

## PAPER

# A dyadic analysis of stress processes in Latinas with breast cancer and their family caregivers

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## Abstract

**Objective:** Breast cancer diagnosis and treatment negatively affect quality of life for survivors and their family caregivers. The stress process model has been useful for describing the cascade of social and psychological experiences that culminate in degraded quality of life for both survivors and their family caregivers. This study is designed to test theoretically specified predictors of negative psychosocial outcomes in a dyadic context.

**Methods:** Participants were 230 dyads composed of Latinas recently diagnosed with breast cancer and their primary family caregiver, who completed measures of socioeconomic status, stress, family conflict, depression, and anxiety. Data were analyzed following the Actor-Partner Interdependence Mediation Model in structural equation modeling.

**Results:** For both survivors and caregivers, there were significant direct and indirect actor effects (through family conflict) of perceived stress on depression and anxiety. Several indirect partner effects were also evident in this sample. Specifically, caregivers' stress was predictive of survivors' depression and anxiety through survivors' increased perceptions of family conflict.

**Conclusions:** As predicted by the stress process model, stress and family conflict were predictive of psychological distress in breast cancer survivors and their family caregivers. Significant partner effects in the Actor-Partner Interdependence Mediation Model suggest that there are some dyadic influences, particularly from caregivers' stress to survivors' perceptions of exacerbated family conflict. These findings show how strained family relationships can aggravate the well-being of cancer survivors and their family caregivers through this challenging experience.

## KEYWORDS

cancer, caregiving, family conflict, Latinas, oncology, psychological distress, stress

## 1 | INTRODUCTION

The experience of breast cancer diagnosis and treatment can be extraordinarily taxing to the psychological, family, and financial resources of cancer survivors (defined as individuals from diagnosis to the end of life<sup>1</sup>), as well as their family caregivers (defined as blood relatives and fictive kin who provide informal care to the survivor). Caregivers of cancer patients become involved in complex care activities<sup>2</sup> for an average of 14 months.<sup>3</sup> The hardships associated with cancer and cancer caregiving can be especially pronounced in vulnerable populations with modest socioeconomic status (SES) and minority stress. The stress process model<sup>4</sup> explains the cascade of social and psychological experiences that can culminate in degraded quality of life

for both survivors and their family caregivers. There is compelling evidence that survivors' and caregivers' social and psychological experiences during illness are interdependent.<sup>5-8</sup> Therefore, the purpose of this study is to provide a dyadic test of the stress process model as an explanatory tool for understanding the predictors of distress in a vulnerable population undergoing cancer treatment and family caregiving.

The stress process model was originally developed to explain the interrelated conditions that lead up to compromised well-being among caregivers.<sup>4</sup> It has since been expanded and productively used to model the well-being of cancer survivors<sup>9</sup> and their family caregivers.<sup>10</sup> According to the stress process model, illness and caregiving experiences are influenced by background context characteristics, especially

those that mark positions among social strata in society. A prototypic example of such a contextual variable is SES.<sup>4</sup> Context variables are then assumed to influence primary stressors. These are the conditions that deplete people's psychological resources and degrade their outlook on life. An example would be the perception of stress and feeling overloaded. Primary stressors are then assumed to influence secondary role strains. One such secondary strain would be family discord and conflict. Family members often play a prominent role in caregiving, sometimes at significant cost to their own well-being.<sup>11</sup> The illness experience and its attendant caregiving can aggravate preexisting family quarrels and introduce new struggles for the family. Finally, outcomes in the stress process model are the markers of physical and mental well-being, and these are most proximally predicted by secondary role strains. In the stress process model, primary stressors and secondary role strains are assumed to have both direct and indirect effects on the outcomes, through mediational processes (eg, primary stressors → secondary role strains → outcomes). In this investigation, we focus on psychological distress, namely, depression and anxiety, as a primary outcome because of its prominent role in determining the trajectory of wellness or deterioration evidenced by cancer survivors and their caregivers.

