PERCEPTION OF FATIGUE AND COUPLE COMMUNICATION IN PEOPLE WITH MULTIPLE SCLEROSIS AND THEIR SPOUSES; RELATIONSHIP TO COPING EFFICACY

By

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Abstract

The purpose of this exploratory study was to determine the extent to which congruence in the perception of fatigue impact between people with multiple sclerosis (MS) and their spouses is related to the coping efficacy of the individuals with MS. Although fatigue is a well known symptom in MS, the nature of its impact on the individual with the disease as well as on their spouse is poorly understood. Working from Lazarus and Folkman’s (1984) model of stress and coping, I questioned whether individuals with MS appraise the impact of their fatigue differently than do their spouses, and whether the degree of incongruence is related to the coping efficacy of the person with MS. Criteria for inclusion included married couples in which one person: (a) had been diagnosed with MS for at least one year, and (b) identified fatigue as a symptom. The ENRICH Couple Communication Scale (Olson, 1985) and The Fatigue Impact Scale (Fisk, Pontefract, Ritvo, Archibald, & Murray, 1994) were administered to 60 couples in which one person had MS. Individuals with MS then rated their perception of coping efficacy using a modified version of the Coping Strategy Indicator (Amirkhan, 1990). Efficacy of avoidance, problem-
solving, and seeking social support coping strategies was examined using the 3 subscales of this instrument. In addition, The ENRICH Couple Communication Scale (Olson, 1985) assessed congruence about communication within married couples. The extent to which congruence concerning fatigue impact and communication was related to coping efficacy of the individuals who have MS was examined using three simultaneous multiple regression analyses. Although congruence concerning communication was a significant predictor of avoidance coping efficacy, congruence of fatigue impact did not appear to be a significant predictor of coping efficacy on any of the subscales. Implications for theory and research were discussed, among them being an increased understanding of (a) coping efficacy, (b) the operationalization of congruence, and (c) the perception of an invisible symptom such as fatigue in people who are ill, as well as their spouses' perceptions of the fatigue.
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Introduction

Multiple sclerosis (MS) is a chronic disease of the central nervous system that affects about 1/1,000 people in Canada today, or 0.1% of the national population (Eisen, 1993). Worldwide incidence of this disease is 57.9 per 100,000 people or 0.00058% (O’Brien, 1983). These statistics point to MS as being a particularly Canadian disease. More women than men are included in this number, by a ratio of 3:2 (MS Society of Canada, 1992). MS is caused by a breakdown of the myelin sheath that surrounds and protects nerve fibers of the central nervous system (Sarafino, 1994; Wolf, 1984) in much the same way as insulation protects electrical wires. The interrupted nerve conduction (caused by demyelinization) produces the specific symptoms of paralysis, numbness, and fatigue (Wolf, 1984). Because MS tends to occur in young adulthood, its initial impact occurs during peak years of education, career development, and family life when individuals are assuming many social and economic responsibilities (O’Brien, 1993). The unrelenting demands of medical treatment and adaptation to special needs
and constant change take their toll on the person who is ill and on their family (Revenson & Majerovitz, 1991).

The impact of MS on families and friends is such that the issue of stress and coping is of great relevance (Buelow, 1991). Recent studies have pointed to specific aspects of chronic illness as stressors, namely, vulnerability and an uncertain illness trajectory (Weiner & Dodd, 1993; Wineman, Durand, & Steiner, 1994). "Thus, it is assumed that people with MS experience stress, and therefore, must employ coping methods to handle stress" (Buelow, 1991, p.247). Other studies emphasize physical challenges associated with MS, and their impact on normal (usual) family life (Buelow, 1991; O'Brien, 1993). These studies identify fatigue as a troubling symptom. More specifically, fatigue often becomes a social, emotional, and interpersonal stressor.

Although fatigue is documented in the literature as a symptom for 76% of individuals with MS (Fisk et al., 1994; Schwartz, Jandorf, & Krupp, 1993), it is a particularly difficult symptom for clinicians to understand due to the lack of relationship between perceived impact of fatigue and neurological assessment of fatigue severity (Krupp, Alvarez,
LaRocca, & Scheinberg, 1988; Krupp, LaRocca, Muir-Nash, & Steinberg, 1989). Furthermore, the nature of fatigue's impact on the individual with the disease as well as on their spouse is poorly understood. Due to the fact that fatigue is an invisible symptom, it may be difficult for spouses to appreciate that fatigue is a stressor for the ill partner.

The extent to which married partners have a shared understanding of illness-related issues is likely related to how much they share their thoughts and feelings with one another (Corbin & Strauss, 1984). However, it is not necessarily true that interpersonal familiarity with a spouse increases congruence of perspectives on ambiguous issues. Often, married couples overestimate the degree to which they understand one another (Sillars & Scott, 1983). Consequently, misconceptions between married partners can occur when couples do not communicate effectively about illness-related changes. It follows, then, that misunderstandings could be compounded when the changes are unpredictable and invisible, as with MS fatigue. Therefore, I expect that similar perceptions of both the impact of fatigue and congruent perceptions of positive couple
communication may help the ill spouse to feel understood and validated, which in turn may contribute to more efficacious coping with the fatigue.

In keeping with my focus on individuals with MS and their experience of coping with fatigue in the context of the marital relationship, I chose to examine these issues using Lazarus and Folkman's (1984, 1991) theoretical framework of stress and coping. The relational as well as the process-oriented aspects of this theory have important implications regarding the present study. The former is reflected in the relationship and communication between the individual who is ill and their spouse. The latter is reflected in the necessary adaptations to illness that both partners in a marriage must make.

Because the marital dyad constitutes "the most important social context within which the psychological aspects of chronic illness are managed" (Rodgers & Calder, 1990, p.25), I focused on how both partners in a marriage (when one person has MS) perceive the impact of fatigue in daily life (i.e., how congruent the couple is concerning fatigue impact). This source of support (a spouse who is congruent with the individual's appraisal of fatigue) would
be called a resource according to Lazarus and Folkman’s theory of stress and coping. Congruence in communicating about health-related issues between married couples has been shown to foster a sense of feeling understood (Hilton, 1994; Wineman, O’Brien, Nealon, & Kaskal, 1993). Within Lazarus and Folkman’s theoretical framework, feeling understood represents an available resource (support). Using resources such as support is related to coping efficacy (Billings & Moos, 1981). The more congruent a couple is concerning the impact of fatigue and communication patterns, the more supported the individual with MS is likely to feel. This increased sense of support may lead to the use of more coping strategies, and a feeling that the use of these strategies is more efficacious.

