Communication Between Physicians and Older Women With Localized Breast Cancer: Implications for Treatment and Patient Satisfaction

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Purpose: To identify factors associated with patient-physician communication and to examine the impact of communication on patient's perception of having a treatment choice, actual treatment received, and satisfaction with care among older breast cancer patients.

Materials and Methods: Data were collected from 613 pairs of surgeons and their older (≥ 67 years) patients diagnosed with localized breast cancer. Measures of patients' self-reported communication included physician- and patient-initiated communication and the number of treatment options discussed. Logistic regression analyses were conducted to examine the relationships between communication and outcomes.

Results: Patients who reported that their surgeons mentioned more treatment options were 2.21 times (95% confidence interval [CI], 1.62 to 3.01) more likely to report being given a treatment choice, and 1.33 times (95% CI, 1.02 to 1.73) more likely to get breast-conserving surgery with radiation than other types of treatment. Surgeons who were trained in surgical oncology, or who treated a high volume of breast cancer patients (≥ 75% of practice), were more likely to initiate communication with patients (odds ratio [OR] = 1.62; 95% CI, 1.02 to 2.56; and OR = 1.68; 95% CI, 1.01 to 2.76, respectively). A high degree of physician-initiated communication, in turn, was associated with patients' perception of having a treatment choice (OR = 2.46; 95% CI, 1.29 to 4.70), and satisfaction with breast cancer care (OR = 2.13; 95% CI, 1.17 to 3.85) in the 3 to 6 months after surgery.

Conclusion: Greater patient-physician communication was associated with a sense of choice, actual treatment, and satisfaction with care. Technical information and caring components of communication impacted outcomes differently. Thus, the quality of care for older breast cancer patients may be improved through interventions that improve communication within the physician-patient dyad.

What factors are associated with more communication between older breast cancer patients and their surgeons? (2) Does communication influence patients’ perception of having a treatment choice? (3) Does communication affect the type of treatment received? and (4) Is greater communication associated with higher posttreatment patient satisfaction? We hypothesized that women 80 years or older would report receiving less information about treatment options, would ask fewer questions, and would perceive their physicians as less communicative than women 67 to 79 years old. Prior research has indicated that older women’s concerns and preferences (e.g., no need of additional visits after primary treatment) may influence their choice between mastectomy and breast-conserving surgery. \[30,31\] We hypothesized that, if BCS was chosen, women with greater communication with doctors would be more likely to receive radiation therapy after BCS. Finally, we hypothesized that greater patient-physician communication would be associated with women’s perception of having a treatment choice and increased satisfaction with breast cancer care.

**MATERIALS AND METHODS**

**Setting and Study Population**

The data for this study were collected as part of the breast cancer Outcomes and Preferences for Treatment in Older Women Nationwide Study (OPTIONS) project. \[30\] Institutional review board approval for this research was obtained at all participating institutions and all participating physicians and patients provided informed consent.

Potentially eligible women (n = 1,932)—those 67 years or older and diagnosed with localized breast cancer (T1-2, N0-1, M0)—were ascertained weekly from inpatient and outpatient pathology records and surgical logs at a convenience sample of 29 hospitals in five geographic regions (Massachusetts, Texas, District of Columbia, western New York State, and New York City) between November 1, 1995, and September 30, 1997. Hospitals were selected on the basis of the availability of a collaborating investigator and having a large number of elderly breast cancer patients. Three of the 29 hospitals were National Cancer Institute (NCI)-designated comprehensive cancer centers and 20 of the 29 had surgery programs accredited by the American College of Surgeons.

After excluding those who had nonprimary or multicentric breast cancer, had insufficient cancer stage information, lived in a nursing home, did not speak English, or were cognitively impaired, 1,377 women remained eligible. Physicians’ consent was obtained to contact 1,159 (84%) of these eligible women. Of the 784 women (68%) who agreed to participate, 66 were found to be ineligible after the interviews, resulting in 718 women in the final patient sample. The group of nonparticipants (either from physician refusal or patient refusals) and excluded women were similar in age, race, and treatment type.

