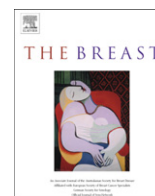


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Original article

A survey of breast cancer physicians regarding patient involvement in breast cancer treatment decisions

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ABSTRACT

Purpose: Shared breast cancer treatment decision-making between patients and physicians increases patient treatment satisfaction and compliance and is influenced by physician-related factors. Attitudes and behaviors about patient involvement in breast cancer treatment decisions and treatment-related communication were assessed by specialty among breast cancer physicians of women enrolled in the Breast Cancer Quality of Care Study (BQUAL).

Results: Of 275 BQUAL physicians identified, 50.0% responded to the survey. Most physicians spend 46–60 min with the patient during the initial consult visit and 51.5% report that the treatment decision is made in one visit. Oncologists spend more time with new breast cancer patients during the initial consult ($p = 0.021$), and find it more difficult to handle their own feelings than breast surgeons ($p = <0.001$).

Conclusion: Breast surgeons and oncologists share similar attitudes and behaviors related to patient involvement in treatment decision-making, yet oncologists report more difficulty managing their own feelings during the decision-making process.

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Introduction

Significant improvements in survival of breast cancer that have been achieved in the past several decades have been attributed to early detection and the widespread use of adjuvant therapy.¹ The use of biomarkers for the human epidermal growth factor receptor 2 (HER2), quantification of estrogen/progesterone receptors, and identification of genetic markers as prognostic and predictive tools enable clinicians to customize treatment to maximize benefits and improve outcomes for patients.^{2,3} In cases where more than one treatment option is acceptable,⁴ the patient's involvement in the treatment decision and her preference for one treatment over another and/or avoidance of side effects over another is crucial.

Evidence suggests that women who are engaged in the treatment decision-making process to the extent with which they are most comfortable are more likely to comply with treatment, report increased satisfaction with the treatment and experience better quality of life.^{5–7}

Over the course of breast cancer care, a woman typically engages in discussions for primary treatment with a breast surgeon and, quite often, with oncologists (medical and radiation) for adjuvant treatment. In her encounters with each physician along the breast cancer care continuum, a vast amount of specialized information is communicated, along with a spectrum of treatment options and alternatives – all requiring consideration and a decision to be made.

We examined attitudes and behaviors related to patient involvement in treatment decision-making and patient–physician communication attitudes among oncologists and breast surgeons,

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by specialty. Elucidation of physician-related factors with the potential to influence the treatment decision process and, thus the receipt of optimal breast cancer care may provide opportunities for future interventions to increase uptake of life-saving treatments.

Materials and methods

Participants included oncologists and breast surgeons involved in the breast cancer treatment of women enrolled in the Breast Cancer Quality of Care (BQUAL) Study, a multicenter longitudinal study of 1157 early stage breast cancer patients. A full description of the methods has been reported elsewhere.⁸ To summarize, women who were newly diagnosed with primary, histologically confirmed breast cancer (stages I–III) were enrolled between 2006 and 2010 from three recruitment sites (Columbia University Medical Center and Mount Sinai School of Medicine in New York City, Henry Ford Health System of metropolitan Detroit and Kaiser-Permanente of Northern California). Women completed a series of three surveys administered over the telephone at 3, 4, and 8 months post-diagnosis. During each survey, subjects were asked to provide the name and address of the surgeon who performed their definitive breast cancer surgery and the oncologist (both medical and radiation) overseeing their care and adjuvant treatment, when applicable. Physician information was verified by the research investigator at each recruitment site and email addresses were obtained.

Physicians were sent a study invitation via email and a secure, personalized link to the SurveyMonkey™ website between July 2009 and July 2010. A cover letter informed the physician how he/she was selected for this study without revealing the identity of the BQUAL study patient who had supplied their name. An incentive (\$50 gift card) for the completion and return of the survey was offered. In the event of a non-viable email address, surveys were sent via U.S. Postal Mail Service in the same manner as the electronic surveys. All procedures and a waiver of written informed consent were approved by the Institutional Review Board of each recruitment site, the U.S. Army Medical Research and Materiel Command Office of Research Protection and Human Research Protection Office.

