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

Jeffrey D. Robinson, Donald R. Hoover, Maria K. Venetis, Thomas J. Kearney, and Richard L. Street Jr

ABSTRACT

Purpose

Patient-centered communication (PCC) affects psychosocial health outcomes of patients. However, these effects are rarely direct, and our understanding of such effects are 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.

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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) specifically^{2,3} 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 with medical care,⁸ which has been associated with a vast array of adaptive and positive psychosocial health outcomes.⁹⁻¹³ In the context of

Jeffrey D. Robinson, Portland State University, Portland, OR; Donald R. Hoover, Rutgers University, New Brunswick; Thomas J. Kearney, University of Medicine and Dentistry, New Jersey—Robert Wood Johnson Medical School, Piscataway Township, NJ; Maria K. Venetis, Purdue University, West Lafayette, IN; and Richard L. Street Jr, Texas A&M University, College Station, TX.

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Corresponding author: Jeffrey D. Robinson, PhD, Portland State University, Communication, University Center Building, 520 SW Harrison St, Suite 440, Portland, OR 97201; e-mail: jeffreyr@pdx.edu.

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Table 1. Discourse Examples of Patient-Centered Communication Behaviors

Patient-Centered Communication Behavior	Operational Definition	Surgeon and Patient Order of Discourse	Examples*
1. Patient asserting treatment preference	Any utterance in which a patient articulated a preference, desire, or opinion regarding any aspect of treatment (eg, surgery, radiation, or chemotherapy).		
eg,		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:	<i>And I don't want that</i> (re: prosthesis).
		Surgeon:	And so, for some of the cons with that is you're a little bit lopsided.
eg,		Surgeon:	So if- if for some reason the other side isn't okay, then this would be a better option for you, and it could be done with reconstruction.
		Patient:	<i>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.</i>
		Surgeon:	Then we give you some nice, perky ones.
2. Patient unsolicited medical information giving	Any utterance in which a patient, without being explicitly asked, gives diagnosis- or treatment-relevant information.		
eg,		Patient:	Do you have weight loss with breast cancer?
		Surgeon:	That's usually very advanced (re: cancer).
		Patient:	<i>See, I've been losing weight.</i>
		Surgeon:	I don't think it's anywhere else (re: cancer).
eg,		Surgeon:	So, that's quite high (re: recurrence rates).
		Patient:	<i>'Cause I have a, or I was diagnosed with lupus when I was 24.</i>
		Surgeon:	So yeah, there, this is a big deal for you.
3. Patient medical information seeking	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.		
eg,		Surgeon:	You had high nuclear grade uhm so you- you're going to get a score of 3 for this category. So of the types of- of-
		Patient:	<i>What's high nuclear grade?</i>
		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 γ scan).
		Patient:	<i>Do they use a needle in that too?</i>
		Surgeon:	No.
4. Surgeon soliciting participation	Any utterance in which a surgeon explicitly solicited a question, understanding, concern, opinion, or preference of a patient.		
eg,		Surgeon:	And then I'll examine you after that.
		Patient:	Okay.
		Surgeon:	<i>Unless you have any additional questions?</i>
		Patient:	I- I can't- I'm still on information overload.
eg,		Surgeon:	But you max out on eight (tablets) with Vicodin.
		Patient:	<i>Do you have a preference based on that?</i>
		Patient:	Huh uh.
5. Surgeon supporting decision making	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.		
eg,		Surgeon:	And you do have decisions. <i>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.</i>
eg,		Patient:	But I really just don't want to play with my time here.
		Surgeon:	Mm hm, <i>And I think that's very, very reasonable.</i>

(continued on following page)

Table 1. Discourse Examples of Patient-Centered Communication Behaviors (continued)

