

Involvement of Primary Care Physicians in the Decision Making and Care of Patients With Breast Cancer

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A B S T R A C T

Purpose

Collaborative care between cancer specialists and primary care providers (PCPs) may improve the delivery of high-quality cancer care. Yet, patient perspectives about how involved the PCPs were in their breast cancer care and treatment decisions remain unknown.

Patients and Methods

A weighted random sample of women newly diagnosed with breast cancer in 2013 to 2014, as reported to the SEER registries in Los Angeles, California, and Georgia, were sent a survey approximately 6 months after diagnosis (N = 2,279, 71% response rate). The distributions of patient-perceived PCP quality (six questions about PCP access and awareness of values) and the following three measures of patient-reported PCP involvement were assessed: how informed the respondent felt her PCP was about her breast cancer (engagement); how often the respondent talked with her PCP (communication); and how often the respondent felt the PCP participated in treatment decisions (participation). Adjusted mean scores of patient-reported satisfaction with and deliberation about the surgical treatment decision were then compared across levels of PCP engagement, communication, and participation using multivariable linear regression.

Results

The majority of women in this sample perceived high PCP quality (63.6%), high PCP breast cancer engagement (66.2%), and high PCP communication (69.1%). More than a third of women (35.4%) reported that their PCP participated in their treatment decisions. Higher PCP engagement was associated with higher decision satisfaction when compared with low PCP engagement (adjusted $P = .003$).

Conclusion

Patient perceptions of PCP quality and PCP involvement in breast cancer care during treatment are high for most women, and PCPs often participate in breast cancer treatment decisions. However, PCP involvement did not lead to meaningful improvements in patients' appraisals of their decision making.

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INTRODUCTION

Primary care physicians (PCPs) play a diverse role in caring for patients with cancer across the continuum from prevention, early detection, diagnosis, and treatment to survivorship.¹ Often, PCPs have a longer relationship with patients with cancer than cancer doctors do, making them potentially more attuned to a patient's values, preferences, and needs.² Survivors of cancer are more likely to receive appropriate preventive care when both an oncologist and PCP are involved in their care, suggesting that increasing PCP involvement in cancer care may also improve quality of care.³

The increasing size and age of the population of patients with cancer and the growing complexity of their ongoing care motivate the need for collaborative cancer care management.^{1,4} Many patients need to address both the newly diagnosed cancer and chronic comorbid health conditions with different specialists.^{5,6} Coordination and communication between their providers are more challenging for these patients but also more important. As a result of these changes in the landscape of cancer survivorship, the Institute of Medicine explicitly recommends comprehensive, patient-centered, collaborative care models that promote cross-specialty clinician collaboration, particularly between primary care and cancer care teams.¹

However, despite the calls for more PCP involvement in cancer care, no studies have quantitatively examined the degree to which this actually occurs or how patients perceive their PCPs' participation in their cancer care. Prior qualitative studies suggest that patients are open to having PCPs manage aspects of their care but report hesitation and uncertainty about the PCP's role in delivering this care.^{7,8} A better understanding of primary care involvement in cancer care and patients' perspectives about the value of PCP involvement will inform strategies to build stronger collaborative team models.

Therefore, the aims of this study were to describe patient perceptions of the overall quality of their primary care; describe patient perceptions of the degree of involvement of their PCP (patient-reported PCP engagement, communication, and participation) in their breast cancer–related care; and assess whether these measures were associated with patient appraisal of their cancer treatment decision making in a diverse population of women with breast cancer.

PATIENTS AND METHODS

Study Population

The Individualized Cancer Care (iCanCare) Study is a large, population-based survey study of women with early-stage breast cancer and their providers. We identified and accrued 3,880 women, ages 20 to 79 years, with newly diagnosed, early-stage breast cancer (stages I and II) as reported to the SEER registries of Georgia and Los Angeles County, California, in 2013 to 2014. Patients were ineligible if they had stage III or IV disease, had tumors larger than 5 cm, or could not complete a questionnaire in English or Spanish ($n = 249$). Of the remaining 3,631 eligible women who were mailed surveys, 2,578 completed the survey, resulting in a 71% response rate. The details of the analytic sample of 2,279 women are displayed in Figure 1.

