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Is there shared decision making when the provider makes a recommendation?

Marissa Frongillo^{a,*}, Sandra Feibelmann^a, Jeff Belkora^b, Clara Lee^c, and Karen Sepucha^a

^aDepartment of General Medicine, Massachusetts General Hospital, Boston, USA

^bInstitute for Health Policy Studies, University of California, San Francisco, San Francisco, CA, USA

^cDivision of Plastic and Reconstructive Surgery, Lineberger Comprehensive Cancer Center, Sheps Center for Health Services Research, University of North Carolina, Chapel Hill, Chapel Hill, NC, USA

Abstract

Objective—To compare the amount of shared decision making in breast cancer surgery interactions when providers do and do not make a treatment recommendation.

Methods—We surveyed breast cancer survivors who were eligible for mastectomy and lumpectomy. Patients reported whether the provider made a recommendation and the recommendation given. They completed items about their interaction including discussion of options, pros, cons, and treatment preference. A total involvement score was calculated with higher scores indicating more shared decision making.

Results—Most patients (85%) reported that their provider made a recommendation. Patients who did not receive a recommendation had higher involvement scores compared to those who did (52% vs. 39.1%, $p = 0.004$). Type of recommendation was associated with involvement. Patients given different recommendations had the highest total involvement scores followed by those who received mastectomy and lumpectomy recommendations (65.5% vs. 42.5% vs. 33.2%, respectively, $p < 0.001$).

Conclusion—Providers were less likely to present a balanced view of the options when they gave a recommendation for surgery. Patients who received a recommendation for lumpectomy had the lowest involvement score.

Practice implications—Providers need to discuss both mastectomy and lumpectomy and elicit patients' goals and treatment preferences regardless of whether or not a recommendation is given.

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*Corresponding author at: Health Decision Sciences Center, Massachusetts General Hospital, 326 Cambridge Street, 2nd Floor, Boston, MA 02114, USA. Tel.: +1 508 797 7924; fax: +1 617 726 9261. mfrongillo@partners.org (M. Frongillo).

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Keywords

Shared decision making; Decision quality; Patient involvement; Provider recommendation; Breast cancer treatment decisions

1. Introduction

Breast conserving surgery with radiation and mastectomy have equivalent survival rates but differ cosmetically, and with respect to rates of recurrence, and need for radiation [1,2]; therefore, clinical guidelines emphasize the importance of patient's preferences in selecting treatments [3]. For breast cancer surgery decisions and other preference sensitive medical decisions in which there exists more than one appropriate treatment option, providers need to involve and engage patients in the decision making process [4,5]. Research has shown that the surgeon plays a key role in patients' selection of treatment for breast cancer. Not only do patients select their surgeons as the single most helpful source of information [6,7], but also most report that their provider's opinion has the strongest influence on their final decision in breast cancer surgery [7–9]. Gurmankin et al. [10] found that provider recommendations can influence patients' treatment decisions even when that recommendation goes against the treatment the patient would have chosen in the absence of a recommendation and when that recommendation was not the one that maximized health. Therefore, the specific content of the provider–patient conversation is crucial to the decision-making process.

The amount and type of information that providers convey to their patients has a direct impact upon whether or not patients are able to make fully informed treatment decisions. For breast cancer surgery, patients and providers need to discuss the risks and benefits of both treatment options, mastectomy and lumpectomy, and consider patients' goals and treatment preferences when selecting the best option [11,12]. Patients feel strongly about the importance of receiving a complete presentation of the range of treatment options [8]. Early stage breast cancer patients also reported a preference for learning the pros and cons of all treatment options as a basis for decision making regardless of their preferred decision-making style [8].

When patients are not presented with the full range of treatment options, patient involvement in these treatment decisions is often insufficient. Hawley et al. [13] surveyed 1038 breast cancer patients and found that patients who reported that their surgeon discussed only one treatment option were more likely to report having had too little involvement in the treatment decision. Further, when only one treatment option was discussed (primarily breast conserving surgery), patients were more likely to report that the decision was made by the surgeon as opposed to a shared decision [13]. This prior research suggests that discussing both mastectomy and lumpectomy surgical treatment options play an integral role in breast cancer patients' perceptions of their involvement in the treatment decision.

