Consulting With a Surgeon Before Breast Cancer Surgery: Patient Question Asking and Satisfaction

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Consulting With a Surgeon Before Breast Cancer Surgery: Patient Question Asking and Satisfaction

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Research has found a negative association between patient question asking and aspects of their satisfaction. In the context of surgical oncology, the aim of this exploratory study was to test the association between patient question asking and 3 indices of their satisfaction. Participants included 51 women who were newly diagnosed with breast cancer engaged in presurgical consultations with a surgical oncologist from a National Cancer Institute–designated cancer center in the Northeastern United States. Outcomes were patients’ postconsultation reports of their satisfaction with the treatment plan, intentions to adhere to the treatment plan, and satisfaction with the surgeon. The main predictor was the frequency of patients’ self-initiated questions coded from videotapes of consultations. The frequency of patients’ self-initiated questions was negatively associated with their satisfaction with the treatment plan \( p = .02 \), intentions to adhere to the treatment plan \( p = .02 \), and satisfaction with the surgeon \( p = .07 \). Results can be explained in terms of patients’ perceptions that the surgeon’s information was insufficient or inadequate. Future research needs to identify the specific content of patients’ questions and how such content might be associated with satisfaction.

Among American women, breast cancer is the second-highest new-cancer diagnosis, and it the second leading cause of cancer death (American Cancer Society, 2010). Approximately 207,000 women were diagnosed with breast cancer in 2010 (American Cancer Society, 2011a). Immediately after women are diagnosed with breast cancer, one of their next contacts with the medical profession is with a surgeon to discuss the nature of the cancer and a surgical treatment plan (American Cancer Society, 2011b).
A majority of breast cancer patients report that surgeons are the most influential factor in the treatment-decision process (Stafford, Szczys, Becker, Anderson, & Bushfield, 1998), and more than 80% of the time, treatment plans arrived at during consultations with surgeons reflect patients’ actual treatment decisions (Siminoff, Fetting, & Abeloff, 1989). In the context of presurgical consultations between women who were newly diagnosed with breast cancer and surgeons, this article examines the association between observed (i.e., taped and coded) participation behavior (Street & Millay, 2001)—with a focus on patients’ self-initiated questions—and three indices of patients’ postconsultation satisfaction, including that with the treatment plan and the surgeon, as well as patients’ intentions to adhere to the treatment plan. This article begins by discussing the importance of patient satisfaction as a health outcome in this medical context, the relevance of participation behavior to satisfaction, and the often overlooked yet longstanding negative association between patient question asking and satisfaction.

The majority of women who are diagnosed with breast cancer are clinically eligible for two alternative surgical treatment approaches, including mastectomy or lumpectomy accompanied by radiation therapy. It is important to note that both treatment options confer an equivalent survival rate for patients without metastatic disease (Fisher et al., 2002; Veronesi et al., 2002), and, thus, both are medically justified. For this reason, although breast cancer program and policy development considers mastectomy to be “overused” (Lantz, Zemencuk, & Katz, 2002) and considers breast-conserving surgery to be a more “positive” treatment outcome, the surgical treatment of breast cancer is an instance of preference-sensitive care (Wennberg, 2002); that is, given that patients have differing levels of concern regarding cancer recurrence, radiation therapy, body image, and so forth, patients’ choices of treatment option is often a matter of personal preference, rather than clinical appropriateness. As such, in the context of treatment decision making regarding breast surgery, researchers have argued that key indicators of quality care include patient satisfaction with the process of care (Lantz et al., 2005; Whelan et al., 2004).

The majority of research on aspects of breast cancer patients’ satisfaction has been conducted after surgery (e.g., Lantz et al., 2005; Moyer & Salovey, 1998). However, for at least two reasons, it is important to investigate patients’ presurgical satisfaction (as the present article does). First, social judgment theory (Sherif, Sherif, & Nebergall, 1965) predicts that an adequate understanding of postsurgery satisfaction (which is not the focus of the present article) necessitates an understanding of presurgery satisfaction (for support, see Robinson, Raup-Krieger, Burke, Weber, & Oesterling, 2008; Sorlie, Sexton, Busund, & Sorlie, 2000). Second, research suggests that a variety of indices of breast cancer patients’ presurgical satisfaction have the potential to be clinically consequential. For example, as discussed earlier, patients’ presurgical satisfaction is likely to affect their postsurgical satisfaction with the treatment decision, which research has found to be significantly, negatively associated with cancer patients’ decisional regret (Brehaut et al., 2003; Lantz et al., 2005; Stryker, Wray, Emmons, Winer, & Demetri, 2006). In the specific context of breast cancer surgery, decisional regret has been found to be significantly, negatively associated with patients’ physical health, psychological health, and overall quality of life (Brehaut et al., 2003). In cancer-care contexts, patient satisfaction with providers’ communication has been significantly, positively associated with (a) increases in patients’ quality of life (Kerr, Engel, Schlesinger-Raab, & Holze, 2003); and (b) decreases in patients’ emotional distress (Butow et al., 1996), depression (Vogel, Leonhart, & Helmes,
psychological morbidity (Shilling, Jenkins, & Fallowfield, 2003), and anxiety (Steptoe, Sutcliffe, Allen, & Coombes, 1991).