The survey was comprised of two sections: the first gathered information related to physician demographics, practice characteristics, and patient population characteristics, and the second assessed physician attitudes and behaviors related to breast cancer treatment decisions and treatment-related patient–physician communication barriers. Demographics included physician specialty (oncologist vs. breast surgeon), gender, age, race (White, Asian, other race), nativity (U.S. born vs. non-U.S.), years of experience, recruitment site of BQUAL participant (New York, Northern California, or metropolitan Detroit), country where attended medical school (U.S. vs. non-U.S.), and specialty board certification. Practice characteristics consisted of practice type (private vs. other), and teaching hospital, NCI-designated cancer center affiliation, percent of patients being evaluated, treated or followed for breast cancer, new breast cancer patients in the past 6 months, and new patients per week. For patient population characteristics, race/ethnicity (White, black/African American, Hispanic, Asian, and other race), insurance coverage (Medicare, private insurance, Medicaid, none or other), and primary patient population language other than English (Spanish vs. other) was assessed.

Factors surrounding the treatment decision-making process that were examined were length of the initial consult visit in minutes, number of visits needed in order to make a treatment plan decision, and the percent of patients enrolled into clinical trials. To evaluate attitudes toward patient involvement in the treatment decision-making process, a measure developed by Liberati et al.⁹ was used in which respondents were asked to indicate on a 5-point Likert scale the extent to which they agreed or disagreed

with a series of 10 statements, such as “encouraging patient to participate [in treatment decisions] may do more harm than good” or “patients who participate in treatment decisions make a better adjustment to the disease”. Five negatively worded statements were reverse coded; thus, higher scores indicated more favorable attitudes toward patient involvement in treatment decisions whereas lower scores indicated less favorable attitudes.

The measure of treatment communication behaviors was adapted from Braddock et al.¹⁰ Respondents were queried about 10 separate communication components that would provide patients with information sufficient to make an informed treatment decision. Examples include discussing the patient’s role in the decision-making process, explaining the potential risks and benefits of treatment and alternatives to treatment, and asking the patient her opinion about her treatment options. Responses were coded as “yes or no”. To examine barriers surrounding the communication of treatment information to patients, respondents were asked about perceived difficulty in dealing with the patient’s family, responding to the patient’s needs, being honest without depressing the patient, handling personal negative feelings, not disclosing poor prognosis at the request of the family, and giving specific probabilities of the treatment not working based on the work of Baile et al.¹¹ Responses ranged from “not difficult at all” to “very difficult” and were later dichotomized as “difficult/not difficult”.

Descriptive analyses included frequency distributions for categorical variables and mean and standard deviation for continuous variables. Using Chi-square analysis and Student’s *t* with a two-sided $\alpha = 0.05$, we compared physician, practice and patient population characteristics and treatment-related attitudes and behaviors by physician specialty. Results were considered significant using $p \leq 0.05$. All analyses were conducted using IBM SPSS Statistics version 19.

Results

Overall, 1157 women with newly diagnosed primary, invasive breast cancer were enrolled to the BQUAL study for whom a total of 275 treating physicians were identified. Of these physicians, 137 were medical oncologists (49.8%) and 138 (50.2%) breast surgeons. One hundred thirty eight physicians (47.8% oncologists, 52.2% breast surgeons) responded to the survey, for a response rate of 50.0%, representing 80% (921/1157) of BQUAL study participants. There was no statistically significant difference between physician responders and non-responders by specialty or recruitment site.

Fig. 1 shows the distribution of treating physicians by site (New York City, Northern California, and metropolitan Detroit) and specialty (oncologist vs. breast surgeon) identified by the BQUAL participants. Women recruited from Northern California more often identified breast surgeons (57.0% vs. 43.0%) as their treating physician compared to New York City and the metropolitan Detroit area, where participants more often reported receiving their care from oncologists ($p = 0.008$) (Fig. 1).

