Consultations Between Patients With Breast Cancer and Surgeons: A Pathway From Patient-Centered Communication to Reduced Hopelessness

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ABSTRACT

Purpose
Patient-centered communication (PCC) affects psychosocial health outcomes of patients. However, these effects are rarely direct, and our understanding of such effects is largely based on self-report (v observational) data. More information is needed on the pathways by which concrete PCC behaviors affect specific psychosocial outcomes in cancer care. We hypothesized that PCC behaviors increase the satisfaction of patients with surgeons, which, in turn, reduces the postconsultation hopelessness of patients.

Patients and Methods
In Portland, OR, we videotaped consultations between 147 women newly diagnosed with breast cancer and nine surgeons and administered surveys to participants immediately preconsultation and postconsultation. Consultations were coded for PCC behaviors. Multivariate regression models analyzed the association between PCC and the satisfaction of patients and between satisfaction and hopelessness.

Results
Levels of hopelessness of patients significantly decreased from preconsultation to postconsultation (P < .001). Two PCC behaviors (ie, patient asserting treatment preference [odds ratio (OR), 1.50/log unit; 95% CI, 1.01 to 2.23/log unit; P = .042] and surgeon providing good/hopeful news [OR, 1.62/log unit; 95% CI, 1.01 to 2.60/log unit; P = .047]) were independently significantly associated with the satisfaction of patients with surgeons, which, in turn, independently predicted reduced levels of postconsultation hopelessness (linear change, −0.78; 95% CI, 1.44 to −0.12; P = .02).

Conclusion
Although additional research is needed with larger and more-diverse data sets, these findings suggest the possibility that concrete and trainable PCC behaviors can lower the hopelessness of patients with breast cancer indirectly through their effects on patient satisfaction with care.


INTRODUCTION

The quality of communication between patients with cancer and clinicians can influence psychosocial health outcomes of patients.1 For this reason, patient-clinician communication generally and patient-centered communication (PCC) specifically2,3 have become clinical cornerstones of comprehensive cancer care,4,5 including surgical residency education.6 However, much of the previous research that has found relationships between communication and cancer outcomes has been correlational and has not explored mechanisms through which communication can contribute to patient well-being.1 The association between PCC and psychosocial health is rarely direct,1 and our understanding of this association is largely based on self-report (v observational) data.7 To inform clinical practice and medical education, research must identify concrete and trainable PCC behaviors that influence specific psychosocial health outcomes and, equally important, specific pathways by which PCC behaviors affect such outcomes.1 In this article, we begin to address these issues with respect to how specific features of PCC can help lessen the sense of hopelessness of patients with breast cancer by enhancing their satisfaction with the care of surgeons.