Psychological distress in the form of depression and anxiety is reported by approximately 30% of survivors, with caregivers often experiencing psychological distress at levels equal to or greater than those of cancer survivors themselves.<sup>12-14</sup> Major depression occurs in approximately 16%, and subthreshold depressive disorders occur in 22%, of cancer survivors during treatment.<sup>15</sup> These prevalence rates are about 3 times higher than in the general population. Even when depression and anxiety do not meet the threshold for clinical diagnoses, these symptoms are still associated with significant health impairments.

Distress in breast cancer patients and their caregivers has been linked to significant physical and emotional impairments,<sup>16,17</sup> and to survivors' decreased immune function,<sup>18</sup> adverse effects and poor response to chemotherapy,<sup>19</sup> and early mortality.<sup>20</sup> Caring for the survivor often has negative consequences for the caregiver's family resources and health.<sup>21,22</sup> Caregivers have worse physical health than those in the general population, reflected by higher prevalence of arthritis, chronic back pain, and heart disease.<sup>17</sup> Between 30% and 50% of caregivers experience increased psychiatric morbidity, fatigue, and sleep impairment.<sup>23,24</sup> Risk of these morbidities is particularly high among caregivers who are female,<sup>25</sup> less educated,<sup>26</sup> younger in age,<sup>27</sup> and caring for younger adult survivors.<sup>28</sup>

Latinas with breast cancer and their family caregivers represent an important and unique context for the study of stress processes in cancer survivorship and caregiving. The Latina/o culture is marked by higher *familism* (pride in family membership) and collectivism (group over individual goals) compared with non-Hispanic whites.<sup>29,30</sup>

This is expressed in a greater felt obligation to provide care to family members and lesser willingness to rely on institutionalized care.<sup>31</sup> The obligation to family members during illness<sup>32</sup> could potentially contribute to stress and distress among caregivers, reducing their abilities to provide critical support during illness. Because Latina breast cancer survivors are at high risk for psychological distress,<sup>33</sup> the need for family caregiving may be especially pronounced.<sup>34</sup> This

need is further complicated by the fact that Latina breast cancer survivors are likely to be in a context of care where financial resources, insurance, and sufficient communication with health care providers are lacking.<sup>34</sup>

This study is designed to test the stress process model in a dyadic context, allowing for one dyad members' experience (eg, stress) to account for a theoretically related experience (eg, family conflict) in both the self and the partner. In accord with the stress process model, it was hypothesized that SES would be negatively associated with stress, stress would be positively associated with family conflict, and family conflict would be positively associated with psychological distress. Stress was also hypothesized to have an indirect effect on psychological distress through greater family conflict. The stress process model has heretofore been tested exclusively as an individual-level model. This research extends the stress process model to a dyadic context and applies it to a vulnerable population of Latina breast cancer survivors and their family caregivers.

## 2 | METHOD

### 2.1 | Participants

Participants in this investigation were 230 Latinas with breast cancer and their family caregivers. Inclusion criteria for the Latina cancer survivors were (1) breast cancer diagnosis within the past year (in this sample, 2011-2016), (2) currently receiving or recently completed adjuvant treatment, (3) over 21 years of age, (4) English or Spanish speaking, and (5) access to and ability to talk on the telephone. Inclusion criteria for the family caregivers were (1) nominated by the cancer survivor, (2) over 21 years of age, (3) English or Spanish speaking, (4) access to and ability to talk on the telephone, and (5) not diagnosed with cancer themselves. There were no other exclusionary criteria. Relationships between the cancer survivor and her caregiver included spouse/significant other (29%), daughter (20%), sibling (16%), mother (15%), friend (12%), son (2%), and other family member (eg, aunt, cousin, daughter-in-law, niece, and stepdaughter) (5%). A small percentage of "friends" were included in the family caregiver group as these relationships often have the form of fictive kinship for Latina cancer survivors.<sup>35</sup> The family caregiver was living with the cancer survivor in 49% of the dyads and residing elsewhere in the remaining 51% of the dyads. Additional descriptive and demographic data for survivors and caregivers appear in Table 1.

