Self-efficacy for Coping with Cancer in a Multiethnic Sample of Breast Cancer Patients: Associations with Barriers to Pain Management and Distress

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Abstract

Objectives—This study examined the interrelations of self-efficacy for coping with cancer, perceived barriers to pain management, distress, and pain outcomes in a multiethnic sample of breast cancer patients. The extent to which ethnicity (Black, Latina, or Caucasian), language (English or Spanish), and level of education and income predicted these variables also was assessed.

Methods—Participants were breast cancer patients with persistent pain ($N = 87$) who were recruited from oncology clinics in New York City. Patients completed an assessment battery that included measures of self-efficacy for coping with cancer, barriers to pain management, distress, and pain outcomes.

Results—Greater self-efficacy for coping with cancer was associated with older age, less time since diagnosis, and less distress. In addition, less self-efficacy for seeking and understanding medical information, Spanish language preference, and greater distress predicted greater barriers to pain management. Average pain severity was higher among Spanish-speaking individuals and those with lower incomes.

Discussion—Findings point to the potential importance of self-efficacy for seeking and understanding medical information and perceived barriers to pain management in understanding the psychological well-being of breast cancer patients with pain, especially those who are Spanish-speaking.

Keywords

breast cancer; pain management; self-efficacy; barriers; ethnicity

Introduction

Recent meta-analytic evidence indicates that 44% to 64% of breast cancer patients experience pain.[1] Causes of pain among breast cancer patients are often multifaceted and include tumor

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growth, cancer treatment, and other health conditions (e.g., arthritis, headache).[2] Despite greater insight into the pathophysiological mechanisms of pain and the increased availability of pain therapies, nearly 40% of cancer patients in the United States have undertreated pain. [3] With few exceptions,[4,5] research has found pain management to be less adequate among African American and Hispanic cancer patients relative to Caucasian cancer patients.[6–9]

Medical and demographic factors may partially explain the higher rates of pain and its undertreatment among minority group members, including those with breast cancer.[10–14] First, national data indicate that African American and Hispanic women with breast cancer present with more advanced stages than Caucasian women,[14] and advanced disease has been associated with greater pain and less adequate pain management.[3] Second, socioeconomic variables related to minority status have predicted pain outcomes.[10–12] For example, a nationally representative survey of African American, Hispanic, and Caucasian individuals with chronic pain found that income and level of education rather than ethnicity were correlated with disabling pain.[10] Finally, some ethnic group differences in pain management may be associated with language barriers to medical care.[13] Patients with a language concordant physician have reported less pain and better physical and psychological well-being relative to patients with a language discordant physician.[15]

Although researchers have documented linguistic and economic barriers to care that potentially contribute to racial and ethnic disparities in pain outcomes,[11,13,16,17] much less is known about the psychological mechanisms that may underpin these health disparities.[18–20] First, associations between patient-related barriers to pain management (e.g., fear of addiction, fatalism) and ethnicity have been mixed.[21–23] For example, Caucasian patients with AIDS endorsed fewer barriers to pain management than did their non-Caucasian counterparts.[21] However, barriers to pain management have not been associated with race/ethnicity among cancer patients with pain.[22,23] Second, individuals who perceive greater barriers to pain management may have lower self-efficacy or confidence in their ability to cope with the disease and associated pain. Although this hypothesis has not been tested, evidence indicates that higher self-efficacy and perceptions of control over pain are correlated with lower pain scores and better mental health and physical functioning in cancer patients.[24–26] In addition, perceptions of control over pain have been linked to ethnicity and socioeconomic status.[23,27] For example, one study found that perceptions of control over pain were higher among Caucasians relative to African Americans and were related to better health outcomes (e.g., reduced pain severity and negative affect).[27] However, perceptions of control over pain did not vary by race/ethnicity when controlling for income level.