One index of breast cancer patients' satisfaction with the treatment plan and/or the surgeon is their intention to adhere to the treatment plan. Patient intention to adhere is important in several ways. First, if lack of adherence produces substantial treatment delays, it can affect breast cancer patients' survival. It is very important to note that relatively small treatment delays do not affect survival rates, and that getting second surgical opinions significantly increases the quality of breast cancer patients' surgical care (Katz et al., 2007). However, most breast cancers are detected after symptoms occur, rather than through unmotivated/normal screening (Merck Manual, 2008). Research suggests that for most newly diagnosed breast cancer patients the time between diagnosis and start of treatment is approximately one month (Bilimoria et al., 2011). A systematic review of the literature revealed that, compared to breast cancer patients whose treatment is delayed by fewer than 3 months, those whose treatment is delayed by 3–6 months have significantly lower 5-year survival rates (Richards, Westcombe, Love, Littlejohn, & Ramirez, 1999). Surgeons have other reasons to be concerned with factors that affect patients' intentions to adhere, especially if they are associated with patients' satisfaction. A majority (81%) of patients diagnosed with stages 0–2 breast cancer do not seek a second surgical opinion, and of those that do, only 12% receive a discordant treatment recommendation from the second surgeon (Morrow et al., 2009); Of these patients that seek a second opinion, a majority (56%) return to their original surgeon, such that more than 90% of all breast cancer patients receive surgery from the first surgeon consulted (Morrow et al., 2009).

As acknowledged by the Institute of Medicine (1999), one fundamental component of quality medical care is patient-centered communication (Bensing, 2000), the value of which is pronounced during cancer care (Hayes, 1978). Although there are myriad operationalizations of patient-centered communication, its widely recognized core involves participation behavior (Street & Millay, 2001), including communicative mechanisms through which (a) patients' participate in their care, such as through utterances that potentially influence the content and structure of medical interaction, such as questions and assertions of preferences for care; and (b) providers' facilitate patients' participation, such as through utterances that encourage patients to ask questions, voice opinions, and express concerns. Within patient question asking, an important distinction has been made between questions that are sequentially solicited by providers, and questions that are self-initiated (e.g., Gordon, Street, Sharf, & Soucek, 2006); The former are the product of providers’ facilitative mechanisms, while the latter represents a patient mechanism.

The association between observed (i.e., taped and coded) measures of patient question asking and patient satisfaction has been a focus of research for at least 35 years, and is usually traced back to Roter (1977). As noted earlier, the variable patient question asking is only one component of the larger communication construct participation behavior. Research commonly operationalizes participation behavior as an aggregation of frequency counts of multiple, distinct communication behaviors. Among numerous studies showing a positive association between participation behavior and patient satisfaction, it is commonly forgotten that Roter (1977) originally found the individual behavior, patient question asking, to be significantly, negatively associated with patient satisfaction. Within non–cancer care contexts, there is almost no evidence that patient question asking is significantly, positively associated with patient satisfaction. Within cancer-care contexts, there are only three studies of the...
association between patient question asking and patient satisfaction, and all three align with Roter’s initial study, finding a significant, negative association (Ishikawa, Takayama, Yamzaki, Seki, & Katsumata, 2002; Ong, Visser, Lammes, & de Haes, 2000; Siminoff, Ravdin, Colabinachi, & Saunders Sturm, 2000).

The present exploratory study responds to the National Academy of Science’s Institute of Medicine report, *Ensuring Quality Cancer Care* (1999), which called for studies of the “reality” of breast cancer care. In the context of surgical-treatment decision-making consultations between women newly diagnosed with breast cancer and surgeons, this study seeks to confirm or disconfirm, and elaborate on, prior findings of a negative association between observed levels of patients’ self-initiated questions and three indices of patients’ postconsultation satisfaction. Based on the prior review of the literature, we propose the following two hypotheses. In the context of surgical-treatment decision-making consultations between newly diagnosed, female breast cancer patients and surgeons:

1. **Hypothesis 1**: As related indices of patient satisfaction, postconsultation measures of patients’ satisfaction with the treatment plan, intention to adhere to the treatment plan, and satisfaction with the surgeon will be significantly, positively associated.

2. **Hypothesis 2**: The frequency with which patients produce self-initiated questions will be significantly, negatively associated with patients’ (a) postconsultation satisfaction with the treatment plan, (b) intention to adhere to the treatment plan, and (c) satisfaction with the surgeon.