Patients were identified via rapid case ascertainment of their initial surgical pathology reports, derived from a list of definitive surgical procedures (performed with the intent of removing the entire tumor and obtaining clear margins). Surveys were mailed approximately 2 months after surgery (median time from diagnosis to survey completion was 6 months; range, 1 to 10 months). Women were asked about their treatment experiences, knowledge and attitudes, appraisal of communication and decision making, and quality of life. To encourage response, we provided a \$20 cash incentive and used a modified Dillman approach to patient recruitment,⁹ including reminders to nonrespondents. All materials were sent in English and Spanish to those with Spanish surnames.^{10,11} Responses to the survey were then merged with clinical data by the SEER registries, and a deidentified analytic data set was created. The study was approved by the University of Michigan Institutional Review Board and the state and institution institutional review boards of the SEER registries.

Measures

Questionnaire content was developed based on a conceptual framework that hypothesized that PCP involvement leads to improved primary care quality, prior literature, and our prior work. We used standard techniques to assess content validity, including systematic review by design experts, cognitive pretesting with patients, and pilot studies in selected clinic populations.

Patient-Perceived PCP Quality

Patient-perceived PCP quality was measured using an adapted Primary Care Assessment Tool–Adult scale.¹² This measure is designed to assess overall perceived quality, rather than an objective measure of quality.

Patient responses to six questions, including four questions ascertaining ease of primary care access and two questions about the PCP's awareness of the patient's values, were averaged (questions are included in the Data Supplement). The response categories for each question reflected a 5-point Likert-type item, ranging from never to always. The average PCP quality summary scores were then categorized as high (average score ≥ 4), moderate (score of 3), and low (score < 3).

Patient-Reported PCP Involvement in Breast Cancer Care

To measure patient-reported PCP involvement in breast cancer care, we used the following three measures, which were all 5-point Likert scale items: how informed the respondent felt her PCP was about her breast cancer (PCP engagement); how often the respondent talked with her PCP (PCP communication); and how often the respondent felt the PCP participated in treatment decisions (PCP participation). Patient-reported PCP engagement was measured using an adapted item from the Consumer Assessment of Healthcare Providers and Systems Patient-Centered Medical Home Item Set.¹³ Women were asked the following question: "In the past 6 months, how often did your PCP seem informed and up-to-date about the care you got from your breast cancer doctors?" Responses were categorized as high (score ≥ 3) versus low PCP engagement. Patient-reported PCP communication was defined by asking women, "After going to the specialist or special service for breast cancer, did your primary care provider talk with you about what happened at the visit?" This question was an adapted item from the Primary Care Assessment Tool–Adult scale,¹² and the item was categorized as high (score ≥ 3) versus low

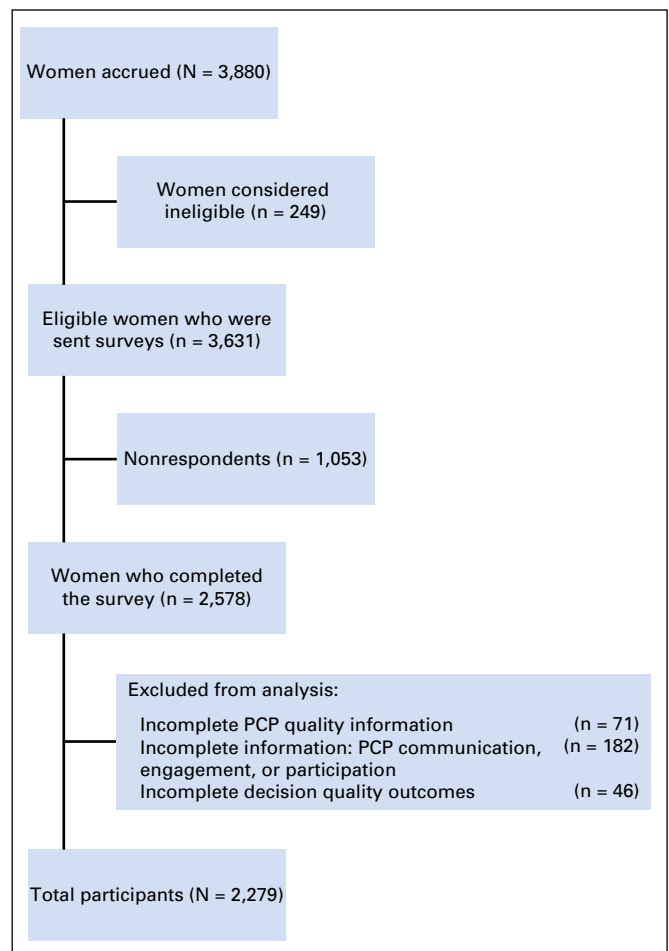


Fig 1. CONSORT diagram. Individualized Cancer Care (iCanCare) study participants (N = 2,279). PCP, primary care physician.

