QUALITY OF LIFE PERCEPTIONS AMONG OLDER-ADULT COUPLES LIVING WITH COPD

by

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ABSTRACT

In this Chronic Obstructive Pulmonary Disease (COPD) Quality of Life (QOL) study, QOL was measured with the generic Sickness Impact Profile (SIP) and the disease specific St. George's Respiratory Questionnaire (SGRQ). The role of COPD patient marital social support as a buffer and the concordance between spouse and patient perceptions of COPD patient QOL was also examined. For spouses, the role of spouse gender and patient COPD severity and for patients, patient gender and presence of comorbidity were explored.

Most hypotheses were supported at the multivariate level. Although no support was found for marital satisfaction and duration as QOL buffers, SGRQ psychosocial QOL spouse-patient score differences were statistically significant. Age and gender played appreciable roles in explaining these differences. Female patients rated themselves significantly lower on psychosocial QOL than male patients on the SIP. Among patients, comorbidity was found to have a significant impact on psychosocial QOL using the SIP. Female spouses gave significantly higher patient physical QOL ratings than male spouses on the SGRQ. Among spouses and patients, COPD severity (FEV-1) was the most powerful predictor of their ratings of physical QOL on both scales. Furthermore, COPD severity significantly explained psychosocial QOL scores among patients using the SIP.

Overall, the most important variables for the patient and spouse are gender and COPD severity (FEV-1) with respect to COPD patient QOL. The lack of support for marital social support (satisfaction and duration) may be a reflection of sample size or it may suggest that poor marital relations do not last through the severity trajectory of COPD. As a practitioner, the results of this study indicated that QOL among COPD patients was higher than one might expect. This suggests that practitioners must be aware of their own biases in working with COPD groups. The significant differences between patients and spouses for the psychosocial QOL variable suggest a need for counseling that is focused on promoting mutual understanding and thereby, reducing friction. Significant independent variables (patient COPD severity, patient and spouse gender, patient comorbidity) assist in identifying patients who may benefit most from QOL domain-specific nursing interventions.

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TABLE OF CONTENTS

Chapter 1: INTRODUCTION

Chapter 2: METHODS

Measurement

Dependent Variables

Independent Variables

Chapter 3: RESULTS

Chapter 3: RESULTS (Continued)

Bivariate Analysis

Chapter 4: DISCUSSION

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

Chapter 1
INTRODUCTION

This chapter begins with the background for the study followed by the literature review.

Background

COPD is an acronym for chronic obstructive pulmonary disease (Jones, 1992). Three main pathological processes occur with COPD. First, air sacs that permit oxygen exchange within the lung break down. Secondly, the lung loses its elasticity. Thirdly, hair-like structures in the trachea called cilia responsible for mucous clearance diminish. As a result, expiratory efforts and mucous clearance become ineffective and available oxygen for functional capacity is greatly diminished. These irreversible changes often occur before the patient is aware that he/she is ill. Patients also have a great proclivity for infection (Miller & Keane, 1987). Symptoms of COPD include shortness of breath, recurrent coughing, mucous production, fatigue, and anxiety. As this insidious disease progresses, symptoms worsen and may occur suddenly. COPD interferes with all activities of daily living, including speech. The patient's cardiovascular integrity is also disrupted and this can lead to sudden episodes of heart failure (Miller and Keane, 1987). Fulfillment of day to day living needs becomes an arduous task.

COPD is increasing in incidence and prevalence and is the third leading cause of mortality in Canada (Health Canada, 1997). Among COPD patients, hospitalization rates increase with advancing age. The mean length of stay is approximately two to three weeks per annum (Statistics Canada, 1996). COPD is also an irreversible illness (Miller & Keane, 1987).

Farquhar (1995), Bowling (1995), and Dorfman (1995) found that in comparison to heart disease, arthritis, and musculoskeletal disorders, COPD was more often rated as debilitating by older adults. Sheckleton (1987) found that COPD patients experienced stress, uncertainty, and distress from role loss, chronic functional impairment, and the progressive nature of this illness. In this thesis, implications of COPD on patient quality of life (QOL) are the focus.

For the purpose of this study, the World Health Organization definition of QOL will be used. This definition views QOL as "an individual's perception of life in the culture and value systems in which they live and in relation to their goals, expectations, standards, and concerns. It is a broad concept affected in complex ways by the person's physical health, psychological state, level of independence, social relationships, and relationships salient to their environment" (WHOQOL Group, 1993, p. 153). The WHO authors view QOL as a self-appraisal interacting with personal, physical, and psychological factors as well as the social environment. The process of appraisal involves weighting of these factors by the chronically ill older adult.

This study will address gaps in the COPD literature with respect to QOL. Specifically, there are no studies to date that link QOL with the patient's perceived level of marital satisfaction or duration of marriage. There are few studies that measure differences between patient and spouse perceptions of the COPD patient's QOL. Additionally, since the greater majority of studies measuring COPD patient QOL have been concerned with males only, gender differences will be addressed. Also, the impact of other chronic illnesses on COPD patient's QOL is rarely addressed and therefore, will be examined. With respect to spouse perceptions, the role of COPD severity and spouse gender will be explored.

As a nurse, gaining greater insight into the impact that COPD has on patient QOL is relevant to my practice for several reasons. First it promotes greater understanding of the effect that COPD has on a patient's day to day life. Secondly, it facilitates the establishment of a therapeutic relationship between the patient and the nurse.

Literature Review

In this literature review, five topics are covered: (1) social support and coping with chronic illness: marital satisfaction and duration; (2) concordance between spouse and patient perceptions of COPD patient QOL; (3) the role of spouse and patient gender with QOL ratings of the COPD patient; and (4) issues in QOL research among COPD groups.

Social Support and Coping with Chronic Illness: marital satisfaction and duration

The theoretical basis for examining marital satisfaction and duration relates to the social support provided by the spouse to the married COPD patient. The Cohen and Wills (1985) stress-buffering hypothesis suggests that social support may intervene between an event that invokes stress and the appraisal of that event. In essence, social support is viewed as a buffer that reduces the negative impact of chronic illness. For example, a social support source provides resources that enhance the individual's perceived ability to cope with an illness and thereby, reduces the stress posed by that illness. The individual may then become better equipped to deal with manifestations of an illness. Wills (1985) suggests that the source of social support may function as a confidant who provides emotional support and as a person with whom the patient can discuss problems. This in turn could reduce alienation and foster confidence and thereby, bolster QOL. Social support sources could also provide assistance with activities of daily living, thereby buffering the physical impact of chronic illness. Additionally, social support sources could motivate the chronically ill older adult to continue to cope and instill a sense of hope.

Spouses, as marital partners, have been cited as the most important source of social support among older adults (Ebersole & Hess, 1990; Achat, et al., 1998). Marital relationships have been characterized as unimpeded by exchange concerns (Wills, 1985). Positive marital relations have been linked with a sense of belonging and affection (Wills, 1985). Furthermore, a supportive marital partner has been found to be a psychosocial buffer within the context of chronic illness (Burman & Margolin, 1992). For example, quality of marital relations between spouse caregiver and patient has been found to be significantly related to patient well being (Parson, Cox, & Kimboko, 1989). Also, Grand, Grand-Filaire and Pous (1993) found that elderly couples who had positive and supportive partners voiced greater feelings of adjustment to chronic illness in comparison to those with low marital satisfaction. Presence of a long term spouse has been linked to better survival once diagnosed with a chronic illness (Goodwin, Hunt, Key & Saymet, 1987). Sherbourne and Hays (1990) found that among older adults with heart disease and mobility disorders, married subjects had better physical functioning, less depression, and felt a greater sense of control. Additionally, these subjects reported higher perceived levels of support, less stress, and less feelings of being overwhelmed, regardless of the number of illnesses and disease severity. Ostbye, Tyas, McDowell, and Koval (1997) found that chronically ill older adult patients living with a spouse had significantly higher levels of physical and psychological well being. Indeed, among renal disease patients, marital satisfaction has been found to be the most important determinant of well-being (Rhena, Moshe, & Abraham, 1996).

Conversely, negative marriages can lead to strain that elicits negative self-appraisals or non-constructive responses to illness (Burman & Margolin, 1992). Marital distress has been linked to feelings of depression (Kiecolt-Glaser & Glaser, 1989). Negative communication among couples has been associated with increased negative physiological arousal (Hatchett, Friend, Symister, & Wadhwa, 1997). In a study by Block and Boyer (1984) distressed marital relationships correlated with subjective perceptions of impairment and anxiety. Waltz, Badura, Pfaff, and Schott (as cited in Burman & Margolin, 1992) found that distressed marital relationships were associated with cardiac patients self-reports of impairment. Lack of support from a spouse has been associated with poor psychological adjustment to chronic illness among those with arthritis (Manne & Zautra, as cited in Burman & Margolin, 1992). Lack of perceived support from a spouse has also been linked with low QOL among older adults with chronic pain (Turk & Kerns, 1985).

There are no published studies to date that examine the role of marital satisfaction or duration on QOL among COPD patients, despite most patients participating in QOL research being married. From the above findings on disease groups other than COPD, however, there is reason to believe that COPD patients who have supportive spouses, as reflected in high marital satisfaction, will have a higher QOL. This study will also examine the impact of duration of marriage on QOL. The question to be addressed is whether COPD patients who have been married longer have better QOL than those married for a shorter period of time. The expectation is that the longer the marriage, the higher the QOL for the patient because of the security engendered by the long term presence of a source of support. In this study, marital satisfaction and duration, conceptualized as intervening variables, will be examined for their impact on QOL. Cohen and Wills (1985) stress-buffering hypothesis suggests that these intervening variables will have a positive association with QOL (See Figure 1).

Figure 1
Marital support and COPD patient QOL

Older Adult → Chronic illness→ Marital Support (Buffer) → QOL Perceptions
(Intervening Variable)

Concordance between spouse and patient perceptions of COPD patient QOL

As a nurse, it would be important to know both the patient's views of their QOL and his/her spouse's views of QOL and the similarity between them in order to develop a relevant and effective plan of care. Since the spouse is most often the primary source of social support, at least theoretically he/she should be able to readily and directly observe and correctly identify the degree of illness impact on the patient's QOL but this has not been empirically established. Treatment or intervention decisions and implementation often require spousal assistance, and hence, agreement of patient need as it relates to the impact of chronic illness on QOL. Leidy and Traver (1996) and Hatchett, et al. (1997) suggest that differences in QOL perception between patients and spouses could cause friction and patient maladjustment to chronic illness. Given these findings, it was thought to be important to examine levels of concordance between COPD patients and their spouses perceptions of patient QOL.

With respect to the similarity of patient and spouse perceptions of need, there are four possible outcomes (see Figure 2) and each outcome may lead to different behavioral and/or emotional implications for the patient and the spouse. First we will examine discordance. In cell #2, there are differences in that the spouse thinks the patient's QOL is discordance. In cell #2, there are differences in that the spouse thinks the patient's QOL is lower than the patient does. Here, the spouse could be over-protective and minimize the patient's independence with illness coping. Alternately, this scenario may reflect denial on behalf of the patient. Either way, this could lead to spousal friction. For example, the patient may want to walk for increasingly longer distances, however, the spouse may tell the patient to avoid high activity levels as it may pose a threat to physical well-being (ie: increased shortness of breath). Disregard for advice may lead to frustration for the spouse and the patient. A third possibility in this scenario is that the patient could be protecting or buffering the spouse from excessive worry by not disclosing the full impact of COPD. For example, when the patient is aware of increasing ADL limitations that indicate worsening and/or greater imposition due to COPD, this may alarm the spouse and cause him/her to be anxious or fearful about any activity that the patient engages in.

Figure 2: Perceptual matrix for COPD patient QOL

		SPOUSE	
		Higher	Lower
PATIENT	Higher	expectations of patient and spouse are similar; most optimal as COPD perceived as least threatening by patient and spouse; positive coping perceptions; positive emotional state #1	patient expectations exceed those of spouse; overprotective tendency among spouses; patient denial; dyadic friction; spousal buffer #2
	Lower	spousal expectations exceed those of patient; maladjustment and low levels of well being for patient; spousal denial of threat or severity of illness #3	lower expectations by patient and by spouse; may reflect realistic adaptation to chronic illness; negative emotional state #4

Conversely and as noted in cell #3, if the patient rates his/her QOL lower than their spouse does, the spouse may feel that the patient is not adapting or coping as well as he/she should be. The spouse, in conveying this to the patient, may lead to feelings of inadequacy in the patient. For example, the patient may feel that he/she cannot attend his/her out-patient exercise program due to the excessive physical demands that it places upon them. The patient's spouse may feel that he/she is trying to avoid beneficial activity due to unwarranted fears and threats to well-being. This scenario could also reflect spousal denial of the severity or threat of the illness.

If perceptions of the patient and spouse are concordant and high (cell #1), expectations of the patient's ability to cope with COPD are relatively positive, indicating that COPD is perceived as non-threatening to day to day QOL. Alternately, concordant and low QOL perceptions of both the patient and spouse (cell #4) may indicate that both feel COPD poses a strong negative threat to day to day QOL. This may lead to a chronic negative emotional state for both the patient and the spouse. However, this outcome could also represent an adaptation to COPD through the active formulation of lower expectations for life quality.

Seven studies were found that examine proxy-patient similarities and differences on the impact of chronic illness. The first study discussed below was conducted among patients with a variety of different chronic illnesses while the next four looked respectively at patients with cancer, stroke, renal disease, and cognitive impairment. The last two studies dealt with COPD patients.

Chronic diseases other than COPD

In a study of a group of patients with various chronic illnesses, Lawrence (1995) found that functional capacity and comorbidity (ie: numbers of other chronic illnesses) explained equal amounts of variance in subjective patient global health ratings for patients and their proxies. This author did not compare degree of concordance in global health ratings but suggested that both patients and proxies use physical parameters to appraise global health.

Clipp and George (1991) found a high degree of agreement for functional capacity perceptions and low agreement on perceptions of psychological distress between cancer patients and their proxies. For example, the patient and proxy agreed on the patient's ability to dress independently, but not on the patient's degree of fear over his/her prognosis. Proxy's perceptions generally were more negative than those of the patient. These authors felt that indicators of subjective well being are not readily observable and therefore, spouses may not understand how the patient really feels. In a study of cancer patients, Sneeuw, Aaronson, Sprangers, et al. (1997) found that proxy's perceptions of both physical and psychological QOL were lower than those of the cancer patients. Lower levels of concordance were found for psychological than for physical QOL. These authors also found a trend for concordance to be lowest among patients with poorest health. In a study comparing stroke patient and proxy QOL ratings, Sneeuw, Aaronson, deHaan, and Limburg (1997) found similar trends. Specifically, proxy-patient correlations were significantly higher for physical QOL than for psychosocial QOL. Proxy QOL ratings were also consistently lower than those of the patient and were positively associated with grades of disability among patients, suggesting that proxies used physical parameters to formulate QOL appraisals. In a study of renal disease patients and their spouses, Hatchett, et al. (1997) found that spousal perceptions of coping capacity and level of psychological well-being were lower than reported by the patient. Finally, Ostbye, et al. (1997) looked at agreement in perceptions of I/ADL (physical) capacity between caregivers and older adults with zero to moderate cognitive impairment. These authors found that as severity of impairment increased, spouses rated patients ADL capacity lower. ADL tasks showed more concordance than IADL (less observable) tasks for patient-proxy pairs. Proxy reports were significantly lower than patient reports for even non-dementia cases. Unlike most proxy studies, these findings also suggest that proxy physical QOL scores may significantly differ from those of the patient.

COPD Studies

Only two COPD studies have examined proxy-patient concordance in QOL ratings. In the first study, conducted by Prigatano, Wright, E., Wright, M., and Levin (1984), COPD patient's psychosocial QOL scores and COPD proxy scores on emotional functioning scores were notably lower than those of healthy patient controls and their proxies. However, COPD patient's scores were not statistically compared with their proxy's scores. In the second study, Leidy and Traver (1996) statistically compared QOL scores and found that patient psychosocial QOL scores had very weak correlation's with proxy scores of social functioning. However, COPD patient's physical QOL scores correlated highly with proxy ratings of activity performance.

In sum, proxy perceptions of the impact of chronic illness on physical dependent variables examined tend to be in concordance with patient perceptions ie: observable behaviors seem to elicit high agreement. Perceptions of psychosocial dependent variables (ie: less readily observable behaviors) elicit lower agreement. Proxies consistently rate ratings and disease severity may be related. However, only the Sneeuw, Aaronson, deHaan, and Limburg (1997) study measured QOL.

Two questions are raised by the proxy literature. First, would these findings be replicated between COPD patients and their spouses for patient QOL ratings? Next, could COPD severity predict spousal ratings of COPD patient QOL? It is hypothesized that scores of spouses and patients will be most similar on physical QOL domains. Secondly, it is hypothesized that FEV-1 (COPD severity) will be significantly associated with proxy ratings of patient QOL.

It should also be noted that in the proxy literature, the majority of proxies were females. This finding points to a need for further exploration of whether spouse gender impacts spousal ratings. Given the proxy findings, this study will explore the following question: will female spouses rate patient QOL lower than male spouses? It should be noted that only in the Clipp and George (1994), all proxies were spouses. Spouse proxies ranged from 33% in the Lawrence (1995) study to 83% in the Leidy and Traver (1996) study. Only Ostbye, et al. (1997) examined the role of proxy type on ADL capacity perceptions, however, no significant relationship was found between proxy type and patient-proxy differences.

This study will measure and make statistical comparisons of patient QOL scores among a sample of COPD patients in which all proxies are spouses. All patients in this study will have proxies. Also, the association of a patient's COPD severity with spouse proxy ratings will be explored.

The Role of Spousal and Patient Gender with QOL ratings of the COPD patient

Caregiving, according to Cohen and Wills (1985), is a form of social support. Older adult spouses provide a large portion of caregiving support within the illness context (Ebersole & Hess, 1990; Wills, 1985; Bowling, 1995). Care from one's spouse promotes a sense of belonging, protection, and respect which the presence of chronic illness often negates (Aneshensel & Stone, 1982). Spouses increase a sense of mastery among chronically ill older adults (Choi & Wodarski, 1996; Burman & Margolin, 1992). Ross (1991), however, describes the caregiver role as an "age-related gender-specific role contingent phenomena" (p. 123), which women primarily assume. Finch and Groves (as cited in Ross, 1991) relate tradition with respect to continuity of a nurturing role as women age. Feldman (as cited in Galvin and Brommel, 1991) describes the socially defined role for women as being linked to relationships with and nurturing of significant others. According to this author, the older adult female role is one of family management and emotional support whereas the male role would be defined in terms of occupational stature and resource provision. Archer and MacLean (1993) also suggest that women are more likely to assume homemaking roles throughout their life-span and are, therefore, more likely to do so in later life as women live longer and tend to marry older men. Ross (1991) speaks of female spousal devotion that is rooted in long term relationships. With respect to the current study, gender-role theory literature provides a supportive framework for gender specific responses to QOL perceptions. It is, therefore, not surprising that the overwhelming majority of studies on caregiving have focused on female spouses. However, an important trend among all studies is that as caregivers, female spouses perceive themselves as having low well being, poor life satisfaction, and great distress. Some findings also suggest that care-recipient disease severity may have a profound impact on spouse well being, and their perceptions of burden and QOL.

In the COPD caregiving literature, Sexton and Munroe (1985) examined the impact of caregiving for husbands upon female spouse caregiver life satisfaction. COPD caregiver wives perceived high levels of stress and low life satisfaction. They slept poorly, were sexually inactive, and socially isolated. Furthermore, severity of their husband's COPD negatively impacted their life satisfaction. Cossette and Levesque (1993) found that female spouses who cared for severe COPD patients experienced great distress. Emotional support tasks and the depth of help they provided increased their distress. Harper, et al. (1997) noted increasing depression among female caregivers having to complete more complex tasks that the patient could not accomplish as COPD progressed. Wallhagen (1993) and Rhena, et al. (1996) found that life satisfaction among aged spouses, of which the majority were female, correlated negatively with perceptions of being able to manage or control their environment. From these studies we see that disease severity may be linked with spousal well being or adaptation to their roles within the illness context. The main focus of this literature is on caregiving tasks and the caregivers well being. Some questions remain. First, given that male spouse caregivers have generally been found to experience less stress than female spouse caregivers, would male spouses rate their COPD wife's/partner's QOL higher (give lower scores)? Secondly, how much of a role does COPD severity (FEV-1) play in spouse QOL ratings of patients? Furthermore, would a severity effect appear among only female spouses?

Similar to the COPD caregiving literature, the chronic disease literature focuses mainly on female spouses and shows similar trends. For example, Hatchett, et al. (1997)

found that female spouses tended to feel guilty and worry more than male spouses over the adequacy of the care that they provided to their ailing spouses. Jones and Peters (1992) found that among caregivers of dementia patients, poor caregiver QOL was independently associated with more disabled care-recipients, caring for a close relative, and being female. Rhena, et al. (1996) found that for spouse caregivers of older adult renal patients, manageability of the illness context was the most important contributor to his/her adjustment. Most spouses in the latter study were again, female. Barusch and Spaid (1994) examined male and female caregivers of dementia, non-specific lung, and heart disease patients. These authors found that women experienced greater distress with care-giving than men did for very dependent spouses. Again, we see a possible link between severity of disease and caregiving impact. Female spouses also felt that they did not cope effectively with being a caregiver and experienced higher levels of burden. Males had a more positive overall outlook on caregiving. Allen (1994) found that caregiver wives provided significantly more care than husbands and patient wives who were symptomatic with cancer received significantly more help from non-spousal sources for household tasks. Unlike husbands, caregiver wives tended to increase their efforts when patient husbands grew more symptomatic.