**Method**

Different types of cancer and different phases of the cancer-care process are associated with different types and levels of psychosocial health outcomes (Bloom et al., 1993; Decker, Haase, & Bell, 2007). As an exploratory study, to promote contextually rich explanations that have increased ecological validity, this study focused exclusively on one specific cancer-care context, that being women newly diagnosed with breast cancer consulting with a surgeon to discuss the nature of the cancer and a surgical treatment plan. Although this focus reduces generalizability across cancer types and the cancer-care process, it is methodologically justified and is called *observation selection* (Bollen, 1989).

**Study Site and Participants**

This study was approved by all relevant institutional review boards. Data were collected in a National Cancer Institute–designated comprehensive cancer center located in the northeastern United States. Immediately before data collection, of the three surgeons who agreed to participate, two transferred to other institutions. As a result, 95% of all breast surgeries (and thus treatment decision-making consultations) during the period of data collection (April–December 2009) were conducted by one male surgical oncologist who participated in the present study (for other case study–like examinations [Berlin Ray, 2005] involving a single physician, see Cegala, 2005; du Pré, 2002). All eligible patients—that is, women who were newly diagnosed with breast cancer and who were fluent in English—were recruited as they became
available, and 74/88 agreed (84%). Of consenting patients (who were compensated US$20), one dropped out, one was not videotaped because of camera failure, and 21 did not complete the pre- or postvisit survey, resulting in 51 complete data sets (i.e., pre- and postvisit survey and videotaped visit). The chief reason for not filling out previsit surveys was the surgeon’s inability to wait for completion due a heavy patient load. The two primary reasons for not filling out postvisit surveys were premature postconsultation intervention by surgical nurses (whose communication potentially biased patients’ satisfaction) and patients’ lack of time due to extended waits. Of the 51 patients analyzed, 39 (76%) brought 1–3 companions, all of whom consented to participate (100%), but were not compensated.

**Procedure**

Patients and companions were recruited by research staff after the surgeon completed an initial, short physical examination. Patients who provided informed consent filled out previsit surveys (12 min), had their treatment decision-making conversations videotaped in home-style conference rooms (research staff were not present), and filled out postvisit surveys (12 min).

**Measures**

**Main Predictor Variable: Patients’ Self-Initiated Questions**

Three blinded undergraduates, who were trained on separate materials, used the interaction coding schema developed by Street and Millay (2001) to identify four participation behaviors, including the main predictor variable (i.e., patients’ self-initiated questions) and three potential covariates (i.e., companion question asking, patient assertion of treatment preferences, and surgeon solicitation of patient question/concern/opinion). Coders’ interrater reliability was high (Scott’s Pi = .77; Lombard, 2010).

The variable patients’ self-initiated questions was the main predictor variable and was included in all statistical models (see below). To be clear, the variable patients’ self-initiated questions did not include questions asked in response to their solicitation by the surgeon, which were conceptualized as a product of (and thus as being conflated with) surgeon behavior that facilitated patient participation (e.g., Gordon et al., 2006). Patients’ self-initiated questions accounted for 91% of all patients’ questions and occurred in 47 of 51 cases (92%; M = 11.16, SD = 8.60, range = 1–34). For an example, see line 3 in Extract 1.

**Extract 1: Patient Self-Initiated Question**

01 Surgeon: I think in terms of treating the cancer, the way to go is probably with the partial mastectomy and the sentinel node.

02 Patient: **What about the HER-2 receptor?**

04 Surgeon: Okay so we don’t know that yet.

The other three participation behaviors were coded as potential covariates (see below). The variable companion question asking, which was conceptually similar to that of patient question asking (see Extract 1, above), occurred in 35 out of 51 cases
(69%; M = 5.18, SD = 6.09, range = 1–20). The variable patient assertion of treatment preferences occurred in 28 of the 51 cases (55%; M = 1.25, SD = 1.40, range = 1–5). For an example, see line 3 in Extract 2.

Extract 2: Patient Assertion of a Treatment Preference

01 Surgeon: Now for reconstruction, there are two general ways to do it. 
One is to use your own tissue, and one is to use expanders or implants.
03 Patient: I’m totally against expanders and my own tissue.

The variable surgeon solicitation of patient question/concern/opinion occurred in 45 of the 51 cases (88%) (M = 1.64; SD = 1.05; range = 1–5 instances). For an example of the surgeon soliciting a question, see line 3 in Extract 3:

Extract 3: Surgeon Solicitation of Patient Question

01 Surgeon: The whole treatment extends over the course of a year.
02 Patient: Okay.
03 Surgeon: So what questions can I answer for you?
04 Patient: Uhm, during the course of the full uhm year, you would be basically guiding
05 me right?

Dependent Variables

There were three dependent variables: patient satisfaction with the treatment plan, patient intention to adhere to the treatment plan, and patient satisfaction with the surgeon.