communication. We also assessed a combined measure of PCP involvement by averaging the responses to the engagement and communication items and found similar results (data not shown). Patient-reported PCP participation was defined using a novel measure developed by our research group that asked women, "How much did your primary care provider participate in your breast cancer treatment decisions?" This item was categorized as high (score ≥ 3) versus low participation.

Patient-Reported Appraisal of Decision Making

We used the following two measures to evaluate how patients appraised their decision-making process: surgical treatment decision satisfaction, and degree of deliberation for overall treatment decisions. Patient satisfaction with the surgical treatment decision was measured using a validated five-item scale^{11,14} (each with response options of "not at all" to "very much"). An overall decision satisfaction score was created using the mean of the responses to the five items, with higher scores representing higher decision satisfaction. As done in prior studies,¹¹ a score of ≥ 4 indicated high decision satisfaction.

Decision deliberation was measured using a four-item scale derived from measures of public deliberation adapted to apply to cancer treatment-related decisions.¹⁵ Items assessed the extent to which a patient weighed the pros and cons of a decision, how much they talked to others while they were making the decision, and how much they thought through and spent time thinking about the decision. All items had 5-point Likert-type response options (from "not at all" [1 point] to "very much" [5 points]). An overall deliberation score was created using the mean of the responses to the four items (range, 1 to 5), with higher scores representing more deliberation. A score of ≥ 4 to indicated a more deliberative decision process.

Covariates

The covariates in this analysis included patient demographics, clinical factors, and length of time the patient reported seeing her PCP. Demographic characteristics collected via survey included age at diagnosis; race (white, black, Hispanic, Asian, or other/unknown); educational attainment (less than high school, high school graduate, or some college or more); insurance status; and patient report of her number of comorbid health conditions (including heart disease, chronic obstructive pulmonary disease, diabetes, blood clots, connective tissue disease, stroke, and depression). Also collected via survey were breast cancer treatment characteristics, including primary surgical treatment modality (lumpectomy, unilateral mastectomy, or bilateral mastectomy); receipt of chemotherapy (yes or no); and receipt of endocrine therapy (yes or no). Length of time seeing the PCP was also asked, with response categories of less than 1 year, 1 to 2 years, and more than 2 years.

Statistical Analyses

All statistical analyses incorporated weights to account for differential probabilities of sample selection and nonresponse and to assure that the distributions of our sample resemble those of the target population.¹⁶ Although item nonresponse was low (< 5%), to correct for potential nonresponse bias as a result of missing data, values for missing items were imputed using sequential multiple imputation.^{17,18} We generated five independently imputed completed data sets, which were analyzed separately, and then inferential statistics were combined across completed data to construct sequential multiple imputation inference.¹⁹ Imputed data were used for the multivariable analyses only.

The bivariable associations of primary care quality with PCP engagement, communication, and participation in the treatment decision were evaluated using Rao-Scott χ^2 tests. Multivariable, weighted logistic regression was then used to characterize patient demographic and clinical factors associated with higher PCP engagement, communication, and participation in the treatment decision using three separate models, which

included age, race, insurance, comorbidities, PCP quality and continuity, and chemotherapy use. Adjusted mean decision satisfaction and deliberation scores were then compared across levels of PCP communication, engagement, and participation in the treatment decision using multivariable linear regression, adjusting for age, race, insurance, education, comorbidities, chemotherapy, PCP quality, PCP continuity, and surgical treatment. All analyses were performed using SAS 9.4 (SAS Institute, Cary, NC) and STATA 13.1 (STATA, College Station, TX) and two-sided tests, and $P < .05$ was considered statistically significant.