Meta-analytic evidence has suggested that increased PCC is significantly associated with increased levels of the satisfaction of patients with cancer and medical care,8 which has been associated with a vast array of adaptive and positive psychosocial health outcomes.9-13 In the context of
<table>
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<th>Patient-Centered Communication Behavior</th>
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<td>1. Patient asserting treatment preference</td>
<td>Any utterance in which a patient articulated a preference, desire, or opinion regarding any aspect of treatment (e.g., surgery, radiation, or chemotherapy).</td>
<td>Surgeon: Most 85-year-olds are not reconstructed. That’s just too big of a surgery to go under. So you have a prosthesis that you wear. Patient: And I don’t want that (re: prosthesis). Surgeon: And so, for some of the cons with that is you’re a little bit lopsided. Patient: Well, if I’m going to have one side done, I’m going to have the other because I have the ugliest boobs in the whole wide world, and I want to have good ones. Surgeon: Then we give you some nice, perky ones.</td>
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<td>2. Patient unsolicited medical information giving</td>
<td>Any utterance in which a patient, without being explicitly asked, gives diagnosis- or treatment-relevant information.</td>
<td>Patient: Do you have weight loss with breast cancer? Surgeon: That’s usually very advanced (re: cancer). Patient: See, I’ve been losing weight. Surgeon: I don’t think it’s anywhere else (re: cancer). eg, Surgeon: So, that’s quite high (re: recurrence rates). Patient: ‘Cause I have a, or I was diagnosed with lupus when I was 24. Surgeon: So yeah, there, this is a big deal for you.</td>
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<td>3. Patient medical information seeking</td>
<td>Any utterance in which a patient directly or indirectly solicited, or requested confirmation of, information from the surgeon that in some way involved the patient’s medical care.</td>
<td>Surgeon: You had high nuclear grade uhm so you’re going to get a score of 3 for this category. So of the types of- of- Patient: What’s high nuclear grade? Surgeon: It’s high grade- It’s one of the types of DCIS there. It’s the way it looks under the microscope. eg, Surgeon: I mean once in a while it’ll light up something that’s benign (re: a y scan). Patient: Do they use a needle in that too? Surgeon: No.</td>
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<td>4. Surgeon soliciting participation</td>
<td>Any utterance in which a surgeon explicitly solicited a question, understanding, concern, opinion, or preference of a patient.</td>
<td>Surgeon: And then I’ll examine you after that. Patient: Okay. Surgeon: Unless you have any additional questions? Patient: I- I can’t- I’m still on information overload. Surgeon: But you max out on eight (tablets) with Vicodin. Do you have a preference based on that? Patient: Huh uh.</td>
<td>eg,</td>
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<td>5. Surgeon supporting decision making</td>
<td>Any utterance in which a surgeon articulated the right of a patient to make a medical decision, explicitly supported a medical decision of a patient, or explicitly encouraged a patient to get more information (including a second opinion) to make a better decision.</td>
<td>Surgeon: And you do have decisions. So just because I was saying I think doing chemotherapy first, if you say, “you know what there’s no way I can get through the next 3 months with this in my breast;” then it’s fine. That’s your decision. Patient: But I really just don’t want to play with my time here. Surgeon: Mm hm, And I think that’s very, very reasonable.</td>
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Hopelessness manifests early in treatment,24 can endure 5 to 6 years into breast cancer survivorship,25 and has been linked to cancer recurrence and mortality.26

The effects of increased PCC on psychosocial health outcomes of patients are largely indirect, and one recurrent route of effects is from PCC to the satisfaction of patients with clinicians to the psychosocial health of patients.1 There is both theoretical and empirical support for the association between increased PCC and satisfaction8,27,28 as well as psychosocial health outcomes.29,30 What is needed are tests of the entire indirect route of effects for particular psychosocial health outcomes. As such, we studied the hypothesis that observed associations of the entire indirect route of effects for particular psychosocial health outcomes are tests of the entire indirect route of effects for particular psychosocial health outcomes.19,20,21,22 What is needed are tests of the entire indirect route of effects for particular psychosocial health outcomes. As such, we studied the hypothesis that observed associations of the entire indirect route of effects for particular psychosocial health outcomes are tests of the entire indirect route of effects for particular psychosocial health outcomes.

### PATIENTS AND METHODS

**Setting and Study Population**

The study was conducted in Portland, OR, from August 2010 to September 2011. Participants were 147 English-fluent women with newly diagnosed breast cancer who consulted with one of nine surgeons before surgery on the nature of their cancer and possible treatments.

**Procedure**

The study was approved by all relevant institutional review boards, and informed consent was obtained from all participants. Nine (60%) of 15 surgeons approached agreed to participate. Surgeons were not paid for participation. All eligible patients were prenotified of the study by letter when possible and solicited for informed consent as they arrived at clinics. Of 210 patients approached, 147 patients (73%) agreed to participate. Patients filled out a survey (12 minutes) immediately preconsultation and postconsultation, had their consultation videotaped, and were paid $20 for participation. Consultations were transcribed and coded for seven PCC behaviors.

