

Original Article

Cancer Caregivers' Quality of Life: Effects of Gender, Relationship, and Appraisal

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Abstract

The objective of this study was to examine caregivers' gender and relationship to the cancer survivor as plausible predictors of their appraisals of providing care, and to further examine the association of the caregivers' appraisal with their own quality of life. Of the 739 caregivers who participated in the American Cancer Society's Quality of Life Survey for Caregivers, 627 were either the spouse or the offspring of a cancer survivor. Of those, 448 who provided complete information on study variables were included in this study.

Multivariate analyses revealed that male caregivers were more likely to appraise the caregiving experience as boosting their self-esteem (positive) than female caregivers, whereas adult daughters appraised the experience as stressful (negative), and sons appraised the experience as the least stressful. More importantly, caregivers' esteem and caregiving stress were strong predictors of the caregivers' quality of life. These effects were significant after controlling for potentially confounding variables. The findings suggest that cancer caregivers may benefit from programs designed to assist them in viewing their involvement in cancer care as meaningful and as a personal growth experience, as well as helping them to seek support to minimize their caregiving stress. J Pain Symptom Manage 2007;34:294–304. © 2007 U.S. Cancer Pain Relief Committee. Published by Elsevier Inc. All rights reserved.

Key Words

Caregivers, gender, relationship type, caregiving appraisal, quality of life

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The first author dedicates this research to the memory of Heekyoung Kim.

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Introduction

Approximately 9.8 million Americans with a history of cancer are alive today,¹ and more than one million new cancer cases were diagnosed in 2005.² Given these large numbers, it is not surprising that three of four families have at least one cancer survivor.³ These statistics make apparent the need for research to identify the impact of cancer on the family.

It is primarily family members and close friends who provide care for cancer patients.⁴ Concurrent with increasingly egalitarian perspectives on both work and family responsibilities,⁵ an increasing number of men are

assuming caregiving responsibilities.^{6–8} According to a recent survey,⁹ 39% of caregivers were male, a noticeable increase over the 25% in a 1987 survey, and the 28% in a 1997 survey.¹⁰ This trend may also be the case in cancer caregiving. Additionally, the relatively acute nature of the situation may require the involvement of both men and women to meet the multidimensional needs of the cancer survivor.¹¹

Most studies have focused on female caregivers and found that they report higher levels of caregiving stress than male caregivers.^{12,13} One possible reason for this difference derives from a gender-role socialization perspective.^{14,15} In many cultures, women are expected to be the family caregivers. Therefore, they perceive providing care as doing simply what they are supposed to do. With this expectation, and often being sole caregivers of sick husbands, female caregivers have reported more burden and less self-esteem from providing this care than male caregivers report.^{16,17} When men, however, are fulfilling a caregiver role not expected of them, they often report feeling good about themselves as a result.^{18–20} These studies suggest that the family caregiver's appraisal of the caregiving experience may vary from negative (e.g., caregiving strain or stress) to positive (personal growth or boosting esteem),^{21,22} and the caregiver's gender is a major factor associated with this appraisal.^{23,24}

The social role perspective^{25,26} that focuses on current social role and situational demands adds more explicit predictions about gender differences in the caregiving appraisal. Specifically, when the individual reaches a stage in life in which carrying out traditional gender roles, particularly parental roles combined with career pressures, no longer applies, gender differences are expected to become less salient. Accordingly, less gender difference in caregiving appraisal would be expected among spouse caregivers, who are more likely to be older and have reached a stage in life when these competing roles are no longer salient, than among adult offspring caregivers. Although empirical evidence is sparse on the extent to which caregiving appraisal varies across the wider spectrum of the caregiver's relationship type to the care-recipients (wives, husbands, daughters, and sons),¹³ the few

existing studies suggest that adult offspring caregivers report higher levels of caregiving stress than spouse or other caregivers,^{27,28} particularly among adult daughters, due to in part carrying multiple social roles (the so-called sandwich generation).^{29,30}