### 2.2 | Procedure

Subsequent to receiving approval from a university institutional review board, participants were recruited through a series of purposive sampling methods. These involved direct contacts made to patients at a regional cancer center and at community health clinics that predominantly serve lower-income Latina/o residents. Additional participants were recruited through survivorship conferences, breast cancer support groups, brochures placed in oncology and women's health center offices, and referrals from nurses, social workers, and patient navigators at various health centers in the Southwestern United States. Participants were recruited for a study testing the effectiveness of various

**TABLE 1** Descriptive statistics for survivor and caregiver demographic, health, and major study variables

Variable	Survivors	Caregivers
Sex		
Male	(230) 0%	(77) 34%
Female	(0) 100%	(153) 66%
Age, M (SD), range	50.19 (10.37), 28-75	44.20 (13.23), 21-82
Race/ethnicity		
American Indian	(0) 0%	(3) 1%
Latina/o	(229) 100%	(211) 92%
White	(0) 0%	(11) 5%
Other/mixed	(1) 0%	(5) 2%
Education		
Elementary	(40) 17%	(23) 10%
Middle school	(38) 17%	(46) 20%
High school	(67) 29%	(56) 24%
Vocational/tech/some college	(49) 21%	(67) 29%
College	(27) 12%	(31) 14%
Postgraduate	(9) 4%	(7) 3%
Income		
Under \$10 000	(72) 31%	(43) 19%
\$10 000-19 999	(52) 23%	(40) 17%
\$20 000-29 999	(45) 20%	(45) 20%
\$30 000-39 999	(16) 7%	(21) 9%
\$40 000-49 999	(17) 7%	(21) 9%
\$50 000-59 999	(8) 4%	(11) 5%
\$60 000-69 999	(4) 2%	(8) 4%
\$70 000-79 999	(2) 1%	(6) 3%
\$80 000-89 999	(3) 1%	(9) 4%
\$90 000 or over	(4) 2%	(7) 3%
Did not answer	(7) 3%	(10) 4%
Income meet needs		
Not at all	(55) 24%	(21) 9%
Barely meets my needs	(146) 64%	(139) 60%
Meets my needs with a little left over	(29) 13%	(70) 30%
Marital status		
Unmarried	(89) 39%	(70) 30%
Married	(141) 61%	(160) 70%
Number of children		
0	(18) 8%	(33) 14%
1	(22) 10%	(28) 12%
2	(69) 30%	(59) 26%
3	(61) 27%	(56) 24%
4	(38) 16%	(31) 14%
5 or more	(22) 10%	(23) 10%
Cancer stage		
0	(2) 1%	
I	(40) 17%	
II	(74) 32%	
III	(63) 27%	
IV	(25) 11%	
Don't know	(30) 13%	

(Continues)

TABLE 1 (Continued)

Variable	Survivors	Caregivers
Treatment		
Current		
Chemotherapy	(129) 56%	
Radiation	(19) 8%	
Surgery	(10) 4%	
Hormone blocking	(31) 14%	
Other	(1) 0%	
Completed		
Chemotherapy	(61) 27%	
Radiation	(43) 19%	
Surgery	(128) 56%	
Hormone blocking	(3) 1%	
Other	(0) 0%	
Stress, <i>M (SD)</i> , $\alpha$	15.71 (7.80), .82	14.20 (6.97), .84
Family conflict, <i>M (SD)</i> , $\alpha$	26.52 (6.93), .85	19.80 (7.27), .90
Depressive symptoms, <i>M (SD)</i> , $\alpha$	17.64 (12.93), .85	12.86 (11.02), .83
Anxiety, <i>M (SD)</i> , $\alpha$	17.84 (7.60), .93	16.49 (6.81), .91

psychosocial interventions for Latina breast cancer survivors and their family caregivers. All of the data presented in this report were collected prior to the onset of the interventions. Upon provision of informed consent, the survivor and caregiver were called separately over the telephone by a bilingual bicultural trained data collector who took measures of the variables described in Section 2.3, along with a number of demographic and illness variables and additional variables not relevant to this report. All variables were assessed via self-report. Survivors and partners could participate in the data collection in either Spanish or English, depending upon their preference. After this baseline assessment was taken, each participant received a thank-you letter and a \$20 gift card to a retail merchant to compensate them for their time.

