue = 3.9; variance = 43.66%), including:

1. “After talking with the doctor, I have a good idea of what changes to expect in my health over the next few weeks and months” (loading = .85);
2. “The doctor told me everything I wanted to know about my medical problem” (loading = .80);
3. “The doctor told me how my medical problem will affect my ability to do work” (loading = .69);
4. “The doctor relieved my worries about being seriously ill” (loading = .75); and
5. “After talking to the doctor, I felt much better about my problem(s)” (loading = .75).

**Results**

The Statistical Analysis Software package (SAS) was used to run one linear multiple regression using Generalized Estimating Equations Modeling (Hardin & Hilbe, 2003), which adjusts standard errors to account for correlations between observations. In the present case, this was to control for the clustering effects of more than one patient visiting and rating the same physician. There was one dependent variable (i.e.,
patients’ post-visit satisfaction) and 11 independent variables: patients’ pre-visit global satisfaction with medical care, age, sex, income, education, payment type, illness type, and physical and mental health status, as well as visit length and physicians’ experience. Although none of the aforementioned variables were intercorrelated at levels above .65, which warrants their inclusion in the regression model (Tabachnik & Fidell, 2001), one variable was excluded for this reason. Specifically, the variable of whether or not patients had seen physicians before was too highly intercorrelated with that of illness type, because 100% of chronic-routine patients had seen these physicians before.

A statistically reduced, final model retained seven significant factors (see Table 1). Goodness-of-fit criteria showed that this model fit the data very well: $df$ (137), deviance (30.8707), $X^2$ (30.8707), log likelihood ($-93.5939$), $p = 1.00$. The non-reduced, full model included all 11 independent variables but was not definitive, as including insignificant variables with high $p$ values (i.e., larger than 0.2) can bias the model’s overall variance (MSE). Our aim was to obtain the most parsimonious model appropriate for the data. Thus, we reduced the full model, step by step. In each step, we deleted the factor with the largest $p$ value (greater than 0.2), ensured the goodness-of-fit of the reduced model, and ensured that its goodness-of-fit was not significantly different from that of the full model. The goodness-of-fit criteria for the full model were: $df$ (132), deviance (29.6293), $X^2$ (29.6293), log likelihood ($-90.4916$). There were no significant differences between the goodness-of-fit of the full model and the final model presented. Supporting our hypothesis (see Table 1), patients’ post-visit satisfaction was positively associated with patients’ pre-visit attitudes ($p < .0001$). Additionally, patients’ post-visit satisfaction was positively associated with patients’ age ($p < .001$), patients’ education ($p = .01$), patients’ income ($p < .01$), patients’ non-federal/private fee-for-service payment type ($p < .0001$), and physicians’ experience ($p < .0001$); it was negatively associated with visit length ($p < .0001$).

<table>
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<tr>
<th>Variable</th>
<th>Estimate (beta)</th>
<th>SE</th>
<th>95% CI</th>
<th>$z$</th>
<th>$p$</th>
</tr>
</thead>
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<tr>
<td>Patients’ age</td>
<td>.0097</td>
<td>.0030</td>
<td>.0038 to .0156</td>
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<tr>
<td>Patients’ household income†</td>
<td>.0626</td>
<td>.0248</td>
<td>.0139 to .1113</td>
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<td>&lt;.01</td>
</tr>
<tr>
<td>Patients’ education†</td>
<td>.1398</td>
<td>.0483</td>
<td>.0451 to .2344</td>
<td>2.89</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>Patients’ payment type†</td>
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<td>.0513</td>
<td>-.3236 to -.1224</td>
<td>-4.35</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>Visit length</td>
<td>-.0135</td>
<td>.0022</td>
<td>-.0178 to .0092</td>
<td>-6.15</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>Physicians’ experience</td>
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<td>.0081</td>
<td>.0194 to .0511</td>
<td>4.36</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>Patients’ pre-visit satisfaction</td>
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<td>.0197</td>
<td>.6647 to .7419</td>
<td>35.69</td>
<td>&lt;.0001</td>
</tr>
</tbody>
</table>

Table 1: Summary of Linear Regression Analysis with GEE Modeling for Variables Associated with Patients’ Post-Visit Satisfaction

†This is the final, statistically reduced model (see text).