These findings suggest that the caregiver's gender and relationship to the care-recipient predict the extent to which the caregiver perceives caregiving as burdensome and/or beneficial. Additionally, most studies that incorporate stress process models^{22,31} have also found that gender and relationship type are considerably associated with the caregiver's quality of life, particularly the psychological and physical aspects. More importantly, as the stress process models explicitly propose, the extent to which caregivers perceive or appraise caregiving as stressful or beneficial has been associated with caregivers' depression and life satisfaction more strongly than their demographic and psychological characteristics or their care-recipient's mental and physical functioning status.³² Caregivers who perceive greater benefits in caregiving and who appraise caregiving tasks as less stressful (i.e., positive appraisal) have reported greater life satisfaction and less depression.^{21,33} Furthermore, family caregivers who appraise the caregiving as a role highly stressful (i.e., negative appraisal) have a higher risk of mortality than noncaregivers and caregivers who do not report subjective burden.^{34,35} These findings highlight the significance of the caregivers' appraisal on their quality of life and pinpoint the importance of identifying those factors associated with positive and negative appraisals of caregiving.

The first aim of this study was to examine the impact of the caregiver's gender and relationship to the care-recipient on the caregiver's appraisal of the experience as boosting self-esteem and/or stressful. Taking the gender-role socialization and social role perspectives, it was hypothesized that male caregivers, especially husbands, would be more likely to appraise the caregiving experience as boosting their self-esteem as a caregiver, whereas female caregivers, especially adult daughters, would be more likely to appraise the experience as stressful.

The second aim was to investigate the degree to which the caregiving appraisal was

associated with quality of life. In this study, quality of life was defined multidimensionally, with mental/social, physical, psychological, and spiritual components.^{21,36} Based on stress process models, it was hypothesized that a positive appraisal of caregiving (caregiver's esteem) would be associated with better quality of life, that is, lower level of psychological distress and higher levels of mental and physical functioning and spiritual adjustment. It was also hypothesized that a negative appraisal of caregiving (caregiving stress) would be associated with poorer quality of life, that is, higher level of psychological distress and lower levels of mental and physical functioning and spiritual adjustment.

Methods

Participants

The American Cancer Society's Quality of Life Survey for Caregivers was designed to assess the impact of cancer on the quality of life of family members and close friends who care for cancer survivors. Data reported here are from the first cohort of baseline data collection. Caregivers were nominated by cancer survivors who participated in the Study of Cancer Survivors,³⁷ a survey of cancer survivors identified by state cancer registries. The survivors were asked to nominate individuals in a family-like relationship who constantly provided help to them. Eligibility criteria for the caregiver study were the following: age 18 years and older, able to speak/read English or Spanish, and residing in the United States.

A total of 739 caregivers completed the baseline survey (66.7% response rate), and of those caregivers, 627 were either spouse or offspring of the survivor. Of those spousal or offspring caregivers, 448 provided complete data for the study variables used in the analyses. Participants with incomplete data did not differ in available study variables from those providing complete information ($P > 0.09$), except that caregivers who had missing data were older, more likely to be unmarried or unemployed, less likely to receive help from family and friends or paid help, or had poorer physical functioning ($P < 0.05$). Demographic and medical characteristics of participating

caregivers and their care-recipients are reported in Tables 1 and 2.

Procedure

All procedures were implemented after approval for use of human subjects from Emory University's Institutional Review Board. A packet containing an introductory letter, survey, self-addressed stamped envelope, frequently asked questions brochure, and incentive (a 60-minute phone card) was mailed to the caregivers. Returning the completed survey served as informed consent. The second packet that included the same materials except the incentive was mailed four weeks after the initial mailing if the caregiver had not responded.

Measures

Caregiver's Gender and Relationship Type to the Care-Recipient. The caregivers' self-reported gender and relationship type to the care-recipient (cancer survivor) were predictor variables in this study. The two categories of relationship analyzed were spouse and offspring.

Caregiving Appraisal. Caregiver's esteem was measured as an indicator of positive appraisal of caregiving. The extent to which caregiving imparts individual self-esteem was measured by the caregiver's esteem subscale of the Caregiver Reaction Assessment (1 = strongly disagree, 5 = strongly agree).³⁸ A sample item reads, "I feel privileged to care for him/her." The sum of the seven items represented the level of caregiver's esteem, with higher scores reflecting a greater sense of value and worth as a caregiver. Conversely, caregiving stress was measured as an indicator of a negative appraisal of caregiving. The extent to which caregivers felt overwhelmed by care tasks and responsibilities was measured by the stress overload subscale of the Pearlin Stress Scale (1 = not at all, 4 = completely).²² A sample item reads, "You have more things to do than you can handle." The sum of the four items represented the level of caregiving stress, with higher scores reflecting greater stress. These two subscale scores had acceptable internal consistency ($\alpha = 0.76, 0.80$, for caregiver's esteem and caregiving stress, respectively).