In order to illustrate this problem, I describe a hypothetical situation concerning a woman with MS and her husband. (I have chosen a woman with MS because of the higher incidence of the disease in women.) Judy considers her fatigue as more of a problem than does her husband, Jim. This represents a lack of congruence in how both spouses view the impact of fatigue. If Judy claims that she is too tired to make dinner (even though she had gone to a movie
with their son earlier), Jim might assume that she is exaggerating because he perceives the impact of her fatigue as less of a problem than she does. An efficacious coping strategy for Judy might be to order a pizza, however, she may not be able to use this strategy if Jim insists that she get on with making dinner despite her fatigue. Or, the coping strategy of ordering a pizza might be efficacious in coping with her fatigue, but not efficacious in her relationship with her husband because he gets angry and calls her lazy. In this hypothetical case, Judy’s perceived coping efficacy is reduced as a result of the lack of congruence between the couple. If, on the other hand, they had both perceived the degree of Judy’s fatigue as equally high, or had been able to communicate about it, Jim might anticipate that Judy may be too tired to make dinner, and might either suggest ordering a pizza or accept her statement that she is too tired to cook. In either case, Judy would likely perceive the coping strategy (ordering a pizza) as efficacious.

Even though stress, coping, and coping efficacy are recognized as fundamentally important issues when physical illness is present (Buelow, 1991), “actually analyzing its
(coping) parts and obtaining a measure of how effectively it is operating is extremely difficult" (McHaffie, 1992, p.67). Although many studies have attempted to quantify illness-related stressors and coping mechanisms using a variety of instruments and methodologies (O'Brien, 1993; Somerfield & Curbow, 1992), there has been very little research on coping efficacy (Bar-Tal & Spitzer, 1994; Bennett, 1993; McNett, 1987; Menaghan, 1982). This study extends current research on coping efficacy by modifying a measure of coping efficacy for use with individuals who are coping with MS fatigue.

The purpose of this study was to examine the extent to which shared perception of fatigue impact and positive communication between people with MS and their spouses were related to the perceived coping efficacy of individuals with MS. Congruence in perception of fatigue, as well as shared feelings about positive couple communication were expected to be related to coping efficacy. Specifically, I examined: (a) the relationship between perceived impact of fatigue in the daily lives of individuals with MS and their spouses (congruence), (b) couple consensus concerning positive communication, and (c) coping efficacy with this fatigue in individuals with MS.
Literature Review

MS affects 0.1% of the population in Canada (Eisen, 1993), 76% of whom experience symptomatic fatigue (Fisk et al., 1994; Krupp et al., 1988; Krupp et al., 1989; Schwartz et al., 1993). Many individuals feel misunderstood as to the impact of their fatigue on their daily lives, due mostly to its invisible and unpredictable nature—making it an important area of study (Burnfield, 1993; Hubsky, 1992).

Although four types of fatigue are typical in MS (Hubsky, 1992), it frequently is difficult for clinicians or the individual’s significant other to differentiate among them. Therefore, any type of fatigue experienced by the individual with MS, and its subjective experience, was of interest in this study.

In this study, the terms married people, significant other, spouse, and (common-law) couples were used interchangeably to denote two people who share their daily lives together, whether or not they are legally married to one another.

If the marital dyad is the most important social context within which the psychological aspects of chronic illness are managed (Rodgers & Calder, 1990), and if couple
congruence in communication helps the individual with the illness to feel more supported and able to adjust (Hilton, 1994; Wineman et al, 1993), then it would be important to investigate the degree to which married couples are congruent (i.e., share the same perception) about their communication patterns as well as the impact of MS fatigue on the daily life of the individual with MS. These couple congruencies were examined in an attempt to understand their relationship to the coping efficacy of the spouse with MS.

In this literature review, I provide an overview of Lazarus and Folkman's (1984) theory of stress and coping. I explore the stressors associated with having MS, particularly fatigue, and I examine issues related to couples' communication and chronic illness. Specifically, I focus on congruence (shared perceptions) between married partners. Finally, I explore the concept of coping efficacy according to Lazarus and Folkman (1988) and more recent related literature.

Theory of Stress and Coping

The theoretical framework on which this study is based is the stress and coping theory of Lazarus and Folkman (1991, 1984). Their work has had a major impact on stress
and coping research. This cognitive theory of stress and coping is relational and process oriented. The relational characteristic is evident in the definition of stress as "a relationship between the person and the environment that is appraised by the person as taxing or exceeding his or her resources and as endangering his or her well-being" (Folkman, 1984, p.840). In this theoretical context, stress is not a stimulus or a response. Rather, it is inherent in the relationship between the person and the environment. This cognitive theory is also process-oriented in that it delineates a dynamic (changing) relationship between the person and the environment, a relationship that is interactive and bi-directional.

Within this theoretical framework of stress and coping, the stressfulness of an event is determined through cognitive appraisal of the event. There are two major types of appraisal--primary and secondary. Primary appraisal involves an assessment of whether or not the event is potentially harmful to the individual. Secondary appraisal involves the evaluation of coping resources and options. In secondary appraisal, physical, social, psychological, and
material assets are evaluated with respect to the demands of the situation (Folkman, 1984). In this theory, coping is defined as "a constantly changing behavioral and cognitive effort to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person" (Lazarus & Folkman, 1984, p.141). Coping refers to cognitive and behavioural efforts to master, reduce, or tolerate the internal and/or external demands that are created by the stressful event (Folkman & Lazarus, 1980; Sarafino, 1994).

According to Lazarus and Folkman, the concept of coping needs to be distinguished from the layperson's use of the term (Newman & Revenson, 1993). In everyday language, the term "coping" is used to convey the idea that an individual is handling a stressful life event without significant distress. The terms "coping" and "outcome" are, therefore, almost synonymous. However, according to Lazarus and Folkman's (1984) theory, the term "coping" refers to coping strategies, regardless of their outcome. Lazarus and Folkman (1991, 1984) emphasize the individual's appraisal of coping strategies as efficacious, rather than someone else's judgement about the efficacy of coping.
The theoretical separation of coping efforts from their outcomes is necessary if the coping construct is to be used to predict outcome because when coping is confounded with outcome, any use of coping as a predictor is repetitious (Folkman, 1984; Lazarus & Folkman, 1991).

Lazarus specifies two approaches to coping—coping style and coping strategies (1993). A coping style reflects a personality trait or a general way of handling stress, whereas the coping strategies used at any given time change over time and depend on the individual’s appraisal of the situation.