Respondents were predominantly White (67.4%), U.S. born (72.5%) males (63.0%) between the ages of 40 and 59 years (34.6%) (Table 1). Most were engaged in private practice (65.4% vs. 34.6% other practice type), and affiliated with a teaching hospital (69.9%). Compared to oncologists in our sample, breast surgeons were more likely to be U.S. born (80.6% vs. 63.6%, $p = 0.03$) and to have attended a non-U.S. medical school (94.4% vs. 75.4%, $p = 0.002$). Practice and patient population characteristics varied between oncologists and surgeons in terms of the number of breast cancer patients seen in the past 6 months, the number of new patients seen on a weekly basis, and the insurance coverage of their respective patient populations. Oncologists more often reported evaluating, treating and following a larger proportion of their

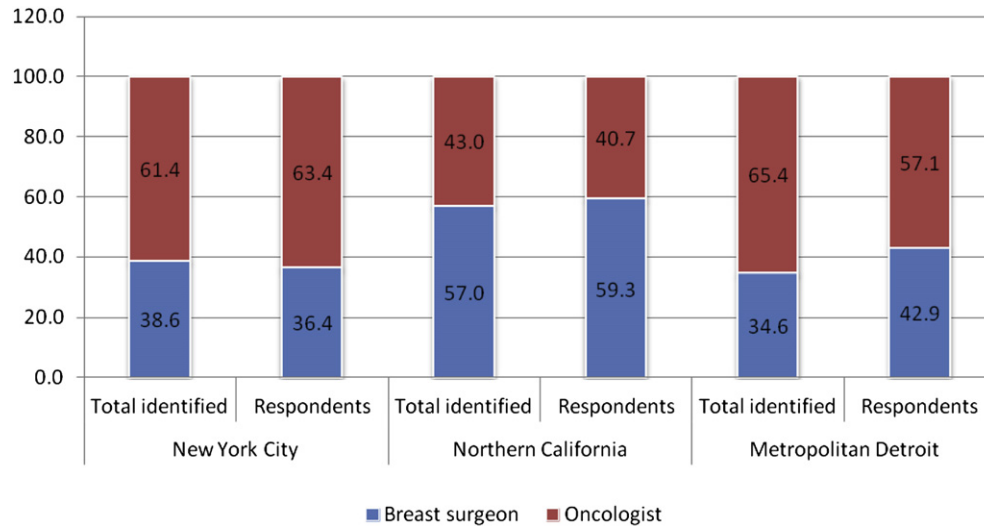


Fig. 1. Comparison of total treating physicians ($N = 275$) identified by participants enrolled in the Breast Cancer Quality of Care Study (BQUAL) May 2006 through July 2010 and physicians respondents ($N = 138$) by recruitment site and specialty (oncologist, $N = 66$ vs. breast surgeon, $N = 72$).

patient population (40.6% vs. 29.4%, $p = 0.015$) and having a larger proportion of their practice comprised of patients diagnosed in the past 6 months with breast cancer (39.1% vs. 20.9%, $p = <0.001$) compared to surgeons. Conversely, surgeons reported a new patient load more than twice that of oncologists (19.5% vs. 7.2%, $p = <0.001$). The majority of patients treated by our respondents were White (51.9%) and privately insured (49.3%). Oncologists reported that one-third of their patients were Medicare insured as opposed to 18.9% for surgeons ($p = <0.001$) whereas surgeons reported significantly more patients with other types of insurance (21.8% vs. 4.9%, $p = 0.002$) than did oncologists.

Physicians' behaviors and attitudes toward breast cancer treatment decision-making are displayed in Table 2. More than one-third (38.3%) of physicians spend 46–60 min with the patient during the initial consult visit. Approximately half of the respondents stated that a single visit is needed to come to a treatment decision and 68.9% reported enrolling $\leq 10\%$ of their breast cancer patients into clinical trials. Overall, respondents preferred a less patient-oriented approach toward treatment decision-making (53.8% vs. 46.2% more patient-oriented) but engaged in communication that explored the patient's treatment preference and asked for her opinion about treatment options discussed (97.0%). Nearly all respondents reported providing clear statements to their patients of the importance of the treatment decision (96.2%), discussing alternatives to treatment and explaining risks and benefits of treatment (97.7%). Fewer, though a substantial number, encourage women to involve their family members and significant others in the treatment decision (84.1%). Comparing physicians' attitudes and behaviors related to treatment decisions by specialty showed that oncologists in our sample spend more time with new breast cancer patients during the initial consult ($p = 0.021$), have more difficulty dealing with the patient's family (60.6% vs. 43.9%, $p = 0.055$), tend to find it more difficult to be honest with the patient without depressing her (59.1% vs. 42.4%, $p = 0.055$), and find it more difficult to handle their own feelings with regard to patient treatment decisions (60.6% vs. 25.8%, $p = <0.001$) than do breast surgeons.