Table 1
Descriptives of Study Variables, Covariates, and Other Demographics of Caregivers

Study Variables	Mean (SD) or Percentage	Possible Range of Continuous Variables
Gender: male	38.2%	—
Relationship types		
Spouse	78.3%	—
Offspring	21.7%	—
Caregiving appraisal		
Caregiver's esteem	30.90 (3.61)	7–35
Caregiving stress	6.77 (2.41)	4–16
Quality of life		
Psychological distress	1.87 (4.12)	–4–4
Mental functioning	50.35 (11.36)	0–100
Physical functioning	48.15 (8.99)	0–100
Spiritual adjustment	35.29 (8.79)	12–60
Covariates and Other		
Demographics of Caregivers		
Covariates		
Caregiver age	54.77 (12.56)	—
Married	86.6%	—
Employed	74.6%	—
Caregiver competence	6.12 (1.49)	3–12
Receiving help from family/friends	71.4%	—
Receiving paid help	15.4%	—
Care-recipient mental functioning	52.24 (9.28)	0–100
Care-recipient physical functioning	44.27 (11.10)	0–100
Severity of cancer index	0.18 (0.24)	0–0.99
State of cancer	In situ (2.5%); localized (50.4%); regional (28.1%); distant (11.8%); unstaged or unknown (7.1%)	
Time since diagnosis	2.07 years (0.82)	—
Other Demographics of Caregivers		
Caucasian	94.2%	—
Education (<high school)	27.7%	—
Income (≤\$39,999)	22.3%	—

n = 448.

Quality of Life. Four indicators of the quality of life were measured: psychological distress, mental/social functioning, physical functioning, and spiritual adjustment. Psychological distress was assessed using the 37-item Profile of Mood States-Short Form (POMS-SF; 1 = not at all, 5 = extremely).³⁹ A psychological distress composite score was calculated by subtracting the mean of vigor items from the mean of anger, anxiety, confusion, depression, and fatigue items, thus higher scores on this composite reflected a greater level of psychological distress. The psychological distress composite score had good internal consistency ($\alpha = 0.93$). Self-reported levels of both mental/social and physical functioning of caregivers were measured using the Medical Outcomes Study 36-Item Short Form Health Survey (MOS SF-36).⁴⁰ The mental functioning score was a composite of weighted vitality, social functioning, role-emotional, and mental

health subscale scores. The physical functioning score was a composite of weighted physical functioning, role-physical, bodily pain, and general health subscale scores. Higher composite scores reflected better mental/social and physical functioning. Finally, the degree to which caregivers reported finding meaning/peace and faith (spiritual adjustment) was measured by the Functional Assessment of Chronic Illness Therapy-Spirituality (FACIT-SP; 1 = not at all, 5 = very much).^{41,42} The spiritual adjustment composite score was calculated by summing the 12 items, so that higher scores reflected greater levels of finding meaning and faith. The spiritual adjustment composite score had good internal consistency ($\alpha = 0.90$).

Covariates. A list of variables that have been found to be closely related to the required skill sets and competence level to carry out

Table 2
Other Demographic and Cancer Site
Information of Cancer Survivors

	Mean (SD) or Percentage
Demographics	
Gender: male	47.2%
Age	$M = 60.0$; $SD = 11.5$
Caucasian	93.1%
Education (<high school)	35.9%
Income ($\leq \$39,999$)	32.8%
Cancer sites	
Prostate	21.2%
Breast	21.0%
Colorectal	14.7%
Lung	10.3%
Kidney	7.8%
Ovarian	7.4%
Non-Hodgkin's lymphoma	5.1%
Other	5% (each of bladder, skin, and uterine)

$n = 448$.

caregiving were included as covariates to test whether the effects of the main study variables on caregiving appraisal as well as caregivers' quality of life are significant above and beyond the variance explained by the covariates. These covariates include caregiver's age, marital and employment status; the level of competence in caregiver role, which was measured by the 3-item caregiving competence subscale of the Pearlin Stress Scale;²² whether the caregiver received help from family and friends or received paid help; and the levels of mental and physical functioning of their care-recipient (the cancer survivor). The self-reported levels of mental and physical functioning of the care-recipient were measured using the MOS SF-36.⁴⁰ As an objective indicator of the severity of the care-recipient's cancer, a severity of cancer index was created for each survivor based on the mortality rate for the type and stage of cancer⁴³ and the time since diagnosis.