Patient Satisfaction With Treatment Plan

This variable was measured using seven 5-point, Likert-type items, which represented two (of three) subscales of the Decision Attitude Scale (Sainfort & Booske, 2000). Items (which involved the replacement of the word decision with treatment plan) were subjected to an exploratory factor analysis (Tabachnick & Fidell, 2007), and six items were retained that formed a single factor (M = 4.24, SD = .67, α = 0.82). Three example items were “The treatment plan is sound,” “I am comfortable with the treatment plan,” and “I am satisfied with the treatment plan.”

Patient Intention to Adhere to Treatment Plan

This variable was measured with 3 items reported on a 5-point Likert-type scale: (a) “I am committed to following the treatment plan,” (b) “I intend to follow the treatment plan,” and (c) “How likely are you to follow the treatment plan?” Items were subjected to an exploratory factor analysis (Tabachnick & Fidell, 2007) and all were retained, forming a single factor (M = 4.67, SD = .59, α = .82). Following Manski’s (1990) approach to behavioral-intention indicators, this variable was dichotomized, such that lower values (1 to 4.9) were recoded as 0 (i.e., “less than fully committed”; n = 17,
or 34%), and that the highest value (5) was recoded as 1 (i.e., “fully committed”;

\( n = 33, \) or 66%; \( M = .77, SD = .36 \).

**Patient Satisfaction With the Surgeon**

This variable was measured with the Art of Medicine Scale (Brown, Boles, Mullooly, & Levinson, 1999), which includes eight 9-point, Likert-type items. Items were subjected to a confirmatory factor analysis (Tabachnick & Fidell, 2007), and seven items were retained that formed a single factor (\( M = 8.78, SD = .46, \alpha = .93 \)). Three example items were “How courteous and respectful was the doctor,” “How well did the doctor listen to your concerns and questions,” and “Overall, how satisfied are you with the service that you received from the doctor?” Because this scale was significantly negatively skewed (skewness = –.307) and expressed a ceiling effect, this variable was dichotomized such that lower values (0 to 8.9) were recoded as 0 (i.e., “less than fully satisfied”; \( n = 19, \) or 37%) and the highest value (9) was recoded as 1 (i.e., “fully satisfied”; \( n = 32, \) or 63%).

**Potential Covariates**

The present study measured 12 potential covariates (which were subsequently screened for inclusion in regression models; see below), including (a) companion question asking; (b) patient assertion of treatment preference; (c) surgeon solicitation of patient question/concern/opinion (for these three participation behaviors, see earlier paragraph); (d) patient age in years; (e) patients’ educational attainment (dichotomized as less than B.A., or B.A. or greater); (f) patients’ household income (dichotomized as \( \leq \$75,000 \), which was the region’s median household income, or greater); (g) patients’ race/ethnicity (dichotomized as non-Hispanic White, or other); (h) patients’ marital status (dichotomized as currently married or not); (i) whether or not the patient had a preexisting relationship with (i.e., had previously visited) the current surgeon (Weinberg, Greene, & Mamlin, 1981); (j) whether or not the current consultation represented a first opinion or \( N \)th opinion; (k) patients’ preconsultation anxiety (see below); and (l) patient’s preconsultation cancer uncertainty (see below) (Table 1).

We measured patients’ previsit cancer anxiety with the eight-item, anxious preoccupation subscale of the Mini-Mental Adjustment to Cancer Scale (Watson et al., 1994). Items were formatted using a six-point Likert-type scale. These items were subjected to a confirmatory factor analysis (Tabachnick & Fidell, 2007), and five items were retained (\( M = 1.44, SD = .78, \alpha = .80 \)). Three example items were “I feel completely at a loss about what to do,” “I feel there is nothing I can do to help myself,” and “I can’t cope.”

We measured patients’ previsit cancer uncertainty with a shortened version of Mishel’s (1981) Illness-Uncertainty Scale (Community Form), which originally involved 23 items reported on a 5-point Likert-type scale. The original scale was shortened because five items were not relevant for the present patient population (i.e., newly diagnosed patients who are commonly asymptomatic and have not yet undergone treatment). The resulting 18-item scale was subjected to a confirmatory factor analysis (Tabachnick & Fidell, 2007), which resulted in a single factor containing six items (\( M = 2.16, SD = .77, \alpha = .83 \)). Three example items were “I have a lot of questions without answers” (recoded), “My treatment is too complex to figure out” (recoded), and “It is not clear what is going to happen to me” (recoded).
Results

Main Analyses

Linear and logistic regressions were the mode of analysis with significance levels set at $p < .05$ (Tabachnick & Fidell, 2007). All regression models included the variable patients’ self-initiated questions. Using GPower3.0.10 software, a post hoc power analysis indicated that, with a sample size of 51, in order to retain a recommended power of .85 (Moore, McCabe, & Craig, 2007), regression models could not exceed five predictor variables. Thus, for parsimony, for each regression model, we estimated the bivariate association of each covariate (see above) with each of the three satisfaction outcomes (see above) and only retained those for which $p < .20$, which is a standard screening threshold designed to prevent the premature elimination of variables with stronger multivariate than bivariate effects (Hosmer & Lemeshow, 2000). None of the potential predictor variables were intercorrelated at $r > .48$, which warranted their inclusion in regression models (Tabachnick & Fidell, 2007). None of the resulting models exceeded five predictor variables.