In separate analyses we explored the influence of select physician characteristics (gender and age), practice characteristics (type, affiliation with an NCI cancer center or teaching hospital and site) and patient population composition (race and insurance coverage) on physician's attitudes and behaviors. We found no significant

associations between these factors and whether a physician preferred a patient-oriented approach over a paternalistic one. Further, we found that patient population characteristics did not influence physician attitudes and behaviors toward treatment decisions.

With regard to treatment communication behaviors, male physicians more often reported not discussing the patient's role in treatment decision-making (15.7% vs. 4.1%, $p = 0.04$). All older physicians (≥ 50 years) reported discussing alternatives to each treatment, including doing nothing at all, with their patients as opposed to 93.2% of younger physicians ($p = 0.046$) but less often reported providing patients enough information to make decisions on their own (17.5% vs. 5.5% younger, $p = 0.028$). Physicians in private practice (4.8% vs. 17.4% in other types, $p = 0.017$), and respondents from the metropolitan Detroit area (71.4% vs. New York with 87.9% and California with 94.0%, $p = 0.03$) less often talked to their patients about the uncertainties associated with each treatment. Affiliation with teaching hospital was associated with encouraging the patient to involve her family and significant others in the treatment decision more often compared to physicians in community hospitals (89.1% vs. 74.4%, $p = 0.03$). Affiliation with an NCI cancer center, however, had no effect on physician treatment decision-making attitudes.

When assessing barriers to treatment communication, we found that physicians affiliated with an NCI cancer center had less difficulty withholding a poor prognosis at the request of the family compared to those with no such affiliation (9.8% vs. 1.2%, $p = 0.02$). Male physicians found it less difficult to not disclose a poor prognosis if the patient did not ask (20.7% vs. 6.4%, $p = 0.03$) and found giving specific probabilities of the treatment not working less difficult (36.1% vs. 19.1%, $p = 0.04$) compared to female physicians.

Discussion

In this survey of attitudes and behaviors related to patient involvement in treatment making decisions among a group of physicians providing breast cancer care, we found few differences by physician specialty. Oncologists tend to spend more time during the initial consult and more often report struggling with their own emotions than do surgeons. These, however, may be a reflection of the relatively longer-term relationship a patient has with her oncologist and differences in the decisions being made such as

Table 1
Physician, practice, and patient population characteristics of physicians (medical oncologists and breast surgeons) referring participants to the Breast Cancer Quality of Care Study (BQUAL) (N = 138), May 2006 through July 2010.