Analysis Plan

Hypotheses concerning esteem and stress were tested using multivariate general linear modeling. The two caregiving appraisal scores were simultaneously predicted by a set of covariates in Step 1: caregiver age, marital or employment status; caregiving competence; whether help from family, friends, or paid help was received; care-recipient's mental and

physical functioning; and cancer severity index. In Step 2, the two main effects (caregiver gender and relationship type to the care-recipient) were added into the equation, followed by a two-way interaction in Step 3. Univariate post hoc analyses using Tamhane's T2 pairwise comparisons test were performed to interpret significant interaction effects. Tamhane's T2 pairwise comparisons test is based on a *t*-test when equal variance was not assumed. The same analytic strategy was applied in Step 4 to test hypotheses concerning quality of life, by replacing the four quality-of-life measures as criterion variables and adding the two caregiving appraisal scores as predictor variables.

Results

Descriptive information of the caregivers and survivors are reported in Tables 1 and 2. Means and percentages of study variables by caregiver's gender and relationship types are in Table 3. Results for Step 1 are shown in Table 4. As shown in Table 4 at Step 2, the main effect of caregiver gender was significant on caregiver's esteem, such that male caregivers reported higher esteem than female caregivers. It is clear from Table 3 that this effect was carried largely by the difference between spouses. When the interaction between gender and relationship was added to the model in Step 3, however, the interaction effect was not significant, and the gender effect seen at Step 2 became nonsignificant. Thus, the hypothesis that men, especially husbands, would have higher esteem than other caregivers was partially supported.

With respect to caregiving stress, Step 2 yielded main effects of both gender and relationship type, with men reporting less caregiving stress than women, and adult offspring caregivers reporting more caregiving stress than spouse caregivers. These main effects were both qualified by a significant interaction between the two variables (Table 4, Step 3). Post hoc analysis revealed that daughters reported the highest level of caregiving stress, whereas sons reported the lowest levels of caregiving stress, consistent with our hypothesis (Table 3). The gender difference between spouses in caregiving stress was not significant.

Table 3
Mean (SD) or Percentage of Covariates, Caregiving Appraisal, Quality of Life
by Caregiver Gender by Relationship Type to Survivor

	Spouse		Offspring	
	Male	Female	Male	Female
	(<i>n</i> = 156)	(<i>n</i> = 195)	(<i>n</i> = 15)	(<i>n</i> = 82)
Covariates				
Caregiver age	57.37 _a (10.89)	58.94 _a (10.25)	40.79 _b (11.31)	42.44 _b (11.20)
Married	94.2%	89.7%	40.0%	73.2%
Employed	81.4%	65.1%	93.3%	80.5%
Caregiver competence	6.03 (1.40)	6.21 (1.52)	5.93 (1.71)	6.13 (1.54)
Receiving help from family/friends	84.6%	48.7%	93.3%	96.3%
Receiving paid help	13.5%	8.7%	53.3%	28.0%
Care-recipient mental functioning	51.38 (9.16)	53.15 (8.76)	50.39 (9.17)	52.06 (10.61)
Care-recipient physical functioning	45.30 _a (10.96)	45.68 _a (10.69)	42.13 _{ab} (11.76)	39.36 _b (10.94)
Severity of cancer index	0.19 (0.24)	0.15 (0.22)	0.24 (0.24)	0.24 (0.27)
Caregiving appraisal				
Caregiver's esteem	31.74 _a (3.53)	30.38 _b (3.47)	30.60 _{ab} (4.03)	30.59 _{ab} (3.78)
Caregiving stress	6.37 _a (2.09)	6.88 _a (2.56)	5.40 _b (1.30)	7.56 _c (2.52)
Quality of life				
Psychological distress	0.99 _a (3.86)	2.21 _b (4.11)	0.59 _{ab} (3.46)	2.98 _b (4.36)
Mental functioning	52.07 _{ab} (9.53)	49.47 _a (12.30)	55.39 _b (4.38)	48.22 _a (12.48)
Physical functioning	48.01 _a (8.77)	46.64 _a (10.06)	51.06 _b (4.54)	51.44 _b (5.93)
Spiritual adjustment	35.05 (8.94)	35.99 (8.74)	33.27 (7.61)	34.41 (8.83)

n = 448.