Hypothesis 1

A series of correlation analyses were performed among the three dependent variables. Patient satisfaction with the treatment plan was significantly, positively associated

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Table 1. Characteristics of the sample

<table>
<thead>
<tr>
<th>Patient characteristics</th>
<th>$n$</th>
<th>%*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age, $n, M(SD)$</td>
<td>51</td>
<td>53.88 (11.35)</td>
</tr>
<tr>
<td>Educational attainment</td>
<td>51</td>
<td></td>
</tr>
<tr>
<td>Less than B.A.</td>
<td>22</td>
<td>43</td>
</tr>
<tr>
<td>B.A. or more</td>
<td>29</td>
<td>57</td>
</tr>
<tr>
<td>Annual household income</td>
<td>46</td>
<td></td>
</tr>
<tr>
<td>$0–$75,000</td>
<td>21</td>
<td>46</td>
</tr>
<tr>
<td>$76,000–$200,000+</td>
<td>25</td>
<td>54</td>
</tr>
<tr>
<td>Race/ethnicity</td>
<td>51</td>
<td></td>
</tr>
<tr>
<td>White, non-Hispanic</td>
<td>41</td>
<td>80</td>
</tr>
<tr>
<td>Non-White</td>
<td>10</td>
<td>20</td>
</tr>
<tr>
<td>Marital status</td>
<td>51</td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>19</td>
<td>37</td>
</tr>
<tr>
<td>Married</td>
<td>32</td>
<td>63</td>
</tr>
<tr>
<td>Preexisting relation with surgeon</td>
<td>51</td>
<td></td>
</tr>
<tr>
<td>Had previously visited</td>
<td>9</td>
<td>18</td>
</tr>
<tr>
<td>Had not previously visited</td>
<td>42</td>
<td>82</td>
</tr>
<tr>
<td>First/Nth opinion</td>
<td>51</td>
<td></td>
</tr>
<tr>
<td>First-opinion visit</td>
<td>18</td>
<td>35</td>
</tr>
<tr>
<td>Subsequent-opinion visit</td>
<td>33</td>
<td>65</td>
</tr>
<tr>
<td>Preconsultation anxiety, $n, M(SD)$</td>
<td>51</td>
<td>1.44 (0.78)</td>
</tr>
<tr>
<td>Preconsultation uncertainty, $n, M(SD)$</td>
<td>51</td>
<td>2.16 (0.77)</td>
</tr>
</tbody>
</table>

*Column shows percentage except where noted to show mean and standard deviation (age, preconsultation anxiety, and preconsultation uncertainty).
Breast Cancer Patients’ Question Asking

with both patient intention to adhere to the treatment plan ($r = .60, p = .001$) and patient satisfaction with the surgeon ($r = .47, p = .001$). Patient intention to adhere to the treatment plan was significantly, positively associated with patient satisfaction with the surgeon ($r = .33, p = .02$). Thus, Hypothesis 1 was supported, suggesting that all three dependent variables were related indices of patients’ satisfaction.

**Hypothesis 2**

**Hypothesis 2a**
A standardized multiple regression analysis was performed using the dependent variable patient satisfaction with the treatment plan. After screening for covariates, four were retained, including patients’ age, preexisting relationship with the surgeon, cancer anxiety, and cancer uncertainty. The full model significantly predicted patients’ satisfaction with the treatment plan, $F(5, 44) = 4.88$, $p = .001$, adjusted $R^2 = .28$ (see Table 2). Individually, only the variable patients’ self-initiated questions was significantly associated with the outcome ($t = -2.34, p = .02, \beta = -.29$). Thus, Hypothesis 2a was supported. The negative $t$ value indicates that the more self-initiated questions that patients asked during visits, the less satisfied patients were with the treatment plan.

**Hypothesis 2b**
We performed a logistic regression analysis using the dependent variable patient intention to adhere to the treatment plan. After screening for covariates, two were retained, including patients’ age and educational attainment. The full model significantly predicted patient intention to adhere to the treatment plan, $R^2 = .24$, $\chi^2 (3, N = 51) = 9.61, p = .02$ (Table 3). The model was able correctly to classify 53% of those who were less than fully committed and 94% of those who were fully committed to adhere to the treatment plans, for an overall success rate of 80%. The only individual variable that was significantly associated with the outcome was patients’ self-initiated questions, $\beta = - .11$, $\chi^2 (1, N = 51) = 5.14, p = .02$, odds ratio = .90. Thus, Hypothesis 2b was supported. The negative beta weight indicates that the more self-initiated questions that patients asked during visits, the less patients intended to adhere to the treatment plan.