There appears to be a tension for patients between the desire for the provider to make a recommendation and the desire for shared decision making. The aim of this study was to compare patient reports of involvement in breast cancer surgery interactions when providers

made a treatment recommendation and when they did not. Our main hypotheses were that when providers made a treatment recommendation, patients would report less involvement in the interaction compared to situations where no recommendation was made and that patients who received a lumpectomy recommendation would have lower involvement scores compared to those who received other recommendations.

2. Methods

2.1. Samples and procedures

Adult women, diagnosed with early stage (Stage 1 or 2) breast cancer were identified through cancer registries at four academic medical centers. All women were diagnosed within 1–3 years prior to contact. Exclusion criteria included bilateral breast cancer, DCIS, recurrent breast cancer, receipt of neoadjuvant chemotherapy, and inability to read or speak English. The criteria were set to ensure that the majority of patients were clinically eligible for mastectomy and lumpectomy. Treating clinicians were required to approve contact of patients and were able to exclude any patient that was not eligible for both surgical procedures.

All eligible patients received a letter signed by their physician, a consent form and the survey in the mail along with a small incentive (book of stamps). Study staff made reminder phone calls and sent a reminder mailing to non responders two weeks after the initial mailing. Participants received a small compensation (book of stamps) for completing the survey.

2.2. Measures

Although several surveys attempt to measure different aspects of the decision making process, consensus over how to measure shared decision making or patient involvement does not exist [14,15]. The key features of shared decision making, as derived from the model in Charles et al. [16], are the presentation of treatment options, a discussion of the risks and benefits of each option, and discussion of the patients' preferences and treatment goals. We based our involvement items on elements from this shared decision making framework with the premise that patients who report more of these items would be more likely to have had shared decision making. For the decision about breast surgery, this would require discussing both mastectomy and lumpectomy, discussing the advantages and disadvantages of each option and discussing patients' goals and treatment preferences. One potential challenge with this approach is that it relies on patient reports. The reliability of patient reports for these items was examined in a prior study by comparing patients' reports to those of a neutral observer who was present during the visit. Both patient and observer completed the involvement survey the day of the visit and there were high levels of agreement (75%) across 178 visits [17]. These results provide confidence in reliance on patients' ratings of these involvement items.

Involvement items—Seven items spanned across four categories to measure the interaction between the patient and providers: (1) discussion of options (e.g., did any of your doctors discuss mastectomy/lumpectomy and radiation as an option for you?) (yes/no), (2)

amount of discussion of reasons to have each option (a lot/some/a little/not at all), (3) amount of discussion of reasons not to have each option (a lot/some/a little/not at all), and (4) discussion of patients' treatment preference (yes/no). We assigned each patient 1 point for discussion of both options, for discussion of the pros of both options (a lot or some), for discussion of the cons of both options (a lot or some), and for discussion of their preferences. Points were summed and divided by 4 and multiplied by 100 to generate a total involvement score (range 0–100%) with higher scores indicating more shared decision making. The total involvement score had good reliability (Cronbach's alpha = 0.74) in this sample. We examined the impact of using a different cutoff (e.g., giving responses of "a little" one point) and this raised overall scores but did not result in any differences in the relationships across groups. Given the seriousness of this decision, we felt it important that more than "a little" discussion of the pros and cons occur, so kept the original cutoff.

Recommendation—Patients reported whether any of their providers made a recommendation and if so "what type of surgery did the doctor think you should have?"

SURE scale—A brief, 4-item version of the widely used Decisional Conflict Scale [18] that measures patients' uncertainty about which treatment to choose and factors contributing to uncertainty (feeling uninformed, unclear values, and unsupported in decision making). The SURE scale has been shown to have modest reliability (internal consistency scores of 0.54–0.65) and good construct validity in a sample of English-speaking patients as well as a sample of French-speaking patients facing treatment decisions [19]. Each item that has a response of yes gets one point, so scores range from 0 to 4. A score of less than 4 on the scale indicates decisional conflict.

Patient demographics (including age, race, education, and marital status) and treatment history were also collected. Provider demographics (including age, years in practice, professional training) and number of early stage breast cancer patients seen each year were also collected.