## 2.3 | Measures

### 2.3.1 | Socioeconomic status

Participants were asked 3 questions to estimate their SES. First, they were asked to identify their annual household income in categories defined by \$10 000 increments (ie, <\$10 000, \$10 000-19 999, ..., >\$100 000). Then they were asked "How well does this income meet your financial needs?" Finally, they were asked to indicate their highest level of formal education completed. In subsequent analyses, these 3 items were treated as indicators of a latent SES variable.

### 2.3.2 | Stress

Participants completed the 10-item Perceived Stress Scale<sup>36</sup> as an index of their subjective appraisals of stress. The Perceived Stress Scale includes items measured on a 0 (*never*) to 4 (*very often*) scale, with a total scale range of 0 to 40. The measure contains questions such as "How often have you felt difficulties were piling up so high that you could not overcome them?"

### 2.3.3 | Family conflict

The general functioning subscale of the Family Assessment Device<sup>37</sup> was administered to assess family conflict and discord. This 12-item scale contains items such as "We don't get along well together" and "There are lots of bad feelings in the family." Response options ranged from 1 (*strongly disagree*) to 5 (*strongly agree*).

### 2.3.4 | Depressive symptoms

The 20-item Center for Epidemiological Studies Depression scale (CES-D)<sup>38</sup> was completed to assess symptoms of depression. The CES-D contains items that measure various affective and vegetative symptoms of depression that participants experienced over the previous week (eg, "I felt sad" and "I did not feel like eating; my appetite was poor"). Response options included 0 (*rarely or none of the time*), 1 (*some or a little of the time*), 2 (*occasionally or a moderate amount of time*), and 3 (*most or all of the time*). A CES-D score of 16 or greater is a screening cutoff for depression; 49% of the survivors and 33% of the caregivers scored in this range.

### 2.3.5 | Anxiety

The PROMIS short-form anxiety instrument<sup>39</sup> was administered to assess symptoms of anxiety over the previous week. This 8-item measure presents symptoms of anxiety such as "I felt nervous" and "My worries overwhelmed me." These were rated on a 5-point scale that included *never*, *rarely*, *sometimes*, *often*, and *always*.

## 2.4 | Data analyses

A dyadic version of the stress process model was tested in structural equation modeling with AMOS 20. These analyses were conducted in accord with the Actor-Partner Interdependence Mediation Model (APIMeM).<sup>40</sup> The APIMeM contains 2 direct actor effects (eg, person A's independent variable [IV] → person A's dependent variable [DV]), 2 direct partner effects (eg, person A's IV → person B's DV), 2 indirect