There are only a small number of studies on male spouse caregivers. However, most are qualitative, sample sizes are very small, and most studies are concerned with patients who are cognitively impaired. For example, Archer and MacLean (1993) found that males who provided care for their diabetic or mentally ill wives experienced few negative feelings as their spouses dependency levels increased. Personal and emotional gratification emerging from a sense of duty, love, and reciprocity was felt. Kaye and Applegate (1990) found similar patterns among male spouse caregivers of wives impacted by Alzheimer's disease. Unlike female spouses, solo caregiving seems to have little overall negative effect on well-being. It is noted that men use more action oriented coping skills than female spouses (Lutzky & Knight, 1994; Hatchett, et al., 1997)

The chronic disease literature raises similar questions to the COPD caregiving literature regarding the role of spouse gender. Gender role expectations may have led to exaggerated care provision and negative emotional states for these female spouse caregivers. For example, the strong evidence for greater female spouse distress may reflect dismay at the adoption of yet another normative caregiving role in old age (Ross,1991). This author uses the term "subjective career" (p.126) as a conceptual manifestation of this dismay. The present study examines the role of this term with respect to female spouse ratings of COPD patient QOL. Additionally, the non-COPD caregiving studies point to a potential link between disease severity and spousal well being. Given the progressive and unpredictable nature of COPD, each severity stage may present an increasing need for care of the patient and an increasing stress level for the spouse (Sheckleton, 1987).

What about patient gender and QOL? First, as noted in the gender role theory and caregiving literature, the greater likelihood of caregiving in later life and the intensity of care provision by female spouses could lead to better QOL and marital satisfaction among male patients as they would have less unmet needs. Anderson, Earle, and Longino (1997) found that males benefit more than females regarding the extent of support, not the types of support, within the marital context. Allen (1994) found similar trends among older couples coping with cancer. Only one study formally examined the effect of patient gender on QOL among a sample of 89 COPD patients (Leidy & Traver, 1995). Although differences were not statistically significant, these authors found that female patients had lower QOL (scored higher). Dorfman (1985) examined the role of various chronic illnesses on life satisfaction after retirement and found that females perceived a significant and negative impact from pulmonary disease. There is also evidence that QOL scores among male patients were higher than expected, contrary to the morose portrayal in the literature of QOL for individuals with COPD (Herbert & Gregor, 1997; Leidy & Traver, 1995; Prigatano, et al., 1984). The non-COPD chronic illness literature also identifies similar patient gender trends. For example, Preston and Dellasega (1996) found that female patients perceived a greater emotional and functional limitation with chronic illness than male patients. Young and Kahana (1989) also found that females exhibited greater anxiety than males within the chronic illness context. Chronically ill females are also more likely to report unmet needs for assistance with household tasks, even at low levels of morbidity (Allen, 1994). Finally, with respect to gender role theory, the female COPD patient may also be limited in her capacity to fulfill her own gender role expectations due to respiratory insufficiency (Ross, 1991). It is therefore, hypothesized that male COPD patients will have (1) higher marital satisfaction and (2) higher QOL than female COPD patients.

In sum, this study will make direct comparisons of spousal ratings of patient QOL by gender. Specifically and as pointed out in the caregiving literature, it is expected that female spouses will rate patient QOL lower than male spouses. With respect to the latter, spousal QOL ratings are conceptualized as a manifestation of the impact that the caregiving role has upon them (Ross, 1991). Secondly, it is also hypothesized that male patients will have higher perceived QOL than female patients with COPD. A sub-hypothesis regarding marital satisfaction by gender will also be tested to provide additional support for gender role theory and the caregiving literature findings. Specifically, male COPD patients will rate their marital satisfaction higher.

In the next section, issues relevant to QOL research among COPD patients will be discussed. First, how was QOL defined in past COPD literature? Next, what are the characteristics of COPD patient samples? Finally, how will the gaps in the current COPD literature be addressed in the present study?

Issues in QOL Research among COPD patient groups

Leidy (1995) notes that definitions of QOL among COPD populations are over-simplified as they are defined or measured in mainly physical terms. For example, Okubadejo, Jones, and Wedzicha (1996) define QOL by degree of exercise capacity and blood oxygen saturations. Prigatano, et al. (1984) define QOL by degree of restriction of activity. Tsukino, et al. (1996) make reference to vital capacity and lung function. Physical capacity or parameters, through the experience of disease, create a QOL composite. QOL is, in other words, appraised without attention to contextual factors.

Work done by Guyatt, Berman, Pugsley, and Chambers (1987) began to challenge this type of definition. These authors stressed the need to assess psychological characteristics eg: mood. Graydon and Ross (1995) found that negative emotional states had a direct impact on patient QOL. Jones (1995) stressed the importance of socioemotional aspects of COPD such as perceived disability and distress. These factors, however, are limited to patient attributes and although relationships exist between psychosocial traits and QOL among COPD patients, not all patients are depressed or anxious (Leidy, 1995). This author feels that there should be a greater focus on psychosocial resources external to the patient that may be more positive in nature. The role of social networks has been examined while the effect of the COPD patient's marital environment (ie: satisfaction and duration) has yet to be explored (Anderson, 1995; Graydon & Ross, 1995; Leidy & Haase, 1996).

There are also several consistent trends throughout the QOL literature over the past two decades with respect to sampling among COPD groups. First, the participants of all but two studies consisted only of patients. These exceptions were conducted by Prigatano, et al. (1984) as well as Leidy and Traver (1996). Both measure patient and proxy ratings of patient QOL. However, only the latter study made direct statistical comparisons. Secondly, most samples have included only moderate or severe COPD patients (Ketelaars, et al., 1997; Okubadejo, et al. 1996; Tsukino, et al., 1996; Graydon & Ross, 1995; Herbert & Gregor, 1997; Engerstrom, Persson, Larsson, Ryden & Sullivan, 1996; Anderson, 1995). Thirdly, there is a strong gender bias in COPD literature towards male patients (Ketelaars, et al., 1996; Tsukino, et al., 1996; Okubadejo, et al., 1996; Graydon & Ross, 1995; Ferrer, et al., 1997; Renwick & Connolly, 1996; McBride, 1993; Engerstrom, et al., 1996; Prigatano, et al., 1984; Janssens, et al., 1997). Leidy (1995) states that COPD is increasing in prevalence among females yet they are underrepresented in the literature. Given the previous findings on gender and chronic illness for the patient and spouse, this variable could have an important effect on shaping QOL perceptions.

Another predominant issue relating to sampling bias is that the great majority of studies recruit patients who only suffer from COPD. There is little attention given towards the impact of additional chronic illnesses on QOL. Only two studies examine the impact of comorbidity among COPD patients (Ferrer, et al., 1997; Leidy & Haase, 1996). In the first study, persons with additional chronic illnesses had significantly lower QOL. The second study used comorbidity presence as a sample descriptor and did not control for or explain its effect on QOL.

Also, most studies show no relationship between COPD severity (FEV-1) and patient QOL for both generic and disease-specific scales (Prigatano, et al., 1984; Okubadejo, et al., 1996; Tsukino, et al., 1996; Janssens, et al., 1997; Harper, et al., 1997; Anderson, 1995; Leidy & Traver, 1995). Finally, Janssens, et al. (1997), Harper, et al. (1997), and Ketelaars, et al. (1996) do not examine study data beyond the bivariate level.

In sum, this study will address the previously identified gaps in the COPD literature through the inclusion of patient context variables in need of further exploration. First, proxy perspectives of patient QOL will be measured and compared with patient self-reports. Secondly and with respect to independent variables, the impact of marriage as a form of social support, patient gender, and the presence of comorbidity will be examined for their impact on COPD patient's self-reports of QOL.

Finally, the potential associative roles of these independent variables will be tested at the bivariate and multivariate level. There will be no hypothesis for COPD patient age as it is not a focus in the current study. Age will simply be controlled for at the multivariate level.

The Present Study

In this cross-sectional study, QOL is measured using the generic Sickness Impact Profile (SIP) and the disease specific St. George's Respiratory Questionnaire (SGRQ). A detailed description and rationale for both questionnaires is provided in the measurement instruments and issues subsection of the methods section. Next, there are four specific foci in the current study.

First, this study explores the role of social support, operationalized through patient's marital satisfaction and marriage duration, as a buffer for COPD patient QOL. Specifically, does having a spouse present for a long term (long duration of marriage) buffer QOL? Additionally, does having a supportive spouse (high marital satisfaction) buffer patient QOL? According to the Cohen and Wills (1985) buffering hypothesis and the marital relations literature findings, these variables address a specific social support function within the illness context.

Secondly, the present study examines whether there are differences in perceptions of patient QOL between the COPD patient and his/her spouse. Spousal ratings of the COPD patient's QOL are compared to COPD patient self-reports. Given the COPD literature bias towards the patient only perspective, proxy inclusion is warranted. Furthermore, spouses are often caregivers and confidantes and this would enable valuable interpretations of patient QOL. Trends in the literature suggest that only physical QOL domain perceptions will be similar while psychosocial domain perceptions will differ the most. The presence of significant differences could also have significant implications for coping with COPD for the patient and spouse. For example, the patient and the spouse may not agree upon levels of physical QOL impairment imposed by COPD and therefore, perceived capacity for independence with ADLs. A detailed discussion of possible outcomes of perceptual differences will be provided in the implications section of this thesis. Due to the lack of direction in the literature, in this study, explaining any differences between spouses and patients will simply be explored at the multivariate level.

Thirdly, gaps from the bodies of literature reviewed are addressed through specific hypotheses at the bivariate and multivariate level. With respect to gender, the inclusion of female patients will address the overt gender bias in relation to COPD patient QOL. Lower QOL among female patients will test gender role theory, gender and chronic illness coping literature, and caregiving literature findings with respect to the intensity of female spouse care provision. Furthermore, assessing the impact of spousal gender on spousal ratings of patient QOL will test for the generalizability of findings from gender role theory and the caregiving literature. Comorbidity is also examined for its impact on patient QOL as it has rarely been addressed in the COPD literature. The Ferrer, et al. (1997) study provides preliminary support for the hypothesis that having chronic illnesses in addition to COPD leads to lower QOL. COPD severity (measured by FEV-1), has not been shown to have a significant influence on patient QOL in the COPD literature. However, disease severity has been linked to proxy reports of patient well being, functional capacity, and life quality. FEV-1 scores are, therefore, examined for a potential impact on spouse QOL ratings of the COPD patient in the present study. The latter is supported by a finding that proxy physical QOL scores have been found to be most similar to those of the patient suggests that proxy ratings of patient QOL have a physical basis. With respect to FEV-1, mild severity of COPD is defined as ">49%, moderate COPD as 35-49%, and severe COPD as <35%" (American Thoracic Society, 1987).

Based on the latter and for the purposes of this study, COPD patient independent variables include self-reports of marital satisfaction as well as marital duration, comorbidity, and gender. For spouses, independent variables of interest are COPD patient FEV-1 and spouse gender for spouse ratings of COPD patient QOL. The inclusion of patient context variables in spousal regression models serve to provide further evidence of any bivariate associations that spouse gender and COPD severity (FEV-1) exhibit with spouse QOL ratings. Patient and spouse age is not a focus of this study and is, therefore, simply controlled for in any multivariate modeling. See Appendix F and G for the patient, spouse, and spouse-patient difference variable models in the current study. The hypotheses tested in the present study, using the SIP and the SGRQ questionnaires, are that:

1. Marital satisfaction and duration will be positively associated with COPD patient QOL (Rationale: supportive spouse or presence of a spouse will buffer patient QOL).
2. Differences between COPD patients and their spouses will be greater for psychosocial domain than for physical domain scores (Rationale: tests trend in proxy literature).
3. a) Female spouses will rate their COPD spouse's QOL lower than male spouse proxies because of the impact of caregiving (Rationale: tests gender role theory and caregiving literature).

   b) Male patients will rate their marital satisfaction higher than female patients because they reap more benefits from marriage (Rationale: reflects marital/caregiving literature findings).

4. Females patients will rate their QOL lower than male patients who have the same severity of COPD (FEV-1 rating) due perceiving a greater negative impact from chronic illness (Rationale: tests gender role theory and gender findings in chronic illness literature).
5. QOL scores will be positively associated with COPD severity (FEV-1) for spouses, not for COPD patients (Rationale: spouses appraise QOL from a physical perspective; lack of support for patient noted in the COPD literature).
6. Patients with other chronic illnesses in addition to COPD will have a lower QOL than those with COPD alone (Rationale: gap in COPD literature; tests Ferrer, et al. 1997 findings).

Finally, the global goal of the present study is to identify findings that can be utilized for the development of nursing interventions or tools that will promote quality of life among married persons with COPD. For example, who is at risk for low life quality? Specific interventions should have appropriate targets. Alternately, what areas of QOL are significantly impacted by COPD? Would patients benefit from interventions to improve marital well being? If significant differences in psychosocial QOL scores exist, an out-patient support group may enhance coping and foster understanding. Would nursing intervention be optimal at any stage of COPD severity? Would education around the physical or psychological impact of COPD benefit female spouses? Extrapolation of findings, from both QOL questionnaires, as they apply to the day to day practice of nursing are provided in the discussion section of this thesis.

Chapter 2
METHODS

Recruitment

Subjects were recruited through a convenience sample comprised by newspaper/seniors' center advertisements, from general and respiratory physicians' offices, through hospital COPD out-patient areas, and a series of seminars at community centers.

An advertisement about the study was placed in the North Shore News, the Lions Gate Hospital's Pulmonary Function Lab, and at local seniors centers in North Vancouver (See Appendix A). Persons responding to the advertisement were informed further about the study and asked for their permission to mail them a study packet. The study packet contained an information letter, a consent form asking for written confirmation of participation and permission for release of the most recent FEV-1 results from their hospital health records, and two envelopes containing the measurement instruments: The Sickness Impact Profile (SIP), the St. George's Respiratory Questionnaire (SGRQ), and the Enrich Marital Satisfaction scale. Each study packet was assigned a three digit code to ensure anonymity. One envelope was labeled for the person with COPD and the other, for the spouse. One week after mailing the study packets, the researcher contacted the potential subjects, where possible, by telephone to answer any questions and concerns and to determine if they wished to participate. If so, COPD patients and their spouses were asked to fill out their questionnaires separately and place them in appropriately labeled envelopes sent in their study packet (see Appendix B & E). These pre-addressed and postage paid envelopes were then mailed to SFU Gerontology Research Center.

North Vancouver physicians and respiratory therapists were asked to make their married COPD patients age 50+ aware of the study by drawing their attention to a study information letter (see Appendix B). The letter described the purpose of the study, inclusion criteria, and the telephone number of the investigator.

Respiratory health nurse clinicians at the Kelowna General Hospital and at St. Mary's Hospital in New Westminster also informed COPD outpatients about the study (see Appendix B) and distributed study packages directly to those who wanted to participate.

Additionally, information seminars were conducted by the researcher at four community centers and the Lion's Gate Hospital COPD out-patient gymnasium where study packages were given out to persons who wanted to participate. Study information was shared at continuing care case manager meetings at the West Vancouver Community Health Center and the Esplanade Community Health Center after which they distributed study advertisements and provided study packages directly to clients who wanted to participate. By the end of the recruitment phase (6 months), 120 study packages were distributed.

Telephone reminders were conducted every two weeks after packages were distributed to encourage completion. Subjects were informed that they could contact the researcher or study advisor by telephone if they had any questions or concerns. In total, 67 completed packages were returned. Once the package was returned , the researcher gave the COPD patient's consent form to the Lion's Gate hospital health record staff who then released his/her most recent FEV-1 results to the researcher (See Appendix C1). North Shore Health Region residents were required by the medical health records department to sign an additional regional release form (See Appendix C2). Kelowna and New Westminster participants gave written permission to their nurse clinicians to release their

FEV-1 results by completing the informed consent form (See Appendix C1). These nurse clinicians then released the COPD patient's FEV-1 results from his/her COPD out-patient department record to this researcher by telephone.

Sample Characteristics

Subjects who returned completed study packets consisted of 67 non-institutionalized persons with COPD and whom lived with a spouse. COPD patients were age 50 and older, able to read and comprehend English, and had a spouse not diagnosed with COPD who agreed to participate. Of the 53 remaining subjects from the 120 who received packages, 2 dropped out due to the death of a spouse, 2 died, 3 sent packages back after the recruitment phase cut-off date, and 46 simply did not return their packages. A detailed description of study participants is given in the independent variable subsection of the measurement section in this chapter.

Measurement

Measurement instruments included in the packages of both the COPD patient and their spouse were the Sickness Impact Profile (SIP), the St. George's Respiratory Questionnaire (SGRQ). Additionally, the patient completed the ENRICH Marital Satisfaction Scale. The four instruments in total took approximately 40 minutes to complete. Patients were asked about their age and gender, numbers of other chronic illnesses, and marital duration in the questionnaire packages. Lung function test results or FEV-1% were obtained from the hospital health records of COPD patients who provided written consent (see Appendices C1 and C2).

Dependent variables

The Sickness Impact Profile (SIP)

The first scale, the Sickness Impact Profile (SIP) by Bergner, Bobitt, Carter, & Gilson (1981) is a generic instrument widely used in QOL studies. The SIP consists of 136 items within 12 categories that yield a physical, psychosocial, and total score. The instrument takes approximately 15 minutes to complete. Strengths of the SIP include it's focus on psychosocial aspects of an illness, it's comparability across disease entities, and it's ability to capture broad changes in impairment. Physical QOL domain categories include: ambulation, self-care and mobility. Psychosocial QOL domain categories include: social interaction, communication, alertness behavior, and emotional behavior. The remainder of categories that are also included in the total score are: sleep and rest, nutrition, work, home maintenance, and leisure. Subjects check off statements that reflect their present health status.

SIP percentile scores for each domain are derived as follows: all items are weighted according to the author's specifications. Addition of weight values within each domain is followed by its division with the total possible domain score. This quotient is then converted to a percentage. The higher the score, the greater the degree of impairment and the lower the overall QOL.

According to Lareau, Bresliin, Meek and Loma (1996), the reliability of the scale is .92 while the convergent validity score is .46 with the Katz ADL index and .61 with the National Interview Survey done by the Washington Census Bureau in 1973. As indicated in the literature review, all SIP dimensions have not correlated well with FEV-1 scores. The SIP psychosocial domain score has correlated well with mood state indexes (Prigatano, et al., 1984). The physical SIP domain score has correlated moderately and positively with other COPD specific measures such as the walk test and dyspnea self-ratings (Jones, 1995). Low correlation with proven clinical utility measures in the past has also been linked to sampling bias in disease staging (Ferrer, et al., 1997).

The St. George's Respiratory Questionnaire (SGRQ)

Next, Jones' (1992) St. George's Respiratory Questionnaire (SGRQ) is a disease-specific COPD scale containing 53 items that yield a symptoms, an activity impairment and an impact of disease domain score as well as a total QOL score. Jones (1991) suggests that impact of disease has correlated with anxiety and mood state indexes and describes it as a measure of "perceived disability" (p. 680) that "covers social and emotional disturbances due to disease" (p. 679). In addition, Ketelaars, et al. (1996) found that impact of disease correlated well with coping behaviors of emotional reaction and avoidance. In this author's study, impact of disease score will reflect psychosocial QOL while symptoms and activity impairment will reflect physical QOL. Completion time is approximately 15 minutes. Subjects are asked to respond to the questions based on their present state of being. Questions are rated on ordinal scales and also include true/false choices. Examples of items include frequency of shortness of breath or wheezing, perceived importance of COPD, activities that bring about shortness of breath, the socioemotional impact of COPD, and the perceived impact on daily living.

In scoring the SGRQ, each item is weighted by degree of distress felt. Summation of all true responses for weighted items are divided by a total possible domain score and then converted to a percentage. [1] The higher the score, the greater the degree of impairment, and the lower the overall QOL.

The SGRQ reliability coefficient is .92 for COPD patients age 65 and older. Concurrent validity scores range from .38 with the SIP's physical dimension to -.35 with the 6 Minute Walk Test (Leidy & Traver, 1995; Jones, 1991; Ferrer, et al, 1997). Significantly higher scores in mild stages of COPD in comparison with age-matched controls have been found (Jones, 1995). Finally, Harper, et al. (1997) found that SGRQ scores reflect disease staging and significantly distinguish between subjects with COPD alone and those with COPD and other chronic illnesses.

Reasons For Using Two QOL Instruments

In this section, a brief literature review will be provided for using two QOL scales. The strengths and weaknesses of both scales will be discussed. Thereafter, the related rationale for dual instrumentation will be presented. Furthermore, the reader should note that these concepts will be further explored in relation to this study findings in Chapter 4.

Jones (1991) defines disability due to disease as "a more subjective measure, concerned with the manner in which daily activity is restricted by physiologic impairment" (p. 677). Individual perceptions of domains are more important than FEV-1 measure for gaining insight into the impact of COPD as correlation's have been poor. Furthermore, this author views disability as a series of events from multiple sources. Generic QOL scales, such as the SIP, capture this source variability through application of broad content questions/dimensions. QOL is comprehensively covered. Additionally, these instruments have strength in capturing psychological disability and their standardization allows for between group comparisons and within group comparisons. Since we are exploring whether differences in psychological QOL domains are greater than the physical domains, this type of instrument may better capture this trend.