	Total N = 138		Oncologist N = 66		Surgeon N = 72		p Value
	N	%	N	%	N	%	
<i>Physician characteristics</i>							
Gender							0.40
Male	87	63.0	44	66.7	43	59.7	
Female	51	37.0	22	33.3	29	40.3	
Age							0.95
30–39	31	22.8	16	24.6	15	21.1	
40–49	47	34.6	22	33.8	25	35.2	
50–59	40	29.4	18	27.7	22	31.0	
60–69	18	13.2	9	13.8	9	12.7	
Race/ethnicity							0.09
White	93	67.4	39	59.1	54	75.0	
Asian	40	29.0	25	37.9	15	20.8	
Other	5	3.6	2	3.0	3	4.2	
Nativity							0.03
U.S. born	100	72.5	42	63.6	58	80.6	
Non-U.S. born	38	27.5	24	36.4	14	19.4	
Years of experience							0.14
0–10	16	11.9	11	16.9	5	7.2	
11–20	48	35.8	18	27.7	30	43.5	
21–30	39	29.1	19	29.2	20	29.0	
31+	31	23.1	17	26.2	14	20.3	
Recruitment site							0.06
New York	33	23.9	21	31.8	12	16.7	
Michigan	14	10.1	8	12.1	6	8.3	
California	91	65.9	37	56.1	54	75.0	
Medical school country							0.002
U.S. medical school	117	85.4	49	75.4	68	94.4	
Non-U.S. medical school	20	14.6	16	24.6	4	5.6	
Board certification ^a							–
Medicine	55	39.9	55	83.3	–	–	
Surgery	71	51.4	–	–	71	98.6	
Medical oncology	57	41.3	57	100.0	–	–	
Surgical oncology	3	2.2	–	–	3	4.2	
Other	20	14.5	18	27.3	2	2.8	
<i>Practice characteristics</i>							
Practice type							0.10
Private	89	65.4	38	58.5	51	71.8	
Other	47	34.6	27	41.5	20	28.2	
Teaching hospital affiliation							0.43
Yes	95	69.9	44	66.7	51	72.9	
No	41	30.1	22	33.3	19	27.1	
NCI-designated cancer center affiliation							0.42
Yes	43	32.1	19	28.8	24	35.3	
No	91	67.9	47	71.2	44	64.7	
	Total N = 138		Oncologist N = 66		Surgeon N = 72		p Value
	M	SD	M	SD	M	SD	
% Patients evaluating, treating and following for breast cancer	37.9	25.5	40.6	26.7	29.4	26.2	0.015
% New patients in last 6 months with breast cancer	30.0	26.5	39.1	27.4	20.9	21.7	<0.001
% New patients per week	13.5	10.8	7.2	3.6	19.5	11.9	<0.001
<i>Patient population characteristics</i>							
Race/ethnicity (%)							
White	51.9	21.4	53.7	22.1	49.4	21.2	0.27
Black	17.6	14.8	19.1	16.4	16.2	13.5	0.30
Hispanic	17.3	14.6	17.2	17.1	18.3	12.6	0.68
Asian	9.8	11.5	7.5	8.9	11.7	13.3	0.04
Other	2.1	4.2	2.3	4.7	2.1	3.7	0.84
Insurance coverage (%)							
Medicare	25.7	18.8	33.9	18.0	18.9	16.8	<0.001
Private insurance	49.3	34.8	48.8	29.5	49.6	38.8	0.90
Medicaid	8.7	17.7	10.8	20.8	7.0	14.7	0.25
No insurance	2.3	5.9	3.0	7.6	1.5	3.3	0.16
Other	13.6	30.5	4.9	15.5	21.8	37.8	0.002
Language other than English spoken (%)							
Spanish	12.6	14.6	12.6	17.4	13.2	12.5	0.82
Other	10.0	11.9	7.9	7.9	10.1	11.0	0.23

^a More than one response possible; total >100%.

Table 2
Physicians' breast cancer treatment decision related behaviors and attitudes.

	Total N = 138		Oncologist N = 66		Surgeon N = 72		p Value
	N	%	N	%	N	%	
<i>Treatment decision making</i>							
Initial consult visit, minutes							0.021
0–35	33	24.8	9	13.6	24	35.8	
36–45	41	30.8	21	31.8	20	29.9	
46–60	51	38.3	31	47.0	20	29.9	
>60	8	6.0	5	7.6	3	4.5	
Visits to make treatment decision							0.16
1	68	51.5	30	45.5	38	57.6	
>1	64	48.5	36	54.5	28	42.4	
Percent enrolled in clinical trials							0.07
≤10	84	68.9	50	75.8	34	60.7	
>10	38	31.1	16	24.2	22	39.3	
<i>Attitudes toward patient involvement in treatment decision-making</i>							
Patient-oriented							0.48
Yes	60	46.2	28	43.1	32	49.2	
No	70	53.8	37	56.9	33	50.8	
<i>MD treatment communication behaviors</i>							
Discuss the patient's role in the decision-making process							0.78
Yes	117	88.6	59	89.4	58	87.9	
No	15	11.4	7	10.6	8	12.1	
Provide a clear statement of what is at issue to clarify what is being decided							0.65
Yes	127	96.2	63	95.5	64	97.0	
No	5	3.8	3	4.5	2	3.0	
Discuss alternatives to each treatment including doing nothing at all							0.18
Yes	126	96.2	64	98.5	62	93.9	
No	5	3.8	1	1.5	4	6.1	
Explain the potential benefits and risks of treatment and alternatives to treatment							0.08
Yes	129	97.7	66	100.0	63	95.5	
No	3	2.3	0	0.0	3	4.5	
Talk about the uncertainties associated with each treatment							0.15
Yes	118	90.1	57	86.4	61	93.8	
No	13	9.9	9	13.5	4	6.2	
Assess the patient's understanding of what has been said							0.54
Yes	120	90.9	61	92.4	59	89.4	
No	12	9.1	5	7.6	7	10.6	
Explore the patient's preference and ask for her opinion about the treatment options discussed							0.31
Yes	128	97.0	63	95.5	65	98.5	
No	4	3.0	3	4.4	1	1.5	
Encourage the woman to involve family members and significant others in treatment decisions							0.23
Yes	111	84.1	53	80.3	58	87.9	
No	21	15.9	13	19.7	8	12.1	
Provide patients with enough information to make their own treatment decisions							0.57
Yes	118	89.4	58	87.9	60	90.9	
No	14	10.6	8	12.1	6	9.1	
Ask patients their opinion about their treatment options							0.40
Yes	126	95.5	64	97.0	62	93.9	
No	6	4.5	2	3.0	4	6.1	
<i>Treatment plan communication barriers</i>							
Dealing with the patient's family							0.055
Not difficult	63	47.7	26	39.4	37	56.1	
Difficult	69	52.3	40	60.6	29	43.9	
Responding to the patient's emotions							0.09
Not difficult	49	37.4	20	30.3	29	44.6	
Difficult	82	62.6	46	69.7	36	55.4	
Being honest without depressing the patient							0.055
Not difficult	65	49.2	27	40.9	38	57.6	
Difficult	67	50.8	39	59.1	28	42.4	
Handling your own feelings							<0.001
Not difficult	75	56.8	26	39.4	49	74.2	
Difficult	57	43.2	40	60.6	17	25.8	
Not disclosing poor prognosis at the request of the family							0.16
Not difficult	5	4.0	1	1.6	4	6.5	
Difficult	121	96.0	63	98.4	58	93.5	
Not disclosing poor prognosis if the patient doesn't ask							0.55
Not difficult	20	15.5	9	13.6	11	17.5	
Difficult	109	84.5	57	86.4	52	82.5	
Giving specific probabilities of treatment not working							0.94
Not difficult	39	30.0	20	30.3	19	29.7	
Difficult	91	70.0	46	69.7	45	70.3	