**Communication Variables and Measurement**

Taped consultations produced 6,251 (double-spaced) pages of transcript and 7,204 instances of PCC. Guided by the most recent conceptualization of PCC in cancer care3 and related coding schemata,31,32 two graduate students, who were blinded to the purposes of this study, coded consultations on the basis of videotapes and transcripts. The unit of analysis for coders was the utterance, which serves as a complete thought and can appear as multiple predicates, independent clauses, a single sentence, or a series of sentences.33 Visits were coded for seven PCC behaviors (Table 1 for operationalizations and examples). Regarding the category of surgeon giving good/hopeful news, because patient interpretations of medical facts (eg, diagnoses, test results, and statistics) as good or bad news can be subjective,14 such facts (and related statements such as “You’re likely stage 0”) were not coded as instances of good/hopeful news, although they might be commonly interpreted as such. Instead, this category involved surgeons explicitly framing patients’ cancer, test results, prospects, survival, and so on as constituting or representing good/hopeful news (eg, through descriptors such as good/great, better, positive, favorable, and encouraging).

Coders were initially trained on 10% of the data. We assessed two types of intercoder reliability on 20% of the (nontraining) data. First, we calculated unitization reliability, that is, the abilities of coders to reliably identify the same speaking turns (ie, the same units) as containing instances of PCC (Cohen’s $\kappa = 0.79$). Second, we calculated categorization reliability, that is, the abilities of coders to reliably identify instances of PCC as being one of seven types (Cohen’s $\kappa = 0.76$). For intercoder reliability, coders recoded the same 250 pages of transcripts 1 month after completing training (for unitization and categorization, Cohen’s $\kappa$ for coder 1 was 0.88 and 0.95, respectively; Cohen’s $\kappa$ for coder 2 was 0.86 and 0.94, respectively).

**Other Variables and Measurement**

Satisfaction was measured postconsultation with the Health Care Climate Questionnaire,35 which involves 15, Likert-type, seven-point scales that...
Data Analysis

Means and standard deviations were examined for nonskewed continuous variables, medians and interquartile ranges were examined for skewed continuous variables, and proportions were examined for binary outcomes. Continuous variables with skewness 3 were log transformed (after adding 0.5 when needed to prevent values of 0) to obtain acceptability for normal approximation for inferential analysis.68 The mode of analysis involved regression models designed to satisfy two essential steps in establishing indirect effects.41 First, we fit logistic-regression models to the (binary) outcome of satisfaction of patients with surgeons. Second, we fit linear-regression models to the (continuous) outcome of patient postconsultation hopelessness. For the outcome model of satisfaction, potential predictor variables included seven PCC behaviors (Table 1), nine other demographic and disease characteristics, and surgeon effect to control for potential clustering of patients within the nine surgeons (Table 2). For the outcome model of hopelessness, potential predictor variables were the same as those for the satisfaction model, with the addition of preconsultation levels of patient hopelessness and the outcome of satisfaction (Table 3).

To achieve parsimonious multivariate models, we followed the procedure outlined by Hosmer and Lemeshow.42 For the outcome in each model, we began by fitting single-variable models for satisfaction, which included a single predictor variable of interest and bivariable models for hopelessness, which included both patient preconsultation levels of hopelessness as well as a single predictor variable of interest to obtain the association of that variable with postconsultation levels of hopelessness after adjusting for preconsultation levels. After fitting univariate models, we subsequently fit one multivariate model to each outcome. In each multivariate model, we only retained predictors in univariate models with a two-sided significance of P < .20 which is a standard screening threshold designed to prevent the premature elimination of variables with stronger multivariate than bivariate effects.43 For each multivariate model, multiple correlations were computed between all potential predictor variables to test for multicollinearity, none of which were multi-intercorrelated at R2 ≥ 0.80, which warranted their inclusion in the models.43 In the multivariate models, statistical significance was considered at a two-sided P < .05.