Another strength is that a generic scale can be applied to multiple diagnostic groups and may, therefore, exemplify the effects of comorbidity among COPD populations (Albert, 1997). The role of comorbidity on QOL impairment is a primary focus in the present study. Categories of a generic scale may include dressing, alertness behavior, psychological distress, leisure and nutrition (Bowling, 1994). These categories are logically applicable to chronically ill persons with COPD and to those with COPD and other illnesses (Bergner, Bobitt, Pollard, Martin, & Gilson, 1976). Physical, mental, and social health domains are captured with a generic scale (Bowling, 1994). Essentially, generic instruments measures the impact that chronic illnesses have upon these health domains that are reflective of daily living quality.

Generic instruments have also demonstrated limited sensitivity for identifying QOL impairment among those with mild to moderate disease (Jones, 1991; Tsukino, et al., 1996; Ferrer, et al., 1997). Jones (1991) found that unlike generic scales, disease specific QOL scales, such as the SGRQ, distinguish between many stages of disease severity. Since COPD severity (FEV-1) is being explored and mild to severe groups are included on the present study, this type of measure is most appropriate. Alternately, these measures have also been criticized for covering limited areas of disturbance in QOL and for conveying little about the patients "total" disease experience. For example, a strength of a disease specific scale is that it captures physical QOL more accurately among COPD groups than a generic scale (Lareau, et al., 1996; Bowling, 1994). Additionally, these instruments provide the researcher with a finer understanding of specific domains of a particular disease (Albert, 1997). For example, one would be alerted to specific symptoms and levels of activity impairment, manifested through responses to relevant questions, only seen among persons with COPD.

Using both scales would clearly provide a valuable composite measure of QOL. Harper, et al. (1997) recommend dual instrumentation as it "combines the advantages of greater responsiveness with the monitoring of those aspects of health especially affected by COPD, as well as providing a broader picture of a patient group with considerable comorbidity" (p. 886). The researcher could accurately capture COPD nuances with specificity of domains as well as identify patterns among multiple severity groups. The generic scale could highlight the impact of other chronic illnesses more clearly as well as holistic domains that the disease specific scale misses. For example, social interaction patterns, nutritional intake or leisure patterns. Although generic scales have limited sensitivity, the differing characteristics within this study sample may provide greater insight into the applicability of this very scale. Furthermore, specific domain analysis may provide insight into the sensitivity of different aspects of the QOL scale (Allison, Locker, & Feine, 1997). Greater proportions of the concept will be measured and this provides greater insight into the patient's problems he/she faces (Jaloweic, 1990).

The reader should note that a summary of the descriptive data for the generic SIP and the disease-specific SGRQ questionnaire scores for both the COPD patient and the spouse are given in the results section of Chapter 3 (see Hypothesis 2).

Independent Variables

The ENRICH Marital Satisfaction Scale

COPD patient marital satisfaction, as a measure of social support, was measured by the ENRICH Marital Satisfaction scale (Fowers & Olson, 1993). The tool contains 15 items, of which 10 measure marital satisfaction while the other 5 measure conventional beliefs about degree of understanding and relationship success, sympathy, unmet needs, and regret. The latter domain was included to control for response bias or idealism. The tool takes approximately 5 minutes to complete. Topics include: communication, conflict resolution, financial satisfaction, intimacy, leisure, and familial relations.

Subjects respond to statements on a scale of 1 to 5 (1= strongly agree; 5=strongly disagree). Marital quality and conventional belief items are reverse summed and then converted to an overall marital satisfaction percentage score. Reverse summing protects against idealistic response bias. With the ENRICH scale, the higher the score, the higher the marital satisfaction.

The ENCRICH scale has been strongly correlated with the Locke-Wallace Inventory (Locke & Wallace, 1959) and the Dyadic Adjustment scale (Spanier, 1976). The test-retest reliability of the scale is .86 (Fowers & Olson, 1993).

Sociodemographic, Illness, and Marital Characteristics

The majority of the sample of COPD patients (43 or 64%) were male. The majority of spouses (41 or 61%) were female. As shown in Table 1, the mean age of COPD patients was 72.14 (sd= 7.79 years; range=50-86). The mean age of spouses was 70.04 (sd= 8.41 years; range=48-87). The age difference between patients and spouses was not statistically significant (t=1.083, 45 df, ns).

As noted in the introduction, FEV-1 scores indicates the degree of severity of respiratory obstruction expressed as a percentage of expected value for gender, age, weight, and height. The mean FEV-1 score for all COPD patients was 38%, indicating moderate COPD. Scores ranged from 15 to 94%.[2] Additionally, Table 1 shows a mean number of other chronic illnesses of 1.92 (sd=1.73; range=1-7). Examination of the data indicated that 23.1% of the sample had COPD only, 46.2 % had 1-2 other chronic illnesses while 29.7% of patients had 3 or more other chronic illnesses. The mean duration of marriage was 41.38 years (sd=13.86 years), with 42.4% of COPD patients married between 40-49 years and 29% being married for 50 or more years. The mean quality of marriage rating on a scale of 1-100 was 51.38, indicating moderate satisfaction (sd=15.15 years; range=27-99).

Table 1: COPD patient sociodemographic, illness context and marital characteristics (mean scores; n=67)

	N	x	sd	Range
age (Years)	57	72.14	7.79	50-86
FEV-1 (%)	49	38.02	18.15	15-94%
other chronic illnesses	65	1.92	1.73	0-7
duration of marriage (yrs.)	66	41.38	13.86	11-60
marital satisfaction rating	52	51.83	15.15	27-99

Transformation Of Interval Level Variables

The following independent variables have skewed distributions: FEV-1, numbers of other chronic illnesses (comorbidity), duration of marriage, and quality of marriage. Dependent variables with skewed distributions included all SIP scores for COPD patients and

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[2] Of the 49 COPD patients who provided an FEV-1 result, 16.3% had mild COPD, 36.8% had moderate COPD, and 46.9% had severe COPD.

spouses, COPD patient SGRQ activity impairment and symptoms scores, and spouse-patient SGRQ activity impairment and impact of disease scores. Transformations were respectively attempted in log formation, square root formation, and cube formation (SPSS, Inc., 1999).

The Smirnov-Kilmorov statistic (SPSS, Inc., 1999) was used to test the null hypothesis that transformed variables were not normally distributed at a 95% confidence level. COPD patient FEV-1 scores, all COPD patient and spouse SIP scores were log transformed. Duration of marriage and COPD patient SGRQ activity impairment scores were cubed. Normal distributions were not achieved by transformation of COPD patient SGRQ symptoms scores, marital satisfaction, numbers of other chronic illnesses, and spouse-patient activity impairment and impact of disease scores.

All possible variables were tested in their transformed state to strengthen statistical association testing, however, variable values were presented in raw form within cross-tabulation tables for the bivariate analyses.

Chapter 3:
RESULTS

In this section, the bivariate analyses followed by the multivariate analyses results will be presented. In both sections, findings will be reported separately for each hypothesis that was tested. Each hypothesis will be tested against each QOL subscore on the generic SIP and the disease-specific SGRQ scales. On the SIP, there are total, physical, and psychosocial subscores. For the SGRQ, physical QOL includes a symptoms and activity impairment subscore while psychosocial QOL is represented by an impact of disease subscore. In the bivariate analyses, a statistical association table showing only statistically significant findings (Table a) followed by a mean value or cross-tabular table (Table b) will be provided for each hypothesis tested. Multivariate hierarchical regression models will present significant and non-significant relationships in order to visually demonstrate how the addition of variable blocks impacted upon explained variance within each QOL score model. The reader should note that other than spouse gender, the independent variables tested reflect the evaluation of the impact that COPD patient context variables had on COPD patient QOL self-reports and on spousal QOL ratings of these same patients.

Bivariate Analysis

Hypothesis 1: As marital length and satisfaction increase, COPD patients' QOL increases (scores decrease)

We will now examine generic SIP and disease-specific SGRQ QOL scores by duration of marriage and then, by marriage satisfaction in order to see whether the marital environment shapes QOL perceptions among COPD patients. Duration of marriage categories were based on frequency distributions: 11-38 years, 40-49 years, 50+ years. For the marital satisfaction scale, scores were divided into quartiles of 25, 50, 75, and 100. These quartiles corresponded to poor, fair, good, and excellent marital satisfaction.

Duration of marriage and COPD patient QOL scores

As noted in Table 2a, SIP generic physical QOL scores were found to be significantly associated with duration of marriage among COPD patients but opposite to the hypothesized direction ($r=.280$, $p<.05$), indicating that the longer a COPD patient was married, the greater the level of physical impairment and the lower the QOL he/she perceived. For example, COPD patients married 40-49 years score lowest on the generic SIP physical QOL scores while couples married 50 or more years had the lowest QOL (highest scores) on the generic SIP. See Table 2b. However, generic SIP total QOL ($r=.126$, ns) and psychosocial QOL ($r=.207$, ns) scores were not found to be significantly related to duration of marriage

In summary, Hypothesis 1 was not supported using the generic SIP scale for marital duration.

Table 2a: Association between COPD patient generic Sickness Impact Profile (SIP) QOL scores and their duration of marriage

SIP score domain	Statistic
physical QOL	$r=.280^{*}$

$p<.05^{*}$, $p<.01^{**}$, $p<.001^{***}$

Table 2b: COPD patient's generic Sickness Impact Profile (SIP) QOL scores by their duration of marriage (mean scores; n=66)

COPD patient duration of marriage	total SIP		physical SIP		psychosocial SIP	
	N %	x sd	N %	x sd	N %	x sd
11-38 years	19 28.6%	12.65 11.18	**19** **26.2%**	**9.48** **12.67**	19 21.7%	8.42 8.76
40-49 years	24 29.8%	10.46 10.07	**24** **25.3%**	**7.2** **6.60**	24 34.9%	10.71 13.87
50 or more years	23 34%	15.24 11.43	**23** **48.5%**	**14.51** **15.76**	23 43.4%	13.90 14.33
Total	66 100%	12.76 10.90	**66** **100%**	**10.42** **12.41**	66 100%	11.16 12.46

From Table 3a, we see that disease-specific SGRQ total QOL scores (r=.248, p<.05) and impact of disease and duration of marriage (r=.286, p<.05) were significantly related to duration of marriage. These findings are, however, opposite to the hypothesized direction in that as marital satisfaction levels increase, the COPD patient's disease-specific SGRQ overall and psychosocial disease-specific QOL declines (scores increase). For example, the mean disease-specific SGRQ total QOL score among those married 11-38 years was 48.64 (sd=16.6); among those married 40-49 years it was 48.72 (sd=16.23); among those married 50 or more years it was 57.86 (sd=16.53). See Table 3b. Disease-specific SGRQ physical QOL scores: symptoms (tau c=.141, ns) and activity impairment (r=.123, ns) were, however, not significantly related to duration of marriage.

In sum, hypothesis 1 was not supported using the disease-specific SGRQ scale.

Table 3a: Association between COPD patient disease-specific St. George's Respiratory Questionnaire (SGRQ) QOL scores by their duration of marriage

SGRQ score domain	Statistic
total QOL	r=.248*
impact of disease (psychosocial QOL)	r=.286*

p<.05*, p<.01**, p<.001***

Table 3b: COPD patient's disease-specific St. George's Respiratory Questionnaire (SGRQ) QOL scores by their duration of marriage (mean scores; n=66)

COPD patient duration of marriage	total SGRQ		symptoms SGRQ (physical)		activity impairment SGRQ (physical)		impact of disease SGRQ (psychosocial)	
	N %	x sd	N %	x sd	N %	x sd	N %	x sd
11-38 years	**18*** **25.9%**	**48.64** **16.60**	19 26.3%	52.05 21.46	19 28.1%	68.31 19.58	**18*** **25.6%**	**37.18** **18.42**
40-49 years	**24** **34.6%**	**48.72** **16.23**	24 35.0%	54.97 28.80	24 35.8%	68.91 18.06	**24** **29.7%**	**32.36** **18.72**
50 or more years	**23** **39.4%**	**57.86** **16.52**	23 38.7%	63.42 20.76	23 36.1%	72.46 14.39	**23** **44.8%**	**50.96** **24.48**
Total	**65*** **100%**	**51.93** **16.77**	66 100%	57.07 24.30	66 100%	69.97 17.18	**65*** **100%**	**40.28** **22.12**

***subjects missing domain specific and total scores**

Marital satisfaction and COPD patient QOL scores

Differences in total (tau c=-.158, ns), physical (tau c=-.098, ns), and psychosocial (tau c=-.198, ns) generic SIP QOL scores shown in Table 4 were found not to be statistically significant.

Table 4: COPD patient's generic Sickness Impact Profile (SIP) QOL scores by his/her marital satisfaction rating (mean scores; n=52)

COPD patient marital satisfaction	total SIP		physical SIP		psychosocial SIP	
	N %	x sd	N %	x sd	N %	x sd
poor/fair	21 48.1%	15.47 12.48	21 52.6%	13.94 16.68	21 50.3%	14.77 14.65
good/excellent	31 51.9%	11.30 8.99	31 47.4%	8.53 7.50	28 37%	9.88 11.64
Total	52 100%	12.98 10.63	52 100%	10.71 12.22	52 100%	11.85 13.03

Table 5 presents COPD patient disease-specific SGRQ QOL scores by their marital satisfaction ratings. Marital satisfaction was, however, not significantly related to disease-specific SGRQ total QOL (tau c=-.139, ns), disease-specific SGRQ physical QOL:

symptoms (tau c=-.003, ns) and activity impairment (tau c=-.049, ns), as well as disease-specific SGRQ psychosocial QOL impact of disease (tau c=-.158, ns).

Table 5 : COPD patient's disease-specific St. George's Respiratory Questionnaire (SGRQ) QOL scores by his/her marital satisfaction rating (mean scores; n=52)

COPD patient marital satisfaction	total SGRQ		symptoms SGRQ (physical)		activity impairment SGRQ (physical)		impact of disease SGRQ (psychosocial)	
	N %	x sd	N %	x sd	N %	x sd	N %	x sd
poor/fair	21 42.3%	55.67 19.24	21 41.0%	59.43 24.01	21 40.4%	69.60 18.63	21 43.5%	45.74 24.07
good/excellent	31 57.7%	51.34 15.58	31 59.0%	57.95 26.68	31 59.6%	69.48 16.19	31 56.5%	40.23 21.28
Total	52 100%	53.09 17.10	52 100%	58.55 25.40	52 100%	69.53 17.04	52 100%	42.45 22.33

In summary, for *marital duration and satisfaction*, hypothesis 1 was not supported using the generic SIP and the disease-specific SGRQ QOL scales.

Hypothesis 2: Differences between COPD patients and their spouses will be greater for psychosocial domain scores than for physical domain scores

With respect to hypothesis 2, within couple differences were explored separately for each of the two QOL domains for the generic SIP and the disease-specific SGRQ at the bivariate level. Thereafter, a preliminary investigation of possible predictor variables was conducted at the multivariate level. These latter was intended to provide direction about independent variables that warrant further exploration in future research among COPD couples.

Generic QOL Sickness Impact Profile (SIP) Scores

In the SIP, the lower the score, the lower the degree of disease related disability and the higher the QOL. Scores are expressed as a percentage. The spouse's score reflects his/her perception of the COPD patient's QOL. Positive differences in the mean score indicate higher spousal scores compared to patient scores while negative differences indicate that the patients' scores are higher than the spouses' scores. Paired t-tests indicated whether spouse-patient differences were statistically significant.

In Table 6a, we see that this difference did reach statistical significance (t=2.687, 66 df, p<.01). The mean generic SIP physical QOL score for COPD patients was 10.40 (sd= 12.31); the mean spousal score was 12.22 (sd=13.09), yielding a mean difference of 1.82 (sd=5.57). See Table 6b. However, the mean generic SIP total QOL score (t=.962, 66 df, ns) and the generic SIP psychosocial QOL scores (t=.322, 66 df, ns) among spouses were not significantly different from COPD patient scores. See Table 6b.

Based on the division of scores into quartiles, a mean score of 25, 50, 75 and 100 correspond to excellent, good, fair, and poor QOL, the generally low scores on the generic SIP suggest that this sample perceived excellent generic QOL. However, COPD patients perceived the psychological impact of COPD to be greater than the physical impact (mean of 11.47 vs. 10.40) while spouses gave greater weight to the physical impact (mean of 11.92 vs. 12.22). See Table 6b.

Table 6a: Paired Samples t-test for comparing spouse with COPD patient generic Sickness Impact Profile (SIP) physical QOL scores

Paired Differences mean value	sd	df	t
-1.82**	5.56	66	2.687

p<.05*, p<.01, p<.001*****

Table 6b: Generic Sickness Impact Profile (SIP) QOL scores for COPD patients and their spouses (mean scores; n=67)

SIP score domain	N	x	sd	Statistic
COPD patient's total QOL score	67	12.86	10.85	t=.962
COPD patient total QOL score from spouse's perspective	67	13.58	10.47	
COPD patient's physical QOL score	**67**	**10.40**	**12.31**	**t=2.687****
COPD patient physical QOL score from spouse's perspective	**67**	**12.22**	**13.09**	
COPD patient's psychosocial QOL score	67	11.47	12.62	t=.322
COPD patient psychosocial QOL score from spouse's perspective	67	11.92	14.22	

p<.05*, p<.01, p<.001*** Statistically significant results are in bold type**

Disease-specific QOL St. George's Respiratory Questionnaire (SGRQ) Scores

In the disease-specific SGRQ, the lower the score, the lower the degree of disease-related disability and the higher the QOL. Scores are expressed as a percentage. The spouse score reflects his/her perception of the COPD patient's QOL. As in the SIP, positive differences in mean scores indicate higher spousal compared to patient scores while negative differences indicate that the patients' scores were higher than the spouses' scores. Paired t-tests and Wilcoxon matched pairs signed-rank tests identified whether spouse-patient differences were statistically significant.

As shown in Table 7b, as in the generic SIP, the mean disease-specific SGRQ total QOL score among spouses was not significantly different from the COPD patient (t=1.283, 61 df, ns). Disease-specific SGRQ physical QOL symptoms score (t=.683, 65 df, ns) and the activity impairment score (Z=.099, ns) differences were also not statistically significant.

From Table 7a, we see that differences in disease-specific SGRQ psychosocial QOL domain ie: impact of disease scores were, however, found to be statistically significant

(Z=3.110, p<.01). Spouses scored slightly higher on. The COPD patient mean score was 41.05 (sd=22.83); among spouses it was 47.29 (sd=23.12), yielding a mean difference of 5.6 (sd=19.57). See Table 7b.

In contrast to the generic SIP, higher disease-specific SGRQ scores suggest a lower perceived COPD patient QOL. Specifically, COPD patients and spouses rated patient QOL as fair to good. Both patients and spouses assigned higher scores to physical QOL ie: symptoms and activity impairment than psychosocial QOL ie: impact of disease, indicating that both the COPD patient and spouse perceived a greater physical than psychological impact from COPD.

Table 7a: Wilcoxon matched pairs signed-rank test for comparing spouse with COPD patient disease-specific St. George's Respiratory Questionnaire (SGRQ) psychosocial QOL impact of disease scores

	N	Mean Rank	Sum of Ranks	Statistic
Negative Ranks	16	35.94	575.00	Z=3.110**
Positive Ranks	48	31.35	1505.00	
Ties	0			
Total	64			

Negative rank= spouse score < COPD patient score; Positive rank= spouse score > COPD patient score; Ties= spouse score = COPD patient score

Table 7b: Disease-specific St. George's Respiratory Questionnaire (SGRQ) QOL scores for COPD patients and their spouses (mean scores; n=67)

SGRQ score domain	N	x	sd	Statistic
COPD patient's total QOL score	66	52.59	17.47	t=1.283, ns
COPD patient total QOL score from spouse's perspective	63	56.38	18.29	
COPD patient's symptoms score (physical QOL)	67	57.68	24.61	t=.683, ns
COPD patient symptoms score from spouse's perspective (physical QOL)	66	59.41	23.05	
COPD patient's activity impairment score (physical QOL)	67	70.42	17.44	Z=.099, ns
COPD patient activity impairment score from spouse's perspective (physical QOL)	66	70.21	18.72	
COPD patient's impact of disease score (psychosocial QOL)	**66**	**41.05**	**22.83**	**Z=3.110****
COPD patient impact of disease score from spouse's perspective (psychosocial QOL)	**65**	**47.29**	**23.12**	

p<.05*, p<.01, p<.001*** Statistically significant results are in bold type**

With respect to hypothesis 2, support was found using the disease-specific SGRQ but not the generic SIP QOL scale. The disease-specific SGRQ questionnaire scores also reflect greater impairment in QOL than the generic SIP questionnaire scores.

Hypothesis 3a: Female spouses will rate COPD patients' QOL lower than male spouses

Mean scores on the generic SIP scale presented in Table 8 according to spousal gender did not significantly differ for the generic SIP total (t=1.118, 64 df, ns), physical (t=1.564, 53 df, ns), and psychosocial (t=1.545, 47 df, ns) QOL scores. However, it is interesting to note that female spouse scores were highest for generic SIP physical QOL while male spouse scores were highest for generic SIP psychosocial QOL, indicating that male spouses perceived COPD as having a greater psychological impact than a physical impact on the patient.