whether or not to undergo chemotherapy and which type of chemotherapy vs. the type of surgery to be done.

Although others have suggested that a physician's motivation to involve patients in the treatment making decision varies by physician cancer site specialty and clinical discipline (oncology vs. surgery),¹² we found no evidence of such an association in our cohort of breast cancer specialists. Motivation, rather, is complex, quite variable and largely dependent upon the interplay between characteristics of the disease, the patient, and the physician. When a treatment may impact the patient's lifestyle (fertility or sexual function) or self-image (disfiguring surgery), or when disease progresses and the goals of treatment need to be realigned, physicians are more likely to invite the patient into the treatment decision-making process.¹² The decision to seek patient involvement, however, is tempered by the physician's appraisal of patient characteristics, such as age, cultural background, personality style, cognitive function and anxiety level^{12,13} as well as by the physician's personal attitudes and beliefs surrounding the patient, the treatment, and patient involvement in the treatment decision-making process.

During the same office visit when a woman first learns of her breast cancer diagnosis or disease progression, when she is likely experiencing feelings of disbelief, fear, anxiety, and stress, she is oftentimes expected to make a treatment decision. Physician respondents indicated that most treatment decisions are made during this visit, which is generally less than one hour in duration. Nearly unanimously, the physicians in our study, both oncologists and breast surgeons, reported exploring the patient's treatment decision-making preference and probing for her opinions about the treatment options discussed during this crucial visit.

Theoretically, there are three approaches to treatment decision-making: paternalistic, where the physician actively makes the decision and the patient assumes a passive role; a consumer-oriented model whereby the physician provides information and the patient actively chooses a treatment plan; and an intermediate approach in which the decision is shared between the patient and her physician.^{14–16} Shared decision-making (SDM) is increasingly the standard of care in cancer treatment.¹⁷ First described in 1982, SDM is a conceptual framework that supports the discussion of medical treatments and options and evaluates patient preferences for involvement in the treatment decision. Knowledge and concerns exchanged between patients and their physicians provide the physician with an understanding of the patient's values, ideas, and outcome expectations that are used to inform the treatment decision-making process.¹⁸

Current trends favor SDM and this is reflected in the number of respondents in our study who reported that they provide enough information for a woman to make her own decision, assess the patient's understanding of what has been discussed, and confer with the patient on her preferred role in the decision-making process – all key aspects of SDM. Between 43 and 89% of women with a breast cancer diagnosis prefer to have an active or collaborative role in their breast cancer care^{19–22} and this preference varies by age and level of education.^{23,24}

