

Relationships between Oncologist Gender, Participatory Decision Making, Anxiety and Breast Cancer Care

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Abstract

The discovery that adjuvant treatment (chemotherapy and radiotherapy) after lumpectomy contributes to high survival rates has been a groundbreaking development in modern breast cancer care. Participatory decision-making (PDM) is a communication style that involves active interactions and discourse between doctors and patients. Although the receipt of adjuvant therapy for various types of cancers has been found to be linked to differences in patient-physician communication, few studies have explored whether this relationship exists in breast cancer treatment. The present study, one of the first explicitly to examine demographic and psychosocial factors that may be related to adjuvant treatment rates, surveyed a sample of inner-city breast cancer patients (N = 105) about the type of care they received, assessing concomitant levels of participatory decision making (PDM), and anxiety. The results demonstrated that patients who indicated higher PDM tended to have lower levels of anxiety ($p < .01$). Breast cancer patients who saw female oncologists were more likely to receive adjuvant treatment than breast cancer patients who saw male oncologists ($p < .05$). Contrary to popular belief, patients reported equivalent levels of PDM and anxiety regardless of their physician's gender or their receipt of adjuvant treatment. The surprisingly low adjuvant treatment rates (45%) in this sample suggest possible system failures in breast cancer care and indicate that more attention needs to be given to public education on the importance of receiving follow-up treatment in breast cancer care.

Key words: Adjuvant treatment; anxiety; gender; lumpectomy; participatory decision making

Introduction

Affecting more than 1.3 million people each year, breast cancer is the second most widespread cancer worldwide and kills more than 40,000 Americans annually (Jemal et al., 2003). A lumpectomy (breast conservation surgery) is the most common treatment for breast cancer and consists of the removal of a localized lump of cancerous growth on the breast. Adjuvant treatment is defined as the receipt of radiotherapy or chemotherapy after lumpectomy. Clarke et al. (2005) and the Early Breast Cancer Trialists' Collaborative Group's (2005) studies were amongst the first to find that adjuvant treatment after lumpectomy not only reduced breast cancer recurrence, but also significantly raised breast cancer survival rates. Numerous studies (Lantz et al., 2005; Morris et al., 2000; National Cancer Policy Board, 1999) have indicated that mastectomy, as opposed to adjuvant treatment, is "over-used," which has been "labeled as a problem in terms of 'over-treatment.'" Lantz and colleagues' (2005) study posited that the use of mastectomy in place of adjuvant treatment may be an indication of breast cancer patients' "lack of decision involvement or control."

Participatory decision-making (PDM) is a recommended communication style that involves active inter-

actions and dialogue between doctors and patients and is indicative of high degree of patients decision involvement in their health care (Cooper-Patrick et al., 1999). Several studies have shown that female patients have better communication with female physicians than with male physicians, leading some to speculate (Hershman et al., 2008; Lurie et al., 1993) whether female breast cancer patients exhibit higher PDM and lower anxiety with female oncologists than with male oncologists. Past research has found that female patients undergoing breast cancer screening indicated higher PDM and felt less anxious when they had a female doctor than a male doctor (Lurie et al., 1993). Lurie and colleagues explained their findings by suggesting that female doctors at an obstetrics-gynecology clinic may be more effective in dealing with female patients' emotional stress and gender-specific concerns pertaining to breast health. Other studies have also provided evidence that female breast cancer patients

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may feel more comfortable talking with female oncologists and may feel less nervous regarding their medical condition than with male oncologists (Roter et al., 1991; Stevens et al., 1996).

It has also been ascertained that cancer patients who report better communication with their oncologists tend to have less anxiety (Meeuwesen et al., 1991; Stevens et al., 1996). In an attempt to respect patients' rights and to address their anxiety, medical communication in recent years has become progressively less "paternalistic" by encouraging patients, instead of their doctors, to make decisions about their medical care. This increasingly patient-centered type of patient-physician dynamic has been found to contribute to increased levels of PDM (Guadagnoli & Ward, 1998; Thompson, 2007). Given that research on determinants of the use of breast cancer adjuvant treatment remains a relatively new field, no research to date has examined differences in PDM and anxiety between breast cancer patients who received adjuvant treatment and those who did not receive adjuvant treatment. Understanding PDM may give doctors an opportunity to learn about patients' comorbidities and take patients' personal concerns into consideration before deciding on a medical treatment. In addition, few studies have examined factors that are related to adjuvant treat-

ment rates, perhaps due to the recent nature of Clarke et al.'s (2005) findings on the tangible benefits of adjuvant treatment on breast cancer survival.

We hypothesized that: 1. Compared to breast cancer patients with male oncologists, patients with female oncologists would indicate: (a) higher PDM, (b) higher rates of adjuvant treatment, and (c) less anxiety. 2. Compared to patients who did not receive adjuvant treatment, patients who received adjuvant treatment would indicate: (a) higher PDM and (b) lower anxiety. The present study seeks to examine whether the gender of patients' oncologists is related to patient anxiety, breast cancer adjuvant treatment rates, and the quality of patient-physician communication.