Coping strategies have two functions: to regulate emotions (emotion-focused coping), and to manage the problem that is causing the distress (problem-focused coping). Examples of emotion-focused coping include avoidance and seeking social support. Examples of problem-focused coping include making plans to solve the problem or confront an issue directly (Folkman & Lazarus, 1986). According to Folkman and Lazarus (1980), both types of coping strategies are used in most stressful situations, and the proportions vary from situation to situation. Problem-focused coping tends to predominate when an individual feels that something
can be done about the situation, whereas emotion-focused coping tends to predominate when people feel that the stressor is something that must be endured (Folkman & Lazarus, 1980).

Within this theoretical framework, coping and coping efficacy are subjective constructs. Coping strategies considered to be efficacious (subjectively) by an individual with MS may or may not actually (objectively) be efficacious. For example, having temper tantrums to cope with frustration about having fatigue may help the individual with MS to feel better, but it may alienate the family. Because Folkman and Lazarus (1980) place an emphasis on the subjective appraisal of stress, it follows that attention to subjective indicators of coping efficacy warrant further study, and that "the perceiving self ought to be the litmus test for the quality of life" (Baltes & Baltes, 1988, p. 10 (as cited in Filipp & Klauer, 1990)].

Gender and coping. The question of whether men and women cope with stress in different ways is a difficult one to answer, due mostly to a lack of consistent patterns in research findings (Ptacek, Smith, & Zanas, 1992). Billings and Moos (1981) reported that men used less behavioural,
avoidance, and emotion-focused coping than women, but stated that these gender differences were relatively small. Endler and Parker (1990) found no gender differences in task coping. However, women scored significantly higher on avoidance and emotion-focused coping. Endler and Parker reported that this was not a surprising finding because women tend to seek more social support and express more emotions when faced with stressful situations (1990). However, these findings may reflect differences in the characteristics of the stressors rather than actual differences in coping strategies employed. Fewer gender differences in coping strategies used have been reported when controlling for the stressor (Long, 1989).

Amirkhan's research using the Coping Strategy Indicator revealed a significant gender difference on the seeking social support subscale only, even when the type of stressors were controlled (1990, 1994). No significant differences in avoidance or problem-solving coping were found. It is possible that people may respond to coping questionnaires according to social desirability or gender role stereotypes, thus masking a true reflection of coping strategies used (Ptacek et al., 1990).
Stressors Associated with MS

Illness imposes different demands than do other types of stressors, and specific illnesses may vary in this regard (Ray, Weir, Stewart, Miller, & Hyde, 1993). The literature describes both physical and emotional stressors associated with a diagnosis of MS, whether they are actual or anticipated. Specific physical difficulties include decreased mobility and, consequently, difficulty with activities of daily living, double vision, poor balance, weakness, pain, and loss of bladder or bowel control (MS Society of Canada, 1992; Reagles, 1982; Wolf & Fellows, 1984).

Emotional problems identified in the literature include decreased social contact, a lack of personal well-being (Buelow, 1991), and a fear of disability (Thornton & Lea, 1992). Anticipatory grief reactions to the impending losses (Reagles, 1982; Sanford & Petajan, 1989) such as fear of becoming dependent on others (Gulick, 1994), and uncertainty of what to expect (Miller & Hens, 1993) have also been noted. The ambiguity of MS coupled with its unpredictable course is one of the most frustrating factors of the disease for individuals and family members (Thornton & Lea, 1992;
Wedi, 1984). In addition, many of the symptoms, such as tremors, speech difficulties, and bladder or bowel problems, are potentially embarrassing (Crawford & McIvor, 1987), and may, therefore, be a source of psychosocial stress. Some individuals are plagued with the questions, “Why me?” and “What should I tell people about MS?” (MS Society of Canada, 1992; Reagles, 1982), which reflect spiritual and social stress (Finder, 1990).

Individuals who experience invisible symptoms may have more difficulty coming to terms with their condition because “they are unable to find citizenship either in the world of the healthy or in the world of the sick” (Thornton & Lea, 1992, p. 323). Furthermore, some people with MS may feel either guilty or judged for having seemingly illegitimate symptoms such as fatigue (Burnfield, 1993; Hubsky & Sears, 1992).

Fatigue as a Stressor in MS. Several studies have found fatigue to be a predominant symptom and stressor in people with MS (Fisk et al., 1994; Krupp et al., 1988; Krupp et al., 1989; Schwartz et al., 1993). Although the cause of fatigue is not completely understood, it is believed that the demyelination is a contributing factor. Because
Demyelination slows conduction in peripheral nerve fibers, even minimal physical activity may result in a disproportional loss of energy or fatigue (Hubsky & Sears, 1992). Hubsky and Sears describe fatigue in multiple sclerosis as follows:

Fatigue is a distinct symptom complex, reporting distinguishing characteristics that differentiate it from normal fatigue, affective disturbance, and neurological impairment. Unique characteristics of fatigue in MS include the following: (a) it occurs more quickly than normal; (b) it is more frequent and severe than normal; (c) it is chronic; (d) it exacerbates other MS symptoms; and (e) its severity is not always related to neurologic status or severity of other MS symptoms (Hubsky & Sears, 1992, p. 176-777).

There are four types of fatigue that may be experienced by an individual with MS (Hubsky & Sears, 1992; Krupp et al., 1989, 1988). They are: (a) normal fatigue, (b) episodic fatigue, (c) muscular fatigue, and (d) MS fatigue. Normal fatigue occurs in everyone as a result of work and other daily activities, yet it may occur more quickly and more often in individuals with MS. Episodic fatigue produces a
feeling of being worn out and results in considerable energy loss and inability to carry out regular activities. Muscular fatigue, related to muscle weakness or nerve fiber fatigue, occurs suddenly and interrupts activities such as walking or writing. Increased effort needed to perform tasks related to activities of daily living may cause this extreme type of fatigue. Finally, MS fatigue is unique to MS and is severe. It may occur without warning, at any time of day, causing the person to fall asleep in the middle of an activity.

In an important study by Fisk et al. (1994), the researchers addressed the need for further understanding of the impact of fatigue caused by a medical problem on the individual's daily life. Previous studies had investigated fatigue severity and fatigue frequency (Krupp et al., 1989; Schwartz et al., 1993), but not the impact of fatigue on individuals' daily lives.

The Fatigue Impact Scale (FIS) was administered to 85 people with MS and 20 people with hypertension. People with MS had significantly higher FIS scores ($M=66.8$, $SD=36.0$) than those in the control group ($M=29.2$, $SD=29.6$). Although the mean difference was convincing, the large standard deviations warrant further investigation. Of the 85
participants in the group, 14 were male and 71 were female. This was not addressed in any way, and differences in reported fatigue in men and women were not explored, probably due to the uneven ratio of men to women in the study.

