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Cancer Patients with Pain: The Spouse/Partner Relationship and Quality of Life

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Abstract

Background—A diagnosis of cancer affects not only the patient, but also their spouse/partner. In addition to facing a life-threatening illness, changes in role and financial threats can impact the dyad.

Objective—This dyadic study examined effects of financial concerns and pain on cancer patients' and their partners' quality of life (QOL). The partner relationship and the partners' coping style were explored for mediating the couples' outcomes.

Methods—Participants consisted of 177 dyads with both genders as patients and partners in committed, heterosexual relationships. Patients had a mix of cancer diagnoses and were in various phases of treatment. Each participant completed four of the same instruments. Partners also completed coping and financial concerns measures and patients completed pain and symptom distress measures.

Results—Pathway analysis, using Structural Equation Modeling, examined effects of pain and financial concerns on relationship quality, partners' coping style and QOL for the dyad. Partners' coping style affected only their own QOL .16 ($p=0.05$). Pain had a significantly negative direct effect $-.51$ ($p=0.05$) on patients' QOL and no direct relationship to the partner's QOL. Financial concerns affected both participants; patient $-.13$ ($p=0.05$) and partner QOL $-.36$ ($p=0.05$). The relationship mediated a decrease in patient pain from $-.51$ to $-.58$, a significant total effect ($p=0.05$).

Conclusions—The partners' relationship lessened pain's negative effect. Financial concerns were a significant issue for both dyad members, but the quality of the relationship was not compromised.

Implications for Practice—Patients' pain may be affected by the quality of the marital relationship.

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Background and Significance

Receiving a diagnosis of cancer has a profound impact not only on patients, but also families. A spouse/partner is particularly affected not only because of fear and uncertainty of a life-threatening illness¹, but also they must manage changes in role, pain, and financial threats in treatment costs and lost earnings. These changes can have a profound effect on quality of life for both parties and research has shown that patients' and partners' psychological adjustments are interrelated.² A partner's adjustment to the patient's diagnosis of cancer is a critical component of how the patient adjusts to the disease.^{3,4}

Most of the studies examining couples that have been impacted by cancer include breast and prostate patients e.g.⁵⁻⁷ with a few in the gastrointestinal, colon, hematopoietic stem-cell transplant and lung cancer patient populations. e.g.^{4, 8,9} A meta-analysis of studies of couples coping with cancer by Hagedoorn and colleagues¹⁰ considered cancer specific studies a major limitation in generalization of results. No studies that have reported the quality of dyadic relationships have included cancer patients' with a focus on financial concerns and the symptom of pain with its subsequent interference with social life and activities and the dyads' quality of life. No studies include a wide range of cancer diagnoses. With so many genetic implications and familial concerns, the quality and impact of the partner relationship takes on even greater importance in caring for cancer patients.

Vulnerability or Stressors

Vulnerability or the strength of commitment, caring or readiness to react to a stressor influences the flow of events. Cancer is often accompanied by multiple problems, including pain and sometimes physical deterioration if the disease progresses. A diagnosis of cancer, regardless of type or site, raises much fear and loss of control for patient and partners.¹¹ Pain has been identified to be one of the most prevalent symptoms for cancer patients.^{12,13} If pain is perceived as a symptom of the cancer or progressive disease, the affective dimension and the meaning of pain carries even more significance for the patient.¹⁴ Symptom burden, which includes physical symptoms and interference with life, increases with stage of cancer.¹³ Symptoms cannot be addressed from a purely biomedical perspective. They include physical intensity and emotional distress or affective components.¹² Similarly, these issues are important for partners, because they are dealing with the psychological impact of a cancer diagnosis, and their quality of life will also be affected by the patient's pain and symptom burden.¹⁵

Covariates

Gender has been shown to influence adjustment and reaction to hardships in that females, whether patient or partner, report more distress.¹⁰ Spouses/partners are at increased risk for both physical and psychological disturbances, and this will vary depending on the quality of the marital relationship, the nature and type of illness, functional impairment, changes in family functioning, including finances and role changes, age, gender and coping style of the spouse/partner.^{16,17}

Financial concerns for cancer patients have been linked to negative effects on quality of life and can be pervasive regardless of income level,¹⁸ although Taskila and Lindbohm¹⁹ in a review of employment and work ability of cancer survivors report that most patients with good prognosis are able to continue working. For the general population, financial problems have been identified as stressors that can affect marital quality and satisfaction²⁰.