Materials and Methods

Participants

During the fall of 2008, the American Cancer Society (ACS) Patient Database was utilized to randomly select 240 breast cancer patients to be surveyed through the mail. The sample for this study consisted of 105 female breast cancer patients who had been diagnosed with and treated for the disease in the past

Table 1 Demographic and clinical characteristics of study participants

		All participants N = 105	
		N	%
Age group	40-54	48	45.7
	55-69	41	39.0
	70-90	16	15.2
Race	Caucasian	52	49.5
	African American	25	23.8
	Hispanic	16	15.2
	Asian	10	9.5
	Other/Mixed	2	1.9
Borough of residence	Brooklyn	76	72.4
	Staten Island	29	27.6
Breakdown of treatment	Lumpectomy by itself	50	47.6
	Mastectomy followed by chemotherapy	6	5.7
	Mastectomy followed by radiotherapy	2	1.9
	Mastectomy by itself	0	0
	Lumpectomy followed by Chemotherapy	15	14.3
	Lumpectomy followed by radiotherapy	32	30.5

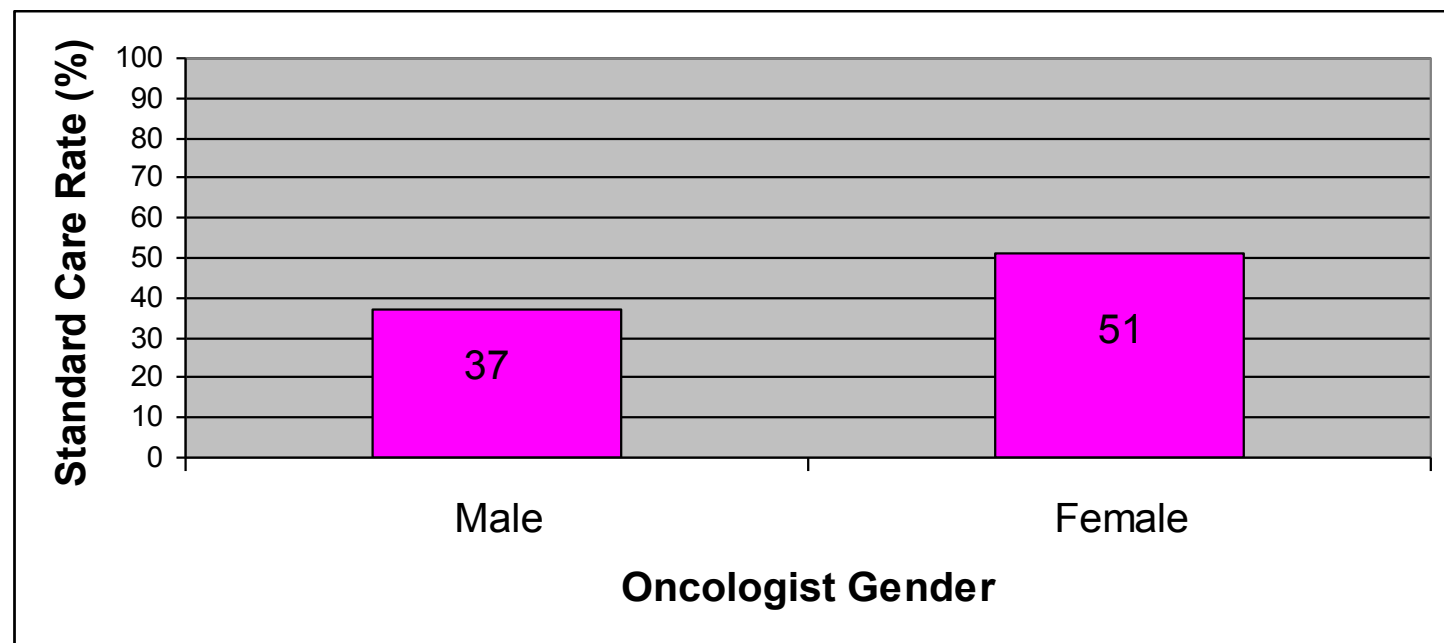


Figure 1 A statistically significant difference was found between the % of female oncologists' patients (19/37, 51%) who received adjuvant therapy and the % of male oncologists' patients received adjuvant treatment (22/60, 37%), $\chi^2(96) = 3.41, p < .05$

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two years, a response rate of 44%. All participants were diagnosed with breast cancer in stages I-III and were thus eligible for adjuvant treatment. Previous studies on PDM and anxiety of breast cancer patients have used similar sample sizes (e.g., Hall et al., 1993; Stewart, 1984).