**Table 2.** Summary of linear regression for patient satisfaction with the treatment plan

<table>
<thead>
<tr>
<th>Variable</th>
<th>Adjusted $R^2$</th>
<th>$F$</th>
<th>$\beta$</th>
<th>$t$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patients’ self-initiated questions</td>
<td>.28</td>
<td>4.88</td>
<td>-.29</td>
<td>-2.34</td>
<td>.02</td>
</tr>
<tr>
<td>Cancer anxiety</td>
<td></td>
<td></td>
<td>-.25</td>
<td>-1.76</td>
<td>.09</td>
</tr>
<tr>
<td>Cancer uncertainty</td>
<td></td>
<td></td>
<td>-.17</td>
<td>-1.36</td>
<td>.18</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td>.16</td>
<td>1.15</td>
<td>.26</td>
</tr>
<tr>
<td>Preexisting relationship with surgeon</td>
<td></td>
<td></td>
<td>.20</td>
<td>1.67</td>
<td>.10</td>
</tr>
</tbody>
</table>

*Note.* For preexisting relationship with surgeon, 0 = no prior relationship, 1 = prior relationship.
Table 3. Summary of logistic regression of patient intention to adhere to treatment plan

<table>
<thead>
<tr>
<th>Variable</th>
<th>$R^2$</th>
<th>$\beta$</th>
<th>Wald $\chi^2$</th>
<th>$p$</th>
<th>Odds ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td>.24</td>
<td>9.61</td>
<td>.02</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patients’ self-initiated questions</td>
<td>-.11</td>
<td>5.14</td>
<td>.02</td>
<td>.90</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>.02</td>
<td>0.52</td>
<td>.47</td>
<td>1.02</td>
<td></td>
</tr>
<tr>
<td>Educational attainment</td>
<td>-.03</td>
<td>0.001</td>
<td>.97</td>
<td>.98</td>
<td></td>
</tr>
</tbody>
</table>

Note. For educational attainment, 0 = less than B.A., 1 = B.A. and greater.

Hypothesis 2c
We performed a logistic regression analysis using the dependent variable patient satisfaction with the surgeon. After screening for covariates, only one was retained: patient assertion of treatment preferences. The full model significantly predicted patient satisfaction with the surgeon, $R^2 = .18$, $\chi^2 (1, N = 51) = 7.04$, $p = .03$ (Table 4). The model was able correctly to classify 26% of those who were less than fully satisfied and 84% of those who were fully satisfied, for an overall success rate of 63%. None of the individual predictor variables was significantly associated with the outcome. Thus, Hypothesis 2c was not supported. However, in line with the hypothesis, the variable patients’ self-initiated questions approached significance, $\beta = -.07$, $\chi^2(1, N = 51) = 3.37$, $p = .07$, odds ratio = .93. The negative beta weight indicates that the more self-initiated questions that patients asked during visits, the less patients were satisfied with the surgeon.

Post Hoc Analyses
To better understand the negative association between patients’ question asking and indices of their satisfaction, we subjected question asking to a median split—dichotomizing it into low question asking ($n = 26$, range = 1–10 questions) and high question asking ($n = 25$, range = 11–34 questions)—and associated it with satisfaction outcomes. An independent $t$-test indicated that low-volume question askers are significantly more satisfied with the treatment plan ($n = 25$, $M = 4.42$, $SD = .74$) than are high-volume question askers ($n = 25$, $M = 4.05$, $SD = .55$), $t(48) = 1.99$, $p = .05$, $d = .48$). Regarding patient satisfaction with the surgeon, a $2 \times 2$ chi-square indicated that the sample proportions were significantly different from the expected values, $\chi^2(1, N = 51) = 4.45$, $p = .04$, $V = .30$. A higher proportion of low-volume question askers were more satisfied ($n = 19$) than those who were less satisfied ($n = 7$). A higher proportion of high-volume question askers were less satisfied ($n = 14$) than were more

Table 4. Summary of logistic regression of patient satisfaction with surgeon

<table>
<thead>
<tr>
<th>Variable</th>
<th>$R^2$</th>
<th>$\beta$</th>
<th>Wald $\chi^2$</th>
<th>$p$</th>
<th>Odds ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td>.18</td>
<td>7.04</td>
<td>.03</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patients’ self-initiated questions</td>
<td>-.07</td>
<td>3.37</td>
<td>.07</td>
<td>.93</td>
<td></td>
</tr>
<tr>
<td>Patient assertion of treatment preferences</td>
<td>-.31</td>
<td>2.02</td>
<td>.16</td>
<td>.73</td>
<td></td>
</tr>
</tbody>
</table>
satisfied \((n = 11)\). Regarding patient intention to adhere to the treatment plan, a 2 \times 2 chi-square indicated that the sample proportions were not significantly different from the expected values, \(\chi^2 (1, N = 51) = 2.51, p = .11, V = .22\). These admittedly gross post hoc analyses suggest that the negative associations between patients’ question asking and indices of their satisfaction are at least partially explained by the contributions of high- versus low-volume question askers.

