Underuse of Breast Cancer Adjuvant Treatment: Patient Knowledge, Beliefs, and Medical Mistrust

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ABSTRACT

Purpose

Little is known about why women with breast cancer who have surgery do not receive proven effective postsurgical adjuvant treatments.

Methods

We surveyed 258 women who recently underwent surgical treatment at six New York City hospitals for early-stage breast cancer about their care, knowledge, and beliefs about breast cancer and its treatment. As per national guidelines, all women should have received adjuvant treatment. Adjuvant treatment data were obtained from inpatient and outpatient charts. Factor analysis was used to create scales scored to 100 of treatment beliefs and knowledge, medical mistrust, and physician communication about treatment. Bivariate and multivariate analyses assessed differences between treated and untreated women.

Results

Compared with treated women, untreated women were less likely to know that adjuvant therapies increase survival (on a 100-point scale; 66 v 75; $P < .0001$), had greater mistrust (64 v 53; $P = .001$), and had less self-efficacy (92 v 97; $P < .05$); physician communication about treatment did not affect patient knowledge of treatment benefits ($r = 0.8$; $P = .21$). Multivariate analysis found that untreated women were more likely to be 70 years or older (adjusted relative risk [aRR], 1.11; 95% CI, 1.00 to 1.13), to have comorbidities (aRR, 1.10; 95% CI, 1.04 to 1.12), and to express mistrust in the medical delivery system (aRR, 1.003; 95% CI, 1.00 to 1.007), even though they were more likely to believe adjuvant treatments were beneficial (aRR, 0.99; 95% CI, 0.98 to 0.99; model c , 0.84; $P \leq .0001$).

Conclusion

Patient knowledge and beliefs about treatment and medical mistrust are mutable factors associated with underuse of effective adjuvant therapies. Physicians may improve cancer care by ensuring that discussions about adjuvant therapy include a clear presentation of the benefits, not just the risks of treatment, and by addressing patient trust in and concerns about the medical system.

J Clin Oncol 27:5160-5167. © 2009 by American Society of Clinical Oncology

INTRODUCTION

Despite the proven effectiveness of adjuvant therapies in the treatment of early-stage breast cancer, many women do not receive them.¹⁻⁴ Patient refusal accounts for a third of underuse occurrences.⁵ Understanding the benefits and risks of treatment can be important to the patient experience, as these beliefs and perceptions can affect patient behavior. Beliefs about cancer are known to affect screening practices,⁶ and perceptions of the risks and benefits of tamoxifen therapy have been shown to influence adherence to adjuvant tamoxifen therapy—those with more positive views are more likely to adhere.⁷ Patient knowledge also has been shown to influence treatment choices,⁸ particularly in choosing the type

of breast cancer surgery.⁹⁻¹² However, few studies have reported the effect of patients' understanding and beliefs about adjuvant treatment, including their healthcare experiences and perceptions, on adjuvant treatment rates among women who have had surgery for their breast cancers. By understanding patient-related reasons associated with underuse of adjuvant therapies, physicians may be able to tailor messages to patients to improve rates of treatment.

We sought to identify women's reasons for underuse by exploring the relationship between patients' experiences of medical care, knowledge, and beliefs about the disease and its treatment. Our goal was to determine remediable factors that physicians can affect in the clinical encounter and, in so doing, improve adjuvant treatment rates.

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Submitted March 13, 2009; accepted May 26, 2009; published online ahead of print at www.jco.org on September 21, 2009.

Supported by Grant No. NCMHD 2P60 MD00270 from the National Center on Minority Health and Health Disparities, Grant No. AHRQ P-01HS10859-02 from the Agency for Healthcare Research and Quality, and Commonwealth Grant No. 20010102 from the Commonwealth Fund.

Authors' disclosures of potential conflicts of interest and author contributions are found at the end of this article.

Clinical Trials repository link available on JCO.org.