Dyadic Adjustment

For patients and partners psychological distress is predicted by dyadic adjustment and coping styles following a cancer diagnosis^{6, 21} and if one partner becomes distressed the other is likely to follow²². In the context of health outcomes, this increased risk for the caregiving partner may result in poorer health as a consequence of the increased burden.^{22,23} Being married is associated with lower mortality from a wide range of illnesses, including cancer, but the *quality* of marital interactions and relationship is the stronger predictor of health outcomes, rather than the marital status.¹ Communication of a partner's support are critical during times of stress, when people feel most vulnerable.^{22,24} There are a number of factors that influence a person's response or a couple's response to a cancer diagnosis. The relationship between the partner and cancer patient is a complex dyad that differs from the general social support of family and friends.^{3,25,26} The partners' reaction, coping style and trust-relationship are also important issues when a patient receives a diagnosis of cancer and should be considered by clinicians and researchers because of its strong influence on patient outcomes.^{27,28}

Coping

Lazarus and Folkman²⁹ address negative stress as a stimulus that causes a reaction. Disastrous events that occur to only one person can be as stressful as a cataclysmic event which affects large numbers of people. The level of threat or vulnerability determines the coping response. When fear is involved, emotional coping style can impact cognitive functioning and positive problem-solving abilities. Problem-focused coping involves focusing on a situation with alternative actions and objectives and may include changes that are directed inward. These strategies may include shifting levels of aspiration, reducing ego involvement, exploring alternative channels of gratification and developing new skills and procedures.²⁹ Emotion-focused coping can include reappraisal, avoidance or seeking outside emotional support. Denial can be part of this type of coping and can be helpful or harmful if deceptive rather than temporarily protective. Confusion and misunderstanding may be the result if this strategy is predominant.²⁹

Dyadic coping involves the communication between stress signals of one partner and subsequent coping reactions of the other partner. This can include everyday communication, interpersonal conflict, joint problem solving, giving and receiving emotional support and dealing with life stressors as a couple rather than as two individuals.²⁶ Positive supportive coping includes words of wise counsel, communicating belief in the other partner's capabilities, and expressions of solidarity²⁶ and may include self-sacrifice, such as taking on more tasks or household duties.²⁴ Empathy has been regarded as particularly important for cancer patients.³⁰ Negative dyadic coping is characterized by physical avoidance, avoidance of open communication, engaging in forced cheerfulness, or minimization of the illness and its consequences resulting in patients' feeling rejected or abandoned.^{3,22,26} Partners' patterns of coping affect their level of distress, such that those who use avoidant or impulsive styles are generally more distressed,²⁷ however, Banthia et al.⁶ reported that dyadic strength moderated the effects of avoidant coping when members of stronger dyads reported less distress, despite maladaptive coping behaviors compared to dyads that were in dysfunctional relationships.

Quality of Life

Couper et al.²⁷ in a review of the literature of psychological outcomes for men with prostate cancer found very few studies that sought data directly from partners. The POMS has been used as an outcome and mediator in multiple couple studies; some with the partners as if were the patients³¹ and some with both patients and partners^{7,21,30,32}. Female patients, female partners and male patients reported more psychological distress and lower quality of

life when compared to healthy controls. In contrast, male partners were similar to healthy controls in distress and QOL.³³ Patients and partners are likely to have a crossover of distress and emotional impact on the couples' quality of life.^{34–36} A study by Wagner and colleagues³⁷ compared quality of life (QOL) for husbands who had wives with breast cancer to husbands of healthy wives. Husbands of wives with breast cancer scored lower on general health, vitality, role-emotional, and mental health subscales of the Medical Outcomes Study (MOS-SF36) than those with healthy wives. Higher QOL for the partners of patients with breast cancer was associated with less caregiver burden, lower use of emotion focused coping and higher social support. Stage of disease and time since diagnosis were not related to QOL in husbands. Age and education were not different for the husbands of wives with breast cancer and healthy wives groups.