Patient-Centered Communication Behavior	Operational Definition	Surgeon and Patient Order of Discourse	Examples*
6. Surgeon giving sympathy/empathy	Any utterance in which a surgeon explicitly empathizes with the situation or condition of a patient, sympathizes with a patient, or consoles a patient.		
eg,		Patient:	I know it's very treatable, it's just . . .
		Surgeon:	I know, <i>but it's scary</i> .
		Patient:	Yes.
eg,		Patient:	I had to wonder, are those factors (ie, stress) something that would trigger this?
		Surgeon:	Probably not. <i>As far as we can tell with breast cancer, this was nothing that you did, nothing that was your fault; it just, plain, happens.</i>
7. Surgeon giving good/hopeful news	Any utterance in which a surgeon explicitly framed, eg, the cancer of a patient, test results, prospects, or survival, as constituting or representing good or hopeful news.		
eg,		Surgeon:	Your cancer is, uhm, actually very strongly estrogen and progesterone, uhm positive. <i>So that's actually a really good thing.</i>
eg,		Surgeon:	It's probably been there a long time, and it's just kind of slowly grown, just slowly grown. <i>So these- these kind of parameters actually tend to mean a better survival, better outcome.</i>

Abbreviations: DCIS, ductal carcinoma in situ.

*Italicized text represents a single instance of the code category.

breast cancer, one of the most consequential psychosocial outcomes, albeit a maladaptive one, is hopelessness,¹⁴ which has been positively associated with anxiety and depression,¹⁵⁻¹⁹ psychological distress,²⁰ stress,²¹ decreased quality of life,^{18,22} and decreased well-being.²³ 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 satisfaction^{8,27,28} as well as between satisfaction and psychosocial health.^{20,29,30} 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 (ie, videotaped and coded) PCC indirectly affects the hopelessness of patients through satisfaction of patients with the care of surgeons.

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,³⁴ 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 intracoder reliability, coders recoded the same 250 pages of transcripts 1 month after completing training (for unitization and categorization, Cohen's κ for coder 1 was 0.88 and 0.95, respectively; Cohen's κ 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

Table 2. Unadjusted Bivariate Analyses for Satisfaction With Surgeons

Predictor	Odds Ratio	95% CI	P
Patient-centered communication behavior			
Patient asserting treatment preference, per log unit	1.48	1.01 to 1.72	.04*
Patient medical information giving, per log unit	1.09	0.80 to 1.48	.58
Patient medical information seeking, per log unit	1.10	0.74 to 1.64	.62
Surgeon soliciting participation, per log unit	1.33	0.80 to 2.21	.27
Surgeon supporting decision making, per log unit	1.11	0.75 to 1.65	.50
Surgeon giving good/hopeful news, per log unit	1.56	0.98 to 2.46	.06*
Surgeon giving sympathy/empathy, per log unit	0.99	0.66 to 1.49	.97
Age, per year	1.03	1.00 to 1.06	.04*
Education $\geq$ BA, yes v no	0.88	0.42 to 1.89	.75
Household income $\geq$ \$60,000, yes v no	0.63	0.29 to 1.33	.22
Married, yes v no	0.66	0.30 to 1.45	.30
Presence of companions, yes v no	0.94	0.34 to 2.63	.91
Religious attendance $\geq$ weekly, yes v no	1.62	0.69 to 3.79	.27
Time since diagnosis, days, per log unit	0.96	0.61 to 1.50	.84
Stage of cancer $\geq$ II, yes v no	0.60	0.26 to 1.36	.22
Preference for participation, per unit	0.93	0.79 to 1.09	.39
Physician effect	NA†		.31

*Included in multivariate model because of exceeding the screening threshold.

†Odds ratio is not presented because there were nine different surgeons with no natural choice for baseline.

range from strongly disagree to strongly agree. These items were subjected to a confirmatory factor analysis and seven items (which loaded ≥ 0.60 and explained 97% of the variance) were retained ($\alpha = .87$; examples of retained items are “I feel understood by the surgeon” and “I feel that the surgeon accepts me”). In line with previous research,^{10-13,36} as a result of a ceiling effect, this variable was dichotomized into less than maximally satisfied (ie, summed score, 7 to 48; 28%) and maximally satisfied (ie, summed score, 49; 72%).

Hopelessness was measured preconsultation and postconsultation with the Mental Adjustment to Cancer scale¹⁴ as revalidated for women with breast cancer.³⁷ Factor analysis confirmed the viability of the entire measure, which contained six, Likert-type, four-point items that ranged from “definitely does not apply to me” to “definitely applies to me” (eg, “I feel like I can’t do anything to cheer myself up” and “I feel that life is hopeless”; $\alpha = .84$).