An important finding was the lack of relationship between clinical symptoms of MS or duration of bouts of fatigue and a high score on the FIS (r=.07 and r=-.06, respectively). This may have implications for clinicians because it is not possible to predict the degree to which fatigue affects the lives of people with MS by doing a routine clinical assessment. In addition, people who had benign MS (N=6) reported significant fatigue on the FIS, which underscores the prevalence of the symptom in the absence of neurological dysfunction. Due to the small sample size of individuals with this type of MS, further study is warranted. This measure may be useful in operationalizing fatigue.

Sears and Hubsky (1993) conducted a study on the efficacy of 17 specific strategies used to cope with MS fatigue. They found that all participants (n=30) rated delegating tasks, taking naps, resting, and avoiding stress
as the most efficacious coping strategies. The number of
years since diagnosis affected individuals’ perception of
efficacy. People who had been living with MS for more than
three years rated pacing activities, managing stress, and
taking naps as more efficacious than did people who had been
living with the disease for less than three years (Sears &
Hubsky, 1993, p. 5). The researchers concluded that newly
diagnosed individuals may not have learned how to cope with
fatigue.

In summary, fatigue is a prevalent symptom in
individuals who have MS and may have a significant impact on
the couple’s daily lives. Fatigue is a particularly
difficult symptom for clinicians to understand due to the
lack of relationship with reported impact and neurological
assessment of fatigue severity. Furthermore, spouses may
find that fatigue is difficult to understand due to its
invisible and, often, unpredictable nature. Because
individuals with MS are usually young and appear healthy,
their symptoms may be discounted or minimized by their
family. People with MS may be accused of trying to get out
of housework, seeking attention, or not being as interested
in significant relationships as they once were (Burnfield,
Consequently, the subjective nature of fatigue lends itself to misinterpretation by the person's significant other (Hubsky & Sears, 1992). Therefore, fatigue is an important symptom to consider in the context of stress and coping with MS because it can cause many problems—physical, emotional, familial, and social. Furthermore, the extent to which the individual with fatigue feels understood is expected to be related to coping efficacy.

The Impact of Chronic Illness on the Marital Relationship

According to deLoach and Greer (1981), the three major sources of stress for chronically ill people are social or environmental frustration, pressure concerning expectations of the self or others, and conflict. When one partner is chronically ill, the stressors are increased. It is not the physical limitations, per se, which cause stress, but rather the need to cope with limitations within the confines of a close relationship. deLoach and Greer found that individual differences such as pace of life, social activities, and allocation of responsibility at home are accentuated. Partners go from feeling altruistic to feeling overburdened and used, and the person who is sick feels guilty for taking
In an exploratory study designed to identify stressors and coping behaviours of spousal caregivers of individuals with MS, O'Brien (1993) found that caregiving spouses experience stress because of the daily and chronic impact of many symptoms of the disease. Among the stressors reported were curtailment of usual activities, changing roles, and increased responsibility for managing household tasks. O'Brien (1993) concluded that these factors, all related to an increased dependency on the well spouse, "maximize social and psychological problems that evolve and continue to grow over an extended period of time" (p. 124).

O'Brien (1993) found that there was a positive correlation between stress and the use of problem-focused and emotion-focused coping strategies, suggesting that "as stress increased, so did the use of their coping strategies" (p. 131). In addition, caregivers used more emotion-focused coping strategies as stress related to the spouse's illness increased. Although this study assessed the degree of stress experienced and coping strategies used, it is not clear that the caregiver's perception of the coping was helpful. The
question of whether these coping strategies were helpful to the spouse or to the couple remains unanswered, and represents a largely ignored area of study in the literature on stress and coping.

**Couple Communication**

When an individual is diagnosed with a chronic illness, it is not only that individual who is affected, but the entire family unit (Danielson, Hamel-Bissell, & Winstead-Fry, 1993). Consequently, recent studies have focused on the effects of illness on the marital relationship (Woollett & Edelmann, 1988). In communication theory, families, rather than individuals, have come to be seen as the significant unit of study. Because the (communication) system must be understood only in its entirety, a focus on the individual is apt to be misleading (Raush, Greif, & Nugent, 1979).

The issue of couple communication becomes important in a study concerning chronic illness. Although MS itself does not make or break marriages, it does put a strain on any marriage (Wolf, 1984; Woollett & Edelmann, 1988).

In situations concerning subjective issues, individuals may overestimate how much they know about their spouse as well as how much their spouse knows about them (Sillars &
Scott, 1983). In the present study, the subjective issue at hand is the impact of fatigue on the individual with MS. Therefore, it is possible that the well spouse may assume that what they perceive about the ill partner's fatigue is congruent with their partner's perception. When a lack of congruence in perception of illness-related issues occurs, the coping of the individual who is ill may be negatively affected because there may be a non-verbal discord with the spouse. This, in turn, could lead to a decreased sense of coping efficacy with the illness—in this case, MS fatigue.

Pike and Sillars (1985) discuss a social skills approach to couple communication that suggests that marital dissatisfaction is the result of ineffective communication. The results of their study were mostly compatible with this interpretation. However, they found that "non-verbal patterns were more consistent with prevailing assumptions about effective communication than verbal conflict patterns" (p. 318). This finding has important implications in the present study because perceived fatigue is subjective, and thus lends itself to misinterpretation if not discussed openly.
In a study of family communication patterns and coping with breast cancer, Hilton (1994) explored communication within the marital relationship. Qualitative and quantitative data were collected from families concerning types of discussion patterns about feelings related to a diagnosis of breast cancer. In addition to the interviews, family members completed The ENRICH Couple Communication Scale (CCS) as well as the State-Trait Anxiety Inventory (Spielberger, 1983). The CCS focuses on the level of comfort felt by the partner in sharing and receiving emotional and cognitive information.

Results of this study indicated that "sharing meaning was a central strategy for families...By sharing meaning, this allowed members to be in sync with one another, to show their concern and support, to make and carry out decisions, and to enhance family adjustment and satisfaction" (Hilton, 1994, p. 369). Couples who agreed that communicating about their feelings or not communicating about their feelings were more satisfied with their patterns of sharing meaning than were those couples who held discrepant views about the importance of talking about feelings.
Five major types of couple discussion patterns were identified. They were; "talkers" (reasonable talking and attentive listening by both members), "medium talkers" (both listen and talk to some degree, or one talks and the other listens), "nontalkers" (both partners view not talking as an important facilitating strategy), "minorly discrepant" (partners have divergent views on the importance of talking), and "majorly discrepant" (generally argumentative and insensitive communication) (Hilton, 1994). The more similarly the couples viewed the importance of verbal communication, the more satisfied they were with the relationship, the more supported they felt, and the better their adjustment to their diagnosis and the treatment" (Hilton, 1994, p.382).