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0732-183X/09/2731-5160/\$20.00

DOI: 10.1200/JCO.2009.22.9773

Patient Reasons for Underuse of Adjuvant Treatment

Table 1. Survey Domains and Items

Domain	Cronbach α	Scale Associated With Higher Values*	Items
Emotional social support	.88	More support	When you had problems, was there someone you could trust to help you solve them? If you needed to share your most private worries or fears, was there someone you could go to? If you're worried about an important personal matter, is there someone you could go to?
Instrumental social support	.60	More support	If you needed help around the house (ie, cleaning or small repairs), could you get someone to help without pay? If you get stranded away from home, is there someone you could call to come and get you?
Medical mistrust	.66	More mistrust	Patients have sometimes been purposefully misled at hospitals. Hospitals often want to know more about your personal affairs or business than they really need to know. Hospitals have sometimes done harmful experiments on patients without their knowledge. Rich patients receive better care at hospitals than poor patients do. Male patients receive better care at hospitals than female patients do.
Racism	.80	More racism	In general, doctors treat African American, Hispanic, and white people the same. Racial discrimination in a doctor's office is common. In most hospitals, African Americans, Hispanics, and whites receive the same kind of care. African Americans and Hispanics can receive the care they want as equally as white people can.
Self-efficacy	.47	More confidence	I'm confident I can tolerate and complete my cancer treatments. I'm confident I can find the doctors I need for my cancer care.
Trust of physician	.70	More trust	I'm confident in my doctor's judgments about my medical care. My doctor would always tell me the truth about my health, even if there was bad news. My doctor is well qualified to manage medical problems like mine. How much do you trust your doctor? (on a scale of 1-10).
Physician communication about treatment	.79	More communication	Your doctor gave you the information you need to make a decision about your cancer treatment. Your doctor discussed different types or choice of treatment(s). Your doctor discussed the pros and cons of each choice with you. Your doctor understood your concerns about breast cancer and its treatment. Your doctor took your preferences into account when making treatment decisions.
Depression	.75	More depressed	In the past 4 weeks, how much of the time did you have a lot of energy? In the past 4 weeks, how much of the time have you felt downhearted and blue? In the past 4 weeks, how much of the time have you felt calm and peaceful? How often in the past 4 weeks have you had much interest or great pleasure in doing things?
Adjuvant treatment knowledge and beliefs	.61	Stronger belief	Chemotherapy keeps the cancer from coming back. Chemotherapy can make women live longer. Chemotherapy would be harmful. Chemotherapy would be more harmful than the cancer. Chemotherapy adverse effects are not worth it. Hormonal therapy keeps the cancer from coming back. Hormonal therapy can make women live longer. Hormonal therapy would be harmful. Hormonal therapy would be more harmful than the cancer. Hormonal therapy adverse effects are not worth it. RT makes it less likely for breast cancer to come back. RT would be harmful. RT would be more harmful than the cancer. Adverse effects of RT would be so bad it might not be worth it. RT can keep the cancer from coming back.

Abbreviation: RT, radiation therapy.

*All scale ranges, 20-100, except for the following: self-efficacy range, 60-100; trust of physician range, 32-100; depression range, 16-100; and adjuvant treatment knowledge and beliefs range, 15-100.

METHODS

From pathology, we identified eligible women with new, primary, stages I or II breast cancer who underwent definitive surgical treatments and required some form of postsurgical adjuvant therapy, as per the guidelines created by the project's Steering Committee, consistent with national guidelines.¹³ English- or Spanish-speaking women who were treated surgically between September 2004 and March 2006 at six New York City hospitals, and who were participating in a physician-centered tracking and feedback intervention study designed to reduce disparities in breast cancer care,¹⁴ were eligible. Sites included two tertiary referral centers, three municipal hospitals, and one community hospital. On the basis of pathology reports, women with stages I or II breast cancer were contacted by phone after the surgery and were invited to partici-

pate in a physician-centered tracking and feedback study. This study received institutional review board approval from all participating sites.