In addition to seven PCC behaviors (Table 1), predictor variables also included the following nine patient and disease characteristics that are potentially associated with PCC, satisfaction, and/or hopelessness (Table 2): age, education; household income, marital status, presence of companions, attendance to formal religious services,³⁸ time since diagnosis, preference for participation in decision making,³⁹ and surgeon estimation of stage of cancer, which is associated with prognosis.

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.⁴⁰ 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 predic-

Table 3. Unadjusted Bivariate Analyses for Postconsultation Hopelessness

Predictor	Linear Change	95% CI	P
Preconsultation hopelessness	0.67	0.56 to 0.79	< .001*
Satisfaction with surgeons	-0.71	0.04 to 1.37	.04*
Patient-centered communication behavior			
Patient asserting treatment preference, per log unit	-0.03	-0.34 to 0.28	.83
Patient medical information giving, per log unit	0.03	-0.22 to 0.28	.24
Patient medical information seeking, per log unit	0.02	-0.29 to 0.34	.88
Surgeon soliciting participation, per log unit	-0.22	-0.62 to 0.18	.28
Surgeon supporting decision making, per log unit	-0.08	-0.40 to 0.25	.64
Surgeon giving good/hopeful news, per log unit	0.02	-0.36 to 0.39	.93
Surgeon giving sympathy/empathy, per log unit	0.01	-0.36 to 0.39	.94
Age, per year	0.013	-0.011 to 0.037	.30
Education $\geq$ BA, yes v no	-0.30	-0.90 to 0.31	.34
Household income $\geq$ \$60,000, yes v no	-0.41	-1.00 to 0.18	.18*
Married, yes v no	-0.15	-0.77 to 0.44	.62
Presence of companions, yes v no	-0.57	-1.34 to 0.19	.14*
Religious attendance $\geq$ weekly, yes v no	-0.13	-0.77 to 0.50	.68
Time since diagnosis, days, per log unit	0.15	-0.49 to 0.19	.39
Stage of cancer $\geq$ II, yes v no	0.15	-0.52 to 0.81	.67
Preference for participation	0.065	-0.07 to 0.20	.33
Physician effect	NA†		.77

*Included in multivariate model because of exceeding the screening threshold.

†Linear change is not presented as there were nine different surgeons with no natural choice for baseline.

tor 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 $P < .20$, which is a standard screening threshold designed to prevent the premature elimination of variables with stronger multivariate than bivariate effects.⁴² For each multivariate model, multiple correlations were computed between all potential predictor variables to test for multicollinearity, none of which were multicollinear at $R^2 \geq 0.80$, 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 (69%),

Table 4. Characteristics of Study Patient Population

Characteristic	Median	Mean	Interquartile Range	Range	Percentage of Patients (N = 147)
Age, years		60.5	31-91		
Race*					
White, non-Hispanic					94.6
Other					05.4
Education					
< BA					62.2
≥ BA					37.8
Household income					
< \$60,000					57.0
≥ \$60,000					43.0
Marital status					
Single					37.2
Married					62.8
Presence of companions					
No					16.2
Yes					83.8
Religious attendance					
< Weekly					69.4
≥ Weekly					30.6
Time since diagnosis, days	7	8.85	4-11	0-59	
Estimated stage of cancer					
0† to I					43.5
II-IV					56.5
First breast cancer*					
Yes					93.2
No					06.8
First- or second-opinion consultation*					
First					90.1
Second					09.9
Previous communication with surgeon*					
Yes					06.1
No					93.9
Preference for participation	6	6.23	4-8	2-10	
Communication variable scores					
Patient asserting treatment preference	7	8.46	3-11	0-37	
Patient giving medical information	2	4.39	0-6	0-38	
Patient seeking medical information	13	19.57	8-25	0-105	
Surgeon soliciting participation	3	3.17	2-4	0-14	
Surgeon supporting decision making	3	5.31	1-7	0-16	
Surgeon giving good/hopeful news	4	4.20	2-8	0-16	
Surgeon giving sympathy/empathy	1	1.64	0-3	0-9	
Satisfaction with communication of surgeon					
Less than fully satisfied, no					28.4
Fully satisfied, yes					71.6

NOTE. Means are given for nontransformed variables. Medians and interquartile ranges are also given for log-transformed variables.

*Not included in statistical models because of insufficient variation.

†Ductal carcinoma in situ.