Corbin and Strauss (1984) found that it was through talking that spouses were able to know how their partners felt about their responses to their needs. Communication between intimate partners can have the goal of "increasing openness and reducing the number of private misconceptions" (Sillars & Scott, 1983, p.165). Therefore, the extent to which couples' perceptions of their communication is congruent is included in this study because it is expected
that it will be positively related to congruence of perception of fatigue and coping efficacy with fatigue. The more congruent the couple is concerning communication, the more congruent they are expected to be concerning fatigue impact, and the more coping efficacy the individual with MS is expected to experience.

Fowers and Olson (1989) found that there were no significant gender differences in satisfaction with couple communication. Other researchers have found that effective communication leads to more accurate interpersonal perception (Fournier, Olson, & Druckman, 1983; Hilton, 1994). In other words, if a couple agrees on an issue, there would be greater understanding (White, 1985). This concept may be called couple consensus, congruence, or agreement.

**Shared Perceptions within the Marital Relationship (Congruence)**

The *Webster's Encyclopedic Unabridged Dictionary of the English Language* (1989) defines congruence as "the quality or state of agreeing or corresponding" (p. 310). Wineman et al. (1993) defined congruence in illness uncertainty as "the degree of harmony between the husband's and wife's perceptions about illness uncertainty" (p. 356). In the
present study, congruence in perception of fatigue is defined as the degree of agreement between the husband’s and wife’s perceptions of fatigue impact.

Schutz and Roy (1973) used the term “absolute error” to denote a mean score difference within individuals on task performance. In the present study, congruence was operationalized in a similar manner, that is, the mean score difference between married partners for perceived fatigue impact was calculated.

Testing for congruence effects should be most sensitive if it is done within a relationship that is strong and continuing. The marital relationship provides such a context for studying congruence effects (Reich, Zautra, & Manne, 1993).

Rodgers and Calder (1990) have found a positive relationship between marital adjustment and emotional adjustment in people with MS. Moreover, Corbin and Strauss (1984) state that problems in managing daily tasks may develop when couples understand and perceive their illness differently. Thus, “for couples, differing perceptions of illness uncertainty may lead to tension in the marriage” (Wineman et al., 1993, p. 357). The present study introduces
the ill person’s experience of fatigue, the similarity or difference in their spouse’s understanding of it, and the relationship of congruence to coping efficacy.

However, it is not necessarily true that just because two people are coupled, they share similar perspectives on subjective issues. When one spouse has a highly unpredictable chronic illness such as MS, it is likely that each partner’s perception of the illness situation will be different (Wineman et al., 1993). Wineman et al. have suggested that when illness-related perceptions differ between husband and wife, their behaviours, goals, management strategies, and future dreams may not be synchronized. Thus, they may fail to make the role adjustments necessary for what they deem to be efficacious coping. Furthermore, in a study of families’ adaptation to medical crises, Fife (1985) found that “congruence in expectations within family relationships is necessary if integration is to exist and conflict is to be minimized” (p. 109).

Wineman et al. (1993) studied the impact of differing perceptions of illness uncertainty between people with MS and their spouses on emotional well-being. The Mishel
Illness Uncertainty Scale [Mishel, 1990 (as cited in Wineman et al. 1993)] was administered to 61 couples. Congruence in the perception of illness uncertainty was calculated by summing the absolute difference between the spouses’ scores on uncertainty scale items. Congruence in perceived uncertainty was treated as a continuous variable, yielding ratio level data. Therefore, results should be interpreted with caution.

The association between the spouses’ perceptions of uncertainty (congruence) was moderate and statistically significant ($r = .38, p < .01$). In people with MS, a gap in perception of illness uncertainty was not related to mood or family satisfaction. However, for the well spouses, the same lack of congruence negatively affected family satisfaction.

Finally, the researchers went on to analyze the predictive nature of illness uncertainty and its impact on mood and satisfaction. The study found that “congruence in perception accounted for a significant amount of variance in spouses’ sense of family satisfaction” (p. 359). In other words, spouses of individuals with MS feel a greater sense of family satisfaction when they agreed with the ill partner on issues related to the uncertainty of the illness. In
Lazarus' (1984) theory, this would mean that spouses experience more family satisfaction when they appraise the stressor of illness uncertainty in a similar manner to that of the other person in the dyad.

The greatest contribution of Wineman et al.'s (1993) work to the present research project is the operationalization of the congruence phenomenon within the marital relationship. Although a gap in congruence concerning illness uncertainty did not negatively affect family satisfaction of the individuals with MS, it did so for the well spouses. This finding may reflect the fact that illness uncertainty can put more pressure on the well spouse because they will have to assume more and more responsibility as the illness progresses. Therefore, it follows that a lack of congruence about this issue would impact more on the well spouse's sense of family satisfaction, than on that of the individual with MS. However, in the case of congruence concerning perception of fatigue impact, the fatigue may be more of a stressor for the individual with MS. Not only must the person deal with its physical effects, but they must also interact with the well spouse and deal with their reactions to this fatigue.
Because couple congruence is a relatively unresearched construct, further investigation of its operationalization is an important area of study.

There is a common assumption that a couple’s marital satisfaction and adjustment are directly related to each spouse’s accurate perception of their partner (White, 1985). However, it is important to distinguish between perceived similarity and understanding. Perceived similarity represents the extent to which one spouse believes their mate agrees with them on important issues. Understanding represents whether one spouse can accurately predict the response of the other. Both of these aspects of couple congruence are important in the current study--examining to what extent both partners in a marriage perceive the impact of MS fatigue on the individual with the disease.

Stressors experienced in couples when one individual has a chronic illness have been shown to be related to such factors as: (a) expectations of the self or expectations of the other person (deLoach & Greer, 1981), (b) increased dependency on the well spouse, and (c) degree of congruence about illness-related issues within the marital dyad (Hilton, 1994; Wineman et al., 1993). Because fatigue is a
prevalent symptom in MS, and because the expectations that well spouses may have of their partners can cause friction when an illness or disability is present, agreement within the marital dyad concerning the impact of fatigue is important to consider. Therefore, the focus of this study will be to examine the extent to which couples' congruence in perception of fatigue (when one person has MS) is related to the coping efficacy with fatigue of the individual who is ill.