Incongruity between the physician's perception of the patient's desired level of involvement in the treatment decision and that actually preferred by the patient may have dramatic consequences.¹⁹ Evidence suggests that approximately 40% of breast cancer patients do not fulfill their preferred role in their treatment decision^{4,25} and this failure for a patient to achieve her preferred level of control in the treatment decision has been associated with decisional conflict and delay in treatment initiation, decisional regret, poorer quality of life, and decreased treatment satisfaction.²⁶

That no significant differences in attitudes or behaviors toward sharing the treatment making decision with their patients were

found between surgeons and oncologists is not unexpected. Evidence suggests that achieving the patient's desired level of input to the treatment decision is dependent upon the patient–physician relationship and the quality of patient–physician communication²⁷ and these factors transcend physician specialty. In a study of older breast cancer patients and their surgeons, women were more likely to perceive having a treatment choice and to be satisfied with their treatment when there was a high degree of surgeon-initiated communication.²⁸ Similarly, oncologists' verbal and non-verbal behaviors influenced the patient–physician communication and were predictive of greater patient involvement in adjuvant breast cancer treatment decisions and lower patient decisional regret.²⁹

The results of this study provide insight to the breast cancer treatment decision-making process and the barriers to treatment decisions among breast cancer specialists providing care to a large cohort of breast cancer patients recruited from three sites across the United States. Our study is limited in that we present self-reported behaviors and attitudes that were neither directly observed nor confirmed by patient report. It is possible that physicians may have over-reported behaviors they believed to be socially desirable. In actual practice, physician communication behavior and attitudes are influenced by a host of complex factors including the emotional, social, and personal context of the patient, the complexity and urgency of the decision at hand, the patient's desire to participate in the decision, and the amount of information needed by the patient to feel sufficiently informed to make a treatment decision.

Conclusion

Our study demonstrates that specialists (breast surgeons and oncologists) involved in the care of a large cohort of women with breast cancer share similar attitudes and beliefs about patient involvement in the treatment decision-making. Despite minor demographic and patient population characteristic differences, these physicians report communicating treatment information to the patient in a manner consistent with shared decision-making, known to enable patients to contribute to their treatment plan.

Ethical approval

All procedures pertaining to human subject research involved in the conduct of this study were approved by the Institutional Review Board of each recruitment site, and the U.S. Army Medical Research and Materiel Command Office of Research Protection and Human Research Protection Office.

Conflict of interest statement

The authors declare that they have no conflict of interest.