Table 8: COPD patient generic Sickness Impact Profile (SIP) QOL scores from spouse's perspective by gender of spouse (mean scores; n=67)

Spouse Gender	total SIP		physical SIP		psychosocial SIP	
	N %	x sd	N %	x sd	N %	x sd
Female	41 57.9%	12.85 10.35	41 56.6%	11.31 13.00	41 54.2%	10.56 12.17
Male	26 42.1%	14.75 10.76	26 43.4%	13.67 13.36	26 45.8%	14.06 16.99
Total	67 100%	13.58 10.47	67 100%	12.22 13.09	67 100%	11.92 14.22

From Table 9, we see that disease specific SGRQ QOL scores did not significantly differ by spouse gender for disease-specific SGRQ total QOL (t=.498, 45 df, ns), physical QOL symptoms (t=1.089, 48 df, ns) and activity impairment (t=1.156, 45 df, ns), and psychosocial QOL impact of disease (t=.369, 50 df, ns) scores. Overall, spousal scores indicate that they perceive COPD patient disease-specific SGRQ QOL as fair to good.

Table 9: COPD patient disease-specific St. George's Respiratory Questionnaire (SGRQ) QOL scores from spouse's perspective by gender of spouse (mean scores; n=67)

Spouse Gender	total SGRQ		symptoms SGRQ (physical)		activity impairment SGRQ (physical)		impact of disease SGRQ (psychosocial)	
	N %	x sd	N %	x sd	N %	x sd	N %	x sd
Female	37* 59.8%	57.39 16.26	40* 63.2%	61.97 21.64	40* 62.5%	72.46 16.81	39* 61.1%	48.18 22.46
Male	26 40.2%	54.94 21.09	26 36.8%	55.46 24.99	26 37.5%	66.76 21.21	26 38.9%	45.97 24.47
Total	63* 100%	56.38 18.29	66* 100%	59.41 23.05	66* 100%	70.21 18.72	65* 100%	47.29 23.12

***subjects missing domain specific and total scores**

Hypothesis 3b: Male patients will rate their marital satisfaction higher than female patients

For the ENRICH Marital Satisfaction scale, higher scores indicate higher perceived marital satisfaction. The mean marital satisfaction score among male COPD patients was 49.39 (sd=14.75) compared with a mean of 55.43 (sd=15.36) for female patients. Gender differences did not, however, reach statistical significance (Z=1.448, ns).

In summary, hypothesis 3a was not supported. First, male spouses rated COPD patient QOL lower (gave higher scores) on all of the generic SIP domains. Although female spouses rated COPD patient QOL lowest (gave highest scores) on all disease-specific SGRQ domains, gender differences did not reach statistical significance. Finally, marital satisfaction ratings among COPD patients did not differ significantly by gender, therefore, hypothesis 3b was not supported.

Hypothesis 4: Female COPD patients will rate their QOL lower than male patients who have the same severity of COPD (FEV-1 rating)

From Table 10a, we see that in the mild COPD group, females had significantly higher scores (lower generic SIP QOL) for: total QOL (tau c=-.537, p<.05); physical QOL (tau c=-.646, p<.001); psychosocial QOL (tau c=-.646, p<.001). As seen in Table 10b, female COPD patient scores exceeded male patient scores on all generic SIP domains, indicating a lower QOL . However, gender differences were found to be the greatest among mild COPD groups (15-17%) for the total, physical, and psychosocial QOL scores. For example, for total QOL scores among mild COPD patients, the mean among females was 20.2 (sd=11.44); among males it was 6.06 (sd=3.88). A similar pattern is seen for generic SIP physical and psychosocial QOL. For example, for generic SIP physical QOL, the mean score for females was 18.30 (sd=8.47); for males it was 4.22 (sd=5.38). On generic SIP psychosocial QOL, the mean score for females was 21.23 (sd=15.15); for males it was 3.48 (sd=4.39). These findings strongly suggest that female COPD patients have a lower generic QOL and in particular, when COPD is at a mild stage.

No statistically significant gender differences were found on generic SIP total QOL scores for those with moderate (tau c=-.099, ns) and severe (tau c=-.076, ns) COPD; on generic SIP physical QOL scores for those with moderate (tau c=-.074, ns) and severe (tau c=-.121, ns) COPD; on generic SIP psychosocial QOL scores for those with moderate (tau c=-.099, ns) and severe (tau c=-.219, ns) COPD.

Overall, the scores suggest that when we account for disease severity by gender, male COPD patients perceive themselves as having excellent generic QOL while females do not.

Table 10a: Association between COPD patient generic Sickness Impact Profile (SIP) QOL scores and gender when controlling for his/her COPD severity (FEV-1 rating)

SIP score domain for Mild COPD group	Statistic
total QOL	tau c=-.537*
physical QOL	tau c=-.646***
psychosocial QOL	tau c=-.646***

p<.05*, p<.01**, p<.001***

Table 10b: Generic Sickness Impact Profile (SIP) QOL scores among COPD patients by gender controlling for his/her COPD severity or FEV-1 rating (mean scores; n=49)

Gender & FEV-1	total SIP		physical SIP		psychosocial SIP	
Female	N	x	N	x	N	x
	%	sd	%	sd	%	sd
mild	**3**	**20.20**	**3**	**18.30**	**3**	**21.23**
	10.9%	**11.44**	**12.5%**	**8.47**	**13.0%**	**15.15**
moderate	10	11.07	10	7.74	10	11.11
	20.0%	8.67	17.6%	7.58	22.6%	12.09
severe	7	16.10	7	13.81	7	16.50
	20.4%	16.24	22.0%	16.87	23.5%	17.19
Total	20	14.20	20	11.45	20	14.52
	51.3%	12.03	52.2%	11.89	59.1%	14.19
Male	N	x	N	x	N	x
	%	sd	%	sd	%	sd
mild	5	6.06	5	4.22	5	3.48
	5.5%	3.88	4.8%	5.38	3.5%	4.39
moderate	8	9.40	8	5.80	8	7.43
	13.6%	4.40	10.6%	3.86	12.1%	5.13
severe	16	10.25	16	8.90	16	7.74
	29.6%	6.29	32.4%	11.08	25.2%	7.45
Total	29	9.29	29	7.24	29	6.92
	48.7%	5.53	47.8%	8.80	40.9%	6.45
Total	N	x	N	x	N	x
	%	sd	%	sd	%	sd
mild	8	11.36	8	9.50	8	10.14
	16.4%	9.98	17.3%	9.49	16.5%	12.69
moderate	18	10.33	18	6.88	18	9.47
	33.6%	6.96	28.2%	6.13	34.7%	9.58
severe	23	12.03	23	10.4	23	10.40
	50.0%	10.32	54.5%	12.91	48.7%	11.64
Total	49	11.3	49	8.96	49	10.02
	100%	9.01	100%	12.91	100%	10.87

We will now examine disease-specific SGRQ QOL score differences among mild, moderate, and then severe COPD groups by gender. Among mild COPD groups, differences did not reach statistical significance on the disease-specific SGRQ scale: total

QOL (tau c=-.438, ns), physical QOL symptoms (tau c=.313, ns) and activity impairment (tau c=-.063, ns), as well as psychosocial QOL impact of disease (tau c=-.313, ns).

However, from Table 11a, among moderate COPD groups, we see that gender differences reached statistical significance for disease-specific SGRQ total QOL (tau c=.609, p<.01) and physical QOL symptoms (tau c=.765, p<.001) scores. As shown in Table 11b, males scored significantly higher on both domains. Among this same COPD severity group, disease-specific SGRQ physical QOL activity impairment (tau c=.432, ns) and psychosocial QOL impact of disease (tau c=.332, ns) score differences were not found to be statistically significant.

For the severe COPD group, differences were not statistically significant on disease-specific SGRQ total QOL (tau c=-.060, ns), physical QOL symptoms (tau c=.000, ns) and activity impairment (tau c=-.227, ns) as well as psychosocial QOL impact of disease (tau c=-.227, ns).

Overall, SGRQ scores suggest that males with moderate COPD had significantly lower disease-specific total or overall QOL and physical QOL than females with respect to symptoms.

Table 11a: Association between COPD patient disease-specific St. George's Respiratory Questionnaire (SGRQ) QOL scores and gender, by controlling for FEV-1 rating

SGRQ score domain for Moderate COPD group	Statistic
total QOL	tau c=.609**
symptoms (physical QOL)	tau c=.765***

p<.05*, p<.01**, p<.001***

Table 11b: Disease-specific St. George's Respiratory (SGRQ) QOL scores among COPD patients by gender controlling for COPD severity or FEV-1 rating (mean scores; n=49)

Gender & FEV-1	total SGRQ		symptoms SGRQ (physical)		activity impairment SGRQ (physical)		impact of disease SGRQ (psychosocial)	
Female	N	x	N	x	N	x	N	x
	%	sd	%	sd	%	sd	%	sd
mild	3	54.2	3	47.43	3	59.80	3	47.40
	6.7%	21.00	5.1%	36.69	5.3%	23.80	7.8%	29.65
moderate	9*	43.04	10	48.73	10	65.05	10	33.39
	16.0%	14.00	17.5%	22.40	19.1%	15.45	18.3%	28.40
severe	7	54.79	7	53.37	7	74.76	7	48.89
	15.8%	22.71	13.4%	33.13	15.4%	23.57	16.2%	26.09
Total	19*	49.13	20	50.16	20	67.66	20	47.24
	38.5%	18.52	36.0%	27.06	39.8%	19.40	42.0%	26.56
Male	N	x	N	x	N	x	N	x
	%	sd	%	sd	%	sd	%	sd
mild	5	43.42	5	53.40	5	61.38	5	29.78
	8.9%	16.72	9.6%	26.71	9.0%	22.57	8.1%	13.60
moderate	**8**	**56.91**	**8**	**73.28**	8	72.96	8	41.14
	18.8%	**6.97**	**21.0%**	**8.39**	17.1%	10.44	14.7%	9.78
severe	16	51.30	16	58.26	16	72.51	16	35.64
	33.8%	14.94	33.4%	18.63	34.1%	14.80	34.4%	21.31
Total	29	51.49	29	61.56	29	70.71	29	45.01
	61.5%	14.94	64%	19.04	60.2%	15.37	58.0%	19.39
Total	N	x	N	x	N	x	N	x
	%	sd	%	sd	%	sd	%	sd
mild	8	47.45	8	51.16	8	60.79	8	36.00
	15.6%	17.79	14.7%	28.32	14.3%	21.07	15.9%	16.08
moderate	17*	49.57	18	59.64	18	68.57	18	41.15
	34.7%	13.04	38.5%	21.27	36.3%	13.70	32.9%	23.57
severe	23	52.36	23	56.77	23	73.19	23	49.54
	49.6%	171.9	46.8%	23.26	49.5%	17.38	50.6%	23.40
Total	48*	50.55	49	56.91	49	69.47	49	45.92
	100%	15.71	100%	23.10	100%	17.00	100%	22.36

***subject(s) missing domain specific and total scores**

In summary, hypothesis 4 was only partially supported using the generic SIP scale as only female patients with mild COPD scored significantly higher than male patients on all domains. Hypothesis 4 was not supported using the disease-specific SGRQ scale as males scored significantly higher on total and physical (symptoms) QOL domains among those with moderate COPD. Furthermore, instances in which females scored higher (disease-specific SGRQ total QOL for mild COPD groups; disease-specific SGRQ physical QOL activity impairment among severe COPD groups; disease-specific SGRQ psychosocial QOL impact of disease among mild and severe groups) were not statistically significant.

Hypothesis 5: QOL scores will be related to COPD severity (FEV-1) for spouses but not for COPD patients

As seen in Table 12, spouses generic SIP QOL impairment score differences between COPD severity groups were small and were not statistically significant: total QOL (r=.084, ns); physical QOL (r=.041, ns); psychosocial QOL (r=.078, ns).

As seen in Table 13, among COPD patients, severity group differences were also small and were not statistically significant on the generic SIP scores: total QOL (r=.028, ns); physical QOL (r=.041, ns); psychosocial QOL (r=-.112, ns).

Table 12: COPD patient generic Sickness Impact Profile (SIP) QOL scores from spouse's perspective by patient COPD severity or FEV-1 rating (mean scores; n=49)

COPD patient FEV-1 rating	total SIP		physical SIP		psychosocial SIP	
	N %	x sd	N %	x sd	N %	x sd
mild	8 17.3%	12.63 11.09	8 15%	9.94 10.06	8 17%	11.0 15.07
moderate	18 34.1%	11.06 7.69	18 29.5%	8.68 7.23	18 32.7%	9.43 9.87
severe	23 48.6%	12.34 9.91	23 55.4%	12.75 14.56	23 50.3%	11.36 16.25
Total	49 100%	11.91 9.19	49 100%	10.8 11.58	49 100%	10.59 13.76

Table 13: COPD patient's generic Sickness Impact Profile (SIP) QOL scores by his/her COPD severity or FEV-1 rating (mean scores; n=49)

COPD patient FEV-1 rating	total SIP		physical SIP		psychosocial SIP	
	N %	x sd	N %	x sd	N %	x sd
mild	8 17.3%	11.36 9.98	8 25%	9.5 9.49	8 17%	10.14 12.67
moderate	18 34.1%	10.33 6.96	18 29.5%	6.88 6.13	18 32.7%	9.47 9.58
severe	23 48.6%	12.03 10.32	23 55.4%	10.40 12.91	23 50.3%	10.40 11.64
Total	49 100%	11.3 9.01	49 100%	8.96 10.27	49 100%	10.02 10.87

As seen in Table 14, spouses disease-specific SGRQ score differences between severity groups were small and were not statistically significant: total QOL (r=-.075, ns); physical QOL symptoms (r=-.198, ns) and activity impairment (r=-.222, ns); psychosocial QOL impact of disease (r=-.081, ns).

As seen in Table 15, COPD patients between severity group disease-specific SGRQ QOL score differences were small and were not statistically significant: total QOL (r=-.075, ns); physical QOL symptoms (tau c=-.131, ns) and activity impairment (r=-.271, ns); psychosocial QOL impact of disease (r=-.081, ns).

Table 14: COPD patient disease-specific St. George's Respiratory Questionnaire (SGRQ) QOL scores from spouse's perspective by patient COPD severity or FEV-1 rating (mean scores; n=49)

COPD patient FEV-1 rating	total SGRQ		symptoms SGRQ (physical)		activity impairment SGRQ (physical)		impact of disease SGRQ (psychosocial)	
	N	x	N	x	N	x	N	x
	%	sd	%	sd	%	sd	%	sd
mild	7*	58.56	7*	53.16	8	62.98	8	46.23
	15.7%	14.06	13%	24.84	15.2%	15.47	16.4%	16.08
moderate	18	50.68	18	57.52	18	67.31	18	41.15
	34.9%	19.08	36.1%	26.41	36.4%	19.56	32.9%	23.57
severe	22*	58.74	23	63.49	22*	73.15	23	49.54
	49.4%	17.32	50.9%	21.24	48.4%	16.88	50.6%	23.38
Total	47*	55.63	48*	59.74	48*	69.27	49	45.92
	100%	17.69	100%	23.61	100%	17.79	100%	22.36

***subject(s) missing domain specific score and total score**

Table 15: COPD patient's disease-specific St. George's Respiratory Questionnaire (SGRQ) QOL scores by his/her COPD severity or FEV-1 rating (mean scores; n=49)

COPD patient FEV-1 rating	total SGRQ		symptoms SGRQ (physical)		activity impairment SGRQ (physical)		impact of disease SGRQ (psychosocial)	
	N	x	N	x	N	x	N	x
	%	sd	%	sd	%	sd	%	sd
mild	8	47.45	8	51.16	8	60.79	8	36.50
	15.6%	17.79	14.7%	28.32	14.3%	21.07	15.9%	21.05
moderate	17*	49.57	18	59.64	18	68.57	17*	37.51
	34.7%	13.04	38.5%	21.27	36.3%	13.70	34.6%	21.58
severe	23	52.36	23	56.77	23	73.19	23	39.67
	49.6%	17.19	46.8%	23.26	49.5%	17.38	49.5%	23.11
Total	48*	50.55	49	56.91	49	69.47	48*	38.38
	100%	15.71	100%	23.10	100%	17.00	100%	21.82

***subject(s) missing domain specific score and total score**

In summary, hypothesis 5 was supported on the two QOL scales among patients and not their spouses.

Hypothesis 6: Patients with other chronic illnesses in addition to COPD will rate their QOL lower than those with COPD alone

QOL scores among those with COPD only to those with COPD and other chronic illnesses for the generic SIP and the disease-specific SGRQ are presented in Table 16. Mean score differences between these two groups did not reach statistical significance for generic SIP total QOL (t=1.28, 64 df, ns), generic SIP physical QOL (t=1.615, 64 df, ns), and for generic SIP psychosocial QOL (t=1.176, 64 df, ns).

Table 16: COPD patient's generic Sickness Impact Profile (SIP) QOL scores by presence of comorbidity (mean scores; n=65)

Presence of comorbidity	total SIP		physical SIP		psychosocial SIP	
	N %	x sd	N %	x sd	N %	x sd
COPD only	15 19.1%	10.26 9.41	15 18.7%	8.02 11.67	15 19.5%	9.45 12.8
COPD and other illnesses	50 80.9%	13.07 10.23	50 81.3%	10.46 11.29	50 80.5%	11.74 12.31
Total	65 100%	12.43 10.04	65 100%	9.90 11.34	65 100%	11.21 12.36

As seen with the SIP, Table 17a reveals that score differences between those with COPD and other chronic illnesses and those with COPD alone were not statistically significant for disease-specific SGRQ total QOL (t=.951, 62 df, ns), disease-specific SGRQ physical QOL activity impairment (t=.730, 63 df, ns), or disease-specific SGRQ psychosocial QOL impact of disease (t=.626, 62 df, ns). However, from Table 17a, differences in disease-specific SGRQ symptoms scores reached statistical significance (t=2.271, 63 df, p<.05). From Table 17b, we see that mean scores on disease-specific SGRQ symptoms scores were higher for those with COPD and other chronic illnesses than those with COPD only (61.68 vs. 44.93).

Table 17a: Independent t-test for disease-specific St. George's Respiratory Questionnaire (SGRQ) physical QOL (symptoms) scores among COPD patients by presence of comorbidity

Presence of comorbidity	n	mean score	sd	Statistic
COPD only	15	44.93	23.40	
COPD and other illnesses	50	61.68	25.95	t=2.371*

p<.05*, p<.01**, p<.001**

Table 17b: COPD patient's disease-specific St. George's Respiratory Questionnaire (SGRQ) QOL scores by presence of comorbidity (mean scores; n=65)

Presence of comorbidity	total SGRQ		symptoms SGRQ (physical)		activity impairment SGRQ (physical)		impact of disease SGRQ (psychosocial)	
	N %	x sd	N %	x sd	N %	x sd	N %	x sd
COPD only	15 21%	47.01 19.85	**15** **17.9%**	**44.93** **25.95**	15 21.5%	65.56 17.02	15 21.2%	36.84 29.06
COPD and other illnesses	49* 79%	54.06 16.1	**50** **82.1%**	**61.68** **23.40**	50 78.5%	71.74 17.01	49* 78.8%	41.93 20.41
Total	64* 100%	52.41 17.15	**65** **100%**	**57.81** **24.84**	65 100%	70.32 17.08	64* 100%	40.74 22.58

***subjects missing domain specific and total scores**

In summary, patients within the sample who had COPD and other chronic illnesses generally had lower QOL. However, hypothesis 6 was only partially supported for the disease-specific SGRQ physical QOL symptoms domain. All generic SIP QOL score differences did not reach statistical significance.

Multivariate Analysis of COPD patient self-ratings and spouse QOL ratings of the COPD patient

All independent variables were tested in a multivariate model with all QOL scores in order to isolate the effects of each on all domain scores and to detect whether bivariate level relationships replicate, change, or disappear. Hierarchical regression entails entering independent variables into blocks permitting the detection of additions to explained variance and changes in strength and/or direction of variable associations (SPSS, Inc., 1998).

COPD patient scores (self-report), spouse scores (spouses perception of the COPD patient's QOL), and differential scores (spouse-patient scores) were tested in separate regression models. Differential regression modeling was exploratory and incorporated the same independent variables in the COPD patient and spousal models. From Table 18, the independent variable correlation matrix revealed that collinearity existed between COPD patient and spouse gender ($r=-.938$). Therefore, separate modeling was done for the COPD patient and spouse.

For the spousal regression models, the variables of interest were spouse gender and the severity of a patient's COPD (FEV-1). The remainder of patient context variables as well as spousal age were placed within the model to further test the predictive power of these two variables.

The age of both the patient and spouse were placed in regression models to control for any effects on ratings of patient QOL.