To ensure adequate time to complete standard adjuvant therapies, the women who consented to be in the study were surveyed at least 6 months after their surgeries. Patient interviews were conducted an average of 11 months from surgery (range, 6 to 28 months). On the basis of chart abstraction, women were classified as untreated if they had breast-conserving surgery and did not receive subsequent radiotherapy, did not receive chemotherapy after surgery for tumors ≥ 1 cm with negative hormone receptors, or did not receive hormonal therapy for tumors ≥ 1 cm with positive hormone receptors, consistent with national guidelines.¹³ Data were obtained from inpatient and outpatient chart reviews; 100 physician offices provided additional treatment information.¹⁴

Table 2. Patient Demographic and Clinical Characteristics by Underuse

Characteristic	Patients				P
	Underuse (n = 32)		Treated (n = 226)		
	No.	%	No.	%	
Age					< .0001
Mean		67.2		56.5	
Range		37-90		28-87	
Ethnicity					.9578
White	20	63	138	61	
Black	5	16	44	19	
Hispanic	6	19	38	17	
Asian	1	3	6	3	
Insurance					< .0001
Commercial	10	31	142	63	
Any Medicare	19	59	45	20	
Medicaid only	3	14	31	9	
Uninsured	0	0	8	4	
Less than high school education	11	35	79	35	.9812
Born in United States	23	74	158	71	.6714
Speaks English at home	22	73	190	85	.1117
Has regular source of care	29	91	213	94	.4292
Health					.1290
Excellent	2	6	24	11	
Very good	8	25	77	34	
Good	11	34	76	34	
Fair	9	28	47	21	
Poor	2	6	2	1	
Comorbidity score ≥ 1	18	56	53	23	.0001
Depression scale*					.8468
Score of 16-100		46.7		45.9	
SD		21.6		15.9	
Instrumental social support scale†					.0262
Score of 20-100		72.5		82.3	
SD		26.2		22.6	
Emotional social support scale†					.9440
Score of 20-100		89.6		89.3	
SD		20.5		19.6	
Surgery type					.2265
Mastectomy	7	22	77	34	
Breast-conserving surgery	25	78	149	66	
Hospital type					.7590
Large tertiary, predominantly white	24	75	175	77	
Smaller community, predominantly minority	8	25	51	23	

NOTE. Categorical variables were compared with χ^2 test, and continuous variables were compared with *t* test.

Abbreviation: SD, standard deviation.

*Higher value indicates greater depression.

†Higher value indicates greater support.

Survey Instrument

The survey instrument was designed to assess patients' beliefs, attitudes, and knowledge about breast cancer and its treatment and to record their experiences with care. Additional, previously validated questions assessed perceived racism,¹⁵ trust in physician,^{16,17} trust in the health care system (ie, medical mistrust),¹⁵ instrumental and emotional social support,¹⁸ and general and emotional health status.^{19,20} Knowledge about adjuvant systemic and local treatments was asked of all patients (Table 1). Because not all adjuvant treatments were relevant to all women, questions probing belief about a specific adjuvant treatment were asked only if the woman said her physician recommended that treatment. The survey was translated to Spanish and was back-translated to English to ensure translation accuracy.

Analysis

To group questions into domains of beliefs, we performed a principal-components factor analysis with orthogonal rotation. Items were grouped into the following eight domains with moderate-to-high internal consistency: emotional social support ($\alpha = .88$), instrumental social support ($r = .43$), trust of physician ($\alpha = .70$), self-efficacy ($\alpha = .47$), medical mistrust ($\alpha = .66$), racism ($\alpha = .80$), physician communication about treatment ($\alpha = .79$), and adjuvant treatment knowledge and beliefs ($\alpha = .61$; Table 1). Items were summed into scores that were scaled to 100 (range, 5 to 100); questions with missing response data were imputed to the midpoint. Items that did not load to a specific factor but were of interest, such as fatalism, were reported as individual items. General health status was measured with a single item.