With the mapping of the human genome, research is producing insights and advances into the causes and cures for cancer. It is hoped that with increased understandings of mechanisms of disease, we will be able to use targeted therapies to individualize care to be most effective with the least toxicities.³⁸ This will have implications for patient/partner dyads and families because genetic information affects generations. Spouses of women who have not yet been diagnosed with breast cancer but who are BRCA1 or BRCA2 mutation carriers have lower quality of life than husbands of wives who do not carry these mutations.³⁹ Even though there is an emphasis on genetic research, the resultant quality of life, including familial implications, symptoms, treatment effects and side-effects of the disease with its cancer-related symptom distress, including pain, continue to be challenging and the focus of needed research to be addressed according to the National Institutes of Health State-of-the Science Panel.⁴⁰

This study using structural equation modeling investigated the effects of pain and financial concerns as stressors on cancer patients and their partners' quality of life. The relationship of the couple (dyadic adjustment) and the partners' coping style looking for direct effects not only for themselves, but also on the patient, were also examined as outcomes and mediators. Seeing a loved one endure pain and other distressing symptoms has implications for quality of life for both members of the dyad.

METHODS

Participants

This cross-sectional study was a secondary analysis of data from a larger National Institutes of Health (NIH) funded caregiver interventional study, approved by the Institutional Review Board at a major university in the Southeast. In addition, the first author received funding from the American Cancer Society to support this research. The authors had no ethical or financial conflicts of interest in conducting this study. The study used a standard dyadic design.⁴¹ Inclusion criteria was: patients had to be in a committed partner relationship, have a diagnosis of cancer in any stage, a pain intensity level of at least 3 on a 0 to 10 scale, and both patients and partners had to be at least 18 years of age, at least have a sixth grade education level, no neurologic or psychiatric disorders that would interfere with self-report, and be able to read and understand English. The analysis of the demographic data is included in Table 1. Medical characteristics including cancer type and status of therapy were obtained from medical chart review. Data for staging of cancers were not considered reliable, therefore, the current status of cancer therapy treatment was used: 37% under treatment and stable, 35% under treatment, but progressing, 11% receiving no treatment and stable, 10% in remission, and 7% not under treatment and progressing. There was a broad range of types of cancer: Twenty-six percent of the sample included lung cancer patients, 13% head and neck cancers, 11% breast, 8% colorectal, 7% gynecological, 7% hematologic, pancreatic, and sarcoma were 5% each, with the remaining 18% divided among prostate,

bladder/renal, carcinoid, melanoma, unknown primary, gastric/esophageal and testicular. Medication management was included in the intervention study but not addressed in this analysis.

Procedures

Patients were invited to participate in the study while attending regularly scheduled outpatient appointments at the cancer center. The study was explained to both the patients and their partners, questions were answered and written consent was obtained. Questionnaires were then completed individually by each participant and given to the research team to be entered into the data bank. For this study, the data set was obtained from the Principal Investigator. The data was cleaned. Five same sex partners were eliminated from the study. Four dyads had large sections of missing data. These were also deleted. The remaining dyads had less than 95% missing data characterized as missing completely at random. Mean substitutions were made for the missing values.⁴²

Measures

Each member of the dyad completed a demographic questionnaire, Dyadic Adjustment Scale (DAS), Profile of Mood States (POMS) and Medical Outcomes Study Short Form Health Survey (MOS SF-36). In addition, patients completed the Brief Pain Inventory (BPI) and the Memorial Symptom Assessment Scale (MSAS) and partners completed the Financial Concerns Subscale from the Caregiver Demands Scale (CDS) and the Social Problem Solving Inventory – Revised (SPSI-R).

The DAS is a thirty-two item scale that is designed to assess marital satisfaction for couples married or in a committed relationship.⁴³ This instrument measures dyadic consensus, dyadic satisfaction, affectional expression and dyadic cohesion that directly assess general communication between couples and multiple items in which communication patterns are undercurrent. Higher scores indicate greater marital satisfaction. This instrument was normed with heterosexual couples, thus the elimination of same sex couples. Alpha coefficients have been reported from 0.92 to 0.95.³⁵ Construct and criterion validity and reliability were reported by Spanier.⁴³

The POMS⁴⁴ is a 65 item Likert-type scale that evaluates six affective states: (1) Tension-Anxiety; (2) Depression-Dejection; (3) Anger-Hostility; (4) Vigor-Activity; and (6) Confusion-Bewilderment. High scores except for the Vigor-Activity subscale indicate worse mood. Internal consistency has been reported as 0.87 to 0.95 within these subscales. Test-retest reliability ranged from 0.65 to 0.74 over a three-week interval. The global score was used for the patient and partner as an outcome indicator.