The aims of the present study of breast cancer patients were to (a) examine self-efficacy for coping with cancer, perceived barriers to pain management, distress, average pain severity, and pain management as a function of ethnic/linguistic group (i.e., Black, Spanish-speaking Latina, English-speaking Latina, or Caucasian), income, education, and disease stage; and (b) examine the extent to which psychological outcomes (i.e., self-efficacy, perceived barriers to pain management, and distress) are associated with average pain severity and pain management. Based on prior research,[7,8,14,15,18, 23,28] the following results were hypothesized:

1. Black and Latina women with breast cancer would report lower self-efficacy for coping with cancer, greater perceived barriers to pain management, average pain severity, and distress, and worse pain management than Caucasian women with this disease.

2. Spanish speakers would report more negative outcomes across all study variables than English speakers.

3. Lower income and education and more advanced disease stage would be associated with more negative outcomes across all study variables.

4. Better psychological outcomes (i.e., higher self-efficacy, fewer perceived barriers to pain management, and less distress) would be associated with lower average pain severity and better pain management.

Materials and Methods

Procedure

Participants were breast cancer patients who met eligibility criteria for a cognitive-behavioral intervention trial that was designed to reduce barriers to pain management and enhance skills in communicating and monitoring pain symptoms.[29] Eligibility criteria included the following: (1) at least 18 years of age; (2) confirmed breast cancer diagnosis; (3) self-reported pain of at least moderate intensity over the past 2 weeks (score of 4 or higher on the Brief Pain Inventory's[30] Worst Pain Intensity item); and (4) fluency in either English or Spanish.

Following institutional review board approval of study procedures, participants were recruited from five sites in New York City (i.e., four outpatient oncology clinics at major teaching hospitals and a private, hospital-affiliated oncology practice). Oncologists referred potentially eligible patients after discussing the study with the patient and obtaining the patient's verbal permission to be contacted by a study coordinator for screening. Eligible patients who were interested in the study provided written informed consent. The consent process included further discussion of study procedures, risks and benefits of participation, and research participants' rights. Patients who provided consent underwent a 35-minute baseline assessment.

Measures

Patients completed study measures prior to completion of any part of the intervention. If a Spanish version of a measure was unavailable, it was translated into Spanish and then back translated by a professional company.

Self-efficacy for coping with cancer—A revised version of the Cancer Behavior Inventory (CBI)[31] assessed self-efficacy for performing major coping tasks associated with cancer and its treatment. The measure was developed with input from persons with cancer and their family members, the literature on coping with cancer, and health care professionals. Each of the 33 items is rated on a 9-point scale that ranges from 1 (*not at all confident*) through 5 (*moderately confident*) to 9 (*totally confident*). Sample items are "Asking physicians questions" and "Maintaining a daily routine." This measure includes the following seven subscales: (1) maintenance of activity and independence ($\alpha = .74$); (2) seeking and understanding medical information ($\alpha = .80$); (3) stress management ($\alpha = .81$); (4) coping with treatment-related side-effects ($\alpha = .71$); (5) accepting cancer/maintaining a positive attitude ($\alpha = .57$); (6) affective regulation ($\alpha = .65$); and (7) seeking support ($\alpha = .85$). Research has supported the reliability and validity of the revised CBI,[31] and coefficient alpha for the CBI total score was .92 across languages in the present research. Regarding the Spanish version of the CBI, coefficient alpha for the CBI total score was .94, and alphas for the subscales were acceptable (range = .69 to .90), except for the accepting cancer/maintaining a positive attitude subscale ($\alpha = .33$).

Pain and pain management—The Brief Pain Inventory (BPI)[30] assessed average pain and worst pain intensity during the past week on a scale from 0 = *no pain* to 10 = *pain as bad as you can imagine*. The test-retest reliability of the BPI intensity ratings has been demonstrated,[32] and the validity of the BPI has been supported by studies indicating a significant association between higher pain ratings and increased opioid and analgesic use.[33] English and Spanish versions of the BPI have excellent reliability and validity, and multisite studies of African

American and Hispanic cancer patients with pain have used the BPI.[7,16,34] The Pain Management Index (PMI)[35] was calculated from the patient's score on the BPI Worst Pain Item and the level of analgesics used to treat the pain. Worst pain ratings were coded into four categories (0 = pain rating of 0; 1 = pain rating of 1–4; 2 = rating of 5–6; and 3 = rating of 7 +). Pain medications were classified into four categories according to the WHO's analgesic ladder (i.e., 0 = no analgesics; 1 = nonopioid medications; 2 = weak opioids; and 3 = strong opioids such as morphine or oxycodone). The Worst Pain ranking was subtracted from the Analgesic level to compute an index value ranging from −3 to +3, with values of 0 or above indicating adequate pain management. Research with cancer patients, including African American and Hispanic patients, has supported the construct validity of the PMI.[7,19,36,37]