Patient beliefs and experiences were compared between treated and untreated patients as well as by ethnic group. Ethnicity was based on patient self-report. Bivariate comparisons were conducted with *t* tests and χ^2 . As some independent variables were significantly correlated, interaction terms of independent variables were tested; they were not significant and were not included in the final model. Multivariate analysis included variables significant in the bivariate analyses. Because underuse of adjuvant therapy was not a rare occurrence, odds ratios were converted to adjusted relative risks.²¹ All statistical analyses were performed by using SAS version 9.1.3 (SAS Institute, Cary, NC).

RESULTS

Study Population

On the basis of pathology reports, 401 women had stages I or II breast cancer, were eligible, and were reachable by phone. Of these, 99 women (25%) refused to participate in the tracking and feedback study; two did not speak English or Spanish and were not included. Women age 70 years or older were more likely to refuse consent than those younger than 70 years (37% v 20%; $P < .001$). Of the 300 eligible women who consented to chart abstraction, 14 (5%) were unreachable, 27 (9%) refused to be interviewed, and one woman was deceased, which provided a final sample of 258 women. There were no differences in stage, age, insurance, or hospital between the surveyed women and those who refused or were unreachable.

Treatment Recommendation and Receipt

As per the guidelines, among the 258 women, 64 should have received chemotherapy, 150 should have received hormonal therapy, and 174 should have received radiotherapy. Of these groups, eight (12.5%) of 64 women, 11 (7.3%) of 150 women, and 15 (8.6%) of 174 women were untreated. Thirty-two of the surveyed women did not receive adjuvant therapy, and two women did not receive both local and systemic therapies.

Patient Characteristics

Table 2 lists characteristics of the treated and untreated women. Approximately 40% of the cohort was ethnic minority. Overall, there

was no statistically significant ethnic difference in underuse of adjuvant therapy, and a somewhat higher proportion of the treated patients were black. Treated patients were more likely to have commercial insurance, whereas a greater portion of underuse patients were on Medicare. Underuse patients were older, were slightly less likely to speak English at home, had greater comorbidities, and had less instrumental social support. Nearly one third of women age 70 years or older experienced underuse, compared with 8% of women younger than 70 years. There was no significant difference in level of education, access to care, health status, emotional social support, or type of hospital where the surgery was performed.

Relationship of Patient Knowledge, Attitudes, and Beliefs With Underuse

Table 3 lists the relationship between various patient-related beliefs, experiences, and underuse. Untreated women report lower levels of self-efficacy than treated women. Differences in fatalism and trust in physician were not significant. There was also no significant difference in patients' perceptions of financial barriers to treatment.

Untreated women were less likely than treated women to know adjuvant therapies have been proven to increase survival and were more likely to believe them harmful (Table 3). Knowledge and beliefs about treatment were not associated with ethnicity but were associated with age. On a 100-point scale, women age 70 years and older (71 v 75 points; $P \leq .01$) and those with comorbidities (72 v 75 points; $P = .02$) were less likely to think treatments were beneficial. Despite differences in knowledge and beliefs about treatment, there was no significant difference found in the underuse patients' perceptions of their doctors' communication of information about treatment (88 v 91 points; $P = .224$) or the patients' comfort with their physicians, nor was physician communication of treatment information associated with patient knowledge ($r = 0.8$; $P = .21$).

Treated women were more likely to say they would undergo unpleasant or painful treatments if the treatments would improve their chance of survival (Table 3). Response to this item was associated with age: there was a trend for women age 70 years or older to be less likely to say they would undergo unpleasant treatment (30% v 70%; $P = .06$).