RESULTS

Overall, the majority of women in this sample were ≥ 55 years of age (71.6%), were white (56.7%; followed by black [17.6%] and Hispanic [14.5%]), had private insurance (54.5%), and completed at least some college (71.3%). The majority of patients (68.2%) reported seeing their current PCP for more than 2 years. Overall, 63.6% of women perceived their primary care as high quality, 66.2% perceived high PCP engagement in their care, 69.1% perceived high communication about their cancer care, and 35.4% perceived high PCP participation in treatment decisions (Table 1).

Perceptions of high PCP quality were associated with patient reports of higher PCP communication and engagement in their cancer care and higher participation in the treatment decision (all $P < .001$; Figs 2A to 2C). Among women who perceived high PCP quality, 21.7% reported low PCP engagement and 18.7% reported low PCP communication about the cancer care. By contrast, among women who perceived low PCP quality, 81.7% also reported low PCP engagement and 77.9% reported low PCP communication about their cancer care (all $P < .001$). Overall, 43.9% of women who perceived high PCP quality also reported that their PCP more often participated in their decision versus 12.3% of women who reported low quality ($P < .001$; Fig 2C).

Table 2 lists the multivariable-adjusted associations between perceived PCP quality and high PCP engagement, communication, and participation in the treatment decision. Patient-perceived PCP quality was strongly associated with all three measures of PCP involvement, because women who reported high PCP quality were much more likely to report high PCP engagement, more frequent PCP communication about their cancer care, and had 6.5-fold greater odds of reporting high PCP participation in their treatment decision (engagement: odds ratio [OR], 13.65; 95% CI, 8.70 to 21.40; communication: OR, 14.28; 95% CI, 9.43 to 21.63; participation: OR, 6.46; 95% CI, 3.99 to 10.47).

Black, Hispanic, and Asian women more often reported high PCP participation in their treatment decision compared with white women (black: OR, 1.70; 95% CI, 1.30 to 2.21; Hispanic: OR, 2.14; 95% CI, 1.61 to 2.85; Asian: OR, 2.85; 95% CI, 2.04 to 3.99). Women with more education (high school, some college or more) reported low PCP participation in the treatment decision when compared with women with less than a high school education (Table 2 and Appendix Table A1, online only) Women with two or more comorbidities reported higher PCP engagement and communication compared with women with no comorbidities (engagement: OR, 2.12; 95% CI, 1.54 to 2.93; communication: OR, 2.25; 95% CI, 1.59 to 3.19). Women who received chemotherapy perceived low PCP engagement and low PCP communication

Table 1. Patient Demographic and Clinical Characteristics (N = 2,279)

Demographic or Clinical Characteristic	No. of Patients (weighted %)
Age at diagnosis, years	
< 55	652 (28.4)
55-64	665 (29.2)
≥ 65	961 (42.4)
Race	
White	1,212 (56.7)
Black	399 (17.6)
Hispanic	413 (14.5)
Asian	200 (8.8)
Other/unknown/missing	55 (2.4)
Insurance coverage	
No insurance	11 (0.5)
Medicaid	323 (13.8)
Medicare or other public	684 (31.2)
Private or employer based	1,179 (54.5)
Education	
Less than high school	276 (10.5)
High school graduate	414 (18.2)
Some college or more	1,568 (71.3)
No. of comorbidities	
0	1,316 (58.2)
1	654 (28.4)
≥ 2	309 (13.4)
Primary treatment modality	
Lumpectomy	1,357 (60.5)
Unilateral mastectomy	465 (20.2)
Bilateral mastectomy	445 (19.3)
Received or currently receiving chemotherapy	
No	1,501 (69.2)
Yes	760 (30.8)
Currently receiving endocrine therapy	
No	902 (48.9)
Yes	971 (51.1)
Length of time seeing PCP, years	
< 1	463 (20.0)
1-2	271 (11.8)
> 2	1,537 (68.2)
PCP quality	
Low	172 (7.3)
Moderate	649 (29.1)
High	1,458 (66.6)
PCP engagement in cancer care	
Low	772 (33.8)
High	1,507 (66.2)
PCP communication about cancer care	
Low	710 (30.9)
High	1,569 (69.1)
PCP participation in treatment decision	
Low	1,448 (64.6)
High	831 (35.4)

Abbreviation: PCP, primary care physician.

about their cancer care compared with women who did not receive chemotherapy (engagement: OR, 0.79; 95% CI, 0.64 to 0.97; communication: OR, 0.77; 95% CI, 0.62 to 0.96; Table 2 and Appendix Table A1).