2.3. Analyses

First, we tested for differences in demographics for those who did and did not receive a recommendation, using *t*-tests for continuous variables and Chi-square for categorical variables. Then, we examined the following three hypotheses:

1. When providers make a treatment recommendation, patients will have lower total involvement scores. We compared total involvement scores for those who had received a treatment recommendation and those who did not, using a two tailed *t*-test.
2. When providers make a recommendation, they tend to advocate for their recommendation and are less likely to discuss both options or ask for patients' preferences. We compared the percentage of patients who reported that the provider discussed both options, discussed the pros and cons of the recommended option, and asked for patients' preferences for those patients who received a treatment

recommendation and those who did not using Fisher's exact test for binomial proportions.

3. Patients who received different treatment recommendations from different providers would have the highest involvement scores followed by those who received a mastectomy recommendation and those who received a lumpectomy recommendation. We tested for differences in total involvement scores among those who received a treatment recommendation, across the types of recommendations, using a nonparametric ANOVA with planned comparisons. We also tested for differences in the individual components using Chi square tests.

3. Results

440 patients completed the surgery survey (response rate 58%). Patients were on average 56.9 years old (SD 11.3), most were white (83.2%), and slightly more than half had a lumpectomy (62%). Table 1 shows the demographics of the sample by those who received a treatment recommendation and those who did not. None of the demographics, nor the SURE score, were significantly associated with receiving a treatment recommendation. Most patients (85%) reported that their provider made a treatment recommendation for surgery. The recommendations were mainly for lumpectomy and radiation (65%) followed by mastectomy (27%). Some patients (8%) received different treatment recommendations from different providers. At the sites, 15 general surgeons or surgical oncologists were female (53%), on average 44 years old (SD 7.0 years), and white (80%). They had been in practice an average of 10.1 years (SD 7.0 years) and saw a median of 100 (Q1 15, Q3 200) early stage breast cancer patients each year.

The mean total involvement score for the sample was 41.3% (SD 35.5). The total involvement score did not vary by site. Consistent with our first hypothesis, patient total involvement was higher when the provider did not give a treatment recommendation compared to when the provider did give a recommendation (52.0% vs. 39.1%, $p = 0.004$). We also examined whether or not receiving a treatment recommendation was associated with the specific aspects of the interaction between the patient and provider. As shown in Table 2, patients who did not receive a treatment recommendation were more likely to have heard about both mastectomy and lumpectomy treatment options (73.0% vs. 55.7%, $p = 0.006$) and were more likely to report that their provider asked about their preferences (66.2% vs. 45.1%, $p < 0.001$).

The type of treatment recommendation that a patient received was also associated with involvement in the treatment decision ($F(2, 352) = 9.26, p < 0.001$). As predicted, patients who received different treatment recommendations had the highest total involvement scores on average (65.5% SD 35.4%) followed by those who received a recommendation for mastectomy (42.5% SD 35.0%) and lumpectomy (33.2% SD 34.35%). The type of treatment recommendation received was also associated with the type of interaction between the patient and her provider (see Table 3). Patients who received different treatment recommendations from different providers were most likely to have heard about both

mastectomy and lumpectomy treatment options compared to patients who received a mastectomy or a lumpectomy recommendation (89.7% vs. 61.9% vs. 47.2%, $p < 0.001$).

4. Discussion and conclusion

4.1. Discussion

This study examined the association between making treatment recommendations and the nature of the interaction between patients and providers. A treatment recommendation was associated with a lower total involvement score and with a different kind of conversation between the patient and provider. In particular, we found that providers were less likely to discuss both treatment options or ask for patients' treatment preferences when they gave a recommendation.

The specific treatment recommendation was also associated with the patients' overall involvement score. As predicted, patients had the highest total involvement scores when they received different treatment recommendations from different providers. Because receiving more than one treatment recommendation may allow the patient to obtain a more balanced and complete set of information about their treatment options, many advocates urge patients to get a second opinion [20,21]. However, conflicting opinions can also increase patients' decisional conflict and delay treatment [22]. As a way to compromise between these differing perspectives, perhaps the solution is for providers to give a more balanced discussion of options at the outset of the decision process.

Our analysis found that providers discussed the option to have a lumpectomy much more often than the option to have a mastectomy. In fact, the lowest involvement score was among patients who received a lumpectomy recommendation, a finding consistent with previous literature [12,23]. Collins et al. [12] found that while many patients viewed lumpectomy with radiation as the preferred treatment for breast cancer, 35% of well-informed women preferred to have a mastectomy. In another study, Katz et al. [23] found that greater patient involvement was associated with higher receipt of mastectomy. As is evident in these studies, the choice to have a mastectomy is often associated with being well-informed and more involved. These findings are particularly enlightening in our sample considering that the majority of patients did receive a recommendation for a lumpectomy. Providers should be aware of how the option to have a mastectomy is being presented, particularly when they give a lumpectomy recommendation.