Surgeons (n = 194) for the 718 participants were contacted to complete a survey. A total of 138 surgeons (70%) returned the survey. Of these, there were 613 pairs (85%) of patients with matching surgeon data. These patients and the rest of the sample were similar in terms of age, race, education, and treatment received.

**Data Collection**

Data were collected from patient interview, medical record abstraction, and physician survey. Patients were contacted 6 to 24 weeks after surgery to complete a face-to-face interview; telephone interviews were conducted if patients lived more than 100 miles from a study site. Seventy-two percent of the interviews were conducted in person. Women receiving a face-to-face interview did not differ from those receiving a telephone interview in terms of their sociodemographics and treatment received. Clinical information including procedures, histologic findings, and tumor staging data were obtained through standardized review of medical records. The self-administered mailed surgeon survey included questions about demographic characteristics, self-reported practice patterns, and attitudes toward patient participation in treatment decision making.

**Measures**

**Outcome variables.** Outcome variables included the patient’s perception of having a choice of treatment, actual treatment received, and satisfaction with care. Each woman’s perception of having a treatment choice was measured by her response (yes/no) to the question, “Do you feel you were given a choice about the types of surgeries or radiation treatments?”

Local breast cancer treatment actually received was categorized as breast conservation with radiotherapy (BCSRT), BCS alone, or mastectomy (MST). Breast conservation included excisional biopsy (with no follow-up procedures), lumpectomy, partial or segmental mastectomy, tylectomy, quadrantectomy, and wedge resection. Mastectomy included modified radical mastectomy and simple mastectomy.

Patients’ overall satisfaction with breast cancer surgery and other treatment was assessed by a single item on a five-point Likert type response scale ranging from “very satisfied” to “very dissatisfied.” Since most (78.3%) of the participants selected “very satisfied,” we dichotomized this variable into “very satisfied” versus all other responses.

**Predictor variables.** The main predictors for treatment and satisfaction included patient- and surgeon-initiated communication, the amount of treatment options mentioned by doctors, and surgeon’s attitude toward patient participation. Patients’ self-report of patient- and surgeon-initiated communication was measured using four questions modified from the Perceived Involvement in Care Scale. \[32\] The two items measuring patients’ information-seeking were “I asked my surgeon to explain breast cancer treatments and/or procedure(s) to me in greater detail” and “I asked my surgeon a lot of questions about my breast cancer treatment options (Cronbach’s alpha = 0.73).” The two questions about surgeon-initiated communication were “My surgeon asked me about my worries about breast cancer” and “My surgeon encouraged me to give my opinions about my breast cancer” (Cronbach’s alpha = 0.68). Responses on all four items were rated on a five-point Likert scale ranging from “strongly agree” to “strongly disagree.” Since scores on scales were not distributed normally, we categorized scores at the median. Thus, scores on each subscale were categorized as high (score, 2 to 5) or low (score, 6 to 10) communication. These two variables were considered as outcome variables when their associations with controlling variables (see below) were evaluated.

The amount of information about local breast cancer treatment was measured by the total treatment options (breast-conserving surgery, mastectomy, axillary lymph node dissection, or radiation after BCS) patients reported receiving from doctors before surgery (scores ranged from 0 to 4). Surgeons’ attitudes were measured using an 11-item scale about surgeons’ attitudes toward patient involvement in treatment decision making developed by Liberati et al. \[29\]. Statements were worded either positively or negatively and alternately ordered. For instance, a
negative statement, “patients can’t possibly make good decisions because they don’t understand information,” followed a positive statement, “patients who participate in treatment decisions make a better adjustment to the disease.” Each statement was rated on a five-point Likert scale, ranging from “strongly agree” to “strongly disagree.” The higher the summary score (which ranged from 5 to 55), the more favorable a physician’s attitude toward patient participation. In our study, the internal consistency of the items in the Liberati scale was moderate (Cronbach’s alpha = 0.63); the average score among the 138 surgeons was 39.7.