Regression Table 18: Correlations between independent variables

		age of COPD patient	age of spouse	COPD patient gender	gender of spouse	COPD patient FEV-1	numbers of other chronic illnesses among COPD patients	COPD patient marital satisfactio rating	duration of marriage
age of COPD patient	Pearson Correlation	1.000	.670**	.005	-.034	.022	.096	-.148	.436**
	Sig. (2-tailed)	.	.000	.970	.802	.887	.487	.326	.001
	N	57	46	57	57	43	55	46	56
age of spouse	Pearson Correlation	.670**	1.000	-.337*	.356*	-.084	.037	.003	.544**
	Sig. (2-tailed)	.000	.	.019	.013	.617	.802	.987	.000
	N	46	48	48	48	38	48	40	48
COPD patient gender	Pearson Correlation	.005	-.337*	1.000	-.938**	-.266	-.146	-.198	-.078
	Sig. (2-tailed)	.970	.019	.	.000	.065	.246	.160	.535
	N	57	48	67	67	49	65	52	66
gender of spouse	Pearson Correlation	-.034	.356*	-.938**	1.000	.205	.183	.198	.063
	Sig. (2-tailed)	.802	.013	.000	.	.158	.144	.160	.617
	N	57	48	67	67	49	65	52	66
COPD patient FEV-1	Pearson Correlation	.022	-.084	-.266	.205	1.000	.128	.261	-.164
	Sig. (2-tailed)	.887	.617	.065	.158	.	.381	.104	.259
	N	43	38	49	49	49	49	40	49
numbers of other chronic illnesses among COPD patients	Pearson Correlation	.096	.037	-.146	.183	.128	1.000	.114	-.087
	Sig. (2-tailed)	.487	.802	.246	.144	.381	.	.427	.495
	N	55	48	65	65	49	65	51	64
COPD patient marital satisfaction rating	Pearson Correlation	-.148	.003	-.198	.198	.261	.114	1.000	-.140
	Sig. (2-tailed)	.326	.987	.160	.160	.104	.427	.	.321
	N	46	40	52	52	40	51	52	52
duration of marriage	Pearson Correlation	.436**	.544**	-.078	.063	-.164	-.087	-.140	1.000
	Sig. (2-tailed)	.001	.000	.535	.617	.259	.495	.321	.
	N	56	48	66	66	49	64	52	66

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Hierarchical Regression Models of QOL among COPD patients

COPD patient generic SIP physical QOL

Model 1 was statistically significant (F=7.821, 30 df, p<.01). Independent variables included COPD patient age and gender. Model 1 explained 35.8% of the variance in generic physical QOL among COPD patients. Age was statistically significant (b=.553, se=.007, p<.001) and had a moderate and positive association with generic SIP physical QOL scores. Gender, however, was not statistically significant. As patients aged, their physical QOL scores increased and their QOL was lower, regardless of gender. See Table 19.

Model 2 was statistically significant (F=7.215, 30 df, p<.001). Independent variables added were COPD severity (FEV-1) and comorbidity. Model 2 explained an additional 16.8% of the variance in generic SIP physical QOL scores. With the addition of illness context variables, the age association strengthened but remained positive (b=.569, se=.007, p<.001). Gender now became statistically significant (b=-.309, se=.097, p<.05), indicating that female patients had lower generic physical QOL (higher scores). COPD severity (FEV-1) was statistically significant and had a moderate and inverse relationship with generic physical QOL scores (b=-.457, se=.289, p<.01). Specifically, as COPD severity increased, generic SIP physical QOL increased (scores decreased). Comorbidity did not contribute statistically to the model. See Table 19.

The final model was also statistically significant (F=5.322, 30 df, p<.001). Marital context variables were added: duration and satisfaction of marriage. Model 3 explained an additional 4.5% of the variance in generic SIP physical QOL scores. When we controlled for the marital duration and satisfaction, age findings were again replicated but gender was no longer statistically significant. This finding indicated that patient age, not patient gender, had the greatest influence on generic SIP QOL scores, when all other variables were controlled for. The COPD severity (FEV-1) association strengthened but remained inverse (b=-.506, se=.316, p<.01). Presence of comorbidity among COPD patients remained not statistically significant, indicating that disease severity was still a stronger predictor of generic SIP QOL scores when all other variables were controlled for. Marital duration and satisfaction did not statistically contribute to the model, indicating that it did not strongly influence generic SIP physical QOL scores among patients within the sample. The final model provides no empirical support for COPD patient hypotheses 1, 4, 5, & 6. See Table 19.

COPD patient generic SIP psychosocial QOL

Model 1 was statistically significant (F=3.755, 33 df, p<.05). Independent variables included patient age and gender. Model 1 explained 19.5% of the variance in generic SIP psychosocial QOL scores among COPD patients. Gender was statistically significant (b=-.380, se=.142, p<.05) but age was not. Females had lower QOL (higher scores) than males, regardless of age. See Table 19.

Model 2 was also statistically significant (F=5.191, 33 df, p<.01). Additional independent variables included COPD severity (FEV-1) and presence of comorbidity. Model 2 explained an additional 22.2% of the variance in generic SIP psychosocial QOL impairment. When we controlled for the COPD patient's illness context, age was still not statistically significant. Additionally, the gender association strengthened but its direction remained unchanged (b=-.443, se=.126, p<.01), indicating that females had lower generic SIP psychosocial QOL, regardless of COPD severity or numbers of other chronic illnesses patients had. COPD severity (FEV-1) had a significantly moderate and inverse relationship with generic SIP psychosocial QOL indicating that as COPD severity increased, QOL increased (scores decreased): b=-.437, se=.367, p<.01. Comorbidity had a significantly moderate and positive association with generic SIP psychosocial QOL, indicating that as numbers of other chronic illnesses increased among COPD patients, their generic SIP psychosocial QOL decreased (scores increased): b=.391, se=.040, p<.05. See Table 19.

The final model was also statistically significant (F=3.531, 33 df, p<.01). Additional variables included marital duration and satisfaction. Model 3 explained an additional 2.2% of the variance in generic SIP psychosocial QOL. When we controlled for all other variables, age remained not statistically significant while gender remained unchanged (b=-.443, se=.132, p<.01). When all other variables were controlled for, female patients still had lower generic SIP psychosocial QOL (higher scores). The previous COPD severity (FEV-1) association weakened but the direction remained unchanged (b=-.368, se=.409, p<.05). The comorbidity association also weakened and remained unchanged (b=.384, se=.041, p<.05). The latter two findings indicate that when all other variables are controlled for, as COPD severity increases, generic SIP psychosocial QOL increases (scores decrease). Furthermore, as the numbers of other chronic illnesses in addition to COPD increase, generic SIP psychosocial QOL decreases (scores increase). Duration and satisfaction of marriage were found not to be statistically significant. When all other variables were statistically controlled for, it explained little of the variance in their generic SIP psychosocial QOL scores. Gender, COPD severity (FEV-1) and presence of comorbidity explained the most variance. The final model provides empirical support for COPD patient hypotheses 4 and 6. COPD patient hypotheses 1 and 5 were not supported. See Table 19.

COPD patient disease-specific SGRQ physical QOL (symptoms)

Model 2 was statistically significant (F=2.730, 36 df, p<.05) and explained 25.4% of the variance in disease-specific SGRQ symptoms scores. Model 2 variables included age, gender, COPD severity (FEV-1) and comorbidity. Only gender (b=.354, se=7.376, p<.05) and COPD severity (FEV-1) were statistically significant (b=-.329, se=21.401, p<.05). Gender had a moderate and positive relationship with symptoms scores while COPD severity (FEV-1) had a moderate inverse relationship, indicating that males had higher symptoms scores but as COPD severity (FEV-1) increased, disease-specific SGRQ QOL increased (scores decreased). Being a male patient with a milder form of COPD led to lower disease-specific QOL with respect to COPD symptoms. Comorbidity had not significant influence on symptoms scores among COPD patients in the sample. The final model provides no empirical support for COPD patient hypotheses 1, 4, 5, and 6. See Table 20.

COPD patient disease-specific SGRQ physical QOL (activity impairment)

Model 2 was statistically significant (F=2.690, 36 df, p<.05). Independent variables included age, gender, COPD severity (FEV-1), and comorbidity. Model 2 explained 25.2% of the variance in activity impairment scores among COPD patients. Only FEV-1 was statistically significant (b=-.465, se=21.40, p<.05) and had a moderate inverse relationship with physical QOL ie: activity impairment. Specifically, as COPD severity or FEV-1 scores increased, QOL increased (scores decreased). The final model provides no empirical support for COPD patient hypotheses 1, 4, 5, and 6. See Table 20.

Hierarchical regression COPD patient models found not to be statistically significant include the SIP total QOL, the disease-specific SGRQ total QOL, and disease-specific SGRQ psychosocial QOL impact of disease.

Table 19: COPD patient generic Sickness Impact profile (SIP) QOL hierarchical regression models

Model	Variable name	Beta coefficient	Standard error	R square	R square change
SIP Physical QOL Model 1 F=7.821**				.358	
	Age	.553***	.007		
	Gender	-.200	.105		
SIP Physical QOL Model 2 F=7.215***				.526	.168
	Age	.569***	.007		
	Gender	-.309*	.097		
	FEV-1	-.457**	.289		
	Comorbidity	.246	.030		
SIP Physical QOL Model 3 F=5.322***				.571	.045
	Age	.541***	.007		
	Gender	-.266	.101		
	FEV-1	-.506**	.316		
	Comorbidity	.260	.030		
	Marital duration	.094	.000		
	Marital satisfaction	.241	.003		
SIP Psychosocial QOL Model 1 F=3.755*				.195	
	Age	.215	.010		
	Gender	-.380*	.142		
SIP Psychosocial QOL Model 2 F=5.191**				.417	.222
	Age	.224	.009		
	Gender	-.443**	.126		
	FEV-1	-.437**	.367		
	Comorbidity	.391**	.040		
SIP Psychosocial QOL Model 3 F=3.531**				.440	.022
	Age	.186	.010		
	Gender	-.443**	.132		
	FEV-1	-.368*	.409		
	Comorbidity	.384*	.041		
	Marital duration	.089	.000		
	Marital satisfaction	-.119	.005		

*p<.05, **p<.01, ***p<.001

Table 20: COPD patient disease-specific St. George's Respiratory Questionnaire (SGRQ) QOL hierarchical regression models

Model	Variable name	Beta coefficient	Standard error	R square	R square change
SGRQ Symptoms				.254	.254
(physical QOL)	Age	-.004	.551		
Model 2 F=2.730*	Gender	.354*	7.376		
	FEV-1	-.329*	21.401		
	Comorbidity	.073	2.368		
SGRQ Activity				.252	.252
Impairment					
(physical QOL)					
Model 2 F=2.690*	Age	.128	.464		
	Gender	.151	5.807		
	FEV-1	-.465*	.177		
	Comorbidity	.201	1.804		

*p<.05, **p<.01, ***p<.001

Hierarchical Regression Models of spousal QOL ratings of the COPD patient

Spousal ratings of COPD patient generic SIP physical QOL

Spousal Model 2 was statistically significant (F=3.734, 26 df, p<.05). Independent variables included COPD patient and spouse age and spouse gender as well as COPD severity (FEV-1) and comorbidity among patients. Model 2 explained 47.1% of the variance in spousal generic SIP physical QOL scores. Comorbidity (moderate positive) and FEV-1 (moderate inverse) had a statistically significant relationship with spouses' scores of COPD patient generic SIP physical QOL. Specifically, as numbers of other chronic illnesses among COPD patients increased, the spouses' perception of the COPD patient generic SIP physical QOL decreased (spousal scores increased): b=.401,se=.030, p<.05. Secondly, as COPD severity increased among patients, spouse scores of COPD patient generic SIP physical QOL decreased (b=-.461, se=.301, p<.05). Spouses were influenced by their COPD partner's disease severity and numbers of other chronic illnesses, not by their own age or gender or their COPD partner's age. See Table 21.

The final model was also statistically significant (F=2.999, 26 df, p<.05). Additional independent variables included COPD patient marital duration and satisfaction. Model 3 explained an additional 5.4% of the variance in generic physical QOL impairment scores that spouses assigned to COPD patients. When we controlled for COPD patient marital duration and satisfaction, spousal age and gender as well as patient age remained not statistically significant. COPD severity or FEV-1 (b=-.508, se=.304, p<.05) and comorbidity (b=.399, se=030, p<.05) findings from model 2 were replicated. COPD patient duration and quality of marriage were, however, found not to be statistically significant. Patients with milder forms of COPD and other chronic illnesses were rated as having significantly lower physical QOL (higher scores) by their spouses. The final spouse model provides empirical support for the second of the two spousal hypotheses (ie: hypothesis 5), however, in a direction opposite to what was hypothesized. See Table 21.

Spousal ratings of COPD patient disease-specific SGRQ physical QOL (symptoms)

Model 2 was statistically significant (F=3.743, 32 df, p<.05). Independent variables included COPD patient and spouse age and spouse gender as well as COPD severity (FEV-1) and comorbidity among patients. Model 2 explained 37.7% of the variance in disease-specific SGRQ physical QOL symptoms scores spouses assigned to COPD patients. Spousal gender was statistically significant (b=-.409, se=9.452, p<.05). Female spouses gave significantly higher scores and therefore, rated patients physical QOL, with respect to symptoms, lower. Spouse and COPD patient age had no statistically significant role in influencing these ratings. COPD severity (FEV-1) and patient comorbidity had a statistically significant relationship with spouse scores of disease-specific SGRQ physical QOL with respect to symptoms. COPD severity (FEV-1) demonstrated a moderate and inverse relationship, indicating that as COPD severity increased among patients, spousal perceptions of COPD patient disease-specific SGRQ physical QOL with respect to symptoms decreased (spousal scores increased): b=-.409, se=24.114, p<.05. The comorbidity association was moderate and positive, indicating that as the number of other chronic illnesses increased, spousal perceptions of COPD patient disease-specific SGRQ physical QOL with respect to symptoms decreased (spousal scores increased): b=.360, se=2.521, p<.05. See Table 22.

The final model was also statistically significant (F=2.719, 32 df, p<.05). Additional independent variables included COPD patient marital duration and satisfaction. Model 3 explained an additional 5.5% of the variance in spouses' disease-specific SGRQ physical QOL symptoms scores. When we controlled for all other variables, spouse gender findings were replicated (b=-.397, se=9.462, p<.05). Specifically, female spouses gave higher disease-specific SGRQ physical QOL symptoms scores to COPD patients. Spouse and patient age remained not statistically significant. The association between COPD severity (FEV-1) and disease-specific SGRQ physical QOL symptoms scores of spouses weakened but the direction stayed the same (b=-.396, se=24.06, p<.05). The comorbidity association strengthened but remained the same in terms of direction (b=.362, se=2.502, p<.05). Both again, indicate that spouses perceived physical QOL (symptoms) to be lower (gave higher scores) among patients with milder forms COPD and with chronic illnesses in addition to COPD. COPD patient duration and satisfaction of marriage did not contribute statistically to the model. The final model provides empirical support for both spousal hypotheses (ie:

hypothesis 3a and 5). As was found with the final spousal SIP model, the direction of the FEV-1 association was opposite to that which was hypothesized. See Table 22.

Hierarchical regression spouse models found not to be statistically significant include the generic SIP total and psychosocial QOL. For the disease-specific SGRQ scale, total QOL, physical QOL activity impairment, and psychosocial QOL impact of disease were found not to be statistically significant. COPD patient gender did not alter any of the previous spousal model findings.

Table 21: Spousal ratings of COPD patient generic Sickness Impact profile (SIP) QOL hierarchical regression models

Model	Variable	Beta Coefficient	Standard error	R square	R square change
SIP Physical QOL Model 2 F=3.734*				.471	.471
	Patient Age	.512	.011		
	Spousal Age	-.049	.010		
	Spousal Gender	.352	.116		
	FEV-1	-.461*	.301		
	Comorbidity	.401*	.030		
SIP Physical QOL Model 3 F=2.999*				.525	.054
	Patient Age	.424	.012		
	Spousal Age	.072	.011		
	Spousal Gender	.316	.118		
	FEV-1	-.508*	.304		
	Comorbidity	.399*	.030		
	Marital duration	-.061	.000		
	Marital satisfaction	.233	.003		

*p<.05, p<.01**, p<.001***

Table 22: Spousal ratings of COPD patient disease specific St. George's Respiratory Questionnaire (SGRQ) QOL hierarchical regression models

Model	Variable	Beta Coefficient	Standard error	R square	R square change
SGRQ Symptoms (physical QOL) Model 2 F=3.743*				.377	.377
	Patient Age	-.271	.984		
	Spouse Age	.273	.827		
	Spouse Gender	-.409*	9.452		
	FEV-1	-.409*	24.114		
	Comorbidity	.360*	2.521		
SGRQ Symptoms (physical QOL) Model 3 F=3.192*				.432	.055
	Patient Age	-.153	1.037		
	Spouse Age	.014	.979		
	Spouse Gender	-.397*	9.462		
	FEV-1	-.396*	24.06		
	Comorbidity	.362*	2.502		
	Marital duration	.306	.000		
	Marital satisfaction	.026	.271		

*p<.05, p<.01**, p<.001***

Hierarchical Regression Models of QOL difference scores (spouse- patient)

Spouse-patient disease-specific SGRQ psychosocial QOL impact of disease score differences

Only model 1 was found to be statistically significant (F=4.649, 24 df, p<.05). Independent variables included COPD patient and spousal gender and age. Model 1 explained 39.9% of the variance in disease-specific SGRQ psychosocial QOL impact of disease score differences. Patient gender was statistically significant (b=.541, se=.194, p<.05), indicating that male COPD patients felt significantly different than their spouse did regarding their disease-specific SGRQ psychosocial QOL. Age of the spouse was also statistically significant (b=1.043, se=.016, p<.01), indicating that differences in QOL perceptions between couples were greatest among older spouses . COPD patient age was statistically significant (b=-.603, se=.019, p<.05), indicating that as differences in perceptions were greatest when the male COPD patient was younger than his spouse. See Table 23. When spouse gender was placed in the model, identical beta coefficients and explained variance were obtained

Table 23: Spouse-patient difference scores on disease-specific SGRQ psychosocial QOL impact of disease with patient gender only

Model	Variable	Beta Coefficient	Standard error	R square	R square change
SGRQ Impact of disease (psychosocial QOL)				.399	.399
Model 1 F=4.649*	Spousal Age	1.043**	.016		
	COPD patient Age	-.603*	.019		
	COPD patient Gender	.541*	.194		

p<.05*, p<.01**, P<.001***

Residual difference models found not to be statistically significant include the generic SIP total QOL, physical QOL and psychosocial QOL. Also, disease-specific SGRQ total and physical QOL (symptoms and activity impairment) were found not to be statistically significant.

Hierarchical Regression Models of Marital Satisfaction by COPD patient gender

The regression model testing for marital satisfaction differences by gender among COPD patients was found not to be statistically significant.

Summary of support for hypotheses found in the present study

In sum, the following hypotheses were supported at the bivariate level: support for Hypothesis 2 with respect to spouse-patient disease-specific SGRQ psychosocial QOL perception differences (impact of disease); Hypothesis 4 with respect to female patients with mild COPD having lower generic SIP QOL than males; Hypothesis 5 with respect to COPD patient ratings of QOL having no significant relationship with his/her FEV-1 score (COPD severity); Hypothesis 6 with respect to patients with other chronic illnesses in addition to COPD having significantly lower disease-specific SGRQ physical QOL (symptoms) than those with COPD alone.

At the multivariate level, Hypothesis 2 was supported in that spouse-patient differences in disease-specific SGRQ psychosocial QOL (impact of disease) perceptions were found to be statistically significant. With respect to Hypothesis 4, the bivariate finding that female COPD patients had lower generic SIP psychosocial QOL than males was replicated. Additional statistically significant associations found only at the multivariate level included: Hypothesis 3a with respect to female spouses rating COPD patients lower disease-specific SGRQ physical QOL symptoms than male spouses; partial support for Hypothesis 5 with respect to COPD severity (FEV-1) being significantly related to spouse ratings of COPD patient generic SIP physical QOL as well as disease-specific SGRQ physical QOL (symptoms). The FEV-1 association was, however, in a direction opposite to that which was hypothesized. Also, COPD patient physical QOL scores on the SGRQ and the SIP as well as SIP psychosocial QOL scores were also significantly and inversely related to his/her stage of COPD severity (FEV-1 score); Hypothesis 6 with respect to COPD patients with comorbidity having significantly lower generic SIP psychosocial QOL. Table 24 and Table 25 respectively present a schematic summary of all the bivariate and multivariate findings of this study.

Summary of support for hypotheses at the bivariate level

Table 24: Bivariate Analysis

Key Variables						
	Generic SIP scale			Disease-specific SGRQ scale		
	Total	Physical	Psychos	Total	Physical	Psychos
1 Marital duration and satisfaction	ns	ns	ns	ns	ns	ns
2 spouse-patient QOL score differences: psychosocial>physical	ns			impact of disease score differences greater than both physical QOL score differences**		
3a spousal gender	ns	ns	ns	ns	ns	ns
3b Marital satisfaction and COPD patient gender ns						
4 COPD patient gender controlling for FEV-1 (COPD severity)	mild COPD *	mild COPD ***	mild COPD ***	ns	ns	ns
5 spouse scores and FEV-1	ns	ns	ns	ns	ns	ns
6 comorbidity	ns	ns	ns	ns	symptoms*	ns

Psychos = psychosocial QOL domain; p<.05*, p<.01**, p<.001*** (ns = not supported)

Summary of support for hypotheses at the multivariate level

Table 25: Multivariate Analysis

Key Variables	Generic SIP scale			Disease-specific SGRQ scale		
	Total	Physical	Psychos	Total	Physical	Psychos
1 Marital duration and satisfaction	ns	ns	ns	ns	ns	ns
2 spouse-patient QOL score differences: psychosocial>physical	ns			impact of disease score differences greater than both physical QOL score differences Model 1*		
3a spousal gender	ns	ns	ns	ns	symptoms Model 3*	ns
3b Marital satisfaction and COPD patient gender ns						
4 COPD patient gender	ns	ns	Model 3**	ns	ns	ns
5 spouse FEV-1 (COPD severity)	ns	Model 3*	ns	ns	symptoms Model 3*	ns
6 comorbidity	ns	ns	Model 3*	ns	ns	ns

p<.05*, p<.01**, p<.001*** (ns = not supported)

Model 1=sociodemographics Model 2=add illness context Model 3=add Marital context

Chapter 4
DISCUSSION

The first part of this section will summarize issues in the literature. Next, bivariate and multivariate findings for all hypotheses and how they relate to the literature will be discussed. Additionally, implications and limitations of the findings will be addressed. Finally, suggestions for future research will be presented.