The MOS SF-36⁴⁵ is a thirty-six item self-report multidimensional rating scale that measures eight health-related concepts: (1) physical functioning; (2) role limitations due to physical health problems; (3) bodily pain; (4) general health; (5) vitality (energy/fatigue); (6) social functioning; (7) role limitations due to emotional problems; (8) mental health. Construct validity correlations range from $r = 0.52$ to 0.78 for subscales with other quality of life measures. Test-retest reliability coefficients for the subscales range from 0.68 to 0.93. The General Health and Mental Health Scores were used as outcome indicators.

The MSAS is a self-report measure that assesses symptoms that are common in cancer patients differentiating frequency, intensity and distress. Distress items are scored from 0 (no distress) to 3 (worst distress). Reliability coefficients have been reported as indicating strong internal consistency for the subscales (alphas = 0.83–0.92). The revised version⁴⁶ was used for this study. The single item Pain Distress score was used as the distress indicator for Vulnerability.

The BPI assesses pain in cancer and non-cancer patients using self-report. It measures pain at its worst, its least, average and current level. The instrument is scored on a 0 to 10 scale with general interpretation as follows: 0–3 (mild pain); 4–6 (moderate pain); and 7–10 (severe pain). Additional information is collected on the role pain has on interference with daily functioning. Patients rate how much pain interferes with seven areas. Serlin et al.⁴⁷ reported reliability as Cronbach alphas ranging from 0.86–0.91. Test-retest reliability was strongest for pain at its worst ($r=0.93$). Worst pain intensity and interference were two of the three indicators of Vulnerability.

The CDS⁴⁸ is a 46 item self-report measure of demands that caregivers may experience that has been used in cancer populations [43]. The subscale Financial Alterations was used for this study. A 5 point Likert-type scale (1= “not at all” to 5 “extremely stressful”) is completed. The total score is summed, with higher scores representing greater difficulty. Internal consistency reliability (Cronbach’s alpha) has been reported as 0.87.

The SPSI-R⁴⁹ is a measure that consists of 52 items that use a five-point Likert-type scale that assesses problem-solving skills. There are five subscales: (1) Positive Problem Orientation (PPO); (2) Negative Problem Orientation; (3) Rational Problem Solving; (4) Impulsivity/Carelessness Style; and (5) Avoidance Style. Construct validity was reported ($r = 0.33$ to 0.75) with subscales from other problem-solving measures. Internal consistency using alpha coefficients have ranged from 0.69 to 0.96. This instrument has been used with cancer patients [27]. The PPO, Impulsivity/Carelessness Style and Avoidance Style were used as three indicators for Partner Coping.

Statistical Analysis

A multiple regressions analyses was performed to determine if the covariates of age, gender, financial concerns and length of the marriage related to the relationship quality or quality of life outcomes. The covariates were entered with the DAS as the dependent variable for the patient and then for the partner and then with the outcome measures: POMS, General Health and Mental Health scores. The patient and partners were considered in each regression analysis because they were considered an interdependent model. From this analysis, Financial concerns was identified as significant for both the patient and partner. Gender was only significant for the Partner Mental Health. Thus, Financial concerns was included as a stressor in the SEM analysis. Gender had to be addressed in a separate MANOVA analysis due to size requirements of SEM and is the subject of another paper.

SEM is a statistical procedure designed to evaluate latent constructs that have measured indicators in a multivariate model using covariance matrices.⁵⁰ Theoretical variables are operationalized by empirical indicators that can be data from more than one instrument or participant in the dyad to capture the complexity of the construct⁵⁰. Error variance is also measured in the structural equation model. Raw data sets of the indicator variables were entered into LISREL with Prelis. The models were then examined for Goodness of Fit (Table 4). These indices are reported for empirical evidence using the following criteria: the chi-square to degrees of freedom ratio, the root mean squared error of approximation (RMSEA), the comparative fit index (CFI) and the standardized root mean squared residual (SRMR). The chi square ratio to degrees of freedom should not be significant, indicating that the implied covariance is not different from the observed data set, but this varies with sample size and is not a definitive test. The RMSEA is based on an analysis of the residuals and should be less than 0.10 for a good fit and values of < 0.05 for a very good fit. The SRMR is the standardized square root of the mean of the squared discrepancies between the implied and observed covariance matrices with values $< .05$ considered a good fit. The CFI is a relative measure of fit that compares the null model to the estimated model and should be at least .95. If it is less than .90, it is a poor fit.⁵⁰

RESULTS

Means, standard deviations, ranges (Table 2) and correlations (Table 3) for the indicator variables were calculated. Ten percent of the participants scored below 100 on the DAS, indicative of poorer quality relationships. Most of the couples who scored lower did not have similar scores with their partner, indicating that only one person in the relationship was not satisfied. When examining scores that fell well below the means, there were no clear patterns to explain the high and low ranges of the variables.