**Controlling variables.** Several sets of variables were considered as having the potential to mediate the association between communication and outcomes. These included patient sociodemographic status, clinical and regional factors, process-of-care variables, and surgeon characteristics. Patient sociodemographic factors included age, race (white/nonwhite), socioeconomic status (measured by education, income, insurance, and whether working for pay), social support (number of adults living together), and marital status. Age was dichotomized (67 to 79 v 80 and older) because important age-related differences in treatment occurred for women older and younger than 80 years. Patients’ insurance status measured whether patients had private insurance supplemental to Medicare (and Medicaid) and health maintenance organization coverage. Clinical factors included comorbidity and cancer stage. Comorbidity was defined as the number of chronic conditions likely to affect treatment choices reported by the patient in the 2 months before breast cancer diagnosis. Stage was defined as stage 1 (T1N0M0), IIa (T1N1M0 or T2N0M0), and IIIb (T2N1M0), according to pathologic (75%) and/or clinical (25%) staging. Treatment sites were categorized according to the five geographic regions. Process of breast cancer care variables measured whether women sought breast cancer information from another surgeon or a radiation oncologist before surgery and whether women were accompanied by other person(s) who helped make treatment decisions. Surgeon-related variables included length of time in practice (graduated before 1975 or after), sex, specialty training in surgical oncology (yes/no), volume of breast cancer patients (> 75% of practice or not), and affiliation with NCI-designated cancer centers.

**Data Analysis**

To assess differences in categorical and continuous variables, χ² and t tests were used. A series of logistic regressions were then used to (1) identify factors associated with patient-surgeon communication; (2) evaluate how communication factors influenced patients’ perception of having a treatment choice; (3) evaluate the effect of communication and patients’ perception of having a treatment choice on treatment received; and (4) assess the relative importance of communication, perception of having a treatment choice, and actual treatment received on patient satisfaction after treatment. The C statistic, an index of rank correlation, was used to test model fit (SAS/STAT User’s Guide, Version 6; SAS Institute, Cary, NC, 1989). Treatment models examined the differences between receiving one type of treatment versus all other treatments. In addition, we compared BCSRT and BCS to understand the factors influencing receipt of radiation therapy after BCS.

Because there is a tendency that surgeons do not perform axillary node dissection for women 80 years and older before determining adjuvant therapy, this treatment option may not be offered during the medical encounter. Including axillary node dissection as one of the four items that constructed the variable “number of treatment options mentioned by the doctors,” therefore, might artificially increase the difference in communication between the two age groups. However, our analyses using three-item (excluding node dissection) treatment option sum scores yielded the same significant relationships between predictors and outcomes as those seen when using four-item scores (data not shown). Therefore, we reported results from analyses using four-item scores to capture more information about communication.

For those variables with more than 3% (about 20 observations) of values missing (ie, patient income, volume of breast cancer patients cared for by surgeons, and second opinions sought by patients before surgery), a “missing” category was created to retain the maximal size in the sample for logistic regression analyses. In the case of satisfaction, where, because of an administrative error 20% of women were not asked this question, subjects were excluded from analysis. These excluded subjects who did not differ from the rest of the sample in terms of sociodemographics, cancer stage, and communication; however, they were more likely to be from Texas (43% v 31%, P = .018) than from any other region.

**RESULTS**

**Description of the Sample**

Participants were predominantly white and well educated, with small (stage I) tumors (Table 1). Although no differences existed in surgeon factors between the two age groups, patients 80 and older reported receiving less information about treatment options (2.9 v 3.5, P < .001), and were less likely to state that they were given a choice of breast cancer treatment (75% v 85%, P = .01). These women were also less likely to initiate communication or perceive that their surgeons initiated communication less frequently than did women 67 to 79 years old (P = .002 and P = .07, respectively) than women 67 to 79 years of age. There was a borderline difference in level of satisfaction with care by age (84% v 77%, P = .05) (Table 1).