Other studies have also documented inconsistencies in the information that patients receive regarding breast cancer treatment decisions. Siminoff and Fetting [24] found that oncologists varied considerably in the amount and specificity of information conveyed to patients regarding the risks and benefits of treatment in adjuvant therapy. In this study of 100 women facing an adjuvant treatment decision, 80% made their decision based on their provider's primary treatment recommendation [24]. Clearly, provider recommendations have a substantial impact on the patients' final treatment decision. A recent study by Frosch et al. [25] suggests that patients are reluctant to challenge a providers' recommendation, even if they prefer a different option. It may be that there are some unintended negative consequences of making a treatment recommendation.

Previous research has shown that patients often place great importance upon their provider's recommendation [7–9]. Therefore, it may be impractical to suggest that a provider not share his/ her opinions or make a treatment recommendation. In fact, a detailed discussion between the patient and provider, followed by a recommendation that takes into account the patients' goals and concerns may result in a high quality decision making process. This approach reflects the interpretive or deliberative models of decision making [26]. For example, in the interpretive model, the options and outcomes are discussed as are the patients' goals and values, then the physician summarizes with a recommendation (e.g., "From what you said, it seems that it is very important for you to keep your breast, and you are not very concerned about the chance of having a reexcision, so I would recommend lumpectomy and radiation.") The timing and content of the recommendation may be more important than whether or not a recommendation is given. For preference-sensitive situations, such as breast cancer surgery, the provider might know which options are possible clinically, but until a discussion of the patient's goals and concerns has taken place, the provider cannot make a patient-centered recommendation.

The involvement items used in this study were based on the shared decision making model by Charles et al. [16]. The involvement score is used as to assess the extent to which there was a shared decision making process. These are necessary elements, without which a shared decision making process is unlikely to have occurred. However, they are not sufficient, as patients with a high involvement score might not have had a shared decision making process. For instance, the provider may have discussed the options and outcomes "a lot," but volume of information may have been overwhelming, and the framing of the information (e.g., as survival or mortality) may not have been balanced. Further, it might be satisfactory to have "a little" discussion of pros or cons, and we examined the results with a revised scoring and found the same significant relationships. The involvement score is not intended to provide a comprehensive evaluation of the quality of a decision or set of interactions. That would require assessing patients' knowledge, the extent to which the treatment matches patients' goals, as well as other outcomes [27].

There are several limitations of the study that should be noted. Patients were surveyed on average 2½ years after the decision, which may have impacted their recall of clinical conversations with their health care providers. It is unclear in which direction patients' recall may be biased; however, patients may selectively recall aspects of discussions with their provider that reflect the treatment decision that was made. We examined involvement scores and time since diagnosis in this sample and did not find any trends. The retrospective data do not allow us to determine causality, i.e., whether lower involvement leads to a recommendation or vice versa; nor is it able to control for provider-level differences that may impact the results. Further, there is limited ability to generalize the results to diverse populations treated outside academic cancer centers or to other breast cancer or preference sensitive decisions. Future studies are needed to examine the psychometric properties of the survey instrument in more detail, to study whether there is a causal relationship between treatment recommendations and involvement, and to explore whether these findings hold true in other preference sensitive decisions.

4.2. Conclusion

This study found an association between the type of treatment recommendation regarding breast cancer surgical decisions and the amount of shared decision making in the interaction. Patients are not getting a balanced view of the options, or being asked their preferences, particularly when providers recommend a lumpectomy. It appears that providers are not discussing the option to have a mastectomy or eliciting patients' treatment preferences often enough to ensure shared decision making in these interactions.

4.3. Practice implications

Providers need to give an overview of all treatment choices and the benefits and risks of those options regardless of whether a treatment recommendation is given. Perhaps the timing and content of the recommendation is more important than whether or not a recommendation is given.