Women with underuse had greater mistrust of the medical delivery system (Table 3). Medical mistrust was higher among women with comorbidities than among those without (58 v 53 points; $P = .03$) and among black and Hispanic women (black, 60 points; Hispanic, 58 points; white, 53 points; Asian, 45 points; $P = .02$). Medical mistrust did not differ by age but did differ by education: women with less than a high school education expressed more mistrust than women who had completed high school or more education (59 v 52 points; $P \leq .01$).

Multivariate Model

Multivariate modeling found that the factors most associated with underuse of adjuvant therapy were older age, comorbidity, knowledge and beliefs about treatment, and mistrust in the medical system. Adjusted relative risks ratios are listed in Table 4.

DISCUSSION

Up to one third of episodes of underuse of adjuvant treatment for early-stage breast cancer are attributed to patient refusal.¹ Refusal of

Table 3. Relationship of Patient Factors and Underuse

Factor or Statement	Patients		P
	Underuse (n = 32)	Treated (n = 226)	
Adjuvant treatment beliefs			
Knowledge and beliefs about adjuvant treatment scale			< .0001
Mean	66.38	10.1	
SD	11.8	75.4	
I would undergo unpleasant or painful treatment if it would improve my chances of living longer (n = 245)			.0611
No.	24	207	
%	86	95	
Patient beliefs			
Medical mistrust scale*			.0012
Mean	64.1	53.2	
SD	15.2	18.0	
Trust scale*			.3979
Mean	94.1	95.7	
SD	10.2	7.9	
Self-efficacy scale			.048
Mean	92	96.9	
SD	13.5	8.0	
Having cancer is like getting a death sentence (n = 249)			1.000
No.	5	41	
%	17	19	
If cancer is found early, it can be cured (n = 246)			1.000
No.	29	205	
%	97	95	
Knowing someone treated for cancer made you want to avoid therapy (n = 252)			.2549
No.	11	57	
%	35	26	
If it's meant to be, I will stay healthy (ie, fatalism) (n = 236)			.4940
No.	18	140	
%	75	66	
Communication characteristics			
Doctor communication about treatment scale			.224
Mean	88	91	
SD	6	13	
Doctor gave information needed to make a decision about treatment			.5122
No.	22	196	
%	85	89	
Doctor took your preferences into account in treatment decisions			.7042
No.	30	198	
%	97	93	
Felt very comfortable with provider			.767
No.	27	196	
%	84	87	
Financial barrierst			
Paying for radiotherapy would be difficult (n = 175)			1.000
No.	3	32	
%	19	20	

(continued in next column)

Table 3. Relationship of Patient Factors and Underuse (continued)

Factor or Statement	Patients		P
	Underuse (n = 32)	Treated (n = 226)	
Paying for chemotherapy would be difficult (n = 159)			.7549
No.	4	40	
%	31	27	
Paying for hormonal therapy would be difficult (n = 167)			.4555
No.	3	21	
%	20	14	

NOTE. Categorical variables were compared with χ^2 or Fisher's exact test, and continuous variables were compared with *t* test.

Abbreviation: SD, standard deviation.

*Higher numbers indicate stronger belief.

†Asked only if physician recommended therapy.

treatment may be based on patient preferences after informed decision making or may be due to lack of knowledge about the risks and benefits of undergoing or foregoing therapies as well as attitudes and beliefs about cancer and its treatments.^{6,7,9} We found that knowledge and beliefs about adjuvant treatment, mistrust of the medical system, older age, and the presence of other comorbidities all were associated with higher rates of underuse of adjuvant breast cancer treatment. Knowledge and beliefs about adjuvant breast cancer treatment and mistrust of the medical system are mutable factors and present an opportunity for doctors to affect treatment rates through improved communication in their interactions with patients. Older age and comorbidities are patient characteristics that, although not mutable, can be used to change physician counseling behaviors and patient support when discussing treatments.