**What Factors Were Associated With Communication?**

After controlling for patient, surgeon, and clinical factors, the bivariate associations between age and patient- and physician-initiated communication (Table 1) were no longer significant (Table 2). Women who were accompanied by other people who helped them make treatment decisions reported asking questions 2.14 times (95% confidence interval [CI], 1.39 to 3.31) more often than women who were unaccompanied. Surgeon factors associated with a higher degree of surgeon-initiated communication included training in surgical oncology factors (odds ratio [OR] = 1.62; 95% CI, 1.02 to 2.56), seeing a high volume of breast cancer patients (OR = 1.68; 95% CI, 1.01 to 2.76), and absence of an affiliation with a cancer center (OR = 0.39; 95% CI, 0.22 to 0.70), after controlling for covariates. Contrary to expectation, surgeons’ attitudes toward patient participation and surgeon sex were not associated with surgeon-initiated communication. Women who reported receiving a greater number of treatment options were more likely to report higher patient- and surgeon-initiated communication (OR = 1.79; 95% CI, 1.40 to 2.28; and OR = 1.62;
95% CI, 1.27 to 2.07, respectively) than women reporting few options discussed, after considering other factors.

**Did Communication Influence Women’s Perception of Having a Choice of Treatment?**

Surgeon-initiated communication and the number of treatment options were positively associated with having a choice of breast cancer treatment (OR = 2.46; 95% CI, 1.29 to 4.70; and OR = 2.21; 95% CI, 1.62 to 3.01, respectively), after considering other factors (Table 3). Patient-initiated communication and surgeons’ attitudes toward patient participation in the decision-making process were not associated with treatment choice.

**Did Communication Influence Types of Breast Cancer Treatment Received?**

In bivariate analyses, we found that among those reporting that BCS, radiation therapy, and mastectomy were all possible, women who reported having more treatment options were more likely to receive BCS and radiation therapy (BCSRT) compared to those who reported having fewer options (OR = 2.46; 95% CI, 1.29 to 4.70; and OR = 2.21; 95% CI, 1.62 to 3.01, respectively).
discussed before surgery (63% of the sample), 56% received BCS with radiation therapy and only 11% received BCS alone. Results from logistic regression showed that women who reported receiving more information about treatment options were 2.07 (95% CI, 1.40 to 3.08) and 1.33 (95% CI, 1.02 to 1.73) times more likely to get BCSRT compared with BCS alone or other types of treatment, after controlling for patient, physician, and clinical factors (Table 4). However, whether or not a woman or her surgeon asked questions about care did not appear to influence the type of treatment she received.

**Table 2. Factors Associated With Patient Self-Reported Surgeon-Patient Communication**

<table>
<thead>
<tr>
<th>Communication</th>
<th>Patient-Initiated</th>
<th>Surgeon-Initiated</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Patient factors</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age ≥ 80 (v age 67-79)</td>
<td>0.73 0.44-1.20</td>
<td>0.70 0.42-1.17</td>
</tr>
<tr>
<td>Other people present to help make treatment decision</td>
<td>2.14 1.39-3.31§</td>
<td>1.30 0.86-1.98</td>
</tr>
<tr>
<td><strong>Surgeon factors</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sex (male v female)</td>
<td>0.96 0.57-1.65</td>
<td>0.83 0.48-1.42</td>
</tr>
<tr>
<td>Training in surgical oncology (yes v no)</td>
<td>0.98 0.62-1.56</td>
<td>1.62 1.02-2.56</td>
</tr>
<tr>
<td>≥ 75% practice is breast surgery (yes v no)</td>
<td>1.42 0.85-2.38</td>
<td>1.68 1.01-2.76</td>
</tr>
<tr>
<td>Affiliation with cancer center (yes v no)</td>
<td>1.10 0.61-1.96</td>
<td>0.39 0.22-0.70¶</td>
</tr>
<tr>
<td><strong>Communication</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No. of treatment options mentioned by doctors¶</td>
<td>1.79 1.40-2.28§</td>
<td>1.62 1.27-2.07§</td>
</tr>
<tr>
<td>Surgeon’s attitude toward patient participation‡</td>
<td>0.99 0.96-1.02</td>
<td>1.03 1.00-1.07</td>
</tr>
<tr>
<td>C statistic</td>
<td>0.71</td>
<td>0.72</td>
</tr>
</tbody>
</table>

*Logistic regression controlling for patient race, education, income, marital status, living situation, private health insurance, comorbidity, second opinion, surgeon’s year after graduation, stage of breast cancer, and geographic area.