Means that do not share the same subscript across each row differ significantly from each other by Tamhane's T2 post hoc comparisons test. We set $\alpha = 0.05$ for each of the 15 pairwise comparisons within a row.

These effects were significant above and beyond the effects of covariates.

Next, hypotheses pertaining to quality of life were tested. At Step 2, the main effect of caregiver gender was significant on both psychological distress and mental functioning (Table 5): male caregivers reported lower levels of psychological distress and better mental functioning than female caregivers. The main effect of relationship type was significant on psychological distress, mental functioning, and spiritual adjustment. Offspring caregivers reported the highest level of psychological distress and the lowest levels of mental functioning and spiritual adjustment compared to spousal caregivers. The two-way interaction between caregiver gender and relationship types at Step 3 was not significant on any of the quality of life indicators.

More interestingly, the extent to which caregivers perceived their caregiving as esteem boosting (caregivers' esteem) was significantly associated with three out of four indicators of the caregivers' quality of life, above and beyond the effects of covariates, gender, and relationship type (Table 5). Caregivers with higher esteem reported lower psychological distress (unstandardized coefficient $B = -0.12$;

$SE = 0.05$) and better mental functioning ($B = 0.33$; $SE = 0.13$) and spiritual adjustment ($B = 0.48$; $SE = 0.10$), supporting our predictions (with the exception of an effect for psychological distress). Finally, the degree to which caregivers perceived caregiving as stressful was strongly related to all four indicators of the caregiver's quality of life. Highly stressed caregivers reported greater levels of psychological distress ($B = 0.77$; $SE = 0.07$) and poorer mental functioning ($B = -1.93$; $SE = 0.21$), physical functioning ($B = -0.49$; $SE = 0.17$), and spiritual adjustment ($B = -0.97$; $SE = 0.16$), supporting our predictions.

When we added caregiving appraisal variables (caregiver's esteem and caregiving stress) in Step 4, the main effects of gender on psychological distress and mental functioning became nonsignificant ($P > 0.07$), indicating that men's greater self-esteem and lower stress when they were involved in cancer care accounted for their lower levels of psychological distress and higher levels of mental functioning. In addition, the significant main effects of relationship type on psychological distress and spiritual adjustment also became nonsignificant ($P > 0.07$), but not the effect on mental functioning ($P = 0.008$). These

Table 4
Multivariate Statistic (*F*) from Hierarchical
General Linear Modeling for Predicting
Caregiving Appraisal

	Caregiving Appraisal	
	Caregiver's Esteem	Caregiving Stress
	<i>F</i> (<i>B</i> coefficient)	<i>F</i> (<i>B</i> coefficient)
Step 1: Covariates		
Caregiver age	1.37	4.96 ^a (−0.02)
Married	1.01	1.65
Employed	1.85	2.06
Caregiving competence	23.61 ^b (0.54)	2.85
Receiving help from family/friends	6.35 ^a (0.99)	0.03
Receiving paid help	3.18	0.64
Care-recipient mental functioning	2.16	4.30 ^a (−0.03)
Care-recipient physical functioning	6.65 ^a (0.04)	5.76 ^a (−0.03)
Severity of cancer index	0.83	2.68
Step 2: Main effects		
Caregiver gender (<i>G</i>)	9.37 ^c (−0.18)	20.68 ^b (1.11)
Relationship type to survivor (<i>RT</i>)	0.02	5.21 ^a (−0.80)
Step 3: Interaction effect		
<i>G</i> × <i>RT</i>	1.49	5.94 ^a (−1.70)

n = 448.

B coefficient is unstandardized coefficient; married: 1 = married, 0 = unmarried; employed: 1 = employed, 0 = unemployed; receiving help from family/friends: 1 = received help from family or friends; 0 = did not receive help from family or friends; receiving paid help: 1 = received paid help; 0 = did not receive paid help; caregiver gender: 1 = female, −1 = male; relationship type to survivor: 1 = spouse, 2 = offspring.