Table 3 lists the adjusted mean decision satisfaction and deliberation scores across levels of PCP engagement, communication, and participation. Women who reported high PCP engagement reported higher decision satisfaction scores (4.47) compared with women who reported low PCP engagement (4.36; $P = .003$). Women who reported high PCP communication also reported higher mean deliberation scores than women who reported

low PCP communication (3.80 v 3.70, respectively; $P = .07$), albeit this difference was not statistically significant. Greater PCP participation in the treatment decision was not associated with higher decision satisfaction or more deliberation (Table 3).

DISCUSSION

Findings from this large population-based study of women with newly diagnosed breast cancer showed that a large majority of women perceived a high level of primary care quality in general. Most women also reported a high level of PCP involvement in their cancer care (PCPs were engaged in their cancer care, communicated with them about it, and participated in treatment decisions). However, when their PCP was more involved, patients did not meaningfully appraise their treatment decisions more favorably. To our knowledge, this is the first population-based study to assess the degree to which patients feel that their PCP is involved in their initial cancer treatment decision making and care.

Prior literature suggests PCPs have long-term relationships with their patients, and patients report PCPs are generally attuned to their preferences for care and that their PCP is accessible during and right after cancer treatment.^{1,2,8} Our findings expand this work and suggest that PCPs may be more involved in the breast cancer treatment decision-making process than previously understood. More than a third of women reported that their PCP was frequently involved in their decision, and this perception of participation was greatest among minority women, those with less education, and those with more comorbidities. This finding suggests that PCPs are more likely to be involved in discussing treatment decisions with patients who are most vulnerable to poor outcomes. As such, efforts need to be made to address the lack of knowledge among PCPs²⁰ about the specifics of cancer treatment so that they can appropriately counsel all patients faced with these decisions. Outreach that targets improving PCP confidence about more fully participating in cancer-related care is warranted.²⁰ However, PCP participation in the breast cancer treatment decision was not associated with higher decision satisfaction in this sample, and we do not know to what extent PCPs were involved.

Our findings highlight important opportunities to further improve communication between PCPs and patients about their breast cancer care. In particular, approximately 20% of women reported low PCP engagement and communication about their cancer care, despite perceiving high PCP quality. Efforts to improve primary care engagement after diagnosis of breast cancer may be particularly effective in this substantial minority of patients. Provisions to address these issues are currently being implemented, including the use of care plans that are intended to close the communication loop between PCPs, cancer specialists, and the patient.^{21,22} However, survivorship care plans have not been found to improve quality to date, and uptake has been limited.²³⁻²⁵ The increasing use of electronic medical records may also help facilitate electronic communication between PCPs and cancer providers and between these providers and patients via patient portals, but may also hinder more active discussions between providers and patients. These clinician-directed provisions do not address the issue of improving the communication and exchange of information about the cancer care between the PCP and the patient. Incorporating