All participants resided in the New York City boroughs of Brooklyn or Staten Island, New York, which have some of the highest rates of advanced cancer staging in the United States (Susan G. Komen for the Cure, 2009). All participants were members of the American Cancer Society who attended support groups in the past or worked with the American Cancer Society's patient and family services at local hospitals. As seen in **Table 1**, participants' ages ranged between 40 and 90; the average age of the participants was 58 years. All participants had medical insurance and had incomes ranging from \$30,000 to \$60,000 per year.

Procedure

Prior to conducting this study, the procedure was approved by the Institutional Review Board of the Roslyn Union Free School District and also was approved by the directors of both American Cancer Society sites. Participants' responses in the survey were anonymous to protect their privacy. Because data were collected through the American Cancer Society, which offers counseling and support services to those suffering from cancer, patients who experienced possible stress while completing the survey had access to appropriately trained professionals.

Preceding data collection, a pilot study was conducted at the Staten Island American Cancer Society (ACS) by the investigators in this study. The ACS staff distributed the Patient Medical Care Questionnaire to 30 breast cancer patients involved in the ACS breast cancer support programs. After completing the survey, participants were asked to give feedback on the comprehensibility of the survey's items. Because participants indicated that several items contained medical jargon that made parts of the survey difficult to understand, the language of the Patient Medical Care Questionnaire was simplified and was expert-reviewed by one of the authors of the Rochester Participatory Decision-Making Scale.

The revised Patient Medical Care Questionnaire was then distributed to members of the ACS staff in Brooklyn and Staten Island, who mailed the questionnaire to potential participants, and the researchers visited the ACS sites weekly to monitor the data collection process. To increase the response rate, a stamped, addressed return envelope was provided to participants. Completed surveys were mailed to the researchers between August 2008 and November 2008.

Materials

The first section of the survey, participants indicated the gender and race of their oncologists and themselves and whether they had received a lumpectomy, radiotherapy, chemotherapy, or mastectomy. Because breast cancer adjuvant treatment is most commonly defined as adjuvant radiotherapy or chemotherapy following lumpec-

tomy (Clarke et al., 2005; Early Breast Cancer Trialists' Collaborative Group, 2005), only participants who received a lumpectomy preceding their receipt of adjuvant treatment were classified as having received adjuvant treatment. In the data analysis, participants who received a mastectomy were not classified as having received adjuvant treatment.

In the second section of the questionnaire, participants completed a PDM and anxiety scale. To minimize response bias, items from the two scales were mixed throughout the survey. All items were answered on a 6-point bipolar scale ranging from 1 (indicating that a specific event "almost never" occurred) to 6 ("almost always" occurred).

The PDM Scale consisted of 13 items (e.g., "There are times when I don't understand my oncologist's medical language", see Appendix). Seven items were modeled after the Rochester Participatory Decision-Making Scale (Shields et al., 2005). We created six additional items to measure cross-cultural medical communication and delays in medical treatment since past research has noted that these are crucial components of PDM (Cooper-Patrick et al., 1999). Six items on the PDM Scale were reverse-scored. To assess the scale's internal reliability, the researchers calculated a Cronbach's alpha. The PDM scale had a Cronbach's alpha of .82 on this study's sample. The PDM Scale was then scored by taking the mean of the 13 items.