Numbers in parentheses are unstandardized coefficients to help interpret the significant associations with covariates. Interpretations for significant associations with study variables appear in the text.

^a*P* < 0.05.

^b*P* < 0.001.

^c*P* < 0.01.

results indicate that adult offspring's lower self-esteem and greater stress when they were involved in cancer care related to their greater distress and poorer spiritual adjustment. Adult offspring's poorer mental functioning, however, appeared to be significant above and beyond their caregiving appraisal and sociodemographic characteristics.

Discussion

This study examined the unique contributions of caregiver's gender and relationship

type to the care-recipient on the extent to which they perceived their experience of providing care to family members and friends with cancer as stressful or beneficial. This study also investigated the distinctive effect of the caregiver's appraisal of caregiving on their own quality of life. Major findings of this study are that male caregivers are more likely to perceive their cancer caregiving experience as beneficial, which is particularly the case among husband caregivers; and that female caregivers are more likely to perceive their cancer caregiving experience as stressful, which is particularly the case among adult daughters. These effects were independent of the caregiver's age, marital and employment status, receiving help from others, level of competence in caregiving, and levels of mental and physical impairment in the care-recipient.

Research about male caregivers has been emerging, and our findings add to this growing field. The trend toward increased male involvement is encouraging, as male caregivers are more likely to perceive their involvement in cancer care as beneficial and less stressful than female caregivers. Our findings suggest that transcending traditional gender roles or deviating from them may be a healthy approach to cope with stress of an illness in the family. As men participated in the caregiving role, which has not traditionally been a male role, they gained satisfaction from it. The current findings with regard to differences in caregiver's esteem are meaningful, because regardless of whether the male caregivers felt competent in providing care to a relative with cancer or received additional help, their involvement per se appeared to have been experienced as beneficial and less stressful to them.

In contrast, female caregivers, particularly adult daughters, reported the highest level of caregiving stress, which has been a common finding in the literature.¹³ Several possible reasons have been suggested: women might be more attentive to their emotions and feel free to report them;^{17,44} women, particularly adult daughters, are more likely to carry out multiple social roles that compete for limited psychosocial resources;⁴⁵ female caregivers are more likely to carry out personal care and household tasks that require more constant, burdensome, and time-consuming commitment than the tasks of providing

Table 5
Multivariate Statistic (*F*) from Hierarchical General Linear Modeling for Predicting Caregivers' Quality of Life

	Quality of Life			
	Psychological Distress	Mental Functioning	Physical Functioning	Spiritual Adjustment
	<i>F</i> (<i>B</i> coefficient)	<i>F</i> (<i>B</i> coefficient)	<i>F</i> (<i>B</i> coefficient)	<i>F</i> (<i>B</i> coefficient)
Step 1: Covariates				
Caregiver age	9.16 ^a (−0.05)	6.49 ^b (0.12)	36.46 ^c (−0.21)	10.49 ^a (0.11)
Married	3.10	2.95	5.16 ^b (−2.74)	14.89 ^c (4.62)
Employed	0.45	0.17	12.49 ^c (3.47)	0.67
Caregiving competence	4.58 ^b (−0.26)	0.11	0.15	34.70 ^c (1.51)
Receiving help from family/friends	0.55	0.61	0.11	1.38
Receiving paid help	0.52	0.01	0.96	0.07
Care-recipient mental functioning	11.24 ^a (−0.07)	5.82 ^b (0.14)	6.05 ^b (0.10)	7.14 ^a (0.11)
Care-recipient physical functioning	9.05 ^a (−0.05)	3.24	9.40 ^a (0.11)	6.81 ^a (0.10)
Severity of cancer index	8.05 ^a (2.35)	13.30 ^c (−8.49)	0.01	3.21
Step 2: Gender and relationship main effects				
Caregiver gender (<i>G</i>)	20.85 ^c (1.86)	15.09 ^c (−4.44)	0.36	0.56
Relationship type to survivor (<i>RT</i>)	8.37 ^a (−1.67)	11.37 ^a (5.48)	0.29	6.10 ^b (3.02)
Step 3: Gender and relationship interaction effect				
<i>G</i> × <i>RT</i>	1.42	2.54	2.18	0.55
Step 4: Caregiving appraisal effects				
Caregiver's esteem	6.50 ^b (−1.05)	6.01 ^b (2.92)	2.79	20.76 ^c (3.72)
Caregiving stress	120.13 ^c (0.76)	88.68 ^c (−1.90)	8.06 ^a (−0.50)	37.33 ^c (−0.96)

n = 448.