Women with poorer understanding of the benefit and risks of adjuvant treatments were more likely to experience underuse of these treatments, regardless of their levels of education or prior experiences with individuals with cancer. Disturbingly, women's knowledge of treatment benefits and risks were not affected by their physicians' communications about treatment. Women felt their physicians presented them with the information needed to make an informed decision about adjuvant treatment, and their physicians were aware of their concerns about cancer. Despite physicians' efforts to explain

Table 4. Multivariate Logistic Model of Patient Factors Associated With Underuse

Factor	Multivariate Analysis	
	aRR*	95% CI
Age $\geq$ 70 years	1.11	1.06 to 1.13
Comorbidity	1.10	1.04 to 1.12
Mistrust of medical institutions	1.003	1.00 to 1.007
Adjuvant treatment knowledge and beliefs	0.99	0.98 to 0.99

NOTE. Model C statistic = 0.84; $P = < .0001$. Self-efficacy, instrumental social support, and insurance were no longer significant and were not included in the final model.

Abbreviation: aRR, adjusted relative risk.

*Adjusted relative risks of mistrust and of knowledge and beliefs were based on 1-point incremental scale changes.

treatments, crucial information about the benefits and risks of adjuvant therapies was somehow lost in translation. This dissociation between physician communication about treatment options and patients' understanding about breast cancer treatment corroborates similar findings among California's medical breast cancer population.²² Chen et al²² found that patients' knowledge about breast cancer and its treatment was not related to the quantity of information provided by the physician but rather to the patients' emotional connection with their physicians. This communication disconnect raises the challenge of finding the best strategy to ensure that these messages are clearly understood.²³⁻²⁶ Fewer than half of women undergoing breast cancer surgery knew the impact on survival and recurrence risks of the two surgical treatment options, despite having discussed the treatment options with their doctors.⁹ Misunderstandings of benefit-risk information can lead to lack of adherence to treatment regimens and to decreased satisfaction with the medical encounter.²⁷⁻²⁹

New approaches, therefore, are needed to successfully educate patients to interpret medical risk data.³⁰ Despite proliferation and implementation of decision aids,^{26,31-33} patients often leave their doctor offices without a clear understanding of their conditions and of recommended treatments. Decision aids may be helpful in improving patient understanding; in the case of breast cancer in which adjuvant treatment is proven efficacious, they may play a crucial role in raising awareness of treatment options.³⁴ Computerized informational support systems have been developed to facilitate communication between provider and patient and have been utilized by women to learn about adverse effects of treatment and rates of recurrence^{24-26,35,36}; however, ongoing use of such tools after completion of the grant funding used to develop and test them is uncertain.³⁷ Currently, 21 US states have regulations that require the distribution of pamphlets describing treatment options for women newly diagnosed with breast cancer.³⁸ Enforcement of these rules is difficult at best, and their implementation and effect on decision making have not been assessed.³⁹ Although print information may be helpful, personal contact often is preferred.⁴⁰ In fact, patients who received emotional support from their physicians had better knowledge about breast cancer and its treatments, which suggests that attending to a patient's emotional needs may enable them to hear and learn more technical content and, thus, improve informed decision making.²² With increasing demands on physician time, patient navigators or other patient assistance providers may be best able to fill this void.⁴¹ A combined approach, one that offers both the information—either hard print or computerized—and a personal source to answer questions and provide support during the crucial decision-making time, likely will be most effective in eliminating failures to treat. Personal contact can start when a woman undergoes diagnostic evaluation of a suspicious breast lesion. The newly diagnosed patient with cancer then can be given breast cancer information via print pamphlet or computerized support and can be introduced to a patient assistance provider who can provide the additional evidence-based information, as well as emotional and practical support, the patient may need during this highly charged and vulnerable time.