The Anxiety Scale consisted of four items, two of

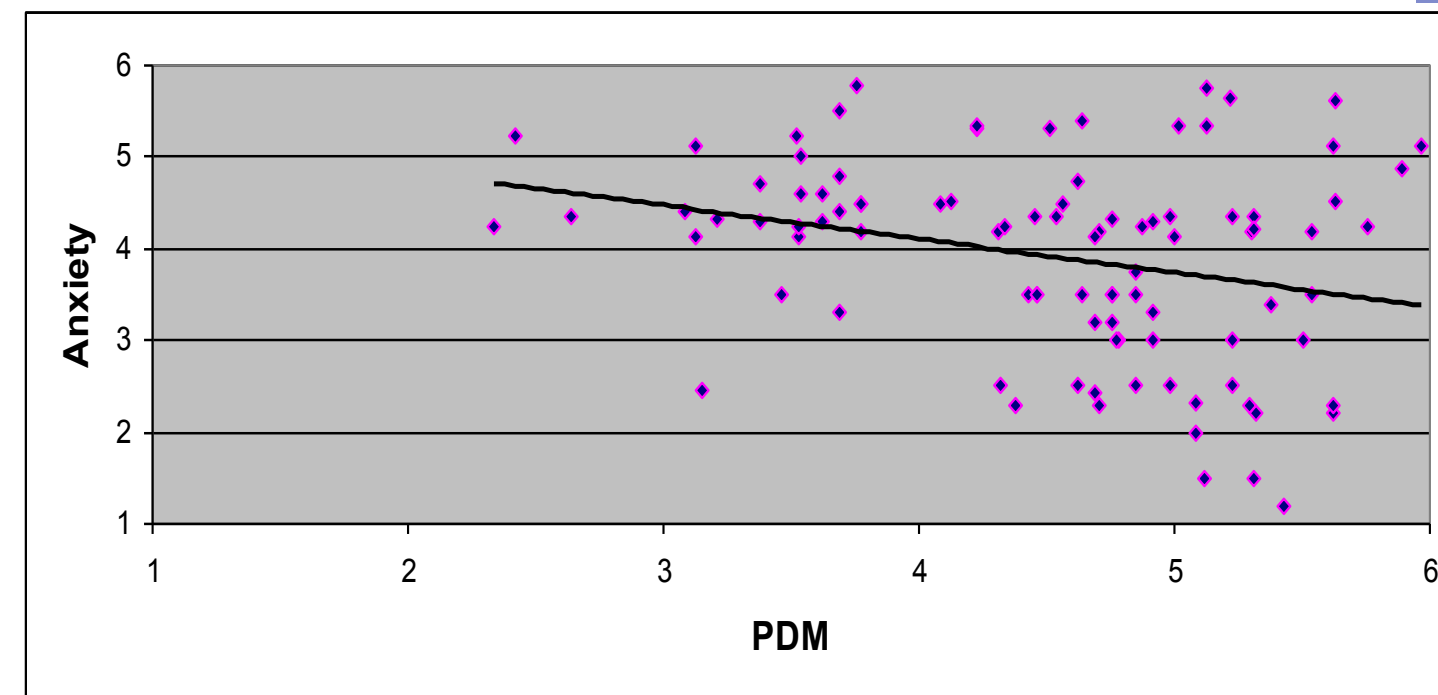
which were modeled after items on the Hospital Anxiety and Depression Scale (Snaith, 2003), and the other two items were created for this study. An example of an item from the Anxiety Scale is "Even if I try not to worry, I still feel frightened about my medical condition." The scale had a Cronbach's alpha of .70 on this study's sample. The Anxiety Scale was scored by taking the mean of the four items after correcting for reverse-scoring.

Data Analysis

Statistical tests were run on the aggregate survey scores of each patient as opposed to the scores from each question separately. A chi-square test was used to examine hypothesized differences in adjuvant treatment rates between breast cancer patients of male oncologists and patients of female oncologists. While this study did not hypothesize a correlation between PDM and anxiety, a correlation coefficient was calculated to quantify the extent of association between PDM and anxiety. Independent sample t-tests were used to examine the differences in the PDM and anxiety of patients who received versus those who did not receive adjuvant treatment. T-tests were also run to analyze the differences in the PDM and anxiety of patients of male oncologists and those of female oncologists. Because the hypotheses were all directional, all statistical tests were one-tailed. The cutoff for statistical significance was $p=0.05$. Statistical Package for Social Sciences Version 16.0 (SPSS 16.0) was utilized to analyze the data.

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Figure 2 Higher participatory decision making was found to be significantly correlated with lower levels of anxiety, $r = -0.38, p < .01$.