**Discussion**

Over the past 20 years, in cancer and noncancer contexts, many different operationalizations of patient-centered communication during provider–patient encounters have been significantly, positively associated with patients’ satisfaction (Venetis, Robinson, LaPlant Turkiwicz, & Allen, 2009; Wanzer, Booth-Butterfield, & Gruber, 2004). However, patient-centered communication is a composite variable consisting of multiple patient and provider behaviors. Insofar as the individual variable patient question asking is almost universally considered to be a foundational component of patient-centered communication (Cegala, 1997; Street & Millay, 2001; Roter, 2008), it may be surprising to many that, in cancer and noncancer contexts, patient question asking has consistently been significantly, negatively associated with patients’ satisfaction (Ishikawa et al., 2002; Ong et al., 2000; Roter, 1977; Siminoff et al., 2000). The present study is the first to examine the association between patients’ self-initiated questions and indices of patient satisfaction in the context of presurgical consultations between newly diagnosed women with breast cancer and surgeons. In line with prior research, we found that the more self-initiated questions that patients asked during visits, the less satisfied patients were with the treatment plan, the less likely patients intended to adhere to the treatment plan, and the less satisfied patients were with the surgeon (although this was a nonsignificant trend; \(p = .07\)). All three of these outcome measures were significantly, positively associated, suggesting that they were related indices of patients’ satisfaction. Our post hoc analyses suggest that low-volume question askers are more satisfied than high-volume question askers. Thus, cancer patients’ participation in their medical care, at least in terms of question asking, appears to be beneficial (as theory suggests; Bensing, 2000; Epstein et al., 2005; McWhinney, 1995), but only to a certain point. While replicating prior research (Ishikawa et al., 2002; Ong et al., 2000; Roter, 1977; Siminoff et al., 2000) in a novel context, the present study also advances prior research by controlling for novel covariates (e.g., preconsultation anxiety and uncertainty), and by distinguishing between solicited and self-initiated questions. This distinction suggests that the effect of question asking on satisfaction results from a patient-level versus surgeon-level mechanism, albeit one that surgeons might be able to influence.

In cancer contexts generally, and in the specific context of surgical-treatment decision making regarding breast cancer, one of patients’ primary goals, if not their most important goal, is acquiring medical information (for a review, see Rutten, Arora, Bakos, Aziz, & Rowland, 2005). For example, approximately 90% of cancer patients report wanting all or full information about their cancer (for a review, see Roberts, Cox, Reintgen, Baile, & Gibertini, 1994; Ong et al., 1999), approximately 75% report wanting ‘as many details as possible’ (GIVIO Italy, 1986; Ong et al., 1999), and cancer-patients’ chief reason for seeking second opinions is to gain more detailed information (Tattersall et al., 2009). The primary mechanism by which patients seek information is question asking. An explanation for the negative association between
patients’ self-initiated questions and aspects of their satisfaction is likely grounded in patients’ perceptions that the quantity and/or quality of information they are receiving is insufficient (e.g., lacking) and/or inadequate (e.g., unclear).

A variety of studies have demonstrated that oncologists’ levels of information provision is significantly, positively associated with cancer patients’ health outcomes. For example, in the context of melanoma, patients’ reports that they had been presented with all available treatment options, that providers had given them all possible information, and that such information was presented clearly were significantly, positively associated with patients’ satisfaction with treatment discussions (Schofield et al., 2003). In the context of breast cancer, providers’ observed (i.e., taped and coded) levels of information giving has been significantly, positively associated with patients’ reported levels of having participated in encounters (Takayama & Yamazaki, 2004). Again in the context of breast cancer, patients’ reported levels of being informed (by providers, books, Internet) has been significantly, positively associated with patients’ quality of life, and negatively associated with their depression (Vogel et al., 2009).

In the specific context of surgical decision making between breast cancer patients and surgeons, several studies have examined the effect of decision aids (in addition to standard care) on patients’ information- and satisfaction-based outcomes. Although the structure of decision aids can vary, they are generally designed to improve patients’ surgical-treatment decision making by organizing information and ensuring consistent amounts and types of information, for example regarding treatment choice, side effects, results of treatment choice for the breast, and results of treatment choice for survival (e.g., Whelan et al., 2004). Molenaar and colleagues (2001) found that a decision aid significantly improved patients’ satisfaction with the amount, clarity, and usefulness of cancer/treatment information, patients’ satisfaction with their treatment decisions, and patients’ quality of life (both generic and breast cancer specific). Whelan et al. (2004) found that, immediately after consultations, use (as opposed to nonuse) of the decision aid was significantly, positively associated with patients’ satisfaction with decision making, and negatively associated with patients’ decisional regret.