RESULTS

Characteristics of the patient population and communication variables are listed in Table 4. The mean patient age was 60.5 years. The majority of patients had less than a Bachelor’s degree education (62%), earned <$60,000 in household income (57%), were married (63%), attended religious services on a less-than-weekly basis (62%), and were majority of patients had less than a Bachelor’s degree education (62%), attended religious services on a less-than-weekly basis (69%), had less than a Bachelor’s degree education (62%), attended religious services on a less-than-weekly basis (69%),
were accompanied by at least one companion (84%), and had an estimated stage of cancer higher than I (ie, stages II to IV; 57%). The median time since cancer diagnosis was 7 days. The mean for patient asserting treatment preference was 8.46 (range, 0 to 37), for patient medical information giving was 4.39 (range, 0 to 38), for patient medical information seeking was 19.57 (range, 0 to 105), for surgeon soliciting participation was 3.17 (range, 0 to 14), for surgeon supporting decision making was 5.31 (range, 0 to 16), for surgeon giving sympathy/empathy was 1.64 (range, 0 to 9), and for surgeon giving good/hopeful news was 4.20 (range, 0 to 16).

Although the change was not dramatic, in general, levels of hopelessness of patients significantly decreased from a preconsultation mean of 7.69 (SD, 2.43) to a postconsultation mean of 7.11 (SD, 2.35; \( P < .001 \) [paired \( t \) test]).

Unadjusted bivariate results that were used to build our multivariate models are listed in Tables 2 and 3. Regarding satisfaction, three predictors exceeded our screening threshold of \( P < .20 \). Patients were more maximally satisfied with surgeons when patients were older (odds ratio [OR], 1.03/year; 95% CI, 1.00 to 1.06/year, \( P = .04 \)) and more frequently asserted treatment preferences (OR, 1.48/log unit;
In the context of women who were newly diagnosed with breast cancer and consulted with surgeons, we examined the association between observed (ie, videotaped and coded) PCC behaviors and patient postconsultation hopelessness. Guided both theoretically and conceptually, we hypothesized that the effect of PCC on hopelessness would be indirect such that increased PCC would be associated with increased patient satisfaction with surgeons, which in turn would be associated with decreased hopelessness. We preliminarily supported our hypothesis by satisfying the two essential steps in establishing indirect effects. First, the frequencies of two PCC behaviors (ie, patient asserting treatment preference and surgeon giving good/hopeful news) were each significantly associated with increased levels of satisfaction of patients with surgeons. Second, the satisfaction of patients with surgeons was significantly associated with reduced levels of hopelessness of patients. The fact that, in unadjusted bivariate analyses (Table 3), neither of these PCC behaviors were, themselves, significantly associated with hopelessness suggests that, at most, the effect of these behaviors on hopelessness is indirect (classically mediated), and more research is necessary along these lines.

Patients with breast cancer have reported wanting prognosis information to be presented in ways that encourage hope, and such patients find messages that present facts and offer advice in a manner that provides hope as being especially memorable. Interpretations of patients of medical facts, per se (eg, diagnoses, test results, and statistics), for example, interpretations of patients of surgeon utterances such as “It’s less than two centimeters,” and “You don’t appear to have lymph node involvement,” as good or bad news can be subjective. For this reason, we did not code such facts (ie, utterances) as instances of good/hopeful news. Rather, we coded for times when surgeons explicitly framed patient situations as constituting or representing good/hopeful news, such as “It’s less than two centimeters, so that’s favorable” and “You don’t appear to have lymph node involvement, which is good.” This category also included other statements such as “Everything I see about your case is very encouraging to me as a physician” and “breast cancer is a very treatable disease.” Thus, the variable surgeon giving good/hopeful news was a particular type of explicit, emotionally supportive message, which involved the intentional provision of comfort and security during a time of stress. Emotionally supportive messages communicate care, commitment, interest, and compassion and have long been associated, both theoretically and empirically, with relational satisfaction. Because virtually all diagnostic, treatment, and prognostic scenarios have upsides relative to others, it is almost always possible for surgeons to provide patients with some type of hope without being dishonest. However, our results need to be interpreted cautiously. Although the reduced hopelessness of patients was, in the short term, indirectly associated with the provision of good news by surgeons, the impact of this communication behavior over longer periods of time is unknown, especially in situations in which such news may not be borne out in the experiences of women.