†Per 1-point increase, ranging from 1 to 4.

¶Per 1-point increase of the sum score, ranging from 5 (unfavorable attitude toward patient participation) to 55 (favorable attitude toward patient participation).

§.001 ≥ P.

||.05 ≥ P > .01.

¶.01 ≥ P > .001.

**Table 3. Significant Predictors of Patient’s Perception of Having Been Given a Choice of Breast Cancer Treatment**

<table>
<thead>
<tr>
<th>Predictor Variable</th>
<th>Having a Choice of Treatment (yes v no) OR 95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication</td>
<td></td>
</tr>
<tr>
<td>Patient-initiated communication</td>
<td>1.34 0.72-2.49</td>
</tr>
<tr>
<td>Surgeon-initiated communication</td>
<td>2.46 1.29-4.70§</td>
</tr>
<tr>
<td>No. of treatment options mentioned by doctors†</td>
<td>2.21 1.62-3.01</td>
</tr>
<tr>
<td>Surgeon’s attitude toward patient participation‡</td>
<td>0.98 0.93-1.04</td>
</tr>
<tr>
<td>C statistic</td>
<td>0.80</td>
</tr>
</tbody>
</table>

*Logistic regression controlling for patient age, race, education, income, marital status, living situation, employment, private health insurance, comorbidity, second opinion, surgeon sex, year of after graduation, volume of breast cancer patients, surgical oncology training, affiliation with cancer center, geographic area, and stage of breast cancer.

†Per 1-point increase, ranging from 1 to 4.

‡Per 1-point increase of the sum score, ranging from 5 (unfavorable attitude toward patient participation) to 55 (favorable attitude toward patient participation).

§.001 ≥ P.

||.001 ≥ P > .01.

**Did Communication Influence Patient Satisfaction?**

Women reporting high surgeon-initiated communication were 2.13 times (95% CI, 1.17 to 3.85) more likely to be satisfied than women reporting low surgeon-initiated communication (Table 5). No other surgeon factors were related to patient satisfaction. Interestingly, despite reporting lower communication than women 67 to 79 years old, women 80 years or older were 2.40 times (95% CI, 1.07 to 5.41) more likely to report being satisfied with breast cancer care than women 67 to 79 years old, controlling for covariates.

**DISCUSSION**

Our results indicate that the amount of information older breast cancer patients report receiving affects their perception of communication and having a treatment choice, and may impact the type of local treatment received. Specific surgeon-related factors are predictive of surgeon-initiated communication which, in turn, affects older women’s perception of having treatment choices and satisfaction with breast cancer care.

Although both the amount of treatment information and surgeon-initiated communication influenced patients’ per-
surgeon sex, year after graduation, volume of breast cancer patients, surgical oncology training, affiliation with cancer center, geographic area, and stage of breast cancer.

Table 4. Predictors of Treatment Received Among Older Women With Localized Breast Cancer*