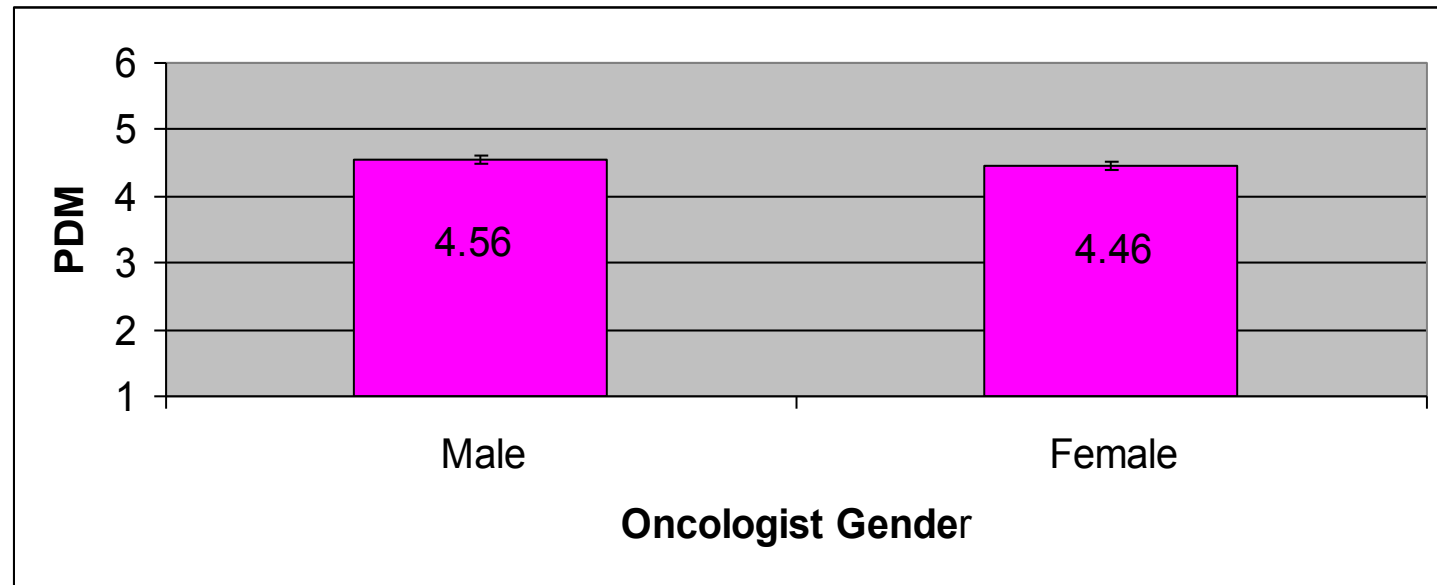


Figure 3 No significant differences were found between the mean PDM scores of male oncologists' patients ($M = 4.56$) and female oncologists' patients ($M = 4.46$), $t(94) = 0.64$, $p = .52$.

Results

Relationship of Oncologist Gender to Adjuvant Treatment

As seen in **Table 1**, 47 of all 105 participating breast cancer patients received adjuvant treatment (lumpectomy followed by either radiotherapy or chemotherapy). Fifty of the 105 participants received a lumpectomy with no follow-up treatment. About one-half -- 52% (50/97) -- of patients who received a lumpectomy did not receive adjuvant treatment. A chi-square test revealed that oncologist gender was associated with the likelihood of patients' receiving of adjuvant treatment, $\chi^2(96) = 3.41$, $p < .05$. As seen in **Figure 1**, patients of female oncologists tended to receive adjuvant treatment at higher rates (19/37, 51%) than did patients of male oncologists (22/60, 37%).

Relationship of PDM to Anxiety

Higher levels of PDM were associated with lower levels of patient anxiety. The results of a linear correlation are seen in **Figure 2**, which shows that patients who indicated higher PDM with their physicians tended to report lower levels of anxiety related to their medical treatment, $r = -0.38$, $p < .01$.

Relationship of Oncologist Gender to Anxiety and PDM

Overall, participants indicated high levels of PDM with an average rating of 4.50 out of 6.00. As seen in **Figure 3**, the results of an independent samples t-test show that patients of male and female oncologists reported similar levels of PDM, $t(94) = 0.64$, $p = .52$. As seen in **Figure 4**, contrary to hypotheses, patients of male

and female oncologists reported similar levels of anxiety $t(103) = -1.42$, $p = .17$.

Relationship of Adjuvant Treatment to Anxiety and PDM

Contrary to predictions, an independent samples t-test indicates that there were no significant differences in PDM between patients who received adjuvant treatment ($M = 4.46$) and those who did not ($M = 4.53$), $t(94) = -0.43$, $p = .62$ (**Figure 5**). As seen in **Figure 6**, patients who received adjuvant treatment reported marginally less anxiety ($M = 3.71$) than those who did not receive adjuvant treatment ($M = 4.10$), $t(103) = 1.57$, $p = .09$.

Discussion

Only 48% of participating breast cancer patients received adjuvant treatment. Researchers have found that patients from urban areas are not only 54% more likely to be diagnosed with breast cancer but also are more likely to face complications in breast cancer treatment and higher mortality than patients elsewhere, reflective of low adjuvant treatment rates (Ayanian et al. 1993; Fiscella et al., 2000). The largest group of participants who did not receive adjuvant treatment (48%, $N = 51$) received a lumpectomy, indicating that patients failed to receive follow-up treatment. A recent study examined disparities in adjuvant treatment and provided a potential explanation for this low adjuvant treatment rate (Bickell & Cohen, 2008). They attributed patients' failure to obtain follow-up treatment for breast cancer to a systems failure in which oncologists fail to comply with referrals and