The behavior patient asserting treatment preference is an essential component of shared decision making (SDM). Although the preferences of patients for participating in decision making can vary dramatically and are sometimes quite low, this situation does not appear to be the case for patients with breast cancer. Between 63% and 88% of patients with breast cancer report desiring at least a shared role in treatment decision making. Furthermore, there is evidence that patients with breast cancer desire more participation in decision making than they actually get, which suggests that such participation works toward meeting its expectation. A major predictor of patient satisfaction is whether or not the expectations of patients are met. Both self-reported and observed levels of SDM are positively associated with patient satisfaction. Although we measured the preferences of patients for participation before consultations, this variable did not enter into our multivariate models because it did not exceed our screening threshold, which suggested that the actual participation of patients (in terms of their frequency of stating treatment preferences) was relatively more consequential for their levels of satisfaction.
Curiously, two other types of behaviors we examined that may have been constitutive of SDM (ie, surgeon soliciting participation and surgeon supporting decision making) were not significantly associated with patient satisfaction. Although these behaviors may have provided patients with interactional opportunities to assert treatment preferences, patients virtually never did so in response to these behaviors. In the case of surgeons soliciting patient participation, surgeons rarely explicitly solicited treatment preferences, per se, and future research needs to determine whether surgeons can be trained to do so and with what effect. At least in the current context, the satisfaction of patients with surgeons appeared to be more closely linked to the actual participation of patients in decision making than it did to mere opportunities to participate.

We found the satisfaction of patients with surgeons to be significantly associated with reduced levels of postconsultation hopelessness. Satisfaction is essentially a relational variable that involves favorable attitudes of patients toward clinicians. Research has long demonstrated a basic human psychological need for relatedness, which is the need to feel connected to, understood by, validated by, and cared for by others. When satisfied, this need improves psychological and relational functioning. Patients are no exception and have a need for feeling related to clinicians.

The possible existence of an indirect pathway from PCC to the reduced hopelessness of patients has training implications. National funding agencies encourage communication-intervention protocols that can be implemented within the confines of one half-day programs of continuing medical education. Furthermore, such agencies currently acknowledge that the most effective communication training involves a combination of informative components, video-based modeling components in which trainees are allowed to experience the presence or absence of behavioral objectives, and practice components in which trainees role-play behavioral objectives. To meet these training requirements, focal communication variables must be measured in terms of small sets of concrete behaviors as we did for patient asserting treatment preference and surgeon giving good/hopeful news. Research has suggested that patients and surgeons can be easily trained in these respective behaviors within the stated parameters. Because the patient-centered behaviors of physicians, aggregated across visits, are significantly associated with those of patients, training surgeons accordingly may independently increase patient assertions of treatment preferences, but this needs to be studied.

Study limitations must be acknowledged. The generalizability of our findings may be limited to women newly diagnosed with breast cancer who consult with surgeons and largely to white, non-Hispanic patients who experience breast cancer for the first time and who see a previously unknown surgeon for a first opinion. Several features of our study design weakened the internal validity of our analysis of indirect effects. We used a cross-sectional (v longitudinal) design in which both of our outcome variables were measured at the same time; however, both variables were measured after our focal predictor variables that involved PCC were obtained. Although we measured hopelessness both immediately before and after consultations, this was not possible for the satisfaction of patients with surgeons, which was only relevant after consultations. Future research needs to study both satisfaction and hopelessness longitudinally. Finally, as in many previous studies, the outcome of patient satisfaction was dichotomized as a result of a ceiling effect, which prohibited more sophisticated statistical techniques, such as mediation analyses.

In conclusion, this article contributes to the modeling of the largely indirect pathways between communication and psychosocial outcomes. Although our modest findings must be replicated with larger and more diverse data sets across longer periods of time, they suggest that trainable PCC behaviors can enhance the satisfaction of patients with surgeons, which, in turn, can reduce the hopelessness of patients.

REFERENCES

43. Robinson et al