Barriers to pain management—The Barriers Questionnaire (BQ)[36] assessed patients' misconceptions about cancer-related pain and its treatment. Each item is rated on a scale from 0 (*do not agree at all*) to 5 (*agree very much*). The 27-item BQ includes the following eight areas of patients' pain-related concerns that can affect the adequacy of pain management: 1) analgesic addiction; 2) tolerance; 3) side effects; 4) fatalism; 5) relationship with their physician and other health care providers (e.g., "'Good' patients avoid bothering their doctors and nurses about pain"); 6) fear of distracting the doctor with reports of pain; 7) pain as a sign of cancer progression; and 8) fear of pain medication injections. The reliability and validity of the BQ have been documented in cancer patient samples,[36,38] and the psychometric properties of a Spanish version of the BQ have been reported for Puerto Ricans.[39] For the present research, a number of items were revised and added to the BQ to create a 30-item measure that was relevant to breast cancer patients with pain. For example, the following item was added: "Pain medicine weakens the immune system." Coefficient alpha for the present research was .89 across languages and .83 for the Spanish version of the scale.

Distress—The 18-item Mental Health Inventory (MHI-18)[40] assessed symptoms of distress over the past month on a 6-point scale from 0 (*all of the time*) to 6 (*none of the time*). Responses are summed to compute a total score that ranges from 18 to 108. The MHI-18 includes the following five subscales: anxiety, depression, loss of behavioral/emotional control, positive affect, and interpersonal ties. In a diverse sample of outpatients, the MHI-18 was found to be highly sensitive in detecting mood and anxiety disorders,[40] and a brief version of the MHI has been administered to Hispanics and African Americans.[41] Coefficient alpha for the present research was .93 across languages and .92 for the Spanish version of this scale.

Statistical Analyses

Data were analyzed with SPSS statistical software (version 15.0; SPSS Inc., Chicago, IL). Descriptive statistics were used to characterize the demographic, medical, and psychosocial characteristics of the study sample. Chi-square analyses were conducted to determine whether demographic and disease characteristics varied by ethnicity and language. Univariate analyses of variance were conducted to examine whether study variables (i.e., self-efficacy for coping with cancer, average pain level, pain management, barriers to pain management, and distress) differed by ethnicity and language. In addition, post-hoc pairwise comparisons among the four ethnic/linguistic groups were performed using the Tukey's Honestly Significant Differences (HSD) procedure. Next, Pearson correlations were computed to examine the associations between demographic and medical factors and study variables. Variables that showed significant correlations with each of the five study outcomes were entered into ordinary least squares (OLS) regressions with simultaneous predictor entry. With the exception of using the Tukey's HSD for the pairwise comparisons of ethnic/linguistic groups, no correction for Type I error was used for these exploratory analyses. All reported p values are 2-sided and a value of $p < .05$ was considered statistically significant.

Results

Sample Characteristics

Of 228 women referred to the study for screening, 88 (38.6%) were ineligible, 28 (12.2%) refused, and 23 (10.1%) were excluded for other reasons. The primary reason for exclusion was an inability to contact the patient (18/23). A total of 89 patients were eligible and provided informed consent. Most of these patients (98%, $n = 87$) completed the in-person baseline assessment and received $20 as compensation for their time.

Demographic and medical characteristics of the sample are found in Table 1. Participants' average age was 50 years ($SD = 10$, range = 28–75). Almost half (47%) of the sample earned less than $20,000 per year. Participants were primarily Hispanic, Black, and Caucasian, and almost one-third ($n = 28$, 32.2%) of the interviews were conducted in Spanish. The majority (87%) of Black individuals were African American and 13% were West Indian. Participants were, on average, 3 years post-diagnosis of breast cancer ($SD = 4$, range = 0–18 years), and nearly half of the sample (49%) had stage IV breast cancer.