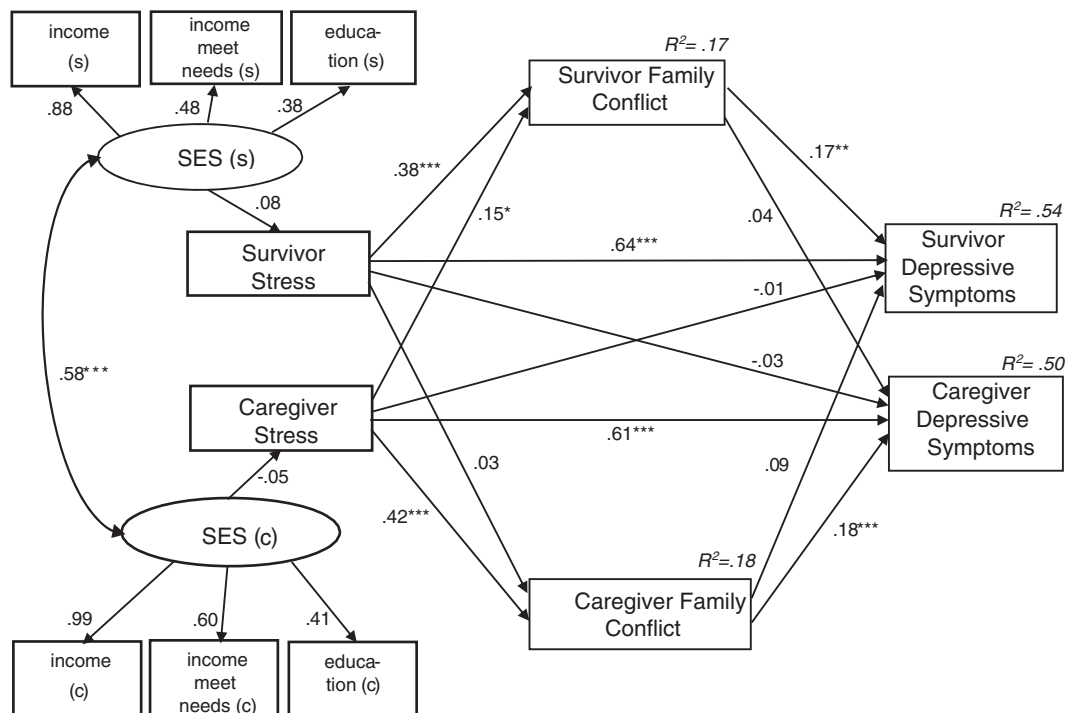
actor effects (eg, person A's IV → person A's mediator → person A's DV), and 6 indirect partner effects (eg, person A's IV → person B's mediating variable → person B's DV) that are generated by various combinations of person A's or B's IV, mediator, and DV. In the APIMeM, actor effects are estimated while controlling for partner effects, and vice versa, by specifying a correlation between the exogenous variables and error terms of the endogenous variables. The models were fitted using maximum likelihood estimation. A bias-corrected bootstrapping procedure based on 5000 bootstrap samples was used to estimate 95% confidence intervals around each indirect effect. Estimands were defined in AMOS to specify and test each possible indirect effect. We fitted one model with depressive symptoms as the DV and another with anxiety as the DV. For each model, we first specified constraints for equality between each survivor and corresponding caregiver path (eg, survivor stress → survivor depression = caregiver stress → caregiver depression). These constraints were then released, and the  $\Delta\chi^2$  and  $\Delta_1\text{NFI}$  were examined to determine the relative fit of the constrained versus unconstrained models. A significant difference in model fit indicates that the survivor effects are statistically different from the caregiver effects. In both models, SES was treated as a latent variable (indicated by income, the extent to which income meets the participant's needs, and education), and stress, family environment, and depression/anxiety were treated as manifest variables.

### 3 | RESULTS

Descriptive statistics and alpha reliabilities for all major study variables appear at the bottom of Table 1. The first model focused on prediction

of depressive symptoms as the dependent variable. The structural model appears in Figure 1. The constrained model provided an excellent fit to the sample data,  $\chi^2/df = 1.58$ , comparative fit index (CFI) = 0.96, root mean square error of approximation (RMSEA) = 0.050 (90% CI, 0.027-0.071). The unconstrained model also provided an excellent fit to the sample data,  $\chi^2/df = 1.66$ , CFI = 0.96, RMSEA = 0.054 (90% CI, 0.030-0.076). The relative fit statistics indicated that the unconstrained model did not provide a better fit than did the more parsimonious constrained model,  $\Delta\chi^2 = 5.91$ ,  $df = 6$ ,  $P = .445$ ,  $\Delta_1\text{NFI} = 0.007$ . Consequently, the magnitude of the survivor effects can be considered equal to the magnitude of the caregiver effects. To aid in understanding the components of each indirect effect, path coefficients from the unconstrained model are presented in Figure 1.

Contrary to predictions from the stress process model and despite the modest SES of many participants in this investigation, SES did not emerge as a significant context of care predictor of perceived stress. However, consistent with the stress process model, perceived stress (a primary stressor) was a significant predictor of family conflict (a secondary stressor) for both survivors ( $\beta = .38$ ,  $P < .001$ ) and caregivers ( $\beta = .42$ ,  $P < .001$ ). Also consistent with the stress process model, family conflict was a significant predictor of depressive symptoms for both survivors ( $\beta = .17$ ,  $P < .01$ ) and caregivers ( $\beta = .18$ ,  $P < .001$ ). There is one statistically significant direct partner effect in Figure 1. Caregivers' stress was predictive not only of their own reports of family conflict but of survivors' reports of greater family conflict as well ( $\beta = .15$ ,  $P < .05$ ). The stress process model predicts that primary stressors have both direct and indirect effects on outcomes. Indeed, perceived stress had a strong direct effect with symptoms of depression for both survivors ( $\beta = .64$ ,  $P < .001$ ) and caregivers ( $\beta = .61$ ,  $P < .001$ ).