Providers may communicate differently with patients by age, ethnicity, education, and income, which leads to disparities.^{40,42} We found that younger women had more accurate knowledge of treatment benefits. However, there is less convincing evidence to support

the benefits of adjuvant treatments among older women.⁴³⁻⁴⁵ Our findings are similar to other studies, which show that older women with cancer are more likely to be undertreated.⁴⁶⁻⁵⁰ Age-related undertreatment of cancer may be due to higher prevalence of comorbidities, lower overall life expectancy, lower or adverse effects of treatment, fewer physician referrals for additional treatment, or patient preference for less invasive treatment.⁴⁴ Although we can not differentiate among these causes for the lower use of adjuvant therapy among the older women in this study, the dearth of literature regarding benefits of adjuvant treatment in older women likely plays a role in both patients' and physicians' preferences about adjuvant treatment and highlights the critical need to include older women in clinical trials to strengthen the scientific base needed to inform older women's decision making.

Although others have found an ethnic difference in knowledge and beliefs,¹⁰ we did not. Of note, there was also no ethnic disparity in treatment in this cohort, although this disparity has been well documented in other populations.

Mistrust in the medical delivery system was also a significant mutable predictor of treatment underuse in our population. Ethnic differences in trust in the medical delivery system have been well documented in other chronic conditions and have been associated with poor satisfaction with care.¹⁵ Our results confirm an ongoing ethnic disparity in trust and extend it from chronic conditions to adjuvant cancer treatment. Interestingly, however, this ethnic disparity in medical mistrust did not translate into an ethnic disparity in treatment receipt, perhaps because of our study population. Survey respondents had agreed to participate in a study to look at decision making in breast cancer, but it was a study that activated the surgeons to reach out to their patients who missed follow-up oncology appointments. Because our survey responses are cross sectional, we can not determine whether it was the outreach that helped overcome the ethnic disparity in mistrust of the medical system and enable women to get treated. Equally disturbing is the association between mistrust and presence of another diagnosed comorbidity. This result suggests that increased exposure to the medical system may lead to greater mistrust, a finding that should raise a red flag to health care providers. What experiences in past encounters could have led to such negative feelings? Our data do not enable us to answer this important question, but strategies that focus on open communication and disclosure of medical errors have found specific and teachable communication behaviors associated with fewer malpractice claims for primary care physicians.⁵¹ Such approaches may be applied in communicating with patients with cancer who have had negative medical experiences in the past that appear to affect attitudes and seem to bear on present treatment decisions.

A major strength of this study is the comparison of beliefs and experiences among an ethnically diverse population of treated and untreated women who underwent surgery for breast cancer. This study addresses rates of adjuvant treatments proven to increase survival and factors associated with these treatments, whereas many other studies focus only on the surgical decision. Survey questions were based on both focus group findings and previous studies that evaluated beliefs about breast cancer.⁵²⁻⁵⁵ The survey was conducted via telephone, which reduced the impact of limited literacy among respondents.

Our study also has important limitations. We recruited our survey participants from a physician-centered intervention designed to reduce underuse by closing the referral loop between surgeons and

oncologists. Although the study was directed at physicians, women had to consent to participate in the survey and chart review. Older women were more likely to refuse to participate in the intervention study, which may have influenced our findings, as older women tended to be more likely to experience underuse and had lesser understanding of adjuvant treatment benefits. This study was conducted in New York City and was in English and Spanish, which limits its generalizability to other locales and languages. Although our findings are local, such beliefs may have more global relevance, particularly given that other studies have demonstrated underlying health and cultural beliefs to be important barriers to cancer screening, both among larger US populations and in the United Kingdom.^{6,56}

Despite physicians' discussions of breast cancer treatment options, patients continue to lack important knowledge about the treatments, although this is knowledge that is needed to make truly informed decisions. To reduce underuse of adjuvant therapies, all patients should be educated regarding the benefits and risks of treatment; improved patient knowledge may affect underuse of adjuvant therapy overall and is likely to have a particularly potent effect in older-age populations. Physicians also should address directly issues

of trust, particularly with minority-population patients and patients with comorbidities.

AUTHORS' DISCLOSURES OF POTENTIAL CONFLICTS OF INTEREST

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

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