Ethnic and Linguistic Group Comparisons

Table 1 shows demographic characteristics by ethnicity and language. Chi-square analyses revealed significant ethnic and linguistic group differences with regard to income, education, time since diagnosis, and the presence of metastatic disease. Caucasians were more likely than Latinas to have at least 2 years of college and were more likely than Blacks or Latinas to have an annual income of $20,000 or higher. In addition, Spanish-speaking Latinas had a higher prevalence of metastatic disease than the other ethnic/linguistic groups, and more time had elapsed since their diagnosis relative to Caucasians. Age and marital status did not significantly differ as a function of ethnicity and language.

Table 2 presents means, standard deviations, and ethnic/linguistic group comparisons for study variables. Regarding self-efficacy for coping with cancer, Caucasians endorsed higher levels of self-efficacy than English-speaking Latinas, and neither group significantly differed from the other ethnic/linguistic groups. Spanish-speaking Latinas endorsed greater barriers to pain management and distress relative to Caucasians, and neither group significantly differed from the other ethnic/linguistic groups on these variables. Both Black and Caucasian patients reported lower average pain levels compared to Spanish-speaking Latina patients, and the average pain level of English-speaking Latina patients did not differ from that of the other ethnic/linguistic groups.

Intercorrelations and Regression Analyses: Predictors of Study Variables

Intercorrelations of study variables (i.e., self-efficacy for coping with cancer, average pain level, pain management, barriers to pain management, and distress) and demographic and medical characteristics appear in Table 3, and results of regression analyses appear in Table 4.

Self-efficacy for coping with cancer—Significant correlates of self-efficacy for coping with cancer were identified. Older age, absence of radiation history, less time since diagnosis, and less distress together predicted greater self-efficacy for coping with cancer, accounting for 38% of the variance. Older age, absence of radiation history, and less distress were the only significant unique predictors of greater self-efficacy for coping with cancer. Although the composite score for self-efficacy for coping with cancer was not associated with barriers to pain management, greater barriers to pain management were associated with lower self-efficacy for seeking and understanding medical information ($r = -.24$, $p < .05$). None of the other self-efficacy subscales predicted barriers to pain management.

Pain, barriers to pain management, and distress—Predictors of average pain level, pain management, barriers to pain management, and distress were also identified. Spanish language preference, less income, greater time since diagnosis, earlier breast cancer stage, worse pain management, and greater barriers to pain management together predicted a higher average pain level, accounting for 38% of the variance. Spanish language preference, lower income, and worse pain management were the only significant unique predictors of a higher average pain level. Radiation history and lower average pain level uniquely predicted better pain management and together accounted for 12% of the variance. Spanish language preference, greater income, less education, radiation history, more advanced breast cancer stage, greater average pain level, and greater distress predicted greater barriers to pain management, collectively accounting for 31% of the variance. Spanish language preference and greater distress were the only significant unique predictors of barriers to pain management. Finally, English language preference, greater income, greater self-efficacy for coping with cancer, lower average pain level, and fewer barriers to pain management together predicted less distress, accounting for 39% of the variance. Greater self-efficacy for coping with cancer was the only significant unique predictor of less distress.

Discussion

This study contributes to a small body of research on psychological outcomes (e.g., self-efficacy, perceived barriers to pain management) associated with pain management among cancer patients with economic, linguistic, and ethnic diversity. In this sample of urban women with breast cancer, Spanish-speaking Latinas endorsed greater average pain severity than Blacks and Caucasians and greater barriers to pain management than Caucasians. As hypothesized, lower income also predicted greater average pain severity. Results of this study in combination with prior research[10–12,27] suggest that patients with low income may be at risk for poor pain-related outcomes. Ethnicity and socioeconomic status are often highly correlated, and research with non-cancer populations has obtained mixed findings regarding the relative impact of these variables on pain and pain-related outcomes.[11,12,27,42]

Psychological contributors to pain-related outcomes, such as self-efficacy for coping with cancer and perceived barriers to pain management, may be especially important to assess in disadvantaged and minority populations. In this study, the composite score for self-efficacy for coping with cancer was not significantly associated with barriers to pain management. Rather, self-efficacy for seeking and understanding medical information was the only subscale associated with barriers to pain management. The measure of barriers to pain management focuses on misconceptions regarding the doctor-patient relationship and medication (e.g., concerns about addiction).[36] Thus, it is not surprising that patients with greater self-efficacy for seeking and understanding medical information reported fewer misconceptions about cancer-related pain and its treatment.