**FIGURE 1** Actor-Partner Interdependence Mediation Model for socioeconomic status (SES), stress, family conflict, and depression. Figure values are standardized regression coefficients unless otherwise noted. Error terms have been omitted for ease of presentation. (s) = survivor, (c) = caregiver. \* $P < .05$ . \*\* $P < .01$ . \*\*\* $P < .001$

**TABLE 2** Indirect effects from the actor-partner mediator model with stress as the independent variable, family conflict as the mediator, and psychological distress as the dependent variable

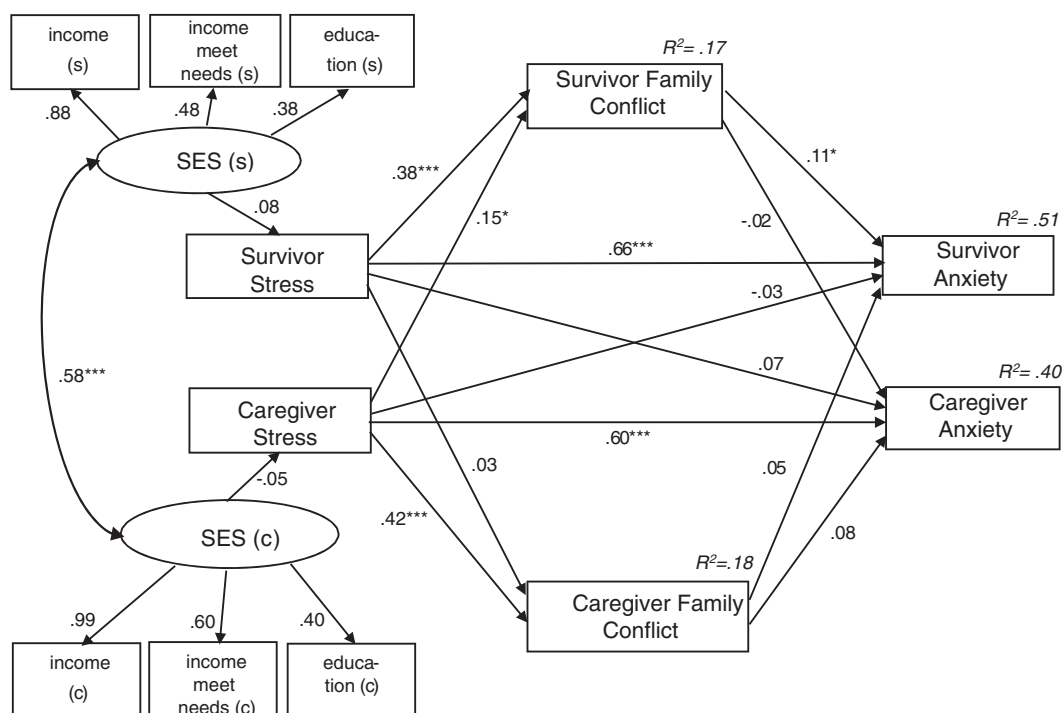
Effect	IE (B)	95% CI	P
DV = depression			
S stress → S conflict → S depression	0.11*	0.05 to 0.18	<.001
C stress → C conflict → C depression	0.12*	0.03 to 0.24	.01
S stress → C conflict → S depression	0.01	-0.01 to 0.03	.33
C stress → S conflict → C depression	0.01	-0.02 to 0.04	.41
S stress → C conflict → C depression	0.01	-0.02 to 0.05	.41
C stress → S conflict → S depression	0.05*	0.01 to 0.10	.01
S stress → S conflict → C depression	0.02	-0.04 to 0.08	.54
C stress → C conflict → S depression	0.07	0.00 to 0.15	.06
DV = anxiety			
S stress → S conflict → S anxiety	0.04*	0.00 to 0.08	.03
C stress → C conflict → C anxiety	0.03	-0.02 to 0.08	.20
S stress → C conflict → S anxiety	0.01	0.00 to 0.02	.36
C stress → S conflict → C anxiety	0.00	-0.03 to 0.02	.67
S stress → C conflict → C anxiety	0.00	0.00 to 0.02	.35
C stress → S conflict → S anxiety	0.02*	0.00 to 0.05	.02
S stress → S conflict → C anxiety	-0.01	-0.05 to 0.04	.75
C stress → C conflict → S anxiety	0.02	-0.04 to 0.08	.46

Abbreviations: C, caregiver; IE, indirect effect; S, survivor. Indirect effects are unstandardized regression coefficients. Table values are rounded to the nearest hundredth.