Literature issues in relation to the present study

This thesis attempted to address some gaps and issues within the COPD literature. First, does marital social support buffer QOL among COPD patients? Specifically, what role does marital satisfaction and duration have? Next, would there be significant differences between COPD patients' perception of QOL and their spouse's perception of the patients' QOL? If so, would differences be greater for psychosocial QOL scores? Which, if any, study variables might add to our understanding of such differences? Additionally, would male COPD patients perceive higher life quality than females? How do patients with comorbidity differ with respect to QOL among COPD groups? With respect to spouses, what is the role of spouse gender in relation to their proxy QOL reports? Secondly, what role, if any, does COPD severity

(FEV-1) have on spouse ratings of COPD patient QOL? Finally, what guidance do these variables provide for day to day nursing care that could enrich QOL among COPD patients ?

In this section, results for each hypothesis addressing the above questions will be discussed. Findings not supportive of these hypotheses will be examined in relation to the existing literature and/or where appropriate, through hypothetical conjectures.

Results with respect to literature issue

Hypothesis 1: As marital duration and quality increases, COPD patient QOL will increase (QOL scores will decrease)

With respect to Hypothesis 1, at the bivariate level, as marital duration increased, generic SIP physical QOL significantly decreased (higher scores). A similar pattern was noted for disease-specific SGRQ total and psychosocial (impact of disease) QOL. These findings are opposite to that which was hypothesized as they suggest that long term marriage may not be a buffer. Alternately, lower QOL may be reflective of patient negative self-perceptions due to role loss or the inability to reciprocate affection due to respiratory insufficiency. For example, a male patient may desire to assist his spouse in some way because of her long term support but finds himself unable to do so. At the multivariate level, marital duration was not statistically significant. Support was not found in the bivariate and the multivariate analyses for marital satisfaction. Collectively, marital social support explained only 5% of the variance in patient's views of their QOL. Support for the buffering hypothesis (Cohen & Wills, 1985) and the marital relations literature was not noted for this sample of COPD patients, despite appreciable levels of marital satisfaction and duration. At the multivariate level, we can also conclude that COPD severity (FEV-1) and comorbidity presence have a far greater role than both marital variables for explaining patient QOL.

Multivariate findings indicate that the lack of support for the COPD patient's marital relationship may suggest that external sources of support play a greater role. For example, COPD peer groups may serve a more therapeutic purpose for both physical and psychosocial QOL. Additionally, couples whose marital relations were not positive may no longer be together or self-selection may have occurred. In other words, spousal relations simply do not act as a primary QOL impairment remedy. Further support for this idea can be noted in that both of the marital variables do not even appear in any final SGRQ models and in that mean QOL ratings among COPD patients reflect good to excellent QOL. Examining specific types of spousal support may also provide greater insight. For example, ADL support or problem solving. Alternately, a qualitative approach may provide greater insight into the role of marital relations.

Finally, the overall lack of statistically significant associations may simply be reflective of the present study's small sample size given the presence of preliminary bivariate findings and the very weak beta coefficients in the final generic SIP regression models.

Hypothesis 2: Differences between COPD patients and their spouses will be greater for psychosocial domain scores than for physical domain scores

For Hypothesis 2, statistically significant differences were found at the bivariate level between COPD patients and their spouses for generic SIP physical QOL scores and for disease-specific SGRQ psychosocial QOL impact of disease scores. The generic finding was contrary to the proxy literature which does not find differences between patients and their proxies. However, spouse-patient differences were only found to be statistically significant at the multivariate level on the disease-specific SGRQ. Upon further exploration of the SGRQ finding at the multivariate level, patient age and gender as well as spousal age and gender were strong explanatory factors. Specifically, differences were greater among the oldest couples in the study and among couples where the spouse is female.

Consistent with the proxy literature, spouses gave significantly higher scores (lower QOL) to patients on psychosocial QOL (Clipp & George, 1991; Sneeuw, Anderson, deHaan, and Limburg, 1997; Sneeuw, Anderson, Sprangers, et al., 1997; Ostbye, et al., 1997; Leidy & Traver, 1996; Prigatano, et al., 1984). The lack of differences on the generic SIP physical QOL score model at the multivariate level provides additional support for findings reported in the non-COPD proxy literature. Scores may be most similar among patients and spouses for physical QOL because spouses communicate with one another or because of a spouse's observations during intimate caregiving. Additionally, other studies (Leidy & Traver, 1995) have shown that male COPD patients seem to exhibit more sharing in relation to perceived physical impairment.

From the regression model we know that older female spouses give significantly higher scores than male spouses for the psychosocial impact of COPD. This finding is consistent with the gender role theory and caregiver literature in that female spouses are more likely to be caregivers and that they perceive caregiving as more onerous. With respect to age and disease-specific SGRQ psychosocial QOL differences, the findings may be due to less discussion of the disease over time. The lack of significant differences on the generic SIP may be because the questions are more generic and may be less likely to capture impairments that are COPD related. Additionally, in my opinion, spousal psychosocial QOL scores may be contingent upon COPD as a life threatening illness. This supposition is supported by responses to a question on the disease specific SGRQ scale rating the importance of COPD in relation to well-being suggested that spouses rated COPD as the most important health problem more often than patients did.

Overall, the model which includes patient gender explained 39.9% of the variance in perceptual differences in disease-specific SGRQ psychosocial QOL scores. Although gender was a highly influential variable, age of the patient and spouse clearly made the most important contribution. Spouses and patients did not differ significantly by age (see Table 1) but it is important to note that perceptual differences occur among couples where the spouse is older than the COPD patient. This finding may be due to spousal increasing realization of their own need for support as they age and become frailer as their COPD partner's COPD simultaneously worsens over time.

Hypothesis 3a: Female spouses will rate COPD patient QOL lower than male spouses

With respect to hypothesis 3a, in the bivariate analysis, spousal gender was not found to significantly influence ratings of COPD patient QOL on any of the QOL scales. However, at the multivariate level, female spouses gave COPD patients significantly higher scores on disease-specific SGRQ physical QOL (symptoms). Specifically, female spouses perceived that patients experience significantly greater distress from their COPD symptoms than did male spouses. These results may reflect both patient and spouse factors. First, symptoms may have simply been more of an issue with male patients ie: symptoms lead to greater disability or distress. Secondly, the findings may reflect that male patients lesser ability to cope with or to achieve control of their COPD symptoms and this may increase female spousal distress. Additional support can also be found in the gender role theory literature in that it suggests that female spouses are more likely to be caregivers. COPD symptoms may also be the least predictable element with respect to maintaining positive QOL.

In the generic SIP physical QOL model, the patient's COPD severity or presence of other chronic illnesses, not spouse gender, had a significant influence on spousal perceptions. Specifically, spouses rated patients with milder forms of COPD and additional chronic illnesses higher in terms of physical QOL distress.

Finally, spousal psychosocial generic SIP and disease-specific SGRQ models were not statistically significant. This finding may be due to a lack of salient variable modeling.

In the caregiving literature, female spouses are reported to appraise caregiving as a negative experience, they tend to take on more care tasks as patient needs increased, and are less likely to accept/be offered help with caregiving (Sexton & Munroe, 1985; Cossette & Levesque, 1993; Allen, 1994). Spaid and Barusch (1994) found that a greater sense of spousal burden as a function of caregiver proximity and being female. Given that the sample consisted of all married couples, the concept of proximity may apply. Gender role theory also tells us that female spouses are more likely to be caregivers for their ailing husbands (Ross, 1991; Feldman as cited in Galvin and Brommel, 1991). It was hypothesized that female spouses would transfer these negative perceptions/stresses to their QOL appraisals of their COPD partners depicting the "subjective career" concept (Ross, 1991, p. 126). The results only support the literature direction only for disease-specific SGRQ physical QOL (symptoms). These findings suggest that spousal gender has a COPD specific role. Alternately, spouses of both genders find COPD to be equally physically distressing for the patient on the generic SIP scale.

Overall, spousal gender explained 12.5% of the variance in their disease-specific SGRQ physical QOL symptoms scores for the COPD patient.

Hypothesis 3b: Male patients will rate their marital satisfaction higher than female patients

In the chronic disease literature, it was suggested that female spouses who provide care tend to put more effort into meeting the care needs of their chronically ill male spouses and feel a sense of guilt when care needs went unmet (Allen, 1994; Hatchett, et al., 1997; Anderson, et al., 1997). This envelope of spousal care was thought to foster marital harmony among male patients. The results, however, did not provide support for this idea.

These couples may have chosen to stay together because of the presence of a chronic illness in one partner ie: COPD that may have strengthened the marital bond. Alternately, bad marriages may not last in the face of chronic illness. This finding is also consistent with the qualitative male caregiver literature (Kaye & Applegate, 1990; Archer & MacLean, 1993; Harris, 1993).

The results, however, did not support hypothesis 3b in either the bivariate or the multivariate analysis. In this sample, this is not surprising as most patients were married longer than 40 years and rated their marital quality as good to excellent.

Hypothesis 4: Female COPD patients will rate their QOL lower than male patients who have equal FEV-1 scores

With respect to hypothesis 4, strong support was found at the bivariate level for all generic SIP QOL scores. However, support was found only among the mild COPD group where females had significantly lower QOL (highest scores). This is an important finding. Most prior COPD studies have involved mostly men with more severe forms of COPD (Prigatano, et al., 1984; Tsukino, et al., 1996; Graydon & Ross, 1995). The finding suggests that female patients may not cope as well because they perceive a greater sense of impairment in the early COPD stages. Support for this interpretation comes from the chronic disease literature in that females with chronic disease perceive a lower QOL than males and from gender role theory literature in which the female COPD patient faces the loss of a cohort role due to respiratory insufficiency.

At the multivariate level, the addition of marital duration and quality eradicated the finding that females had lower generic SIP physical QOL than males. Contrary to the generic SIP physical QOL findings, females had significantly lower generic SIP psychosocial QOL (higher scores), despite perceived marital satisfaction or marital duration. In essence, marriage did not act as a buffer for female COPD patients in the sample (Allen, 1994; Preston & Dellasega, 1996; Anderson, et al., 1997). As noted in the bivariate findings of this hypothesis, this may be a cohort effect due role loss among female patients, given that marital satisfaction doesn't significantly differ by gender among patients (Feldman, as cited in Galvin & Brommel, 1991). Among male patients, the spouse may also be the major or only source of social support in advanced age and would, therefore, act as his psychological QOL buffer.

Among female patients in the sample, comorbidity strengthened the gender effect in the generic psychosocial QOL final model but had no significant impact on generic SIP physical QOL. The negative impact of multiple illnesses is gender specific. However, this variable may have had more primacy as female patients were more likely to have additional chronic illnesses.

Surprisingly, the disease-specific psychosocial QOL model did not show significant gender trends at either level of measurement. Perhaps for female patients, psychological well being is not a function of the type of illness and/or the modeling of COPD specific psychosocial well being was not appropriate.

At the multivariate level only, as COPD severity increased, males had significantly lower disease-specific SGRQ physical QOL (higher scores) due to COPD symptoms. Marital duration and quality did not buffer symptoms related physical QOL. However, as COPD progressed with respect to stage, symptoms-related physical QOL scores lessened. These findings highlight the importance of astute symptom management among males in the early stages of COPD.

In the COPD literature, the majority of patients were male. Furthermore, gender differences were formally examined in only one COPD-specific study using a generic measure (Leidy & Traver, 1995). Females scored higher on most SIP categories but the differences were not statistically significant and most patients had severe COPD. In the present study, controls for the presence of comorbidity among COPD patients and the inclusion of patients at all three COPD severity stages may have led to strong gender effects.

In sum, gender had a direct and moderate influence on COPD patient physical and psychosocial QOL. Overall, the significant contributions patient gender made included: 9.5% of the variance in generic SIP physical QOL, 19.6% of the variance for generic SIP psychosocial QOL, and finally, 12.5% of the variance in disease-specific SGRQ physical QOL (symptoms).

Hypothesis 5: QOL scores will be significantly related to COPD severity (FEV-1) for spouses but not COPD patients

With respect to hypothesis 5, there were no statistically significant relationships between COPD severity (FEV-1 scores) and QOL among spouses of COPD patients. Overall, bivariate findings suggest that spouses and patients do not rely on a physical parameter, ie: COPD severity, to appraise QOL.

At the multivariate level, we see a very different pattern emerge. First, COPD patient generic SIP physical and disease-specific SGRQ physical QOL impairment (symptoms and activity impairment) are moderately and significantly associated with COPD severity. Specifically, as FEV-1 increases, COPD patient QOL increases (scores decreases). Patients feel that they experience less physical distress as their COPD progresses.

The findings suggest that among patients, FEV-1 has an important role with physical QOL impairment that is contrary to the weak or non-existent findings in the COPD literature (Tsukino, et al., 1997; Prigatano, et al., 1984). Furthermore, this role is stronger using the SIP scale.

Among spouses, COPD severity also played a large role in generic SIP physical and disease-specific SGRQ physical QOL (symptoms). Surprisingly, FEV-1 had a stronger influence on the generic SIP scale. These results suggest that as COPD progresses, spouses feel that patients may cope better with their symptoms and their overall physical impairment. Alternately, patients may have had greater medical control of symptoms in the later stages of COPD. Patients may have also learned how 'not to' exacerbate physical distress over time.

The hypothesized relationship which is supported by the data in the present study is in a direction opposite to that noted from the proxy literature (Sneeuw, Anderson, deHaan, and Limburg, 1997; Ostbye, et al., 1997).

Among patients, generic SIP psychosocial QOL was significantly related to FEV-1, regardless of marital duration or satisfaction. Increasing disease severity may have led to a psychological adaptation through repetitive exposure or cognitive reframing of QOL expectations. The lack of association with FEV-1 and spousal psychosocial QOL ratings on both scales may indicate a lack of salient variables modeling. Other variables to explore may include spousal or patient personality or presence of oxygen.

The direction of beta coefficients within the regression models raises questions about the negative portrayal of QOL among COPD patients taken in the literature (Sheckleton, 1987; Dorfman, 1995; Bowling, 1995). In this sample, patients with severe disease find some meaning in their lives. However, these patients may have modified their own expectations of how high their life quality should be in the midst of severe disease. Additionally, in the early COPD severity stages, ie: mild COPD, patients may struggle to learn how to cope with a respiratory disease. The inverse relationship suggests that they may adapt as COPD progresses. Overall, the results also suggest that QOL impairment may be conceptualized on an inverse continuum within COPD severity. Although this conceptualization may be stronger for physical QOL, the generic psychosocial QOL model also shows promise. However, given that the present study was cross-sectional, the results must be interpreted cautiously. It may be more prudent to conclude that QOL appeared to improve when scores of patients in the mild COPD group were compared with those of patients in the moderate and the severe COPD group. Alternately, this researcher could examine the role of the duration of a patient's respiratory illness.

In the present study, FEV-1 had moderate predictive power for physical and psychosocial QOL perceptions among COPD patients and spouses. FEV-1 explained between 16-26% of the variance in spouses ratings of COPD patient physical QOL. Among patients, FEV-1 explained 25.6% of the variance in the generic SIP physical QOL and 13.5% of the variance in generic SIP psychosocial QOL. With respect to disease-specific SGRQ physical QOL impairment, FEV-1 explained 10.8% of the variance in symptoms impairment and 21.6% of the variance in activity impairment.

Hypothesis 6: Patients with other chronic illnesses in addition to COPD will rate their QOL lower than those with COPD alone

With respect to hypothesis 6, in the bivariate analysis, those with other chronic illnesses in addition to COPD had significantly lower disease-specific SGRQ physical QOL (higher scores) for COPD symptoms. However, at the multivariate level, comorbidity was not found to be significant once FEV-1 was controlled for.

In the COPD literature in the two studies examining comorbidity, one used it as a descriptor of the COPD patient profile (Leidy & Haase, 1996); the other related it's impact on QOL through bivariate interactional testing with FEV-1 among COPD males (Ferrer, et al., 1997). Given the nature of COPD, additional chronic illnesses would add to the burden on QOL. Support for this was noted at the bivariate level for disease-specific SGRQ physical QOL (symptoms). The multivariate findings, however, suggest that disease severity plays a greater role for disease-specific SGRQ physical QOL, with respect to symptoms, than comorbidity.

With respect to psychosocial QOL, strong support was found at the multivariate level using the generic SIP as the hypothesized relationship remained statistically significant even when marital duration and satisfaction were controlled for. Coping with additional chronic illnesses had a significant negative impact on psychological well-being. Surprisingly, comoribidity had no significant impact on disease-specific SGRQ psychosocial QOL (impact of disease). The COPD patient model was found not to be statistically significant. Furthermore, comorbidity had a greater psychological than physical function in COPD patient QOL in the generic scale models. The psychosocial QOL models support the idea that generic QOL scales had a greater proclivity towards capturing QOL impairment due to the presence of multiple chronic illnesses (Albert, 1997). Clearly, given the appreciable size of this variable's beta coefficient and a 14.7% contribution towards explaining the variance in generic SIP psychosocial QOL impairment, consideration should be given to the presence of other chronic illnesses among COPD patient groups.

Measuring QOL using the generic Sickness Impact Profile (SIP) <u>and</u> the disease-specific St. George's Respiratory (SGRQ) Questionnaires

As noted in Table 6b and 7b, the QOL scores of both the COPD patient and the spouse were remarkably lower for the SIP than the SGRQ. The disease-specific SGRQ scale captured more QOL impairment within the sample. This, however, should not be surprising since the SIP tool has questions that apply to all disease entities (Bergner, et al., 1976). Several COPD specific studies found similar results (Tsukino, et al., 1996; Ferrer, et al., 1997; Engerstrom, et al., 1996). The SGRQ also revealed a gender effect for COPD symptoms. The SIP, however, detected significantly greater difference levels of impairment between both gender groups among mild COPD patients. This was clearly a key finding in the present study as it suggests that the initial stages of COPD were seen as most distressing by female patients. The generic SIP also provided great insight into the role of comorbidity and COPD patient QOL perceptions. Also, the SIP scale had more frequent statistically significant associations with FEV-1 (COPD severity) when compared to the disease-specific SGRQ scale. Furthermore, and contrary to criticism about limited sensitivity, the SIP detected QOL impairment within all COPD severity stages. The SIP also provided insight into psychosocial QOL perceptions among COPD patients. Clearly, the use of both scales added greatly to the understanding of QOL among COPD patient groups.

The absence of high scores on both scales and the COPD severity (FEV-1) beta coefficient direction are a substantial and positive finding in relation to patient QOL. It appears that even in the presence of severe disease, patients can find meaning in their lives. These data depict the hardy persona of many patients afflicted with respiratory disease and their ability to adapt to or to reframe challenging experiences. Cognitive reframing may also function as a most appropriate defense mechanism among patients living with a terminal respiratory disease.

Given the finding of significant differences in QOL perceptions between patients and their spouses on both scales, dual instrumentation would be advantageous with larger sample sizes. Furthermore and contrary to the proxy literature, differences appear in physical QOL. Although this finding was noted at the bivariate level only, the fact that it was not detected by the disease-specific SGRQ scale is an important discovery. Similarly, had we not utilized the disease-specific SGRQ scale, strong psychosocial QOL differences would not have been detected.

Dual instrumentation also presents challenges with respect to interpretation of data with small sample sizes. For example, with respect to the multivariate findings in the present study, we see many instances in which statistically significant associations are noted for either the generic SIP or the disease-specific SGRQ scale. First, female patients were found to have a significantly lower psychosocial QOL using the SIP but not the SGRQ scale. Secondly, female spouses were found to rate COPD patient physical QOL significantly lower using the SGRQ (symptoms) and not with the SIP. Next, psychosocial QOL spouse-patient perceptual differences were found to be significant using the SGRQ scale only. Fourthly, comorbidity presence significantly impacted QOL among COPD patients for the SIP scale only with respect to psychosocial QOL. See Table 25.

With respect to the SIP, the finding for hypothesis 6 may be explained by an inherently stronger sensitivity for this generic questionnaire for comorbidity presence that the SGRQ may not have. SIP categories are very broad while categories on the SGRQ relate to respiratory disease effects that may not be impacted upon by other chronic illnesses like arthritis. The gender specific finding for hypothesis 4 with respect to psychosocial QOL using the SIP may be linked with hypothesis 6 findings in that female patients had more chronic illnesses than male patients in the present study sample. It may also simply be that female patients perceive greater overall psychological burden due to a magnification of gender-specific role loss. With respect to the latter point, it should also be noted that, psychosocial SIP scores were higher than physical SIP scores for female COPD patients in the sample (See Table 10b).

In hypothesis 3a, all statistically significant spouse models are physical QOL models. Secondly, being a female spouse (gender finding) has a significant impact on the disease-specific SGRQ, not the SIP. Also, only the SGRQ symptoms model is statistically significant when spouse gender is statistically significant (hypotheses 3a and 5). These findings depict a possible interactional link between gender and COPD specific content. With the SIP spouse physical QOL model, the patient's illness context, not spouse gender, had a significant role in spouse perceptions. Female spouses' mean physical QOL scores on the SGRQ were five times as large as the SIP physical QOL score (See Table 8 and 9). The COPD literature also tells us that as this chronic respiratory disease progresses, symptoms are increasingly difficult to manage or more unpredictable (Miller & Keane, 1987; Sheckleton, 1987). Given female spouses are more likely to be an informal caregiver than a male spouse, physical QOL in relation to COPD appears to have greater weight than generic physical QOL.