Latent variable path analysis uses the eight matrices of LISREL combined to consider measurement of the variables and their structural relations.⁵⁰ The model was conceptualized based on the review of the literature and theory with the following variables and constructs relationships illustrated. *Financial Concerns* (single indicator that was the total from the CDS subscale), and *Vulnerability from Pain* were the two exogenous constructs. Three variables that made up *Vulnerability from Pain* were (1) pain at its worst (BPI), (2) pain interference (BPI), and (3) pain distress (MSAS). The endogenous constructs were *Relationship Quality*, *Partner Coping Style*, *Patient QOL* and *Partner QOL*. *Relationship Quality* had two variables: (1) partner's scores on the DAS and (2) patient's scores on the DAS. *Partner Coping Style* had three variables all from the SPSI-R subscales: (1) Positive Problem Orientation (2) Impulsiveness/Carelessness and (3) Avoidance. Patient and Partner QOL were each separate constructs that consisted of three variables from each member of the dyad: (1) Global emotional distress score (POMS), (2) General Health (MOS SF-36) and (3) Mental Health (MOS SF-36).

The fit of the Full Measurement Model (Figure 1) with all variables endogenous is conducted first and provides a baseline. The indicators for each construct correlated fairly highly with each other assuring assessment of the same construct. The PPO and the Impulsiveness/Carelessness and Avoidance scales were correlated, but negatively. The negative indicators were reversed scored by multiplying by -1 so that the correlations were in the same direction. The same procedure was done for the POMS. The LISREL program was then able to provide calculations with few iterations and good fit indices. The results reported in Table 2 and Table 3 were prior to reverse scoring so comparisons can be made to other studies. The parameters for the full measurement model were acceptable for a good fitting model. Subsequent models (fully mediated, non-mediated and partially mediated) were then completed to evaluate for mediation. For clarity of the diagrams, the indicators are not included. The direct and indirect pathways with the standardized coefficients are as illustrated in each figure.

The Non-Mediated Model (Figure 2) and the Fully Mediated Model (Figure 3) are included, but both of these models did not have acceptable fit indices to explain the data (Table 4). All of the figures are included to illustrate the pathway analysis.

The Partially Mediated Model (Figure 4) gave the best explanation for the relationships of the variables with acceptable fit indices. There were significant direct pathways from Financial Concerns to both PQOL and CQOL. There was a negative pathway to Relationship Quality, but it was not significant. The direct pathway from Pain to patients' QOL was significant, however, there was no effect on the partners' QOL. Pain had a significant direct effect on the Relationship Quality, and an indirect effect on PQOL through Relationship Quality, with a reduction of the direct effect meeting the criteria for partial mediation.⁵¹ There was a significant decrease on the direct effect from $-.51$ to $-.58$. The standardized total effects of the variables are summarized (Table 5). Partners' Coping Style affected only their own QOL. There was significant correlation for the patients' general health and positive problem solving that did not manifest in the SEM model. Changing

Partner Coping to an exogenous variable would be a more parsimonious model, but this would negate the question of the crossover of partner coping mediating patient outcome.

Six percent of the variance in this model examining Financial concerns and Pain as stressors was explained by the positive effects of the quality of the relationship in contributing to the patients' QOL, 1% was explained from the coping by the partner having a positive effect on their own QOL, 52% of the variance was explained by the effects of the stressors on the patients' quality of life and 42% of the explanation was due to the effects on the partners' quality of life.

DISCUSSION

The purpose of this study was to examine cancer patients with pain and the role of partner relationships and partner coping style mediating the quality of life outcomes of the couple. The studies' strength was that it included a wide range of cancer diagnoses and both genders were represented as caregivers and patients. Fifty-eight percent of the patients in the study were stable in terms of disease status. The remaining 42% of the sample had progressive disease. This would imply a profound risk for a decrease in quality of life for almost half the patients and partners and yet, they maintained good relationships with each other despite the stressors.