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References

1. NIH consensus conference. treatment of early-stage breast cancer. *J Amer Med Assoc.* 1991; 265:391–395.
2. Fisher B, Anderson S, Bryant J, Margolese R, Deutsch M, Fisher E, et al. Twenty-year follow-up of a randomized trial comparing total mastectomy, lumpectomy, and lumpectomy plus irradiation for the treatment of invasive breast cancer. *N Engl J Med.* 2002; 347:1233–1241. [PubMed: 12393820]
3. Institute of Medicine. *Crossing the quality chasm: a new health system for the 21st century.* Washington, DC: National Academies Press; 2001.
4. Wennberg J, Fisher E, Skinner J. Geography and the debate over medicare reform. *Health Aff.* 2002; 21:W94–W114. Supp Web Exclusives.
5. Elwyn G, Edwards A, Kinnersley P. Shared decision-making in primary care: the neglected second half of the consultation. *Br J Gen Pract.* 1999; 49:477–482. [PubMed: 10562751]
6. Raupach JCA, Hiller JE. Information and support for women following the primary treatment of breast cancer. *Health Expect.* 2002; 5:289–301. [PubMed: 12460218]
7. Mazur DJ, Hickam DH, Mazur MD, Mazur MD. The role of doctor's opinion in shared decision making: what does shared decision making really mean when considering invasive medical procedures. *Health Expect.* 2005; 8:97–102. [PubMed: 15860050]
8. Oskay-Ozcelik G, Lehman W, Konsgen D, Christ H, Kaufmann M, Lichte-negger W, et al. Breast cancer patients' expectations in respect of the physician– patient relationship and treatment management results of a survey of 617. patients. *Ann Oncol.* 2007; 18:479–484.
9. Lee MK, Noh DY, Nam SJ, Ahn SH, Park BW, Lee ES, et al. Association of shared decision-making with type of breast cancer surgery: a cross-sectional study. *BMC Health Serv Res.* 2010; 10:1–8. [PubMed: 20044945]
10. Gurmankin AD, Baron J, Hershey JC, Ubel PA. The role of physicians' recommendations in medical treatment decisions. *Med Decis Making.* 2002; 22:262–271. [PubMed: 12058783]
11. Sepucha K, Ozanne E, Silvia K, Partridge A, Mulley AG Jr. An approach to measuring the quality of breast cancer decisions. *Patient Educ Couns.* 2007; 65:261–269. [PubMed: 17023138]
12. Collins ED, Moore CP, Clay KF, Kearing SA, O'Connor AM, Llewellyn-Thomas HA, et al. Can women with early-stage breast cancer make an informed decision for mastectomy? *J Clin Oncol.* 2009; 27:519–525. [PubMed: 19114703]

13. Hawley ST, Lantz PM, Janz NK, Salem B, Morrow M, Schwartz K, et al. Factors associated with patient involvement in surgical treatment decision making for breast cancer. *Patient Educ Couns*. 2007; 65:387–395. [PubMed: 17156967]
14. Kasper J, Heesen C, Kopke S, Fulcher G, Geiger F. Patients' and observers' perceptions of involvement may differ. Validation study on inter-relating measures for shared decision making. *PLoS ONE*. 2011; 6:e26255. [PubMed: 22043310]
15. Scholl I, Koelewijn-van Loon M, Sepucha K, Elwyn G, Legare F, Harter M, et al. Measurement of shared decision-making – a review of instruments. *Z Evid Fortbild Qual Gesundwes*. 2011; 105:313–324.
16. 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; 44:681–692. [PubMed: 9032835]
17. Pass M, Belkora J, Moore D, Volz S, Sepucha K. Patient and observer ratings of physician shared decision making behaviors in breast cancer consultations. *Patient Educ Couns*. 2012; 88:93–99. [PubMed: 22322069]
18. O'Connor A. Validation of a decisional conflict scale. *Med Decis Making*. 1995; 15:25–30. [PubMed: 7898294]
19. Legare F, Kearing S, Clay K, Gagnon S, D'Amours D, Rousseau M, et al. Are you SURE?: assessing patient decisional conflict with a 4-item screening test. *Can Fam Physician*. 2010; 56:e308–e314. [PubMed: 20705870]
20. What you need to know about breast cancer: second opinion. National Cancer Institute; 2009 Oct. Available from: <http://www.cdc.gov/nchs/> [[cited October 14, 2011]]
21. Why get second opinion for treatment? Cancer Treatment Centers of America. 2011 Available from: <http://www.cancercenter.com/breast-cancer/secondopinion.cfm>.
22. Rowland, JH.; Massie, MJ. Breast cancer in Psycho-Oncology. Holland, J., editor. New York: Oxford University Press; 1998.
23. Katz SJ, Lantz PM, Janz NK, Fagerlin A, Schwartz K, Liu L, et al. Patient involvement in surgery treatment decisions for breast cancer. *Am Soc Clin Oncol*. 2005; 23:5526–5533.
24. Siminoff LA, Fetting JH. Factors affecting treatment decisions for a life-threatening illness: the case of medical treatment of breast cancer. *Soc Sci Med*. 1991; 32:813–818. [PubMed: 2028276]
25. Frosch DL, May SG, Rendle KA, Tietbohl C, Elwyn G. Authoritarian physicians and patients' fear of being labeled 'difficult' among key obstacles to shared decision making. *Health Aff*. 2012; 31:1030–1038.
26. Emanuel EJ, Emanuel LL. Four models of the physician–patient relationship. *J Amer Med Assoc*. 1992; 267:2221–2226.
27. Elwyn G, O'Connor A, Stacey D, Volk R, Edwards A, Coulter A, et al. Developing a quality criteria framework for patient decision aids: online international delphi consensus process. *Brit Med J*. 2006; 333:417. [PubMed: 16908462]