B coefficient is unstandardized coefficient; married: 1 = married, 0 = unmarried; employed: 1 = employed, 0 = unemployed; receiving help from family/friends: 1 = received help from family or friends; 0 = did not receive help from family or friends; receiving paid help: 1 = received paid help; 0 = did not receive paid help; caregiver gender: 1 = female, −1 = male; relationship type to survivor: 1 = spouse, 2 = offspring.

Numbers in parentheses are unstandardized coefficients to help interpret the significant associations with covariates. Interpretations for significant associations with study variables appear in the text.

^a*P* < 0.01.

^b*P* < 0.05.

^c*P* < 0.001.

informational or tangible support that are more likely to be performed by male caregivers;^{46,47} or that women are less likely to use certain coping strategies, such as utilizing community services^{8,48} or home health care,^{8,49} which have been found to be effective in coping with caregiving stress¹⁷ that might render female caregivers more vulnerable to stress.

These findings of the unique effects of gender and relationship type on the caregivers' appraisal of their care experience are consistent with the hypotheses generated based on gender-role socialization and social role perspective. More important are the findings that demonstrated that the caregivers' appraisal of their care experience strongly influenced their quality of life, which make a significant contribution to the cancer care literature. These findings, combined with the stress process models^{21,22,33} that identify risk and protective factors for caregivers' quality of life, suggest that interventions that maximize the caregivers' appraisal of their care experience as

beneficial while minimizing their appraisal of caregiving as stressful could improve their quality of life. Our findings suggest that the intervention needs to be focused on reducing caregiving stress, and the target audience should be female caregivers, particularly adult daughters of the care-recipient.

Interventions with unstructured support groups that focus on building rapport among caregivers by helping participants recognize that others have similar problems, and providing them with an opportunity to exchange ideas and strategies have been found to be the most effective in reducing care-related stress.⁵⁰ Programs developed with these principles and adapted as needed to meet the multidimensional needs of cancer caregivers and to improve various aspects of their quality of life would likely be successful.

Limitations of this study include the cross-sectional analysis that clearly precludes definitive causal interpretations. The association among gender, appraisal of caregiving experience, and the quality of life measures could

be due to shared method variance of self-report measures among these constructs. The impact of the caregiver's gender and relationship type to the care-recipient might also vary depending on cancer type. Individuals who were diagnosed with a gender-specific cancer (e.g., breast or prostate), might prefer having a same gender family member or close friend as their primary caregiver, unlike individuals diagnosed with a nongender specific type of cancer (e.g., colorectal or kidney), who might not have a preference. The number of son caregivers who participated in this study is small. Future studies examining the effects of caregiver's gender and relationship type to the care-recipient should explore effective methods to encourage this population to participate in caregiving studies, as well as studies and strategies to oversample this population. Some other variables that are important in the caregiving context were not examined in this study, including duration of caregiving and amount or intensity of care provided. Objective indicators of caregiving would help better understand the effects of gender and relationship type. Generalizability of the current findings is limited to caregivers who are Caucasian, relatively educated, affluent, younger, well supportive, and have better physical functioning. Future studies are needed with ethnic minorities and individuals of lower socioeconomic status. Future studies should also investigate the potential behavioral, physiological, and psychological mechanisms of our findings.^{34,35,51}

Conclusion

This study attempts to clarify for informal cancer caregivers the effect of differences in the caregiver's gender and relationship type to the care-recipient on their appraisal of caregiving and with their own quality of life. Our findings indicate that male caregivers are more likely to perceive their involvement in cancer care as beneficial, whereas adult daughters are likely to perceive their caregiving experience as burdensome. These perceptions are strong predictors of multidimensional aspects of the caregiver's own quality of life. Our findings add new knowledge to the literature and provide significant information about

a population of cancer caregivers that is rapidly growing yet little understood in terms of their quality of life. Cancer caregivers would benefit from programs designed to assist them in viewing their involvement in care as meaningful and as a personal growth experience, as well as providing adequate help to manage competing roles and helping them seek support to minimize caregiving stress.

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