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;

Table 5. Multivariate Predictors of Patient Satisfaction With Surgeons

Predictor	Odds Ratio	95% CI	P
Patient asserting treatment preference, per log unit	1.50	1.01 to 2.23	.042
Surgeon giving good/hopeful news, per log unit	1.62	1.01 to 2.60	.047
Patient age, per year	1.03	1.00 to 1.06	.070

95% CI, 1.01 to 1.72/log unit; $P = .04$) and when surgeons more frequently gave good/hopeful news (OR, 1.56/log unit; 95% CI, 0.98 to 2.46/log unit; $P = .06$; Table 2). Regarding hopelessness, four predictors exceeded our screening threshold of $P < .20$. Patients reported higher levels of postconsultation hopelessness if they had higher levels of preconsultation hopelessness (linear change, 0.67/unit; 95% CI, 0.56 to 0.79/unit; $P < .001$). Patients who were more maximally satisfied with surgeons (linear change, -0.71 /unit; 95% CI, 0.04 to 1.37; $P = .04$), who had household incomes of at least \$60,000 (linear change, -0.41 /unit; 95% CI, -1.00 to 0.18; $P = .18$), and who were accompanied by at least one companion (linear change, -0.57 /unit; 95% CI, -1.34 to 0.19; $P = .14$) had lower levels of postconsultation hopelessness.

Multivariate results that support our hypothesis are listed in Tables 5 and 6. First, patients were independently more maximally satisfied with surgeons when patients more frequently asserted treatment preferences (OR, 1.50/log unit; 95% CI, 1.01 to 2.23/log unit; $P = .042$) and when surgeons more frequently gave good/hopeful news (OR, 1.62/log unit; 95% CI, 1.01 to 2.60/log unit; $P = .047$; Table 5). Second, after consultations, patients who reported being fully satisfied (v less than fully satisfied) with surgeons independently reported significantly lower levels of hopelessness (linear change, -0.78 ; 95% CI, 1.44 to -0.12 ; $P = .02$; Table 6).

DISCUSSION

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^{27,29,30} and conceptually,^{1,3} 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.⁴¹ 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 (v classically mediated),⁴⁴ 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,⁴⁵ and such patients find messages that present facts and offer advice in a manner that provides hope as being especially memorable.⁴⁶ 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.³⁴ 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.⁴⁷ Emotionally supportive messages communicate care, commitment, interest, and compassion and have long been associated, both theoretically and empirically, with relational satisfaction.⁴⁷ 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).^{48,49} Although the preferences of patients for participating in decision making can vary dramatically⁵⁰ and are sometimes quite low,⁵¹ 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.⁵²⁻⁵⁵ Furthermore, there is evidence that patients with breast cancer desire more participation in decision making than they actually get,⁵⁴ 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.⁵⁶⁻⁵⁸ Both self-reported and observed levels of SDM are positively associated with patient satisfaction.^{59,60} 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.

Table 6. Multivariate Predictors of Patient Postconsultation Hopelessness

Predictor	Linear Change	95% CI	P
Preconsultation hopelessness, per unit	0.63	0.51 to 0.75	< .001
Satisfaction with surgeon communication, yes v no	-0.78	-1.44 , to -0.12	.02
Presence of companions, yes v no	-0.56	-1.31 to 0.19	.14
Patient income $\geq$ \$60,000, yes v no	0.46	-1.05 to 0.12	.12

Curiously, two other types of behaviors we examined that may have been constitutive of SDM (ie, surgeon soliciting participation and surgeon supporting decision making)^{59,60} 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.^{29,35} Patients are no exception and have a need for feeling related to clinicians.^{28,35}

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.⁶¹ 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.^{62,63} 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.^{64,65} Because the patient-centered behaviors of physicians, aggregated across visits, are significantly associated with those of patients,⁶⁶

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 time⁶⁷; 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,^{10-13,36} 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 health.¹ 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.

AUTHORS' DISCLOSURES OF POTENTIAL CONFLICTS OF INTEREST

The author(s) indicated no potential conflicts of interest.

AUTHOR CONTRIBUTIONS

Conception and design: All authors

Collection and assembly of data: Jeffrey D. Robinson, Maria K. Venetis

Data analysis and interpretation: Jeffrey D. Robinson, Donald R.

Hoover, Thomas J. Kearney, Richard L. Street Jr

Manuscript writing: All authors

Final approval of manuscript: All authors

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