**Definitions of Coping Efficacy**

At first glance, the definition of coping efficacy appears to be reasonably simple. However, there is some confusion of terms in the coping literature. "When efficacy is implied by coping and inefficacy by defense, there is an inevitable confounding between the process of coping and the outcome of coping" (Lazarus & Folkman, 1991, p. 200). The terms "coping effectiveness" and "coping efficacy" are often used interchangeably and/or inaccurately. For purposes of clarification, I operationalize these terms as defined by Filipp and Klauer (1990). Coping effectiveness is defined as "the empirically detected association between coping behaviours and adjustment indicators...objectively measured
'from the outside'" (p.217). Coping efficacy, on the other hand, is defined as "perceived utility of coping responses in attaining one's subjective goals" (p.217). Although the distinguishing features of these definitions may appear to be minimal, they are important in this study. Coping efficacy is the term that most accurately reflects Lazarus and Folkman's theory, whereas coping effectiveness reflects the layperson's use of the term "coping".

Despite this clarification, coping efficacy is a highly subjective construct, and is, therefore, difficult to quantify (McHaffie, 1992; Stone, Greenberg, Kennedy-Moore, & Newman, 1991). Based on Lazarus's theory, Aldwin (1994) states that "one must control for...the level of coping effort, or one must use interaction terms with coping efficacy for a more accurate picture of the effect of any given coping strategy" (p.273). When measuring coping efficacy, and what people do to cope efficaciously, the question of values is an inevitable aspect of the construct. This is to say, "efficacious" is a relative term. Someone who experiences fatigue may feel that resting more often is an efficacious coping strategy, whereas that person's spouse
may see it as inefficacious, because the individual accomplishes less in a day due to frequent rest periods.

Filipp and Klauer (1990) also state that coping is "by no means to be equated with trait-like dispositions to handle stressful situations. Rather, the dynamics that are inherent in the coping process itself have to be underlined, and coping has to be conceived of as a changing phenomenon. This implies that success in coping with life events cannot be explained a priori by personality factors and/or social resources, but has to be related to what people do in the face of critical life events" (Filipp & Klauer, 1990, p.215).

A strong rationale for measuring coping efficacy, not merely use of coping strategies, is presented by Folkman and Lazarus (1980) and by Aldwin (1994). Aldwin states that "It is equally appropriate to have individuals evaluate their coping behaviours as "helpful" or "successful"...as has been proposed by introducing the concept of coping efficacy and by distinguishing it from coping effectiveness" (p.217).

This notion is supported by a study by Bar-Tal and Spitzer (1994) who highlight the importance of conceptualizing what they call coping effectiveness as a
product of use and perceived helpfulness of coping strategies. According to my previously cited operational definitions, this construct is actually coping efficacy. They argue that measuring coping use and effectiveness separately is insufficient. Measuring the extent to which certain coping strategies are used results in a description of the type of strategies that individuals use in different situations. Measuring helpfulness reflects individuals' opinions of what can help them in various situations. Each of the above types of assessment represents only one dimension of the coping concept. A composite of the two dimensions, however, more accurately reflects the individual's perception of their coping efficacy.

In summary, coping efficacy is an extremely complex construct that comprises subjective judgment of what is helpful in relation to each unique stressor. Moreover, coping efficacy depends on an individual's personal meaning of the situation, and hinges on the extent to which it balances the emotional stress in the individual's own perception and in their total context (McHaffie, 1992).
Problems in Operationalizing Coping Efficacy

Despite the challenge of operationalizing the construct of coping efficacy, some recent literature has appeared on the subject. Although Lazarus and Folkman's theory of coping is the framework on which this study is based, I review research on coping efficacy that does not follow their theory as a rationale for the research questions in the present study.

Studies that reflect difficulty in operationalizing coping efficacy. Buelow (1991) used The Jalowiec Coping Scale (JCS) [Jalowiec & Powers, 1981 (as cited in Buelow, 1991)] to assess coping styles in people with MS. The JCS lists 60 coping strategies that are rated on a 4-point Likert scale indicating frequency of use. Coping items are divided into eight conceptual themes: confrontive, evasive, fatalistic, supportive, self-reliant, optimistic, emotive, and palliative, and are quite different from Lazarus's eight coping strategies (Lazarus, 1993). Buelow indicated that an effectiveness rating scale was also included but not analyzed. This effectiveness rating scale may have added an extremely important dimension to the area of stress and coping with chronic illness, and it is unfortunate that it
was not included in the study. These results may reflect difficulty in operationalizing coping efficacy.

Bennett (1993) used the Coping Effectiveness Questionnaire (CEQ; McNett, 1985) in a study of individuals coping with myocardial infarction. The CEQ is a 9-item questionnaire with a 5-point response scale. Respondents are asked to rate to what degree they feel satisfied with their day, feel a sense of well-being, etc. Bennett (1993) suggests that "patients' emotional responses (to illness) may be most influenced by their perception of a situation rather than by how they cope. Emotions, rather than which coping strategy is used, may play the greatest role in the patient's perceived coping effectiveness" (p.137). In other words, specific coping strategies do not appear to have as much of an effect on an ill person's appraisal of the illness-related stressors as do his or her perceptions of their personal usefulness. However, this CEQ instrument does not have satisfactory face validity, and it seems to equate well-being with coping efficacy.

Bar-Tal and Spitzer (1994) state that "most of the research in the field (of stress and coping) has involved self-report measures in which participants were requested to
report on the extent to which they used each of the coping behaviours. Coping strategies, therefore, have been studied as neutral entities detached from their meaning to the person" (p.91). For this reason, their study focused on a new method of measuring coping efficacy. In order to assess this construct, the researchers used an adapted version of the Coping Strategy Scale [Moos, Cronkite, Billings, & Finey, 1986 (as cited in Bar-Tal & Spitzer, 1994)]. Coping strategies were divided into four types: problem focused, positive appraisal, emotion focused, and emotional discharge. Participants were asked to rate coping use and perceived personal usefulness of each item on the following scale: a lot / very useful, a little / somewhat useful, or not at all / very counterproductive. This method is appealing and has face validity as an attempt to gain more insight into this notion of coping efficacy.