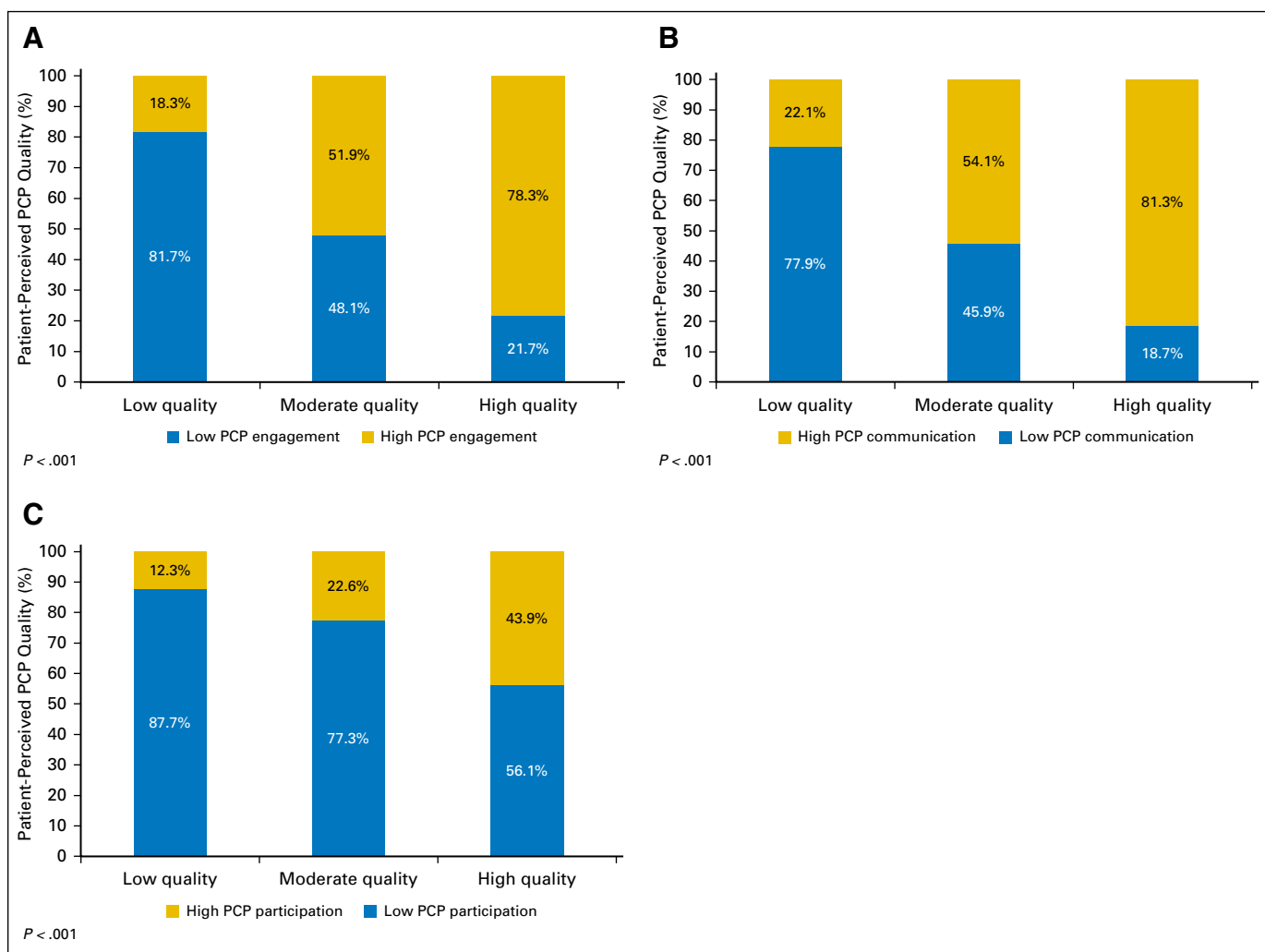


Fig 2. Distribution of patient-perceived primary care physician quality regarding (A) engagement in cancer care, (B) communication about the cancer care, and (C) participation in the treatment decision (N = 2,279). N (weighted %). PCP, primary care physician.

patients into future collaborative cancer care interventions is warranted if the ultimate goal is to deliver patient-centered care.

Although women who reported high PCP involvement in their cancer care also reported marginally greater decision satisfaction and deliberation about their decision, it is important to note these absolute differences were negligible. The limited influence of PCP involvement on patient appraisals of their treatment decision making in this study may in part be a result of the more limited role of PCPs during the cancer treatment process. Our findings that women who were on chemotherapy (or completed it) reported lower PCP involvement and women with more comorbidities reported more PCP involvement in their cancer care reflect that women on active chemotherapy are more likely to be regularly seeing an oncologist and women with comorbidities are more likely to be regularly seeing their PCP. It is plausible, however, that PCPs play a more influential role in care and treatment decisions further in the survivorship period when they are more actively involved. Therefore, additional research focused on understanding PCPs' roles and involvement in delivering care in the survivorship period is needed.