1 = High; †1 = Medicare/Medicaid.
Discussion

This article examined the relative influence of patients’ pre-visit global satisfaction with medical care—that is, relative to patients’ age, sex, income, education, health status, payment type, and illness type, as well as physicians’ experience and visit length—on patients’ post-visit satisfaction with particular physicians’ communication. Patients’ pre-visit satisfaction had by far the strongest association. These results can be explained in terms of social judgment theory (Sherif, Sherif, & Nebregall, 1965). Patients’ pre-visit satisfaction is an attitude. Rather than evaluating particular physicians’ communication solely on the basis of source, message, and/or context factors, patients are biased toward assimilating their post-visit satisfaction to their pre-visit attitudes. The more positively patients evaluate physicians’ medical care generally, the more positively patients evaluate particular physicians’ communication after visits. Results additionally showed that patients who were significantly more satisfied with physicians’ communication were older, wealthier, more educated, had non-federal/private fee-for-service payment plans (vs. Medicare/Medicaid), had shorter visits, and saw more experienced physicians.

Our findings have at least two applications for healthcare organizations and their physicians. First, our factor analysis provides information regarding the type of communication behaviors that primary-care patients perceive to be salient, and thus that should be improved and/or incorporated into both daily practice and physician (re)training. In line with Mishel’s (1997, 1999) illness-uncertainty theory, salient behaviors were ones that reduced patients’ uncertainty concerning the character and etiology of their problems, anticipated changes in their health status, the severity of their problem, and anticipated effects of their problems on their work lives. Second, when evaluating patients’ post-visit satisfaction, healthcare organizations need to control for patients’ pre-visit satisfaction. Practicing physicians are increasingly held personally accountable (financially and otherwise) for their patients’ satisfaction scores (Grumbach et al., 1998). However, commercial agencies (e.g., Press Ganey) who conduct patient-satisfaction surveys for healthcare organizations do not typically control for pre-visit variables. Thus, physicians are currently at risk of being unfairly evaluated and compensated.

Limitations and Future Research

Due to multicollinearity, we excluded the variable of whether or not patients had seen physicians before (i.e., prior acquaintanceship); future research needs to measure this variable more carefully, as it has been shown to positively affect patients’ post-visit satisfaction (Mead, Bower, & Hann, 2002). Many of the 18 items of the measure of patients’ post-visit satisfaction with physicians’ communication (Wolf et al., 1978) proved to be highly intercorrelated, requiring the factor analytic derivation of a five-item scale. Researchers in this area need to develop a more valid scale, perhaps akin to that of Cegala, Coleman, and Turner (1998). Our study was conducted in a single, largely rural geographic area and may not generalize to other
areas of the United States. Our study population was almost universally Caucasian and reported somewhat low levels of income and education (i.e., 56% reported household incomes of $39,000 or less, and having high school educations or less). Visits were by patients who had pre-existing histories with clinics and may not be comparable to “new-intake” visits, which frequently include more extensive history taking (Bertakis & Callahan, 1992).

Future research on the relationship between patients’ pre- and post-visit satisfaction needs to incorporate variables dealing with actual physician-patient interaction (e.g., the amount and type of physicians’ information giving). Simultaneously measuring features of interaction and controlling for patients’ pre-visit satisfaction should allow scholars to determine if its effects are mediated by features of interaction and elucidate and refine the mechanisms and effects of interaction itself. It is hoped that the present findings contribute to the development of more comprehensive, parsimonious, and explanatory models of physician-patient communication (Ong et al., 1995; Street, 2003).

References