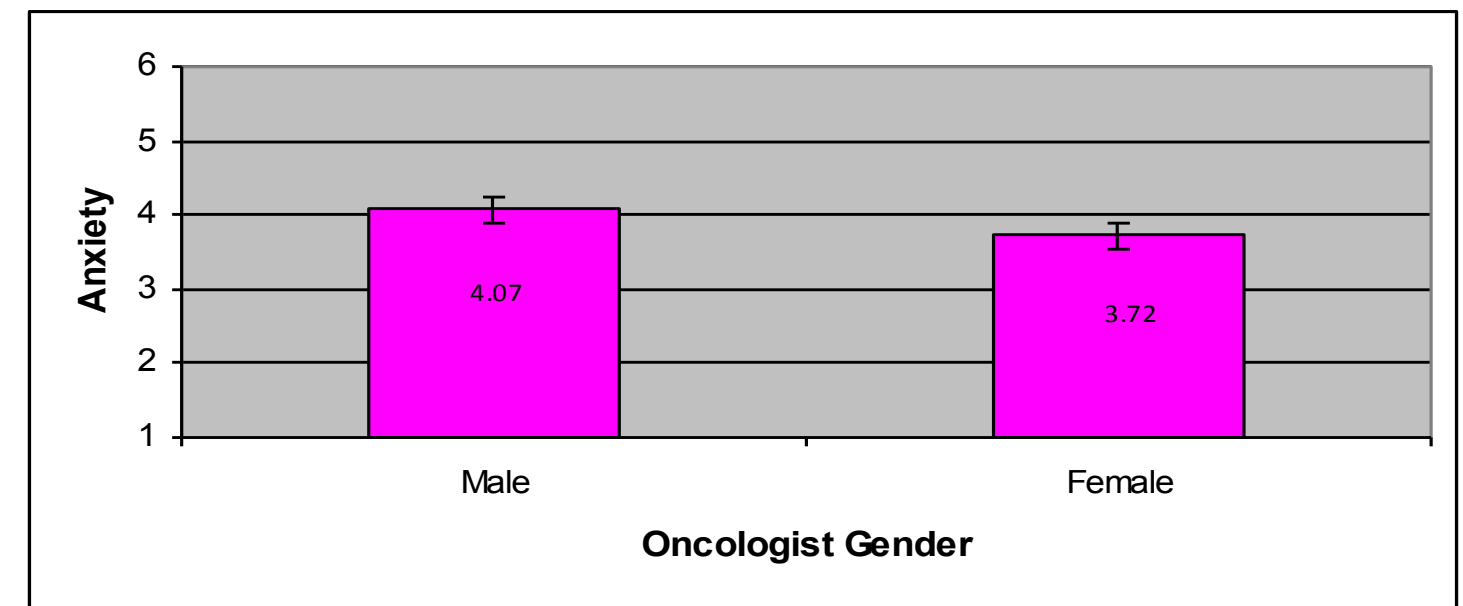


Figure 4 No significant differences were found between the anxiety of male oncologists' patients ($M = 4.07$) and the anxiety of female oncologists' patients ($M = 3.72$), $t(103) = -1.42$, $p = .17$.

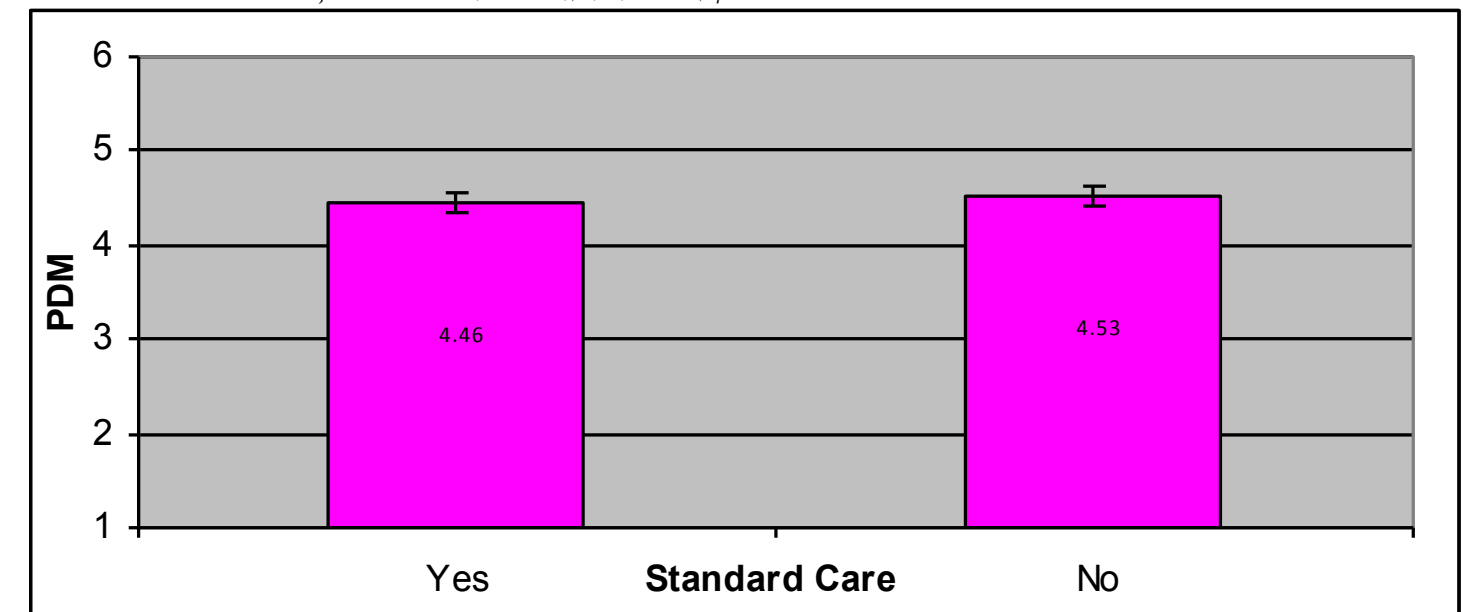
communicate with other specialists (e.g., surgeons, radiologists) in the cancer treatment field.