In summary, research concerning stress and coping with MS often describes the degree of stress experienced and coping strategies used, yet one does not get a sense of the coping efficacy of these strategies. Buelow (1991) introduced a coping effectiveness scale, but did not use it. Moreover, the CEQ is cited in the literature (McNett, 1985,
1987), yet this is an isolated citation and there is no published manual, making it an unreliable choice for this project. Measuring either the type of strategies that individuals use in different situations, or their perceived helpfulness to that individual in isolation from one another represents only one dimension of the coping concept. A composite measurement allows researchers to gain an increased understanding of coping efficacy.

Summary

Given the prevalence of MS fatigue, limited research on congruence, and the difficulties in quantifying coping efficacy, the purpose of this study was: (a) to examine the degree of congruence between spouses concerning MS fatigue; (b) to examine the degree of congruence concerning couple communication patterns; and (c) to examine the relationships between both aspects of congruence and coping efficacy in individuals with MS fatigue. Gender differences in congruence and coping efficacy were also explored.

Because of the exploratory nature of this study, no specific hypotheses were made regarding the relationship between congruence in fatigue impact, couple communication, and coping efficacy. However, it seemed logical to expect
that the extent to which couples were congruent concerning communication would be positively related to congruence in perception of fatigue and coping efficacy. Specifically, one might expect that the more congruent the couple was concerning communication, the more congruent they were concerning fatigue impact, and the more coping efficacy the individual with MS was expected to report.
Research Questions

In married or common law couples when one spouse has MS:

(1) What is the perception of the degree of fatigue impact in the person with MS?

(2) What is the partner's perception of the degree of fatigue impact on the spouse with MS?

(3) What is the similarity of the perception of fatigue impact between the person with MS and their partner?

(4) What is the similarity of the perception of communication within the marital relationship between the person with MS and their partner?

(5) What is the relationship between similarity of perceived fatigue impact, similarity of communication, and coping efficacy, considering the number of years since diagnosis and the level of MS fatigue?

(6) Are there gender differences in congruence of fatigue impact, couple communication, and coping efficacy?

Operational Definitions of Variables

Perception of MS fatigue by individuals with MS and their spouses was defined using the FIS. Congruence was calculated by summing the absolute difference of both spouses' scores on each item. Congruence concerning couples'
perceptions of their communication was defined using the positive couple agreement score on the CCS (see Appendix A). Coping efficacy for the coping subscales (seeking social support, problem-solving, and avoidance) was measured in the spouses who have MS using the Coping Strategy Indicator and scoring it using the method cited by Bar-Tal and Spitzer (1994).
Method

Criteria for Inclusion

Individuals with MS were included in this study providing that they were 19-65 years of age, and had a spouse who was also willing to participate. They must also have had MS for 1-30 years. One or both people in the dyad recognized fatigue (any of the four types cited in the literature review) as a problem so that their participation in the study would be personally relevant and valid.

Participants

The participants for this study was comprised of 60 individuals who have had MS for a period of 1-30 years, and their spouses (N =120). Participants were recruited through the MS Society, B.C. Division, and The Vancouver Island MS Society. The MS Society announced the study in their newsletter and The Vancouver Island MS Society sent a letter to its membership inviting participation. Both announcements requested that anyone who was interested contact me by telephone for more information.

The average age of the person with MS was 46 years (range=24-65, SD=8.8), and for the well spouse, also 46 years (range=25-64, SD=8.9). Couples were married an average
of 16 years (range=1-42, SD=11.6). There were 17 men (28.3%) and 43 women (71.7%) with MS. All individuals with MS were Caucasian, while 93.3% of the spouses were Caucasian. Although 40% of the sample had total household incomes of $55,000 or more, 33% had household incomes of $35,000-$54,999, and 27%, of less than $34,999.

Spouses with MS had been diagnosed an average of 10 years (range=1-33, SD=7.3). Of the four types of MS, 27% had relapse-remitting, 40% had chronic-progressive, 26% had relapse-progressive, and 7% had benign MS. Of the four types of fatigue, 13.3% experienced normal fatigue, 11.7% experienced episodic fatigue, 8.3% had muscular fatigue, and 21.7% had MS fatigue. Many individuals with MS (40%) reported experiencing more than one type of fatigue.

The majority of the individuals with MS were on long-term disability pensions (46.7%), whereas 8.5% were working full-time, 18.3% had part-time work, and 23.3% referred to themselves as homemakers, retired, students, or volunteers. The remaining 3.4% were on short-term leave from work.

Procedure

All couples wishing to participate in the study were asked to telephone the Stress Lab at The University of
British Columbia, and all respondents were screened as per the criteria. The only participants who were screened out of the study were those people who were not married and had overlooked this criterion on the invitation to participate (n=20), or individuals who wanted to participate but whose spouse did not (n=4).

All couples were seen in their homes or at a central meeting place, except for five couples, to whom questionnaire packets were mailed. This was done only with couples who wanted to participate but who lived in areas too remote for me to access.

All participants signed an informed consent prior to filling out the questionnaires (see Appendix B). Each member of the dyad completed the FIS (see Appendix C and D) and the CCS. Then, the spouse who had MS was asked to complete the Coping Strategy Indicator (CSI) (see Appendix E). Demographic data that were pertinent to this study were collected on a demographic data sheet at the end of the questionnaire packet (see Appendix F). All couples were asked to complete the questionnaires without conferring with one another, thus ensuring unbiased responses.
Measures

The Fatigue Impact Scale. The FIS was used to evaluate perception of fatigue by the individual with MS and the well spouse. The instrument is a 40-item scale designed to measure the perceived impact of fatigue on the individual's cognitive, physical, and psychosocial functioning (Fisk et al., 1994). Individuals are asked to rate the degree to which fatigue has caused problems for them on a 4-point Likert scale (ranging from $0 = \text{no problem}$ to $4 = \text{extreme problem}$). The minimum score is 0—indicating that fatigue causes no problem in all 40 items on the scale, and maximum score is 160—indicating that fatigue is an extreme problem in all 40 items on the scale. Thus, the greater the score on the FIS, the more fatigue the respondent is experiencing.

Participants were then asked to rate the degree to which the impact of fatigue was understood. For individuals with MS, an additional question (item 41) was added to the FIS and read “How well do you feel your spouse understands your fatigue?” For spouses, the question read “How well do you feel you understand your spouse’s fatigue?” The same 4-point Likert scale (ranging from $0 = \text{extremely well}$ to $4 =$
extremely poorly) was used. Thus, the smaller the score on this item, the more understanding there is.