\* $P < .05$ .

The indirect effects inherent in Figure 1 are compiled and presented in the top half of Table 2. For both survivors and partners, there were significant actor-actor-actor indirect effects. In other words, participants' stress was predictive of their depressive symptoms through their increased family conflict. There was one unique actor-partner-partner indirect effect: Caregivers' stress was predictive of higher survivor symptoms of depression, through increased family conflict as reported by the survivor, even while controlling for the caregiver and survivor direct effects from stress to depressive symptoms. Caregiver stress is associated with greater family discord as reported by both caregivers and survivors, and each of these mediators is predictive of greater symptoms of depression. There is one additional noteworthy indirect effect in Table 2. There was an actor-actor-partner effect whereby caregiver stress predicted survivor depressive symptoms through increased caregiver-reported family conflict, although this effect had a significance level of  $P = .06$ . Even modest partner effects such as this are remarkable because of the numerous and stringent statistical controls in the APIMeM that makes detection of such effects rather unlikely.

The second model was identical to the first with the exception of having anxiety specified as the dependent variable (see Figure 2). The constrained version of this model provided an excellent fit to the sample data,  $\chi^2/df = 1.46$ , CFI = 0.97, RMSEA = 0.045 (90% CI, 0.018-0.067), as did the unconstrained model,  $\chi^2/df = 1.52$ , CFI = 0.97, RMSEA = 0.048 (90% CI, 0.021-0.070). The relative fit of the unconstrained model was not superior to that of the more parsimonious constrained model,  $\Delta\chi^2 = 6.48$ ,  $df = 6$ ,  $P = .372$ ,  $\Delta_1NFI = 0.008$ . Once again, coefficients from the unconstrained model are displayed in the



**FIGURE 2** Actor-Partner Interdependence Mediation Model for socioeconomic status (SES), stress, family conflict, and anxiety. Figure values are standardized regression coefficients unless otherwise noted. Error terms have been omitted for ease of presentation. (s) = survivor, (c) = caregiver. \* $P < .05$ . \*\* $P < .01$ . \*\*\* $P < .001$

service of presenting components of the indirect effects. However, the magnitude of the survivor and caregiver effects in Figure 2 can be assumed to be statistically equivalent.

As evident in Figure 2, there were strong direct effects from survivor ( $\beta = .66, P < .001$ ) and caregiver ( $\beta = .60, P < .001$ ) stress to anxiety, as would be predicted by the stress process model. However, even when these direct effects are controlled for, there was a significant indirect effect for survivors' stress on their anxiety, through heightened family conflict (see bottom half of Table 2). The corresponding indirect effect for caregivers was not statistically significant. Tests of indirect effects also revealed a unique actor-partner-partner indirect effect whereby caregivers' stress was associated with higher levels of survivors' anxiety, through survivors' appraisal of family conflict. This replicates the indirect effect that was found for caregivers' depression through survivors' family conflict.

## 4 | DISCUSSION

This study was designed to test predictions from the stress process model to explain the predictors of psychological distress in Latinas with breast cancer and their family caregivers. The results affirm the utility of this model for both survivors and their family caregivers. The conditions that explain distress (eg, feeling stressed) in survivors appear to operate at an equal magnitude for cancer survivors and their family caregivers. The findings also show a consistent dyadic effect for caregiver stress predicting survivors' perceptions of family discord, which in turn was associated with greater psychological distress among survivors.