Other predictors of self-efficacy for coping with cancer were identified. Older age, absence of radiation history, and less distress predicted greater self-efficacy for coping with cancer. Although there is some evidence of lower self-efficacy among young adult patients with chronic pain, the relationship between self-efficacy and age is not entirely clear and deserves further study.[43] In this study, having a history of radiation was associated with Spanish language preference, lower income, and more advanced disease stage, all of which are theoretically linked to self-efficacy for coping with cancer. Analyses with a larger sample are needed to further explore relations among these variables. Consistent with our hypothesis, an inverse relationship was obtained between self-efficacy for coping with cancer and distress. According to Bandura,[44] individuals with high levels of self-efficacy have confidence in their ability to meet challenges associated with stressors such as cancer. Conversely, those low in self-efficacy may feel overwhelmed by illness-related demands. Our results converge with

evidence suggesting that high self-efficacy is correlated with better mental health among cancer patients.[25,45] Coping self-efficacy is amenable to intervention and has been found to mediate the effects of cognitive-behavioral interventions on distress in non-cancer samples.[46] Further research is needed to adapt these interventions to diverse populations with cancer pain and to examine their impact on barriers to pain management.

As hypothesized, Spanish-speaking participants endorsed higher average pain levels and greater barriers to pain management than English-speaking participants. Barriers to pain management, in turn, were positively correlated with distress. Similarly, research on Latino and Caucasian patients with hypertension or diabetes has found that language discordance between the physician and patient was associated with greater pain severity and worse psychological and physical health outcomes.[15] Spanish-speaking patients in our study endorsed greater misconceptions about the doctor-patient relationship and pain management than English-speaking patients, and these perceived barriers to pain management were most likely related to poor communication with health care professionals. Research is needed to examine the impact of doctor-patient language concordance on perceived barriers to pain management and health outcomes.

Limitations of the findings and directions for future research warrant discussion. First, conducting a large number of analyses on a relatively small sample may capitalize on chance. Significant differences among ethnic/linguistic subgroups should be cautiously interpreted due to the small samples that may not be representative of Black, Hispanic, and Caucasian breast cancer patients with pain in the U.S. In addition, variations in outcomes by country of origin were not assessed. Further work on pain-related disparities is needed in larger samples of cancer patients in order to draw conclusions that generalize to particular racial/ethnic groups. Second, response bias may have influenced the present findings. Specifically, participants were willing to participate in an educational intervention trial and, thus, they may differ in important ways from breast cancer patients who would refuse participation. For example, the most distressed individuals may have been more likely to refuse participation, as in prior psychological research.[47] A third limitation is the cross-sectional design that precluded assessment of causal relations among variables. Fourth, we did not assess the causes of the patients' pain and examined a restricted range of potential correlates of pain-related outcomes. For example, the extent to which insurance status, co-morbid medical conditions, health literacy, level of acculturation, and coping efforts (e.g., problem-focused coping) are associated with pain-related outcomes requires study. Finally, research is needed to further validate the Spanish versions of the CBI[31] and MHI-18.[40]

Despite limitations, these findings set the stage for longitudinal investigation of the effects of self-efficacy and barriers to pain management on the psychological well-being of breast cancer patients with ethnic, linguistic, and socioeconomic diversity. Replication of the present findings in larger multiethnic samples would suggest that interventions designed to enhance self-efficacy for seeking and understanding medical information and reduce misconceptions regarding pain management may promote the psychological adjustment of breast cancer patients with pain, especially those who are Spanish-speaking. Results also point to the importance of identifying linguistic, economic, and psychological barriers to pain management. Given the widespread undertreatment of cancer pain, especially among minority and disadvantaged populations,[7,16] and its detrimental effects on quality of life,[48] assessing and overcoming barriers to adequate pain management should be a high priority for future research, policy, and clinical practice.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