This study consisted of mostly white participants, and this limits generalization to this population. The patients/partners had similar education levels and age to each other that is a usual finding within couple dyadic studies.⁴¹ Financial concerns have been cited to be a major problem for marriages and cause of divorce.²⁰ This study showed financial concerns were a major concern for partners and also affected the patients. Partners probably feel more pressure financially with the uncertainty of having a loved one with cancer, additional caregiving responsibilities, and role adjustments. They may even provide some protective buffering to patients by assuming more financial burden. Even though the patients did not complete this measure, it did show an effect on their quality of life through this model. Financial concerns did not have a significant effect on relationship quality. This is a pertinent negative finding, in that, even though this is a significant stressor for the couple, it did not negatively affect their relationship.

This study was a study of cancer patients with pain. Another limitation for this model is that it did not include medications in the model. This was a secondary analysis of a larger interventional study that addressed medications and knowledge of medication management. This study included only the baseline measures and due to selection of the variables and complexity of SEM techniques, medications for specific patients were not included in this model.

Vulnerability from pain had a significant negative effect on the patients' quality of life, but not the partners'. Relationship quality did mediate the patients' quality of life positively, despite the stress. The pain was lessened similarly to given the patient a dose of morphine and lowering the pain score from 8 to 7. The relationship had a direct positive effect on both members of the couples' quality of life, and this was in spite of pain and disease progression for 42% of the dyads. Since both members of the dyad were together when they were approached, there was open communication and cohesion even during enrollment in the study, this was consistent with the scores of the DAS. Several members commented that the questionnaires once completed, actually gave them stimulus for discussion. The patient and partner mean scores were higher on the DAS compared to scores reported in previously for cancer couples.³² Spanier⁴³ who developed the DAS, found that mean scores for divorced persons was 70.7 and married was 114.8. Examination of the individuals with low scores

provided no clear patterns with respect to pain score, age, education, disease, stage of treatment, or coping styles.

In examining the mediation by the partners' coping style when a couple is challenged with a patient having a diagnosis of cancer and pain, there was no evidence of a crossover or transmittal of dyadic coping from this SEM model. One of the major limitations of the study, that can be common in secondary analyses, is that the instruments were not selected ahead of time. A dyadic coping measure completed by both members of the dyad would have been ideal. The partners' coping scores were generally more positive than negative and did affect their own quality of life positively. Because coping was correlated to the quality of the relationship, when the partner perceived stress, perhaps they acted through the relationship to reassure the patient and this had a positive effect on both members' quality of life. The coping instrument was completed only by the partner and addressed items as 'I' rather than 'we'. This may have influenced the lack of empirical evidence of partner's coping having a direct influence on the patients' QOL, however financial concerns did reflect negatively on the patients' QOL even though it was completed only by the partner. Intuitively, one would think that a partner's coping style would affect the patients' outcomes, including pain management strategies that frequently require input from another. In retrospect, when examining this data, coping probably could have been determined as a non-mediator when examining the initial correlations.

These partner's had used more positive coping styles compared to other studies.²² They had lower scores on negative coping indicated by the Negative Problems Solving, Impulsive-carelessness subscale and Avoidance subscale reported by Ko.²¹ It may also be possible that individuals who have more positive coping strategies have better quality relationships. One of the limitations was that these participants used more positive coping styles by the nature of self-selection for the study. They actively sought to take action to learn better ways to help the patient cope with their pain. This cross-sectional study examined only one episode in time where the processes that were examined are constantly ongoing and changing.

The distress levels as measured by the POMS for the patient and partner were not significantly different from each other, but are higher for the patient than scores reported in previous studies of couples while the partners scores were slightly lower.^{6,21} Patients' distress and overall mood was influenced negatively by the symptom pain.

Distress, general health, and mental health indicators exhibited a decrease in their quality of life from pain and cancer, particularly for the patient, but there was a positive effect from the relationship. Perhaps this was because the marital relationships were generally strong and these partners found meaning and satisfaction in caring for the patients, despite the greater burden. There is a possibility that not being able to address the specific cancers and stages of diseases as a variable may have skewed the results. Some cancers may have greater side effects from treatment that effect body image and nutrition, such as head and neck patients or patients with colostomies. This could also increase burden for the partner.