Another interesting finding all of the above findings that are either SIP or SGRQ specific appear in regression model 3 (See Table 25). Specifically, these patterns of hypothetical support remain statistically significant and all beta coefficients do not change with respect to size or direction when all independent variables are controlled for.

The statistically significant spouse-patient difference scores found only in the SGRQ model may be explained by the inherent desire of the patient to protect or buffer his spouses own QOL or well being by not disclosing the full or true impact that 'COPD' has upon him. As noted in the Chapter 3 discussion section for hypothesis 2, COPD is perceived as more life-threatening and important more so by spouses than patients in the present study sample. The COPD patient may, therefore, engage in greater sharing of the generic impact of his/her chronic illnesses as a whole. As a result, the focus of sharing with respect to QOL is not directly about COPD. The lack of significant differences on the SIP may, therefore, be a result of thoughtful interaction among married couples and may indeed be beyond the control of the researcher.

Clearly, further research is warranted in order to gain greater understanding about the unusual findings using a larger sample size, recruiting subjects with other primary illness types, or by testing independent variable interactions in regression models. For example, one could utilize a QOL scale that relates specifically to cancer patients as well as the generic SIP scale. The subsequent analysis of domain specific results could then be utilized to determine whether the results in the present study are COPD specific. Alternately, as noted with the spouse-patient psychosocial QOL differences, are we seeing findings that are simply beyond the control of the researcher? Overall, the study results seem to reflect cohort issues perceived by two individual groups: female COPD patients and female non-COPD spouses. Alternately, this researcher could utilize a different QOL scale such as the WHOQOL group (1993) scale to determine whether additional aspects of patient QOL not addressed by the current study would provide greater insight. For example, the environment and spirituality domains of the WHOQOL Group scale.

Implications for Nursing Practice

The major findings of this thesis provide several important foci for nurses working with COPD couples. First, among patients in the sample, bivariate findings on marital duration, although opposite to the hypothesized direction, and lower QOL scores among patients with higher marital quality should invoke interest. The latter finding adds strength to the notion of a spouse as a confidant and motivator. With respect to marital duration, it may be that the COPD patient is unable to reciprocate care or affection towards their long term partner due to respiratory insufficiency. Alternately, the COPD patient may be experiencing distress due to a role loss which may be one of caregiver for the female patient or resource provider for the male patient. Given the lack of support for a buffering effect from marital duration and satisfaction at the multivariate level, social support from *non-spouse sources* may be more important for COPD couples ie: ongoing contact with other COPD patients may buffer QOL. Severe COPD patient peer support may also be beneficial as these individuals appear to exhibit patterns of adaptation. Information sharing from a COPD education program may be another appropriate support source. Nurses can share information regarding these resources to COPD patients and their spouses. Furthermore, with respect to marital support, sample size also limits practical applications being drawn from the study data. Alternately, the nurse may gain greater insight into the role of marital relations by conducting an open ended interview with the COPD patient. The latter intervention would reflect a qualitative approach.

The results of this study also suggest that spouses of COPD patients feel significantly different about an aspect of QOL that may be the least amenable to intervention: the psychosocial impact of chronic disease As shown in Figure 2, when patient expectations exceed those of the spouse, the spouse may be overprotective of the patient and friction may occur. The nurse should also be aware that differences could reflect a positive defense mechanism. Specifically, differences could be due to a patient's denial or a patient's desire to buffer or shelter one's spouse from full awareness of the impact of COPD. In turn, spouses may feel less distress. The COPD patient could take a proactive role in buffering his/her spouse's QOL. Moderate QOL and marital satisfaction mean scores among COPD patients provide some indirect support for this idea.

In the regression models, age and gender of the patient and spouse explain a great deal about the variance in perceptual differences. Other reasons may be relate to the patient's fear of loss of spousal support. The nurse could act as a patient advocate in sharing information with older female spouses about the psychological impact of COPD and could function as a liaison person for appropriate community support agencies. For example, spouses may also benefit from contact with other spouse peers to share pertinent issues relating to the nature and impact of COPD. However, developing trust through the involvement of both partners should be a prerequisite step. Given the similarity of physical QOL scores, utilizing spousal and patient expertise for intervention planning also seems appropriate.

Next, this study pointed to possible patient risk factors for lower QOL. For example, being an older-old individual and having milder forms of COPD was associated with lower levels of physical QOL. Females with milder forms of COPD and additional chronic illnesses also have significantly lower psychosocial QOL. Both profiles were noted using the generic SIP scale. With respect to the disease-specific SGRQ scale, males with milder forms of COPD were found to have significantly lower physical QOL (higher symptoms scores). Activity impairment, however, equally impacted both gender groups and was greater in early COPD stages. These results support the presence of gender-specific impairment that is inversely related to COPD stage of severity.

These patient-profile data could assist health care professionals to plan for whom a QOL enhancement program should target and the program material. For example, gender associations provide direction for teaching. Specifically, males would benefit more from symptoms management whereas females may benefit more from programs that focus on managing multiple illnesses or on enhancing psychological well-being. Both genders, in early COPD severity stages, could benefit from activity support in COPD out-patient programs such as the Lions Gate Hospital COLD program. Based on the COPD severity (FEV-1) beta coefficient directions, early disease stages appear to be the most beneficial time for educational interventions such as energy conservation or shortness of breath management. The initial diagnostic period was a salient period for coping with COPD. Diagnosis may impose new changes in the patients life space for which adaptation is required. These findings add insight into nursing intervention timing. Additionally, patients with larger numbers of chronic illnesses appear to have a lower QOL than patients with COPD only. Nurses could focus on assisting patients and their significant others with the issues or concerns relating to the management of other chronic illnesses when developing a plan of care relating to psychosocial QOL promotion. Ideally, such interventions should be started immediately post-diagnosis as a preventive measure.

The complexity of QOL was also demonstrated. For example, among patients, findings in Hypotheses 5 and 6 suggest that COPD severity (FEV-1) and presence of comorbidity have an important impact on both physical and psychological QOL. Physical factors did not simply have physical consequences. Among spouses, the opposite was noted as physical factors significantly shaped physical QOL perceptions.

Although age was not a focus of the current study, it is interesting to note that it played an important role for generic SIP physical QOL perceptions among patients. In the COPD literature, age had been given no significant role in QOL perceptions. It seems logical that as patients age, physical impairment increases. From the results, it is clear that older patients may derive great benefit from nursing interventions that alleviate physical distress. For example, the provision of ADL aides or the demonstration of breathing techniques to reduce shortness of breath during periods of activity would be valuable nursing interventions. Nurses could also refer older-old COPD patient groups to a physiotherapist. Age also had a profound effect on differences in perceptions of QOL regarding the impact of respiratory disease for both COPD patients and spouses. Nurses should be aware that perceptual differences in psychosocial QOL would be more marked among couples where the spouse is older than the COPD patient.

Overall, COPD patient QOL scores projected a mild to moderate levels of impairment. Nurses cannot, therefore, automatically assume that having COPD equates with poor life quality. Patients still find meaning in their lives. Furthermore, this meaningfulness seems most salient in severe COPD stages. COPD patients appear to be hardy individuals. Although this stage-related pattern may have indicated lower self-expectations, cognitive reframing may be an invaluable resource that fosters coping with an irreversible and life-threatening illness like COPD. Additionally, nurses should be sensitive to changes in gender-specific roles that a cohort of older adults with COPD or their non-COPD spouses may experience.

Finally, in this study, the disease-specific psychosocial QOL model was not statistically significant for the patient or the spouse. Given the significant differences between marital partners, this finding is important. Secondly, the generic psychosocial QOL model made no significant contribution towards understanding spousal perceptions of COPD patients. Nurses may gain greater insight through conducting an open-ended interview with COPD couples as part of an out-patient program, on admission to a healthcare facility, or during home care visits. Clearly, further psychosocial QOL research would be an asset.

Limitations of the research

There are several limitations of this thesis. First, the sample size was small, resulting in weak statistical power to support potentially weaker associations at both the bivariate and multivariate level.

Secondly, this study was cross-sectional and measures QOL at one point in time. Relationships seen within the sample may not be replicated. One can only infer that strength and power of associations in such a small sample provide promise. With reference to QOL and disease severity as being on a continuum, a longitudinal study is necessary.

Thirdly, the QOL measures are a form of self-report and spouses and patients may therefore have shared some answers despite verbal and written prompting and receiving separate study packages. The significant differences in disease-specific SGRQ psychosocial QOL impairment do, however, suggest that instructions were followed.

Finally, the lack of significant models for disease specific SGRQ psychosocial QOL for both patients and spouses raise questions about statistical modeling. For example, would spousal or patient personality or presence of oxygen be valuable components in the psychosocial QOL equation? Could presence of non-spousal social support influence this QOL domain? Is statistical significance simply a function of sample size? Clearly, psychosocial QOL is a complex concept that is yet to be captured.

Furthermore, in the multivariate analysis, four associations were found to be statistically significant for the generic SIP scale and not the disease-specific SGRQ scale. Several questions emerge. First, do these patterns relate to sample size or COPD-specific traits which are beyond the control of the researcher? Secondly, how can the methodology of a QOL research study best address these findings? Clearly, future research must take these questions into account.

Future Research

Future research should speak to the limitations of this author's study. First, a longitudinal study and/or use of a larger sample would provide more veracity to the spousal and patient trends. Gains in statistical power could assist in developing a greater understanding the role of marital duration and satisfaction with COPD patient QOL.

If possible, interviews with COPD spouses instead of mailed questionnaires may provide greater assurance regarding separate responses of patients and spouses.

Next, despite finding many interesting QOL associations, further research on other diagnostic groups would strengthen these findings and establish them as being COPD-specific QOL traits. This would be particularly interesting for patient-spouse perceptual differences. For example, do similar differences in spouse-patient disease specific psychosocial QOL impairment exist among Crohn's disease groups in comparison to this sample? Does age play an equally important role in physical QOL impairment among spouses of Crohn's disease patients? A comparison of single or divorced older adults with COPD may provide insight into the martial environment ie: would differences be explained by marital status rather than duration or quality. Alternately, a qualitative approach may afford a greater understanding of the role of marital relations for the QOL researcher.

The lack of significant spousal psychosocial QOL and patient disease-specific SGRQ psychosocial QOL regression models also speaks to the need for exploring other psychological variables such as personality or non-spousal support or presence of oxygen. Furthermore, although spouse and patient age played a significant role in explaining psychosocial QOL differences between patients and spouses, the role of age was important for patients only in limited QOL domains. Also, given the limited role of COPD severity (FEV-1) and comorbidity with disease-specific SGRQ psychosocial QOL, inclusion of the aforementioned psychological variables may provide greater insight into spouse difference and group scores. Additionally, given the paramount role of COPD severity (FEV-1) with SIP psychosocial QOL, duration of illness may also make an appreciable contribution to psychosocial QOL differences.

The appearance of four statistical associations which were found not to be significant for both the SIP and the SGRQ scales presents a challenge to the COPD and QOL researcher. Use of a larger sample size and the inclusion of an additional disease-specific group ie: cancer patients would allow a QOL researcher to determine if any weak but significant associations exist and to rule out true COPD-specific findings. An examination of any proposed interactional effects in regression models may also provide insight into questionnaire-specific findings. Alternately, the use of another generic QOL scale, such as the WHOQOL Group (1993) questionnaire, may provide added insight into other elements of the patients day to day life that the current instruments did not examine.

Finally, given the lack of affinity for marital duration and satisfaction, disease specific QOL scales may not be appropriate dependent variable measures for exploring the role of QOL buffering. The SIP generic scale used in this study seems to be a more appropriate choice. Given the preliminary results for physical QOL, marital duration may be a hindrance, not a buffer. Alternately, it may be of value to explore the meaning of spousal differences as a form of spouse buffering by the COPD patient.

Chapter 5
SUMMARY AND CONCLUSIONS

The goals of this thesis were four-fold: to test whether marital duration and satisfaction acts as a QOL buffer (Cohen & Wills, 1985) among community-dwelling COPD patients, to test for the existence of differences between patient and spouse perceptions with respect to COPD patient QOL, to determine which patient related factors significantly influence QOL self-reports among patients. Of particular interest was gender and comorbidity. Fourth, for spouses, COPD severity and spouse gender were the focus of this study. The study took an exploratory perspective for these independent variables.

In Chapter 1, COPD and QOL were defined. The effect of COPD on older adults and its relevance to QOL was also discussed. The buffering hypothesis (Cohen & Wills, 1985), as utilized as a theoretical perspective for marital duration and satisfaction, was then discussed. Literature findings with an emphasis on the supportive structure of marital relations among the chronically ill was also examined. A review of proxy literature with relevance to COPD and other chronic illness groups was also presented. The role of patient and spouse gender and its potential influence on ratings of COPD patient QOL was reviewed. Next, QOL predictor variables were discussed from the perspective of the COPD literature within the past decade. Emerging QOL definitions and research issues from the COPD literature were also discussed. The literature reviewed in Chapter 1 made reference to independent variables that appeared to have great potential for increasing our understanding of COPD patient QOL and had not heretofore been investigated. These included gender, comorbidity, and marital relations for the COPD patient. There was also a paucity of COPD literature on spouses with respect to gender and COPD severity on their ratings of COPD patient QOL. Both COPD patient and spouse gender were also linked to gender role theory literature. The chapter concluded with an outline of the major hypotheses to be tested in an attempt to fill the identified information gaps.

Chapter 2 defined the methodology of this QOL study. How it was to focus on COPD couples, how questionnaires were distributed, how subjects were recruited, and what was included in study packets of patients and their spouses was discussed. Additionally, descriptions of QOL questionnaires as well as appropriate scoring methods and rationale for dual instrumentation were presented. The study sample was described for the reader.

Chapter 3 presented results of the bivariate and multivariate analyses. In the bivariate analysis, marital duration and satisfaction did not act as significant QOL buffers among COPD patients. Furthermore, duration of marriage had a negative impact on some generic SIP and disease specific SGRQ QOL domains. Secondly, it was noted that significant differences existed for generic SIP physical QOL as well as disease-specific SGRQ psychosocial QOL (impact of disease) perceptions. Thirdly, being female was found to have a significant influence on patient QOL. Specifically, among mild COPD patients, females had significantly lower generic SIP QOL. With respect to spousal QOL ratings of the COPD patient, COPD severity (FEV-1) and spousal gender had no significant relationship on any of the QOL scales. As a sub-hypothesis related to caregiving literature and gender role theory with respect to spouses, it was also found that patient gender had no bearing on marital satisfaction within the sample. Finally, comorbidity had a negative impact on symptoms scores among patients.

Replication of bivariate findings was, however, mixed. Specifically, support for the negative impact of duration of marriage on COPD patient QOL was not found at the multivariate level. Also, a patient gender effect on generic SIP physical QOL (females have lower QOL) was eradicated by marital duration and satisfaction. However, in similarity to the bivariate findings, being a female COPD patient led to perceptions of significantly lower generic psychosocial QOL in comparison with male COPD patients.

Additionally, at the multivariate level, support was found for several hypotheses not supported at the bivariate level. For example, spousal gender (being female) became a significant factor in spousal ratings of disease-specific physical QOL (symptoms) among patients. Also, among patients, comorbidity demonstrated a statistically significant association with psychosocial generic SIP QOL while COPD severity (FEV-1) had a significant impact on generic SIP QOL and disease-specific SGRQ physical QOL (symptoms) once his/her age and gender were taken into account. COPD severity (FEV-1) had predictive power for spouse ratings of generic SIP and disease-specific SGRQ physical QOL only. Next, although not a focus of this thesis, it was noted that in spousal generic SIP physical QOL and disease-specific SGRQ physical QOL (symptoms) models, COPD patient comorbidity demonstrated a significant and positive association.

In sum, the study results also provide modest support for the impact of gender, COPD severity (FEV-1), and patient comorbidity on COPD patient and spouse QOL ratings. See Table 25 for a schematic representation of all the results found in this QOL study.

In Chapter 4, the findings were linked back to the literature in terms of COPD specific issues raised as well as replication and discovery of new findings. Most hypotheses were supported, however, only at the multivariate level. Furthermore, most support was related to physical QOL. The statistical modeling in the current study also left more questions than answers about what influences spousal psychosocial QOL ratings on both scales. The disease-specific SGRQ psychosocial QOL model was also not significant among the COPD patient group. A brief discussion regarding the lack of similar significant associations at the multivariate level for both the SIP and the SGRQ were presented. Practice implications for nurses in relation to identifying those at risk for lower QOL as well as intervention specificity and timing guidance were discussed. The results of this study provide a preliminary guide for nurses working with COPD couples. For example, male COPD patients in the early stages of COPD would benefit from an educational program with respect to COPD symptom management. The benefits of utilizing a generic and a disease-specific QOL scale in the same study were also summarized for the reader. Additionally, limitations of the present study and future research needs were briefly discussed. It was suggested that a longitudinal study, a study with a larger sample of patients and spouses, or a study with an appropriate comparison group would provide additional insight into COPD specific QOL traits and would allow some cause-effect conclusions to be stated. With respect to differing statistical associations noted at the multivariate level for both the SIP and the SGRQ, direction was provided with respect to issues of statistical power, COPD specific sample traits, and alternate generic instruments. Additionally, other potential independent variables, ie: personality or presence of oxygen, were presented in relation to psychosocial QOL impairment. These variables may help to elucidate between-group perceptual differences in QOL impairment and within-group QOL impairment ratings. This study has clearly led to many more questions about QOL, indicating that capturing the dynamic nature of QOL is both a difficult and complex process. However, it is the hope of this researcher that the findings of this study will instill a sense of curiosity.

Appendix A
Study advertisement

Do you have emphysema, asthma or bronchitis (COPD)?
Are you married and age 50 or older?

I am a Masters of Gerontology student at the Simon Fraser University. I am conducting a research study on how lung disease impacts peoples' daily lives. I want to learn more about this by seeking information from the experts - people who have COPD and their spouses. If you would like to receive more information and may be interested in participating, please call Gail Low @ 618-7332 Monday to Friday 5-8 pm

The study has been approved by the Simon Fraser University Ethics Committee

Appendix B
Study Information Letter

Dear subject,

I am a graduate student in the Gerontology program at Simon Fraser University. As part of my degree requirements, I am conducting a study on quality of life among married seniors where one spouse has COPD. The study goal is to understand how seniors are affected by chronic lung disease in their daily lives. Gaining knowledge of the perspectives of people who know the most about the impact of COPD, you and your spouse, will help us to develop programs that could improve your quality of life. Therefore, your honesty and openness would be an asset to this study.

Your role would consist of completing the questionnaires in your information packet. They ask some questions about your quality of life, the daily life of you and your spouse and about you personally. For example, your age, gender, and number of other illnesses you may have. I will also need your permission to obtain from your hospital health record your most recent lung function test results. Each of the first two of the questionnaires will take about 15 minutes to complete, while the latter two will take 5 minutes each to complete, for a total of 40 minutes. In the study packet, there are envelopes for you and your spouse. Both you and your spouse will need to fill out your questionnaires from your envelopes separately. Do not compare answers. The completed questionnaires should be sealed in your specific envelopes from the study packet.

The information you provide will be held strictly confidential and your name will not appear on any reports. You will be identifiable only by your age and gender. You may drop out of the study at any time. You are not obligated to participate. You do not have to answer any questions you are not comfortable with. The more people who participate, the better the outcome. There are no risks involved for all who participate in the study.

If you have concerns or questions about the study or any items in the questionnaire, **you can contact me at 618-7332** or the project advisor, Dr. Gloria Gutman at 291-5062 Monday to Friday between 9 to 4 pm. If you have any complaints about the study, you may contact Dr. John Pierce, the Dean of the faculty of Arts @ 291-4415 and/or Dr. Gloria Gutman, my supervisor @ 291-5062.

I will be contacting you only once, within one week after you receive the study package, to confirm your decision about participating in the study and to answer any questions/concerns you may have. Your questionnaires can be returned to Gail Low by mail using your pre-addressed and stamped envelope in the study packet once they are completed. The entire study will take about 8 months to complete. A summary of the results of the study will be made available to all who participate.

Sincerely,
Gail Low - Project Manager
Masters of Gerontology program @ Simon Fraser University

Appendix C1

SIMON FRASER UNIVERSITY

INFORMED CONSENT FORM - COPD Patient & Spouse

The university and those conducting this project subscribe to the ethical conduct of research and to the protection at all times of the interests, comfort, and safety of participants. This form and the information it contains are given to you for your own protection and full understanding of this research. Your signature on this form will signify that you have received written information that describes the procedures and benefits of this research project and that you have had an adequate opportunity to consider this information and volunteer to take part in the study.

Having been asked by Gail Low, a Masters student in Gerontology at Simon Fraser University for myself and my spouse to participate in a study of COPD Patient Quality of Life:

1) My spouse and I understand that what we have been asked to do in this project is to each complete a questionnaire.

2) We have been given an opportunity to ask questions and our questions have been answered to our satisfaction.

3) We understand that we may refuse to answer any specific questions, and may withdraw from the study at any time.

4) We understand that any data or answers to questions will remain confidential with regard to our identity.

5) We may register any complaint we might have about the study with Dr. John Pierce, the Dean of the Faculty of Arts at Simon Fraser University and/or with her supervisor, Dr. Gloria Gutman, Director of the Gerontology Program at Simon Fraser University.