Acknowledgments

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Table 1

Sample Characteristics by Ethnicity and Language

Characteristic	No. of Patients[a]	%	African American (1) 17.2%	Spanish-speaking Latina (2) 31.0%	English-speaking Latina (3) 11.5%	Caucasian (4) 31.0%	p	Group Differences (p < .05)
	(N = 87)		(n = 15)	(n = 27)	(n = 10)	(n = 27)		
Age							ns	—
Less than 50 years of age	41	47.1	6	9	7	14		
≥50 years of age	43	49.4	8	17	3	13		
Not reported	3	3.4	1	1	0	0		
Education							.01	2 and 3 < 4
Less than 2 years of college	49	56.3	9	20	8	10		
≥ 2 years of college	35	40.2	5	6	2	17		
Not reported	3	3.4	1	1	0	0		
Annual Household Income							<.001	1, 2, and 3 < 4
Below $20,000	41	47.1	9	19	7	4		
≥ $20,000	39	44.8	5	5	3	21		
Not reported	7	8.0	1	3	0	2		
Marital Status							ns	—
Married or marriage equivalent	44	50.6	3	8	3	13		
Not married	40	46.0	11	18	7	14		
Not reported	3	3.4	1	1	0	0		
Breast Cancer Stage							.01	2 > 1, 3, and 4
Stage I-III	44	50.6	10	7	7	17		
Stage IV	43	49.4	5	20	3	10		
Years Since Breast Cancer Diagnosis							.03	2 > 4
Less than 1 year	39	44.8	8	7	4	18		
≥ 1 year	45	51.7	6	19	6	9		
Data unavailable	3	3.4	1	1	0	0		
History of Chemotherapy							ns	—
Yes	78	89.7	13	23	10	26		

Characteristic	No. of Patients[a] (N = 87)	%	African American (1) 17.2% (n = 15)	Spanish-speaking Latina (2) 31.0% (n = 27)	English-speaking Latina (3) 11.5% (n = 10)	Caucasian (4) 31.0% (n = 27)	p	Group Differences (p < .05)
No	6	6.9	1	3	0	1		—
Data unavailable	3	3.4	1	1	0	0		
History of Radiation							ns	
Yes	38	43.7	6	16	4	7		
No	46	52.9	8	10	6	20		
Data unavailable	3	3.4	1	1	0	0		
Mastectomy							ns	—
Yes	44	50.6	8	15	4	12		
No	31	35.6	4	9	5	11		
Data unavailable	12	13.8	3	3	1	4		
Lumpectomy							ns	—
Yes	27	31.0	3	8	5	10		
No	48	55.2	9	16	4	13		
Data unavailable	12	13.8	3	3	1	4		

Note. SD = standard deviation. Results of Chi-square analyses are reported.

[a] Total sample includes women of mixed ethnicity and those who did not report their ethnicity.

Table 2

Means and Standard Deviations for Study Variables by Ethnicity and Language

Study Variable	(1) African American 17.2% (n = 15)	(2) Spanish-speaking Latina 31.0% (n = 27)	(3) English-speaking Latina 11.5% (n = 10)	(4) Caucasian 31.0% (n = 27)	F	Group Differences (p < .05)
Self-efficacy for coping with cancer	230.47 (43.15)	241.65 (36.93)	211.00 (27.75)	245.32 (22.85)	2.78*	3 < 4
Barriers to pain management	54.65 (26.88)	73.14 (22.41)	55.80 (23.04)	40.21 (22.10)	8.49*	2 > 4
Distress[a]	70.15 (19.01)	59.81 (17.99)	61.11 (20.08)	75.06 (9.57)	4.50*	2 < 4
Average pain level during the past week[b]	3.53 (2.59)	6.15 (3.10)	4.80 (2.35)	3.52 (2.31)	5.35*	1 and 4 < 2
Pain management[c]	−0.53 (.52)	−0.78 (.42)	−0.80 (.42)	−0.56 (.51)	1.66	—

Note. Tukey's Honestly Significant Differences procedure was used to conduct all pairwise comparisons among ethnic/linguistic groups. Standard deviations are in parentheses.