Recommendations and Conclusions

In this sample of couples with generally strong marital relationships, the relationship quality had a positive effect on both the patients' and partners' QOL and mediated the stressor, cancer pain. Patients who are single or in low quality marital relationships may have even greater negative impacts on their quality of life, distress, general and mental health and their partners' influence may impact them negatively, or they may get support from other sources. This has implications for health care providers to be aware of potential influences of a marital relationship. Future studies need to continue to explore couples, especially when examining concepts that are paramount to cancer patients, such as love, uncertainty,

meaning of life, body image, and changing role status. The influence of intimate partners and close friends has great potential to influence quality of life outcomes. There should be relationship studies that include a greater proportion of the different racial and cultural concerns that were lacking in this study. More disease specific studies could examine if these results are consistent across cancer populations. Certain diseases are more debilitating. This may increase burdens, thus the potential that patients and their partners may be more vulnerable.

Some constructs for this study were completed by the patient, some by the partner and some by both patient and partner. SEM was the appropriate choice of analysis (D.A. Kenney, personal communication, October 3, 2008). This study included a mix of cancer diagnoses and a common symptom of pain for the patients and adds to the literature on couples coping with cancer. Despite the limitation of a coping measure by only one member of the dyad, the findings of positive influences of a good quality, committed, intimate relationship and the quality of life comparisons for patients and partners was a worthwhile study.

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Figure 1. Figure 1 illustrates the Full Measurement Model

Each indicator is loaded on its corresponding construct and there are no pathways set between constructs. Each latent construct is correlated with every other latent construct. This determines if the indicators are appropriately measuring the constructs and if the model fit is suitable to proceed for further evaluation. At least one indicator for each construct is set to 1 for a starting value, thus significance is not given for that indicator. This allowed for subsequent models with path analysis to evaluate for mediation of the marital relationship and coping style of the partner. The Full Measurement Model illustrates which indicators were loaded on which constructs. For clarity of the pathway diagrams, the indicators were not included in the mediation models.

Figure 2. Figure 2 illustrates the Non-Mediated Model

Two exogenous constructs of Financial Concerns and Pain were set as direct pathways to each of the endogenous variables: Relationship Quality, Partner Coping Style and Quality of Life for the Partner and Patient as dependent variables with no mediation. This model did not explain the data, thus mediation was present.

Figure 3. Figure 3 illustrates the Fully Mediated Model

The exogenous pathways were set to Relationship Quality and Partner Coping Style with indirect pathways set to Quality of Life for both the patient and partner as outcomes. There were no direct pathways set from the exogenous pathways Pain and Financial to the outcome variables Quality of Life. This model also did not explain the relationship based on fit indices, thus exclusive mediation did not explain the data.

Figure 4. Figure 4 illustrates the Partially Mediated Model

This model included both the direct and indirect pathways from the exogenous variables to the endogenous variables. This model provided good fit indices and is explained in detail in the manuscript.

Table 1

Demographics for Patient/Partner Dyads

Variable	Patients	Caregivers
Males	102	75
Females	75	102
Age		
Mean	57.49 years	55.50 years
Standard Deviation	12.33	12.42
Range	24.78 to 80.75 years	22.46 to 79.04 years
Family income		
\$10,001 – 19,999	4.0%	
\$20,000 – 39,999	30.7%	
\$40,000 – 59,999	16.0%	
\$60,000 – 100,000	29.3%	
>\$100,000	5.3%	
Prefer not to answer	14.7%	
Length of Relationship		
Mean	28.16 years	
Standard Deviation	14.73 years	
Range	10 months – 60 years	

Table 2

Means, Standard Deviations and Ranges for Indicator Variables Used in Study (N=177)

Variable	Ranges	Mean	Standard Deviation
Financial Concerns	0 to 20	5.70	6.67
Pain Distress	0 to 3	1.94	1.03
Pain at Worst	1 to 10	7.89	2.01
Pain Interference	0 to 70	37.07	17.62
Patient Dyadic Adjustment	79.00 to 151.00	121.82	14.96
Partner Dyadic Adjustment	66.00 to 148.00	118.88	15.94
Positive Problem Solving	2 to 20	12.28	3.75
Impulsive/Carelessness	0 to 27	7.17	5.09
Avoidance	0 to 22	4.70	3.77
Patient POMS	-37 to 117	29.44	30.74
Patient General Health	12 to 97	51.82	17.88
Patient Mental Health	4 to 100	67.95	19.93
Partner POMS	-38 to 124	25.08	29.67
Partner General Health	17 to 97	69.69	17.00
Partner Mental Health	12 to 100	73.08	19.00