In sum, it is arguable that (at least some of) patients’ self-initiated questions were motivated by patients’ perceptions that the surgeon’s information was insufficient or inadequate, which resulted in patients’ being less satisfied. This conjecture begs the question: What types of information, presented in what manner, do breast cancer patients perceive to be sufficient/adequate? A multiclinic study of 1,012 women diagnosed with breast cancer found that they wanted information about (in order of importance): chances of cure, stage/spread of disease, treatment options, risk of family member getting breast cancer, adverse effects, home self care, impact on family, impact on social activities, and sexuality (Degner et al., 1997; see also Rutten et al., 2005). Note, though, that information needs vary by patient subpopulation. For example, information about the risk of family members getting cancer is more important to patients who have/had a family member with breast cancer, information about sexuality and physical attractiveness is more important to younger women (≤50 years vs. older), and information about home self care is more important to older women (≥70 years vs. younger) (Degner et al., 1997).

Recognizing its limitations (see below), this study hints at how to improve surgical practice. It is likely that patients have varied information needs, only some of which are being met by surgeons’ standard regimen of information giving. For example, before surgery, although many patients predictably want information about treatment and prognosis, a minority also want information about topics that
surgeons may not typically address of their own accord, such as rehabilitation and health surveillance, among others (Degner et al., 1997; Rutten et al., 2005). One way of improving practice might be for surgeons, at the outset of consultations, to solicit/assess patients’ information needs (e.g., amount, type, breadth, and depth of information desired) in order to adequately meet them. An analogue to this procedure has been adopted in primary care, where physicians are encouraged, at the outset of consultations, to thoroughly solicit patients’ agendas (Heritage, Robinson, Elliot, Beckett, & Wilkes, 2007; Marvel, Epstein, Flowers, & Beckman, 1999).

**Limitations**

Largely because of its exploratory nature, this study has a number of limitations. First, in an effort to increase ecological validity at the expense of generalizability (Bollen, 1989), this study examined one specific cancer-care context, that being a newly diagnosed woman with breast cancer consulting with a surgeon to discuss the nature of the cancer and surgical treatment options. Second, this study included a single surgical oncologist (as opposed to a general surgeon) practicing at a hospital-based, National Cancer Institute–designated cancer center of excellence (as opposed to a community practice); the result is that this article is a case study of sorts (Berlin Ray, 2005) with limited generalizability. Third, this study only included 51 patients, and although a post hoc power analysis supported the robustness of the regression models, future studies need to be more expansive. Fourth, this study examined immediate postconsultation levels of patients’ satisfaction, and it did not track continuing changes longitudinally. Fifth, results are correlational, not causal. Sixth, our measure of patient satisfaction with the surgeon exhibited a ceiling effect, which necessitated its transformation into a dichotomous variable. Although medical specialists tend to receive lower satisfaction ratings compared to primary care physicians (Bialor, Gimotty, Poses, & Fagen, 1997), the ceiling effect remains in cancer care (Taenzer et al., 2000). The present ceiling effect may have been exacerbated by the fact that patients filled out surveys in the surgeon’s office immediately after visits (as opposed to at home after visits), and that patients filled out surveys before surgery, and thus while still dependent on the surgeon for quality care. A final limitation involves the possibility that, by virtue of being videotaped, the surgeon altered his behavior (i.e., the Hawthorne effect; Roethlisberger & Dikson, 1939) so as to increase “best clinical practices” (Mangione-Smith, Elliot, McDonald, & McGlynn, 2002). If, in the focal medical context, a best clinical practice is giving patients medical information, and if doing so reduces patients’ question asking, then our findings nonetheless emerged in a context of better practices.

**Future Research**

It is important to replicate the present study while addressing the aforementioned limitations. Beyond that, although extant literature does not provide grounds for expecting that the specific content of patients’ self-initiated questions affects patients’ satisfaction, this possibility is worth exploring. For example, are patients’ questions about surgical treatment, prognosis, adverse effects of treatment, home self care, body image/sexuality, and so forth, and are there organized relationships between (classes of) question content and patients’ satisfaction? It may be, for example, that high-volume question askers are asking about different things. A second and related
avenue for research involves describing the relation between how surgeons’ respond to patients’ self-initiated questions and patients’ satisfaction. For example, do surgeons’ responses somehow exceed, meet, or fall below the requirements of the question? Both of these avenues of research would optimally begin inductively with grounded, thematic analyses (Strauss & Corbin, 1998) of the nature of patients’ self-initiated questions and surgeons’ responses. Future research ultimately needs to examine larger data sets with statistical techniques, such as structural equation modeling, that reveal indirect and direct effect pathways between provider–patient communication behavior and patients’ health outcomes.

References


Breast Cancer Patients' Question Asking