As expected, breast cancer patients of female oncologists were more likely to receive adjuvant treatment than patients of male oncologists. Recent literature has demonstrated that female oncologists may be more proficient at communicating with their fellow medical professionals of either gender, ranging from nurses to specialists (Levinson & Lurie, 2004). Thus it may be that female oncologists' greater emphasis on teamwork and coopera-

tion with their peers may contribute to fewer systems failures and therefore higher rates of follow-up treatments. Given the study's correlational nature, it is possible that female and male oncologists, in fact, recommend adjuvant treatment at equal rates. Breast cancer patients may be adhering to physician recommendations more frequently if their physician is a female, as opposed to male.

Alternatively, previous studies have noted that female oncologists tend to be younger than male

Figure 5 No significant differences were found between the PDM of patients who received adjuvant treatment ($M = 4.46$) and patients who did not receive adjuvant treatment ($M = 4.53$), $t(94) = -0.43$, $p = .62$.



oncologists and may be more familiar with new developments in breast cancer treatment that emphasize the importance of adjuvant treatment (Lurie et al., 1993; Mechanic et al., 2001). Because the present study gathered data directly from patients who did not know their doctors' ages, this variable was not examined. However, despite controlling for oncologist age, one study (Cooper-Patrick et al., 1999) found that female oncologists are more likely to offer breast cancer adjuvant treatment than their male counterparts. Still, to investigate this possibility in future studies, data should be gathered on oncologists' ages.

As expected, participants who indicated high levels of PDM tended to report less anxiety. A wealth of research (e.g., Cooper-Patrick et al., 2008; Stevens et al., 1996) has found that patients who have the opportunity to actively participate with their physicians in their health care tend to feel less anxious about their medical condition. This finding challenges the "paternalistic" model of patient-physician communication by highlighting a potential emotional benefit of PDM. However, it is important to note that this finding is correlational. Whereas most research suggests that PDM leads to lower anxiety, it is possible that high anxiety leads to lower PDM or that both PDM and anxiety are confounded by a third factor such as breast cancer patient age.

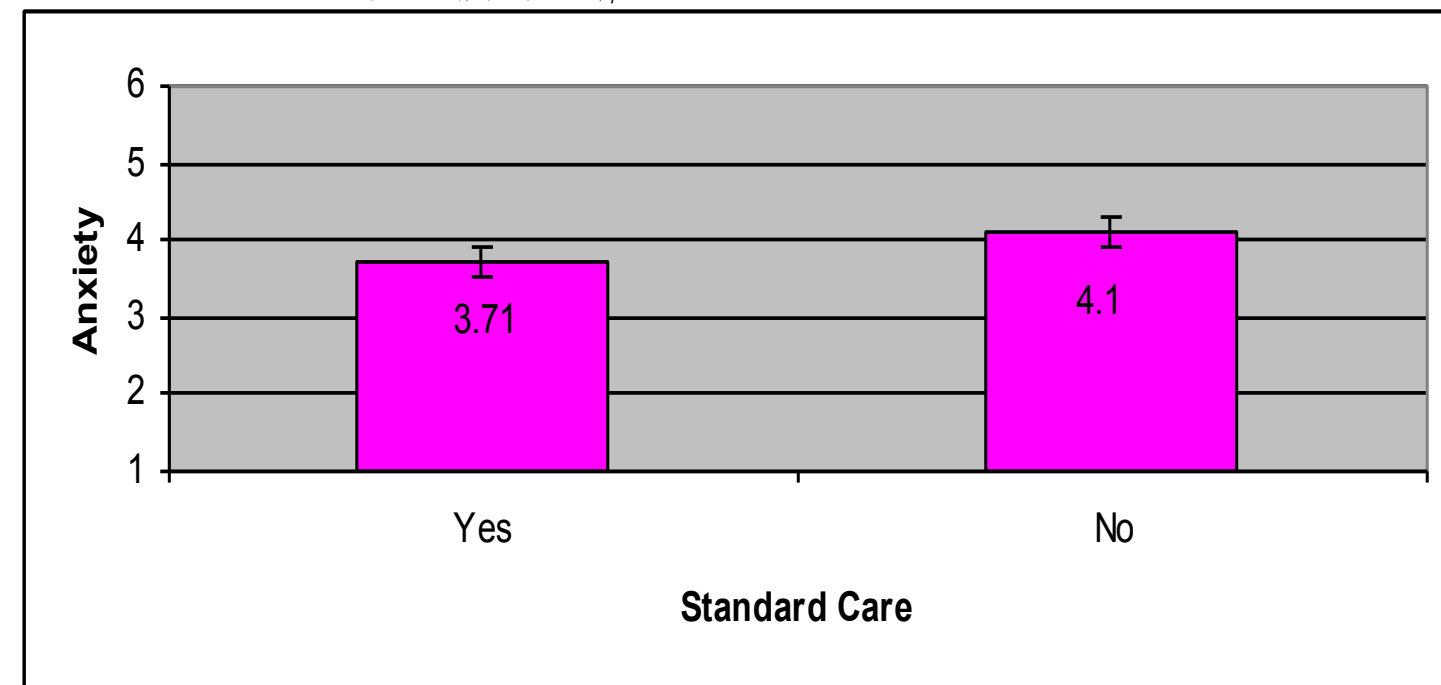
Contrary to predictions, patients of female oncologists indicated equivalent levels of anxiety as