<table>
<thead>
<tr>
<th>Predictor Variable</th>
<th>BCS + RT v Other</th>
<th>BCS Alone v Other</th>
<th>BCS + RT v BCS Alone</th>
<th>MST v Other</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OR</td>
<td>95% CI</td>
<td>OR</td>
<td>95% CI</td>
</tr>
<tr>
<td>Patient factors</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age (≥ 80 v 67-79)</td>
<td>0.38</td>
<td>0.22-0.67†</td>
<td>3.75</td>
<td>2.05-6.85§</td>
</tr>
<tr>
<td>Having a choice of breast cancer treatment</td>
<td>0.63</td>
<td>0.35-1.13</td>
<td>2.38</td>
<td>1.03-5.54‡</td>
</tr>
<tr>
<td>Surgeon factors</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>≥ 75% breast cancer patients</td>
<td>1.89</td>
<td>1.10-3.24‡</td>
<td>0.66</td>
<td>0.31-1.42</td>
</tr>
<tr>
<td>Communication</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patient-initiated communication (high v low)</td>
<td>0.85</td>
<td>0.54-1.32</td>
<td>1.35</td>
<td>0.74-2.50</td>
</tr>
<tr>
<td>Surgeon-initiated communication (high v low)</td>
<td>0.88</td>
<td>0.57-1.37</td>
<td>0.66</td>
<td>0.36-1.20</td>
</tr>
<tr>
<td>No. of treatment options mentioned by doctors†</td>
<td>1.33</td>
<td>1.02-1.73</td>
<td>0.65</td>
<td>0.47-0.90§</td>
</tr>
<tr>
<td>Surgeon’s attitude toward patient participation‡</td>
<td>0.98</td>
<td>0.95-1.02</td>
<td>1.02</td>
<td>0.97-1.07</td>
</tr>
<tr>
<td>C statistic</td>
<td>0.75</td>
<td>0.79</td>
<td>0.83</td>
<td>0.74</td>
</tr>
</tbody>
</table>

*Logistic regression controlling for patient race, education, income, marital status, living situation, employment, health insurance, comorbidity, others present to help make treatment decisions, surgeon sex, year after graduation, volume of breast cancer patients, surgical oncology training, affiliation with cancer center, geographic area, and stage of breast cancer.

Table 5. Predictors of Satisfaction With Breast Cancer Care Among Older Women With Localized Breast Cancer (n = 423 pairs)*

<table>
<thead>
<tr>
<th>Predictor Variable</th>
<th>Satisfaction With Breast Cancer Care</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OR</td>
</tr>
<tr>
<td>Patient age</td>
<td></td>
</tr>
<tr>
<td>≥ 80 v 67-79 years</td>
<td>2.40</td>
</tr>
<tr>
<td>Communication</td>
<td></td>
</tr>
<tr>
<td>Patient-initiated communication</td>
<td>0.79</td>
</tr>
<tr>
<td>Surgeon-initiated communication</td>
<td>2.13</td>
</tr>
<tr>
<td>No. of treatment options mentioned by doctors</td>
<td>0.99</td>
</tr>
<tr>
<td>Surgeon’s attitude toward patient participation</td>
<td>1.01</td>
</tr>
<tr>
<td>Treatment received</td>
<td></td>
</tr>
<tr>
<td>BCSRT vs BCS</td>
<td>1.62</td>
</tr>
<tr>
<td>MST vs BCS</td>
<td>1.02</td>
</tr>
<tr>
<td>C statistic</td>
<td>0.74</td>
</tr>
</tbody>
</table>

*Logistic regression controlling for patient age, race, education, income, marital status, living situation, employment, health insurance, comorbidity, others present to help make treatment decisions, surgeon sex, year after graduation, volume of breast cancer patients, surgical oncology training, affiliation with cancer center, geographic area, and stage of breast cancer.

NOTE. The satisfaction question was not asked of the first 150 patients enrolled because of administration error.

Among surgeon factors, those specifically related to cancer or breast cancer care, such as training in surgical oncology and the volume of breast cancer patients, were more highly associated with surgeon-initiated communication than were sex, duration of practice, or attitudes toward patient participation in the medical encounter. Knowledge and experience in oncology and breast cancer care may enhance the ability to communicate information with women facing breast cancer surgery. Surprisingly, surgeons affiliated with cancer centers were less likely to ask about patients’ worries or encourage communication. A high patient volume and tight schedules may limit surgeons’ time to ask questions, which could be confirmed by data on average time spent per visit. The lack of sex effects on communication and type of treatment performed is incom-
sistent with prior studies demonstrating that female doctors are better communicators\textsuperscript{37,38} and that female surgeons perform more definitive breast cancer treatment.\textsuperscript{39} It is possible that there were too few female surgeons (24\%) in our sample to detect sex effects. Furthermore, selection biases could have produced these null effects. For instance, those male physicians who communicated better with patients might be more willing to participate in this study than average male physicians, which, in turn, lessened the sex difference in communication.