Table 1

Demographics of study sample and those who did and did not receive a treatment recommendation.

Characteristic	Overall <i>N</i> = 440 (%)	Treatment recommendation <i>N</i> = 366 (%)	No treatment recommendation <i>N</i> = 74 (%)	<i>p</i> value
Age, mean (SD)	56.9 (11.3)	57.0 (11.3)	56.5 (11.5)	0.76
Breast cancer stage I (vs. Stage II)	265 (60.2)	218 (59.6)	47 (63.5)	0.53
Education				0.89
College graduate	279 (63.4)	231 (63.1)	48 (64.9)	
Some college	106 (24.1)	88 (24)	18 (24.3)	
High school or less	55 (12.5)	47 (12.8)	8 (10.8)	
Married/committed relationship (vs. single/divorced/widowed)	297 (67.8)	249 (68.4)	48 (64.9)	0.55
Race white (vs. other)	362 (83.2)	313 (86.5)	59 (80.8)	0.21
Hispanic (vs. non Hispanic)	13 (3.0)	11 (3.0)	2 (2.8)	0.91
Income				0.93
30,000	59 (14.3)	48 (14.1)	11 (15.1)	
30,001–60,000	87 (21.1)	70 (20.6)	17 (23.3)	
60,001–100,000	107 (24.3)	88 (25.9)	19 (26)	
>100,000	160 (38.7)	134 (39.4)	26 (35.6)	
SURE scale, mean (SD)	3.56 (1.0)	3.57 (1.04)	3.51 (1.08)	0.66

Table 2

Reports of involvement for patients who did and did not receive a treatment recommendation.

Involvement item	Overall (N = 440) %	Treatment recommendation (N = 366) %	No treatment recommendation (N = 74) %	p value
Provider mentioned both mastectomy and lumpectomy as treatment options	58.6	55.7	73.0	0.006
Provider talked about the pros of both mastectomy and lumpectomy	35.2	33.9	41.9	0.12
Provider talked about the cons of both mastectomy and lumpectomy	22.7	21.9	27.0	0.33
Provider asked for patients' treatment preference	48.6	45.1	66.2	<0.001
Mean total involvement score	41.3	39.1	52.0	0.004

Table 3

Involvement items by type of recommendation received.

Involvement items	Overall (N = 355) %	1. Lump Rec N = 229%	2. Mast Rec N = 97%	3. Different Rec N = 29%	p value
Provider mentioned both mastectomy and lumpectomy as treatment options	54.6	47.2	61.9	89.7	<0.001*
Provider talked about the pros of both mastectomy and lumpectomy	33.0	30.6	34.0	48.3	0.16
Provider talked about the cons of both mastectomy and lumpectomy	21.1	14.8	30.9	37.9	<0.001**
Provider asked for patients' treatment preference	44.8	40.2	43.3	86.2	<0.001***
Mean total involvement score	38.4	33.2	42.5	65.5	<0.001*

Lump, lumpectomy; Rec, recommendation; Mast, mastectomy.

* $p < 0.05$ for all comparisons.

** Column 2 > 1 and Column 3 > 1, $p < 0.05$.

*** Column 3 > 1 and Column 3 > 2, $p < 0.001$.