patients of male oncologists. Breast cancer patients experience a great deal of anxiety and believe that their oncologists' technical skill is the most important aspect of their medical care (Stevens et al., 1996; Wiggers, et al., 1990). Despite any differences patients may perceive between male and female oncologists, they may view them similarly in terms of technical skill, contributing to similar anxiety ratings.

In addition to finding no differences in PDM between patients who received adjuvant treatment and those who did not, we also found that patients of female oncologists indicated equivalent levels of PDM as patients of male oncologists. Female patients in general tend to ask their oncologists more questions and exhibit more interest in their medical treatment than do male patients (Elderkin-Thompson & Waitzkin, 1999). However, it has been suggested that oncologists, regardless of their genders, may be sensitive to female breast cancer patients' desire for a highly communicative style of care, contributing to equivalent levels of participatory decision making (Cooper-Patrick et al., 1999).

Participants who received adjuvant treatment indicated marginally lower levels of anxiety relative to those who did not. Because the finding is correlational, the causal agent is unclear. It is possible that patients who receive adjuvant treatment may have lower levels of anxiety because they are receiving a higher quality of cancer care. Alternatively, patients with lower levels of anxiety may be more likely to obtain follow-up treatment in breast can-

Figure 6 Patients who received adjuvant treatment had marginally lower levels of anxiety ($M = 3.71$) than participants who did not receive adjuvant treatment ($M = 4.10$), $t(103) = 1.57$, $p = .09$.



cer care and complete their medical treatment.

Limitations and Further Study

Although this study drew from a random sample of breast cancer patients generated by the American Cancer Society's Siebel database, all participants were active ACS members whose ideas and views may not be representative of the general population of breast cancer patients. The study's overall response rate of 44% is an issue of concern because low response rates typically result in unrepresentative samples. However, it should be noted that this study had a comparable response rate to similar studies surveying breast cancer patients (e.g., Cyran et al., 2001; Frank & Clancy, 1993).

The participants' high PDM suggests that they may not be reflective of the population of breast cancer patients in the New York City boroughs. Urban cancer patients tend to face problems in medical care that are characteristic of low PDM, including short medical visits and long wait times (Mehta et al., 2008). The generalizability of our study's findings was also limited in that all the participants were members of the American Cancer Society, and all were insured. Because an optional mail survey was utilized, volunteer bias may have impacted the results. Participants who were more likely to respond may have felt stronger positive or negative feelings towards their oncologists and their medical treatments.

In an era in which medical treatment can be affected drastically by the insurance providers of the patients, it would be valuable to investigate potential associations of patients' insurance coverage with adjuvant treatment rates and PDM. Whereas past research has found insurance-based discrepancies in breast cancer screening (Ayanian et al., 1993), studies have yet to examine associations between breast cancer adjuvant treatment and insurance. In addition, due to findings that patients and physicians of the same race to have higher PDM than those of different races (e.g., Murray-Garcia et al., 2000), future studies should examine potential differences in adjuvant treatment rates and anxiety between race concordant versus discordant patients and physicians.

Conclusion

This is one of the first studies to date to examine psychosocial and demographic factors that may be related to adjuvant treatment rates. Contrary to the assumptions of past studies (e.g., Johnson et al., 1988; Lurie et al., 1993), this study found that PDM between oncologists and patients is not related to adjuvant treatment. The surprisingly low adjuvant treatment rates (48%) in this sample suggest possible system failures in breast cancer

care and indicate that more attention needs to be given to educating people about the importance of follow-up treatment in breast cancer care. In addition, this study's finding that breast cancer patients who select female oncologists are more likely to receive breast cancer adjuvant treatment highlights the need for more research to probe the cause of differences in adjuvant treatment rates.

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