The current study provides important data on patients' perspectives about their PCPs' involvement in cancer care in a large and diverse population-based sample. However, there are potential limitations to consider. First, this study was cross-sectional, and our ability to make inferences about the temporality of these associations is limited. Therefore, additional studies that assess the temporality of these associations are needed to better understand whether patient-perceived quality influences PCP involvement or PCP involvement influences patient-perceived quality in the context of cancer treatment. Second, we did not collect information on the frequency of PCP visits during the time the other patient-reported PCP measures were assessed. It is possible that the level of PCP quality, engagement, and communication about the cancer care and participation in the treatment decision is related to how often the patient saw the PCP during this time. Finally, our population includes patients with breast cancer in Los Angeles County, California, and Georgia; thus, generalizability to other populations may be limited.

In conclusion, patient perceptions of primary care quality and PCP engagement in and communication about breast cancer care

Table 2. Multivariable Adjusted ORs and 95% CI Estimating the Odds of High PCP Engagement, Communication, and Participation in the Treatment Decision Using Multiple Imputation

Patient-Level Factor	Adjusted OR (95% CI)		
	High PCP Engagement in Cancer Care	High PCP Communication About Cancer Care	High PCP Participation in Treatment Decision
Primary care quality			
Low (≤ 2.9)	1.0 (ref)	1.0 (ref)	1.0 (ref)
Moderate (3)	4.39 (2.81 to 6.84)	4.08 (2.66 to 6.26)	2.35 (1.42 to 3.91)
High (≥ 4)	13.65 (8.70 to 21.40)	14.28 (9.43 to 21.63)	6.46 (3.99 to 10.47)
Age, years			
< 55	1.0 (ref)	1.0 (ref)	1.0 (ref)
55-64	1.07 (0.84 to 1.36)	0.96 (0.75 to 1.24)	1.12 (0.87 to 1.44)
≥ 65	1.20 (0.88 to 1.65)	0.99 (0.69 to 1.42)	1.33 (0.97 to 1.83)
Race			
White	1.0 (ref)	1.0 (ref)	1.0 (ref)
Black	0.96 (0.74 to 1.25)	0.98 (0.75 to 1.28)	1.70 (1.30 to 2.21)
Latina	1.37 (0.98 to 1.92)	1.36 (1.00 to 1.86)	2.14 (1.61 to 2.85)
Asian	1.24 (0.80 to 1.91)	1.70 (1.11 to 2.60)	2.85 (2.04 to 3.99)
Insurance			
Private	1.0 (ref)	1.0 (ref)	1.0 (ref)
None	1.09 (0.23 to 5.21)	1.06 (0.20 to 5.79)	2.38 (0.67 to 8.53)
Medicaid	1.18 (0.83 to 1.66)	1.55 (1.10 to 2.21)	1.81 (1.31 to 2.84)
Medicare or other public	1.21 (0.90 to 1.62)	1.20 (0.88 to 1.64)	1.28 (0.96 to 1.72)
Education			
Less than high school	1.0 (ref)	1.0 (ref)	1.0 (ref)
High school graduate	1.02 (0.68 to 1.52)	1.24 (0.81 to 1.91)	0.69 (0.48 to 0.99)
Some college or more	0.92 (0.63 to 1.34)	0.89 (0.59 to 1.35)	0.49 (0.35 to 0.69)
No. of comorbidities			
0	1.0 (ref)	1.0 (ref)	1.0 (ref)
1	1.49 (1.19 to 1.88)	1.52 (1.19 to 1.93)	1.22 (0.97 to 1.52)
≥ 2	2.12 (1.54 to 2.93)	2.25 (1.59 to 3.19)	1.87 (1.40 to 2.51)
Length of time seeing PCP, years			
< 1	1.0 (ref)	1.0 (ref)	1.0 (ref)
1-2	1.06 (0.75 to 1.50)	1.29 (0.88 to 1.90)	1.07 (0.75 to 1.53)
> 2	1.07 (0.83 to 1.37)	1.08 (0.83 to 1.40)	1.09 (0.84 to 1.41)
Chemotherapy			
No	1.0 (ref)	1.0 (ref)	1.0 (ref)
Yes	0.79 (0.64 to 0.97)	0.77 (0.62 to 0.96)	0.99 (0.80 to 1.22)

Abbreviations: OR, odds ratio; PCP, primary care physician; ref, reference.

during treatment are high for most women, and PCPs are often participating in breast cancer treatment decisions. However, the involvement of PCPs in breast cancer care and treatment decisions did not lead to meaningful improvements in patients'

appraisals of their decision making. Efforts to better incorporate and communicate with PCPs and educate them about the specifics of cancer treatments are warranted to promote collaborative cancer care.