Table 3

Bivariate Correlations for Variables Included in SEM Model

	FC	DIS	WP	IF	PDAS	CDAS	PPO	IC
FC	1.000							
DIS	.214 ^b	1.000						
WP	.224 ^b	.54 ^b	1.000					
IF	.199 ^b	.619 ^b	.582 ^b	1.000				
PDAS	-.145	-.165 ^a	-.187 ^a	-.173 ^a	1.000			
CDAS	-.127	-.031	-.078	-.082	.568 ^b	1.000		
PPO	-.150 ^a	.087	-.111	-.007	.268 ^b	.385 ^b	1.000	
IC	-.019	-.015	.036	-.009	-.300 ^b	-.196	-.289 ^b	1.000
AV	.086	-.067	.015	-.060	-.232 ^b	-.228 ^b	-.440 ^b	.500 ^b
PPOM	.394 ^b	.314 ^b	.347 ^b	.471 ^b	-.324 ^b	-.171 ^a	-.066	.132
CPOM	.420 ^b	.186 ^a	.131	.112	-.410 ^b	-.334 ^b	-.210 ^b	.155 ^a
	FC	DIS	WP	IF	PDAS	CDAS	PPO	IC
PGEN	-.248 ^b	-.217 ^b	-.283 ^b	-.342 ^b	.169 ^a	.153 ^a	.250 ^b	.030
PMEN	-.175 ^a	-.360 ^b	-.315 ^b	-.472 ^b	.371 ^b	.229 ^b	.098	-.112
CGEN	-.245 ^b	-.133	-.081	-.100	.269 ^b	.250 ^b	.260 ^b	.009
CMEN	-.276 ^b	-.081	-.108	-.047	.276 ^b	.324 ^b	.356 ^b	-.089
	AV	PPOM	CPOM	PGEN	PMEN	CGEN	CMEN	
AV	1.000							
PPOM	.044	1.000						
CPOM	.242 ^b	.333 ^a	1.000					
PGEN	-.112	-.346 ^b	-.140	1.000				
PMEN	.004	-.716 ^b	-.253 ^b	.390 ^b	1.000			
CGEN	-.123	-.219	-.423 ^b	.265 ^b	.177 ^a	1.000		

	FC	DIS	WP	IF	PDAS	CDAS	PPO	IC
CMEN	-.184 ^a	-.258 ^b	-.680 ^b	.153 ^b	.204 ^b	.435 ^b	1.000	

Abbreviations: AV, Avoidance; CDAS, Partner dyadic adjustment scale; CGEN, Partner general health; CMEN, Partner mental health; CPOM, Partner POMS; DIS, Distress; FC, Financial Concerns; IC, Impulsive/Carelessness; IF, Interference; PDAS, Patient dyadic adjustment scale; PGEN, Patient general health; PMEN, Patient mental health; PPO, Positive problem solving; PPOM, Patient POMS; WP, Worst Pain

^aCorrelation significant at the 0.05 level (2 tailed)

^bCorrelation significant at the 0.01 level (2 tailed)

Table 4

Fit Indices for Measurement Pain Models

Model	X ²	df	RMSEA	CFI	SRMR
Full Measurement Model	135.24	76	0.06	.96	.05
Non- Mediated Model	209.78	82	0.10	.90	.12
Fully Mediated Model	223.33	82	0.10	.90	.12
Partially Mediated Model	159.13	78	0.07	.95	.09

Table 5
Summary of Standardized Total Effects Among Latent Variables Partially-Mediated Model

	Exogenous on Endogenous		Endogenous on Endogenous		
	Financial Concerns	Vulnerability Pain	Relationship Quality	Partner Coping	Patient QOL
Relationship Quality	-.13	-.19 ^a	—	—	—
Partner Coping	-.12	-.07	—	—	—
Patient QOL	-.17 ^a	-.58 ^a	.34 ^a	-.03	—
Partner QOL	-.43 ^a	-.08	.44 ^a	.16 ^a	—

Abbreviations: QOL, Quality of Life

^a $p < .05$