6) We may obtain a summary of the findings by checking the space below.

I ____________________ and my spouse ____________________ agree to:

A) Complete the study questionnaires YES ____ NO ____

B) Give Gail Low permission to obtain my most recent lung function test results from my hospital health record YES ____ NO ____

C) If you are a North or West Vancouver resident and you answer YES to QUESTION B, please complete the attached form that will provide the Lions Gate Hospital with your permission to release your most recent lung function test information to Gail Low.

Please send us a summary of findings: YES _____ NO _____

Patients signature ______________ Spouse's signature ______________

Address ____ Date______________

NORTH SHORE Health Region

Appendix C2

Additional information release form North Shore Health Region

AUTHORIZATION FOR RELEASE OF PERSONAL INFORMATION FROM THE NORTH SHORE HEALTH REGION

SECTION A

This form hereby authorizes ______________________ to release ***from the records of:***
(name of facility)

____
(name of individual)

Date of birth: ____________________ **Care Card #:** ____________________

Address: ______________________________ **Phone:** ______________

the following information (indicate **specific** information such as X-ray films, employment records, health records, including dates):

____

____

To: ____
(name of facility/person to receive information)

____
(address, if different than above)

____

____
(relationship to individual, if not accessing your own files)

SECTION B

The authorized recipient will use this information only for the purposes of: ____________________

I hereby release the health care facility authorized to release information as named above, its employees and agents, from any and all claims whatsoever which may arise as a result of the release of the above information.

Signed ______________________________ Date ______________
(individual or legal representative)

Witness ____________________ ____________________
(signature) (relationship to individual/legal representative)

____
(address of witness)

THIS AUTHORIZATION IS VALID FOR SIX MONTHS FOLLOWING THE DATE SIGNED.

SECTION C

for office use only

☐ Access Denied. Reason: ______________________________

FIPPA Reference: ______________________________

Signed: ______________________________ Date: ______________
(include position)

Reference: Freedom of Information and Protection of Privacy Act, BC

Cedarview Lodge, 1200 Cedar Village Close	Phone: (604) 984-4251	Fax: (604) 984-6040
Kiwanis Care Homes Ltd., 2555 Whitely Court	Phone: (604) 924-8323	Fax: (604) 924-8300
Lions Gate Hospital - Information & Privacy Office, 231 E 15th St.	Phone: (604) 984-5911	Fax: (604) 984-5718
North Shore Community Mental Health, 209-267 W. Esplanade	Phone: (604) 660-1273	Fax: (604) 660-3108
North Shore Health, 5th fl., 132 W. Esplanade	Phone: (604) 983-6840	Fax: (604) 983-6839
North Shore Regional Board, 210-171 W. Esplanade	Phone: (604) 984-3841	Fax: (604) 984-3840

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Appendix D
SFU Ethics Approval Letter

SIMON FRASER UNIVERSITY

OFFICE OF VICE-PRESIDENT, RESEARCH

BURNABY, BRITISH COLUMBIA
CANADA V5A 1S6
Telephone: (604) 291-4370
FAX: (604) 291-4860

March 17, 1999

Ms. Gail Low
Graduate Student
Gerontology
Simon Fraser University

Dear Ms. Low:

Re: **A Cross-Sectional Comparison of Patient Quality of Life Perceptions Among Older Adult Patients with COPD and The Spouses**
Revision

In response to your request dated February 18, 1999, I am pleased to approve, on behalf of the University Research Ethics Review Committee the minor revisions in the research protocol of the above referenced Request for Ethical Approval of Research originally approved on December 22, 1998.

Best wishes for success in this research.

Sincerely,

Barb Ralph

for Dr. Adam O. Horvath, Chair
University Research Ethics Review Committee

c G. Gutman, Supervisor

/bjr

Appendix E
Spouse information letter

Instructions for spouse's of COPD patients regarding the study questionnaires in your envelope.

Your answers on your two questionnaires should represent **your opinion** of how well you feel your spouse with COPD is doing. Your views about their health, their day to day functioning and the way COPD has impacted their lives are a unique and **important** part of this study. Please answer the questions based on your own perceptions.

Please do not hesitate to call me @ 618-7332 or Dr. Gloria Gutman, the project supervisor @ 291-5062 if you have any concerns or questions about completing your two questionnaires.

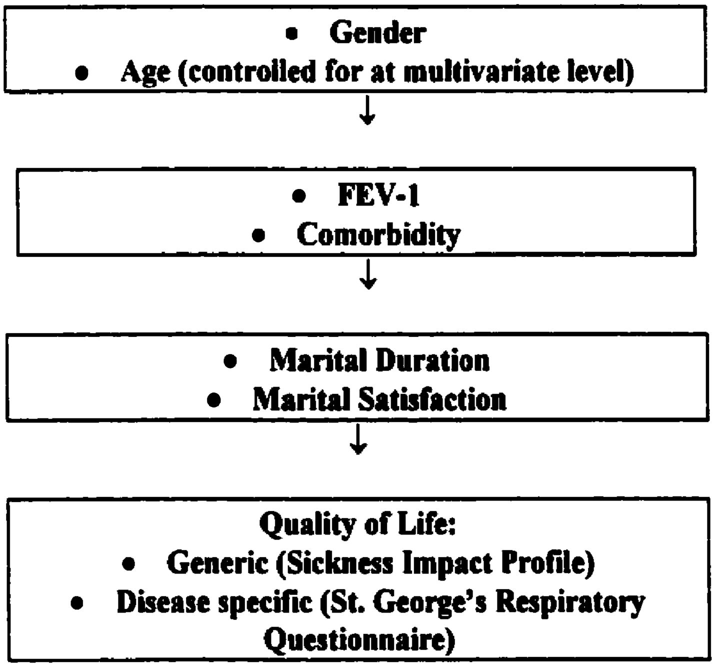
Please seal your two completed questionnaires in your envelope. Please **do not compare answers** with your spouse.

Thank-you for your participation,

Sincerely.

Gail Low
Project Manager
Gerontology Masters Program @ Simon Fraser University

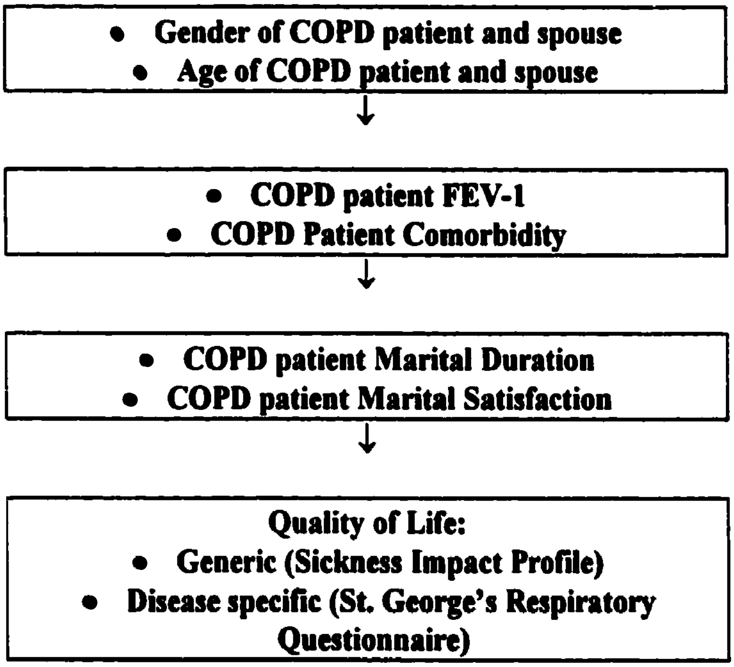
Appendix F
Quality of Life Study COPD patient variable model



Note:

For spousal QOL models, the variables of interest were spouse gender and patient COPD severity or FEV-1. Spousal age as well as the remainder of the patient context variables were placed within the spouse regression model to further test the predictive power of the two variables of interest.

Appendix G
Quality of Life Study spouse-patient difference score variable model (multivariate exploration)



References

Achat, H., Kawachi, I., Levine, S., Berkey, C., Coakley, E., & Lorditz, G. (1998). Social networks, stress, and health related quality of life. Quality of Life Research, 7: 735-750.

Albert, S.M. (1997). Assessing health-related quality of life in chronic care populations. Journal of Mental Health & Aging, 3(1): 101-118.

Allen, S.M. (1994). Gender differences in spousal caregiving and unmet need for care. Journal of Gerontology, 49(4): s187-s195.

Allison, P.J., Locker, D., & Feine, J.S. (1997). Quality of life: A dynamic construct. Social Science and Medicine, 45(2): 221-230.

American Thoracic Society (1987). Standards for diagnosis and care of patients with chronic obstructive pulmonary disease. American Review of Respiratory Disease, 136: 225-244.

Anderson, T.B., Earle, J.R., & Longino, C.F.(1997). The therapeutic role of husbands, wives, and couples. International Journal of Aging and Human Development, 45(1): 49-65.

Anderson, K.L. (1995). The effect of chronic obstructive pulmonary disease on quality of life. Research in Nursing and Health, 18: 547-556.

Aneshensel, C.S. & Stone, J.D. (1982). Stress and depression. Archives of General Psychiatry, 39: 1392-1396.

Archer, C.K. & MacLean, M.J. (1993). Husbands and sons as caregivers of chronically elderly women. Journal of Gerontological Social Work,21(1/2): 5-23.

Barusch, A.S. & Spaid, W.M. (1989). Gender differences in caregiving: Why do wives report greater burden. The Gerontologist, 29(5): 667-675.

Bergner, M., Bobbitt, R.A., Carter, W.B., & Gilson, B.S. (1981). The sickness impact profile: Development and final revision of a health status measure. Medical Care, 19: 787-8.5.

Bergner, M., Bobbitt, R., Pollard, W.E., Martin, D.P., & Gilson, B.S. (1976). The Sickness Impact Profile: Validation of a health status measure. Medical Care,14(1): 57-67.

Block, A.R. & Boyer, S.L. (1984). The spouse's adjustment to chronic pain: Cognitive and emotional factors. Social Science and Medicine, 19: 1313-1317.

Bowling, A. (1994). Measuring illness: A review of disease specific quality of life measurement scales. Philadelphia: Open University Press.

Bowling, A. (1995). What things are important in people's lives? A survey of the public's judgements to inform scales of health related quality of life. Social Science and Medicine, 41(10): 1447-1462.

Burman, B. & Margolin (1992). Analysis of the association between marital relationships and health problems: An interactional perspective. Psychological Bulletin, 112(1): 39-63.

Choi, N.G. & Wodarski, J.S. (1996). The relationship between social support and health status of elderly people: Does social support slow down physical and functional deterioration. Social Work Research, 20(1): 52-63.

Clipp, E.C. & George, L.K. (1991). Patients with cancer and their spouse caregivers- Perceptions of the illness experience. Cancer, 69(4): 1074-1079.

Cohen, S. & Wills, T.A. (1985). Stress, social support and the buffering hypothesis. Psychological Bulletin, 98: 310-357.

Cossette, S. & Levesque, L. (1993). Caregiving tasks as predictors of mental health of wife caregivers of men with chronic obstructive lung disease. Research in Nursing and Health, 16: 251-263.

Dorfman, L.T. (1995). Health conditions and perceived quality of life in retirement. Health and Social Work, 20(3): 193-198.

Ebersole, P. & Hess, P. (1990). Primary and secondary relationship networks. In Linda L. Duncan (Ed.). Towards healthy aging: Human needs and nursing response (3rd ed., pp. 450-486). Toronto: C.V. Mosby.

Engerstrom, C.P., Persson, L.O., Larsson, S., Ryden, A., & Sullivan, M. (1996). Functional status and well-being in chronic obstructive pulmonary disease with regard to clinical parameters and smoking: a descriptive and comparative study. Thorax, 51: 825-830.

Farquhar, M. (1995). Elderly people's definitions of quality of life. Social Science and Medicine, 41(10): 1439-1446.

Ferrer, M., Alonso, J., Morera, J., Marrades, R.M., Khalaf, A., Aguar, C., Plaza, V., Prieto, L., & Anto, J.M. (1997). Chronic obstructive pulmonary disease and health related quality of life. Annals of Internal Medicine, 127: 1072-1079.

Fowers, B.J. & Olson, D.H. (1993). ENRICH Marital Satisfaction Scale: A brief research and clinical tool. Journal of Family Psychology, 7(2): 176-85.

Galvin, K.M. & Brommel, B.J. (1991). Communication and family type roles. In Melissa A. Rosati (ed.). Family communication - Cohesion and change (3rd ed., pp 107-132). New York: Harper Collins.

Goodwin, J.S., Hunt, W.C., Key, C.R., Saymet, J.M. (1987). The effect of marital status on stage, treatment, and survival of cancer patients. JAMA, 285: 3125-3130.

Grand, A., Grand-Filaire, A., & Pous J. (1993). Aging couples and disability management. International Journal of Aging and Human Development, 37(2): 119-137.

Graydon, J.E. & Ross, E. (1995). Influence of symptoms, lung function, mood, and social support on level of functioning of patients with COPD. Research in Nursing and Health, 18: 525-533.

Guyatt, G.H., Berman, L.B., Pugsley, S.O., Chambers, J.W. (1987). A measure of quality of life for clinical trials in chronic lung disease. Thorax, 42: 773-778.

Harper, R., Brazier, J.E., Waterhouse, J.C., Walters, S.J., Jones, N.M.B., & Howard, P. (1997). Comparison of outcome measures for patients with COPD in an out-patient setting. Thorax, 52: 879-887.

Harris, P.B. (1993). The misunderstood caregiver? A qualitative study of the male caregiver of Alzheimer's disease victims. The Gerontologist, 33(4): 551-556.

Hatchett, L, Friend, R., Symister, P. & Wadhwa. (1997). Interpersonal expectations, social support, and adjustment to chronic illness. Journal of Personality and Social Psychology, 73(3): 560-573.

Health Canada (1997). In J. Stein (Ed.). Fact sheet: major causes of death in Canada, 1993-1995. Chronic diseases in Canada, 18(2): 91-92.

Herbert, R. & Gregor, F. (1997). Quality of life and coping strategies clients with COPD. Rehabilitation Nursing, 22(4): 182-187.

Jaloweic, A. (1990). Issues in using multiple measures of quality of life. Seminars in Oncological Nursing, 6(4): 271-277.

Janssens, J.P., Rochat, T., Frey, J.G., Dousse, N., Pichard, C., & Tschopp, J.M. (1997). Health related quality of life in patients under long term oxygen therapy: a home based descriptive study. Respiratory Medicine, 91: 592-602.

Jones, D.A. & Peters, T.J. (1992). Caring for elderly dependents: Effects on carers quality of life. Age and Ageing, 21: 421-428.

Jones, P. W. (1995). Issues concerning health related quality of life. Chest, 107(5): 187S-193S.

Jones, P.W. (1992). The St. George's Respiratory Questionnaire. London: St.George's Medical School.

Jones, P.W. (1991). Quality of life measurements for patients with diseases of the airways. Thorax, 46: 676-682.

Kaye, L.W. & Applegate, J.S. (1990). Men as elder caregivers: A response to changing families. American Journal of Orthopsychiatry, 60(1): 86-95.

Ketelaars, C.A.J., Schlosser, M.A.G., Mostert, R., Abu-Saad Huyer, H., Halfens, R.J.G., & Wouters, E.F.M. (1996). Determinants of health related quality of life in patients with chronic obstructive pulmonary disease. Thorax, 51: 39-43.

Kiecolt-Glaser, J.K. & Glaser, R. (1989). Interpersonal relationships and immune function. Psychosomatic Medicine, 49: 13-34.

Lareau, S.C., Breslin, E.H., Meek, P.M., & Loma, L. (1996). Functional status instruments: Outcome measure in the evaluation of patients with chronic obstructive pulmonary disease. Heart & Lung, 25: 212-224.

Lawrence, R.H. (1995). The structure of physical health status - Comparing proxy and self-respondents. Journal of Aging and Health, 7(1): 74-98.

Leidy, N. (1995). Functional performance in people with chronic obstructive pulmonary disease. Image: Journal of Nursing Scholarship, 27(1): 23-34.

Leidy, N., Haase, J.E. (1996). Functional performance in people with chronic obstructive pulmonary disease: A qualitative analysis. Advances in Nursing Science, 18(3): 77-89.

Leidy, N. & Traver, G.A. (1995). Psychophysiological factors contributing to functional performance in people with COPD: Are their gender differences. Research in Nursing & Health, 18: 535-546.

Leidy, N. & Traver, G.A. (1996). Adjustment and social behavior in older adults with chronic obstructive pulmonary disease: the family's perspective. Journal of Advanced Nursing, 23: 252-259.

Locke, H.J. & Wallace, K.M. (1959). Short marital adjustment and prediction tests: Their reliability and validity. Marriage and Family Living, 21: 251-255.

Lutzky, S.M. & Knight, B.G. (1994). Explaining gender differences in caregiver distress: The role of emotional attentiveness and coping. Psychology & Aging, 9(4): 513-519.

McBride, S. (1993). Perceived control in patients with chronic obstructive pulmonary disease. Western Journal of Nursing Research, 15(4): 456-464.

Miller, B.F. & Keane, C.B. (1987). Encyclopedia and dictionary of medicine, nursing, and allied health. (4th ed., pp. 254-257). Toronto: W.B. Saunders.

Okubadejo, A.A., Jones, P.W., & Wedzicha, J.A. (1996). Quality of life in patients with chronic obstructive pulmonary disease and severe hypoxemia. Thorax, 51: 44-47.

Ostbye, T., Tyas, S., McDowell, I., & Koval, J. (1997). Reported agreement of activities of daily living between elderly subjects with or without dementia and their caregivers. Age and Ageing, 26: 99-106.

Parsons, R.J., Cox, E.O., Kimboko, P.J. (1989). Satisfaction, communication, and affection in caregiving: A view from the elder's perspective. Journal of Gerontological Social Work, 13(3/4): 9-20.

Preston, D.B. & Dellasega, C. (1996). Elderly women and stress - Does marriage make a difference. Journal of Gerontological Nursing, 16(4): 27-31.

Prigatano, G.P., Wright, E.C., Wright, M.P.H., & Levin, D. (1984). Quality of life and its predictors in patients with mild hypoxemia and chronic obstructive pulmonary disease. Archives of Internal Medicine, 144: 1613-1619.

Rhena, F., Moshe, S., & Abraham, O. (1996). Couple's adjustment to ones partner's disability: The relationship between sense of coherence and adjustment. Social Science and Medicine, 43(2): 163-171.

Renwick, D.S. & Connolly, M.J. (1996). Impact of obstructive airway disease on quality of life of older adults. Thorax, 51: 520-525.

Ross, M.M. (1991). Spousal caregiving in later life: An objective and subjective career. Health Care for Women International, 12: 123-135.

Sexton, D.L. & Munroe, B.H. (1985). Impact of a husband's chronic illness (COPD) on spouse's life. Research in Nursing and Health, 11: 83-90.

Sheckleton, M.E. (1987). Coping with chronic respiratory difficulty. Nursing Clinics of North America, 22(3): 569-580.

Sherbourne, C.D. & Hays, D. (1990). Marital status, social support, and health transitions in chronic disease patients. Journal of Health and Social Behavior, 31: 328-343.

Sneeuw, K.C.A., Aaronson, N.K., deHaan, R.J., & Limburg, M. (1997). Assessing quality of life after stroke: The value and limitations of proxy ratings. Stroke, 28(8): 1541-1549.

Sneeuw, K.C.A., Aaronson, N.K., Sprangers, M.A.G., Detmar, S.B., Wever, L.D.V., & Schornagel, J.H. (1997). Value of caregiver ratings in evaluating quality of life of patients with cancer. Journal of Clinical Oncology, 15(3): 1206-1217.

Spaid, W.M. & Barusch, A.S. (1994). Emotional closeness and caregiver burden in marital relationship. Journal of Gerontological Social Work, 21(3/4): 197-209.

Spanier, G.B. (1976). Measuring dyadic adjustment: New scales for assessing the quality of marriage and similar dyads. Journal of Marriage and Family, February: 15-28.

SPSS, Inc. (1999). (Eds.). SPSS Base 9.0: Applications guide. Using explore to screen and describe subpopulations. pp: 37-87. Chicago: Prentice Hall.

Statistics Canada (1996). Hospital morbidity and surgical procedures 1993-1994. (Publication No. 82-216-XPB, pp. 27). Ottawa: Statistics Canada.

Tsukino, M., Mishimura, K., Ikeda, A., Koyama, H., Misihima, M., & Izumi, T.U. (1996). Physiological factors that determine the health related quality of life in patients with COPD. Chest, 110: 896-903.

Turk, D.C. & Kerns, R.D. (1985). Health, illness and families: A life span perspective. New York: John Wiley.

Wallhagen, M.I. (1993). Perceived control and adaptation in elder caregivers: Development of an explanatory model. International Journal of Aging and Development, 36(3): 219-237.

WHOQOL Group (1993). Study protocol for the World Health Organization project to develop a quality of life assessment instrument. Quality of Life Research, 2: 153-159.

Wills, T.A. (1985). Supportive functions of interpersonal relationships. In S. Cohen & S.L. Syme (Eds.). Social support and health (pp 61-82). New York: Academic Press.

Young, R.F. & Kahana, E. (1989). Specifying caregiver outcomes: Gender and relationship aspects of caregiving strain. The Gerontologist, 29(5): 660-666.