Table 3. Multivariable Adjusted Mean* Decision Satisfaction and Deliberation Scores Across Levels of PCP Communication, Engagement, and Participation in the Treatment Decision

PCP Involvement Measure	Decision Satisfaction		Decision Deliberation	
	Mean Score (SE)	P	Mean Score (SE)	P
PCP engagement in cancer care		.003		.26
Low	4.36 (0.03)		3.73 (0.04)	
High	4.47 (0.02)		3.79 (0.03)	
PCP communication about cancer care		.22		.07
Low	4.42 (0.03)		3.70 (0.04)	
High	4.47 (0.02)		3.80 (0.02)	
PCP participation in treatment decision		.98		.34
Low	4.46 (0.02)		3.76 (0.03)	
High	4.46 (0.03)		3.80 (0.04)	

Abbreviation: PCP, primary care physician.

*Predicted means with age, race, insurance, education, comorbidities, chemotherapy, PCP quality, PCP continuity, and surgical treatment at sample means. We also assessed whether adding time of survey completion significantly affected our association of interest. Because it did not change the results, the final models presented in the table do not include this variable.

AUTHORS' DISCLOSURES OF POTENTIAL CONFLICTS OF INTEREST

Disclosures provided by the authors are available with this article at www.jco.org.

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Manuscript writing: All authors

Final approval of manuscript: All authors

Accountable for all aspects of the work: All authors

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Appendix

Table A1. Distribution of Demographic and Clinical Characteristics by High PCP Engagement, Communication, and Participation in the Treatment Decision

Characteristic	No. of Patients (%)		
	High PCP Engagement in Cancer Care	High PCP Communication About Cancer Care	High PCP Participation in Treatment Decision
Primary care quality, score			
Low, ≤ 2.9	32 (17.8)	40 (22.5)	25 (12.7)
Moderate, 3	346 (50.7)	356 (53.2)	161 (21.8)
High, ≥ 4	1,181 (77.9)	1,249 (80.9)	694 (42.8)
<i>P</i>	< .001	< .001	< .001
Age, years			
< 55	385 (57.1)	411 (62.3)	194 (27.1)
55-64	441 (63.2)	478 (67.3)	241 (30.8)
≥ 65	736 (72.5)	756 (74.0)	444 (41.4)
<i>P</i>	< .001	< .001	< .001
Race			
White	825 (64.7)	856 (66.7)	362 (26.4)
Black	263 (64.7)	284 (68.0)	169 (40.0)
Latina	294 (69.0)	301 (72.4)	210 (47.3)
Asian	139 (66.1)	157 (74.7)	104 (47.9)
<i>P</i>	.68	.03	< .001
Insurance			
Private	756 (61.3)	799 (64.7)	357 (26.6)
None	7 (53.4)	8 (67.4)	6 (49.1)
Medicaid	212 (64.5)	241 (73.7)	173 (50.7)
Medicare or other public	191 (26.9)	536 (73.6)	303 (39.7)
<i>P</i>	< .001	< .001	< .001
Education			
Less than high school	204 (71.5)	211 (75.0)	175 (60.1)
High school graduate	301 (69.9)	332 (75.2)	189 (41.0)
Some college or more	1,041 (63.3)	1,083 (66.0)	506 (28.8)
<i>P</i>	.006	< .001	< .001
No. of comorbidities			
0	844 (60.3)	892 (63.7)	455 (29.9)
1	479 (71.0)	502 (74.3)	273 (37.8)
≥ 2	240 (76.4)	252 (79.5)	153 (47.1)
<i>P</i>	< .001	< .001	< .001
Length of time seeing PCP, years			
< 1	288 (58.2)	301 (61.6)	172 (32.3)
1-2	179 (63.7)	197 (71.1)	103 (35.5)
> 2	1,090 (68.2)	1,141 (70.5)	602 (34.9)
<i>P</i>	< .001	.002	.06
Chemotherapy			
No	808 (68.6)	844 (70.7)	434 (33.9)
Yes	329 (58.9)	352 (65.0)	191 (32.1)
<i>P</i>	< .001	.02	.57

Abbreviation: PCP, primary care physician.