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References

- Berry DA, Cronin KA, Plevritis SK, Fryback DG, Clarke L, Zelen M, et al. Effect of screening and adjuvant therapy on mortality from breast cancer. *N Engl J Med* 2005;**353**:1784–92.
- Carlson RW, Brown E, Burstein HJ, Gradishar WJ, Hudis CA, Loprinzi C, et al. NCCN task force report: adjuvant therapy for breast cancer. *J Natl Compr Cancer Netw* 2006;**4**(Suppl. 1):S1–26.
- Katz SJ, Morrow M. The challenge of individualizing treatments for patients with breast cancer. *J Am Med Assoc* 2012;**307**(13):1379–80.
- Vogel BA, Helmes AW, Hasenburger A. Concordance between patients' desired and actual decision-making roles in breast cancer care. *Psychooncology* 2008;**17**:182–9.
- Lantz PM, Janz NK, Fagerlin A, Schwartz K, Liu L, Lakhani I, et al. Satisfaction with surgery outcomes and the decision process in a population-based sample of women with breast cancer. *Health Serv Res* 2005;**40**:745–67.
- Hack TF, Degner LF, Watson P, Sinha L. Do patients benefit from participating in medical decision making? Longitudinal follow-up of women with breast cancer. *Psychooncology* 2006;**15**:9–19.
- Street Jr RL, Voigt B. Patient participation in deciding breast cancer treatment and subsequent quality of life. *Med Decis Making* 1997;**17**:298–306.
- Neugut AI, Hillyer GC, Kushi LH, Lamerato L, Nathanson SD, Ambrosone CB, et al. The Breast Cancer Quality of Care Study (BQUAL): a multi-center study to determine causes for noncompliance with breast cancer adjuvant therapy. *Breast J* 2012;**18**:203–13.
- Liberati A, Apolone G, Nicolucci A, Confalonieri C, Fossati R, Grilli R, et al. The role of attitudes, beliefs, and personal characteristics of Italian physicians in the surgical treatment of early breast cancer. *Am J Public Health* 1991;**81**:38–42.
- Braddock 3rd CH, Edwards KA, Hasenberg NM, Laidley TL, Levinson W. Informed decision making in outpatient practice: time to get back to basics. *J Am Med Assoc* 1999;**282**:2313–20.
- Baile WF, Lenzi R, Parker PA, Buckman R, Cohen L. Oncologists' attitudes toward and practices in giving bad news: an exploratory study. *J Clin Oncol* 2002;**20**:2189–96.
- Shepherd HL, Butow PN, Tattersall MHN. Factors which motivate cancer doctors to involve their patients in reaching treatment decisions. *Patient Educ Couns* 2011;**84**:229–35.
- Singh S, Butow P, Charles M, Tattersall MH. Shared decision making in oncology: assessing oncologist behaviour in consultations in which adjuvant therapy is considered after primary surgical treatment. *Health Expect* 2010;**13**:244–57.
- Emanuel EJ, Emanuel LL. Four models of the physician–patient relationship. *J Am Med Assoc* 1992;**267**:2221–6.
- Charles C, Gafni A, Whelan T. Shared decision-making in the medical encounter: what does it mean? (or it takes at least two to tango). *Soc Sci Med* 1997;**44**:681–92.
- Stacey D, Samant R, Bennett C. Decision making in oncology: a review of patient decision aids to support patient participation. *CA Cancer J Clin* 2008;**58**:293–304.
- Makoul G, Clayman ML. An integrative model of shared decision making in medical encounters. *Patient Educ Couns* 2006;**60**:301–12.
- President's commission for the study of ethical problems in medicine and biomedical and behavioral research. *Making health care decisions: a report on the ethical and legal implications of informed consent in the patient–practitioner relationship*. Washington, DC; 1982.
- Bruera E, Willey JS, Palmer JL, Rosales M. Treatment decisions for breast carcinoma: patient preferences and physician perceptions. *Cancer* 2002;**94**:2076–80.
- Hack TF, Pickles T, Ruether JD, Weir L, Bultz BD, Mackey J, et al. Predictors of distress and quality of life in patients undergoing cancer therapy: impact of treatment type and decisional role. *Psychooncology* 2010;**19**:606–16.
- Sabo B, St-Jacques N, Rayson D. The decision-making experience among women diagnosed with stage I and II breast cancer. *Breast Cancer Res Treat* 2007;**102**:51–9.
- Shields CG, Morrow GR, Griggs J, Mallinger J, Roscoe J, Wade JL, et al. Decision-making role preferences of patients receiving adjuvant cancer treatment: a university of Rochester cancer center community clinical oncology program. *Support Cancer Ther* 2007;**1**:119–26.
- Caldon LJ, Walters SJ, Reed MW. Changing trends in the decision-making preferences of women with early breast cancer. *Br J Surg* 2008;**95**:312–8.
- Wallberg B, Michelson H, Nystedt M, Bolund C, Degner LF, Wilking N. Information needs and preferences for participation in treatment decisions among Swedish breast cancer patients. *Acta Oncol* 2000;**39**:467–76.
- Degner LF, Kristjanson LJ, Bowman D, Sloan JA, Carriere KC, O'Neil J, et al. Information needs and decisional preferences in women with breast cancer. *J Am Med Assoc* 1997;**277**:1485–92.
- Maly RC, Leake B, Silliman RA. Breast cancer treatment in older women: impact of the patient–physician interaction. *J Am Geriatr Soc* 2004;**52**:1138–45.
- Blank T, Graves K, Sepucha K, Llewellyn-Thomas H. Understanding treatment decision making: contexts, commonalities, complexities, and challenges. *Ann Behav Med* 2006;**32**:211–7.
- Liang W, Burnett CB, Rowland JH, Meropol NJ, Eggert L, Hwang Y-T, et al. Communication between physicians and older women with localized breast cancer: implications for treatment and patient satisfaction. *J Clin Oncol* 2002;**20**:1008–16.
- Step MM, Rose JH, Albert JM, Cheruvu VK, Siminoff LA. Modeling patient-centered communication: oncologist relational communication and patient communication involvement in breast cancer adjuvant therapy decision-making. *Patient Educ Couns* 2009;**77**:369–78.