The findings of this investigation illustrate how the stress process model can be used to describe the conditions that are conducive to experiencing psychological distress for both cancer survivors and their family caregivers. This study adds to the literature that has identified family functioning as a key mediating variable in between primary stressors and psychological outcomes such as symptoms of depression among family caregivers of cancer patients.<sup>10</sup> Lack of family support has been associated with higher symptoms of depression in family caregivers of cancer patients,<sup>10</sup> and this investigation shows that a contentious family environment operates as a similar predictor of distress.

According to family systems theory, stressful events do not just happen to one person but rather influence the whole family. The Latinas with breast cancer and their family caregivers both experienced distress as a function of stress and as a function of stress through heightened family conflict. These associations were comparable in magnitude. Just as prior research has shown that cancer survivors and their caregivers experience comparable levels of distress themselves,<sup>12-14</sup> these findings illustrate that this stress is predicted by a similar constellation of psychosocial variables. Family systems theory also explains that members enact mutual influence processes. By testing the stress process model dyadically with the APIMeM, it became apparent that caregivers' stress was associated with their own as well as with survivors' perceptions of family discord. This unique dyadic effect suggests that survivors' perceptions of family discord are a function not merely of their own stress but of the stress of

their caregivers as well. In this way, caregiver stress may be acting in concert with survivors' stress to contaminate the family environment, the state of which is associated with higher symptoms of depression and anxiety for the survivor. This partner effect, as revealed in a model that simultaneously controlled for the corresponding actor effect, is documented in the literature for the first time here and points to a potentially fruitful target of intervention (caregiver stress management and coping) for minimizing psychological distress in cancer survivors.

Socioeconomic status has been highlighted as an important context of care variable in the stress process model.<sup>4</sup> However, in this investigation, there was no evidence to suggest that SES was associated with stress or distress. This may be a case of resilience in the Latina community whereby those who are seemingly disadvantaged by virtue of having low SES nevertheless find sources of strength and coping through such mechanisms as spirituality for example.<sup>41</sup> A related finding in the literature showed that Latinas with low education who lived in high-SES neighborhoods actually had a lower breast cancer mortality rate than do non-Latina white women with high education in high-SES neighborhoods.<sup>42</sup> Another possibility is that SES was not associated with stress processes owing to the restricted range of SES in this sample. As evident from Table 1, 74% of the Latina breast cancer survivors in this sample had an annual household income <\$30 000. Similarly, only 16% had a bachelor's degree or higher. Restricted range will attenuate observed associations between variables that could otherwise have greater variance.

The results of this investigation clearly point to stress management and minimization of family conflict as important points of clinical intervention for both cancer survivors and their family caregivers. The stress to family conflict partner effects documented in this research vividly illustrate why inclusion of family caregivers would be a useful element in the provision of supportive care to cancer survivors. Caregivers' experience of stress is associated not only with their own perceptions of family conflict but also with those of the survivor. Cancer diagnosis and treatment is often delivered to individuals but affects whole family systems. Expanding the reach of supportive interventions to family caregivers has significant promise for minimizing the psychological distress that can be so deleterious to survivors' quality of life.

It is important to consider that the data for this investigation were all collected at a single point in time. Consequently, it is not possible to definitively put the variables in a particular order. Although the results were largely supportive of relationships between classes of variables specified in the stress process model, the possibility of reciprocal causation (eg, family conflict  $\rightarrow$  depressive symptoms as well as depressive symptoms  $\rightarrow$  family conflict) remains high and would require multiple waves of assessment to disambiguate. Also, these data are from mostly lower-SES Latinas and their caregivers. In this socioeconomic stratum and culture, where the value of *familism* prescribes a high level of family obligation, effects for stress, family conflict, and psychological distress may be different than what would be observed in other cultural groups and other samples with more economic resources.

In conclusion, the findings of this study show that feelings of stress for both cancer survivors and their family caregivers are associated with a downregulation of family processes that, in turn, are associated with heightened psychological distress. Particularly noteworthy is the fact that survivors' perceptions of family conflict were predicted

by both their own and their caregivers' levels of stress. This illustrates one mechanism by which the well-being of cancer survivors and that of their family caregivers are inextricably entwined. The findings also point to potential targets for intervention, namely, stress management and enhancement of family relations, where needed, for those undergoing cancer treatment.

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## CONFLICT OF INTEREST

The authors have no conflicts of interest to disclose.

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