[a] Higher numbers indicate less distress.

[b] Rated on a scale from 0 (*no pain*) to 10 (*pain as bad as you can imagine*).

[c] Ranges from −3 to +3, with values of 0 or above indicating adequate pain management.

*
$p < .05$.

Table 3

Intercorrelations of Participant Characteristics and Study Variables

Participant Characteristic	1	2	3	4	5	6	7	8	9	10	11	12
1. Age	—											
2. Language of interview[a]	.20	—										
3. Income	.01	−.39*	—									
4. Education	−.11	−.27*	.27*	—								
5. Breast cancer stage	.08	.31*	−.24*	−.36*	—							
6. Time since breast cancer diagnosis	.02	.01	−.14	.01	.48*	—						
7. History of radiation[b]	−.06	.25*	−.26*	−.04	.39*	.44*	—					
8. Self-efficacy for coping with cancer	.26*	.18	.23	−.15	.12	−.27*	−.31*	—				
9. Average pain level during the past week	.00	.42*	−.38*	−.18	.25*	.23*	.06	−.16	—			
10. Pain management	−.03	−.14	−.09	.07	.06	.06	.22*	.10	−.25*	—		
11. Barriers to pain management	.15	.43*	−.30*	−.33*	.23*	.18	.23*	−.17	.23*	−.03	—	
12. Distress[c]	.06	−.23*	.35*	.08	.08	−.03	−.06	.45*	−.34*	.10	−.36*	—

Note. N = 87. Other variables yielding nonsignificant correlations with study variables were marital status and history of chemotherapy, mastectomy, and lumpectomy.

[a] Coded 1 = English, 2 = Spanish.

[b] Coded 0 = no, 1 = yes.

[c] Higher numbers indicate less distress.

*
$p < .05$.

Table 4

Multiple Regression Analyses Predicting Study Variables

Outcome	Predictors	β	t	Partial r
Self-efficacy for coping with cancer				
	Age	.23	2.33[*]	.27
	History of radiation[a]	−.26	−2.42[*]	−.28
	Time since breast cancer diagnosis	−.16	−1.44	−.17
	Distress[b]	.42	4.36***	.47
Average pain level				
	Language of interview[c]	.27	2.32[*]	.27
	Income	−.27	−2.52[*]	−.29
	Time since breast cancer diagnosis	.26	2.35	.27
	Breast cancer stage	−.05	−.43	−.05
	Pain management	−.28	−2.85[**]	−.32
	Barriers to pain management	.06	.60	.07
Pain management				
	Average pain level	−.26	−2.51[*]	−.27
	History of radiation[a]	.24	2.25[*]	.24
Barriers to pain management				
	Language of interview[c]	.25	2.07[*]	.25
	Income	.02	.19	.02
	Education	−.21	−1.80	−.22
	History of radiation[a]	.15	1.26	.15
	Breast cancer stage	.01	.08	.01
	Average pain level	.07	.55	.07
	Distress	−.27	−2.33[*]	−.27
Distress[b]				
	Language of interview[c]	−.11	−.91	−.12
	Income	.12	.99	.13
	Self-efficacy for coping with cancer	.37	3.27[**]	.38
	Average pain level	−.17	−1.47	−.18
	Barriers to pain management	−.20	−1.82	−.23

Note. For self-efficacy for coping with cancer, $R^2 = .38$, $F(4, 67) = 10.32$, $p < 001$; for average pain level, $R^2 = .38$, $F(6, 70) = 7.27$, $p < 001$; for pain management, $R^2 = .12$, $F(2, 81) = 5.36$, $p < 01$; for barriers to pain management, $R^2 = .31$, $F(7, 67) = 4.38$, $p < 001$; for distress, $R^2 = .39$, $F(5, 62) = 7.81$, $p < 001$.

[a]Coded 0 = no, 1 = yes.

[b]Higher numbers indicate less distress.

[c]Coded 1 = English, 2 = Spanish.

*
 $p < .05.$

**
 $p < .01.$