According to our data, physicians presenting more information about treatment may empower a woman to choose BCS with radiation therapy more effectively than merely making her feel she has a choice of treatment. Older women are often concerned about their ability to manage self-care needs when making treatment decisions, and, if given a choice, they may prefer a therapy that does not require additional procedures after initial treatment.\textsuperscript{40} Since older patients are less likely to seek medical information than younger patients,\textsuperscript{41} our findings suggest that physicians may need to play a more active role in raising older women’s awareness of the advantages and disadvantages of various treatment options and helping them choose an appropriate treatment. Alternatively, older women could be encouraged to bring family members or friends with them to the clinic to increase patient-initiated communication about treatment options.

Our data demonstrate that age, compared with surgeon factors, plays a limited role in communication and choice for treatment. These findings suggest that communicating treatment options can be effectively improved through physician intervention, regardless of patient age. However, older age is associated with less intensive local treatment and greater satisfaction with care. This may be a cohort effect of this older generation that will disappear in the future. Alternatively, women 80 years or older may be more satisfied with or actually prefer less treatment, no matter how well treatment options were communicated. This also points out the difficulty of research on communication and quality of care in this older population.

Several caveats should be considered in interpreting our results. First, the generalizability of our findings is limited by the fact that this was a predominantly white, middle to upper middle class sample drawn from only 29 hospitals in five geographic regions. Although nonparticipants and participants were similar in age, race, and treatment type, we have no data to address the possibility that these two groups have different communication styles. Moreover, our data cannot confirm whether our results are specific to women age 67 and older alone or can be applied to younger women.

Second, our cross-sectional data cannot make causal inferences. For instance, it is not clear whether patients’ perception of having a choice of treatment is the cause or the result of their interactions with surgeons. Patients’ self-report of communication with surgeons is not an unbiased measure of what actually happened during the medical encounter. Direct observation or recording of communication at the time of actual decision making can produce objective information but is not deemed feasible in our study because of concerns about patient burden. Third, our single item measure of satisfaction does not focus on specific domains of care, such as satisfaction with communication and the ability to make treatment decisions, which may be important factors related to other outcomes. Finally, because multiple analyses were performed in this study, it is likely that some of the associations, especially those at a moderate significance level ($0.01 < P \leq 0.05$), are of borderline significance or occurred by chance alone. However, we reported these associations to maximize our understanding of communication and outcomes, which can be useful for future research and interventions.

Despite the above limitations, our findings suggest that physician-patient communication plays an important role in breast cancer treatment and outcomes among older women. Future research can benefit from a longitudinal cohort of a representative sample and the establishment of the relationships between style and content of communication, patient preferences, and cancer treatment choices and outcomes. Interventions to improve quality of care among older breast cancer patients should aim at delivering optimal treatment and improving patient satisfaction. Both goals can potentially be achieved by implementing a physician communication style, through continuing medical education, characterized by caring attitudes and comprehensive treatment information. Over the coming decades, older women are projected to constitute a larger absolute proportion of new breast cancer cases and survivors.\textsuperscript{42-44} Thus, it is important to maximize communication within the older patient-physician dyad to ensure that treatment is consistent with older women’s preferences, is clinically appropriate, and maximizes posttreatment outcomes.

\textbf{ACKNOWLEDGMENT}

We thank the women who shared their breast cancer stories with us, the surgeons for completing surveys, the OPTIONS support staff who made data collection possible, Mathematica Policy Research, Inc., for data management and collection, the OPTIONS National Advisory Committee for helpful suggestions on the conduct of the project, Sandy Fournier for administrative support, and Charles Cox for manuscript preparation. The full list of OPTIONS team members and the OPTIONS National Advisory Committee is available online at www.jco.org.
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