Having recently been developed, the psychometric properties of the FIS have not yet been published in a manual. Fisk et al. (1994) cited high internal consistency with a Cronbach's alpha greater than .93 (p. 11). A review of the instrument suggests that it appears to have good face validity. Fisk et al. also administered other measures, demonstrating strong construct validity. They were: The Expanded Disability Status Scale (Kurtske, 1983), The Mental Health Inventory (Weit & Ware, 1983), The Sickness Impact Profile (Bergner, Bobbitt, Carter & Gilson, 1981), The Social Readjustment Rating Scale (Monroe, 1982), and The Revised UCLA Loneliness Scale (Russell, Peplau, & Guutrona, 1980) as cited in Fisk et al., 1994).

Personal communication with the test developers with regards to its use with spouses suggested that "the psychometric properties of such a modified scale remains an empirical question. It is certainly an interesting question, however, and one that is worth exploring" (J.D. Fisk, personal communication, October 26, 1994). Couple congruence on the FIS was calculated by summing the absolute difference
between the spouses' scores on fatigue impact scale items. Schutz and Roy (1973) used the term "absolute error" to denote a mean score difference within individuals on task performance, and the same method was employed in the present study.

Cronbach's alpha in this study was calculated for individuals with MS and their spouses on the FIS and were .96 and .97, respectively. Given test developers' Cronbach's alpha levels (> .93), the values obtained in the present study suggest that the scale has satisfactory internal consistency for both individuals with MS and their spouses.

The ENRICH Couple Communication Scale (CCS). The CCS is a 10-item scale that is one of 14 subscales of the ENRICH Marital Inventory (ENRICH--Evaluating & Nurturing Relationship Issues, Communication, Happiness) (Olson, 1985). This multidimensional instrument was designed through theoretical and empirical analyses for marital therapists and researchers. The Couple Communication Scale (CCS) assesses the level of comfort felt by the partner in sharing and receiving emotional and cognitive information. All items are answered on a 5 point Likert scale: (1) strongly agree; (2) moderately agree; (3) neither agree nor disagree; (4)
moderately disagree; and (5) strongly disagree. The Positive Couple Agreement score is the percentage of the 10 items on which the couple has positive agreement, and is a measure of couple consensus (Fowers & Olson, 1989). Scores of 60% and higher generally mean that partners are understood and easily share their feelings. Scores of 30% or less mean they are concerned about their communication and feel unable to share their feelings.

Univariate comparison of ENRICH scales showed that couple agreement scores were higher among satisfied couples on every scale (Fowers & Olson, 1989), demonstrating good discriminant validity. The instrument was developed to help couples to reflect on their relationship, and therefore, needs high face validity (Fournier et al., 1983). Construct validity of the instrument was ensured by conducting correlational analyses on it and over 100 previously established scales assessing marital and individual topics (Fournier et al., 1983). Finally, test-retest reliability ranged from .64 to .93 over a 4-week period. Test developers cautioned that, although this is sufficient for research purposes, “reliabilities are not high enough to determine whether couples should be denied marriage or required to
seek counselling without other sources of information" (Fournier et al., 1983, p.237).

The Coping Strategy Indicator. The CSI is a 33-item questionnaire designed to measure the use of three types of coping strategies: problem-solving, seeking social support, and avoidance (11 items each, Amirkhan, 1990). Individuals are asked to focus on a specific problem and to indicate to what extent they used the coping strategies (3 = a lot, 2 = a little, and 1 = not at all). Scores for each of the three types of coping strategies measured by this instrument are calculated with a range of scores being 11 (the individual does not use the coping strategy at all) to 33 (the individual uses the coping strategy a lot). This scale has shown itself to be psychometrically sound (Amirkhan, 1994; Amirkhan, 1990; Ptacek, Smith, Espe, & Raffety, 1994) and was chosen over any of the other numerous coping measures because of its strong psychometric properties. Among these is internal consistency, which was reported at .93 for seeking support, .89 for problem solving, and .84 for avoidance. Furthermore, there is evidence of high test-retest reliability (Amirkhan, 1990, 1993) as well as concurrent and divergent validity (Amirkhan, 1993; Ptacek et
Test-retest reliability was reported for both a college and a heterogeneous community sample (respectively) over a 4 to 8 week period for each of the three subscales. They were: .83 and .77 for problem-solving, .80 and .86 for seeking social support, and .82 and .79 for avoidance (Amirkhan, 1990). The correlation between problem-solving coping methods assessed by the CSI and The Definitional Coping Inventory (Ptacek et al., 1992) were moderately high (52% shared variance). The Support Seeking subscale was also moderately highly correlated (sharing 55% of the variance), demonstrating reasonable convergent validity. Divergent validity was demonstrated with low correlations (r< .20) between non-corresponding coping methods on both instruments (Ptacek et al., 1994).

Participants were asked to rate both frequency of use and perceived helpfulness of each of the 33 items on the questionnaire. Respondents assigned a personal coping score of 1 to 3 for using each of these 33 coping strategies not at all to a lot, respectively. Respondents then scored the same item on a scale of 1 to 3 for the perceived helpfulness of each of these coping strategies that they did use. If they did not use a strategy, they were instructed not to
answer the question on how helpful the strategy was. These responses were rated on a scale of 1 = *not at all helpful* to 3 = *very helpful*. The range of coping use and helpfulness scores on each of the three subscales of The CSI was 11 to 33. Calculation of a composite score using measures of use and helpfulness generated a coping efficacy score. The greater the score, the less efficacious the coping strategy. Scores on the avoidance subscale were calculated slightly differently because one of its items ("sleeping more than usual") was deemed to be a necessary coping strategy for individuals with MS fatigue, rather than an avoidance coping strategy. Therefore, this item was omitted from the calculation of the avoidance subscale, and items were divided by 10, rather than by 11. Cronbach’s alpha for coping efficacy on the avoidance, problem-solving, and seeking social support subscales were calculated, and were .64, .72, and .60, respectively. An item analysis of the potential impact of deleting items from the CSI (in order to increase internal consistency) indicated that the alpha would not be improved by deleting any of the items. Details of calculations of coping efficacy scores are reported in the Results section.
Data Analysis

Descriptive information and demographic data were collected, including: type of MS, number of years since diagnosis, number of years married, socioeconomic status, gender, and highest level of education completed.

SPSS for Windows (version 6.0) was used to analyze the data. Means, standard deviations, and ranges were calculated for each variable. Preliminary data analysis also included calculation of descriptive statistics such as age, gender, number of years married, type of MS, and number of years since diagnosis. Congruence in perception of fatigue impact (the second predictor variable) was obtained by summing the absolute difference between the spouses’ scores on fatigue impact scale items. Congruence in perception of communication (predictor variable) was obtained by calculating the positive couple agreement score on the CCS. Coping efficacy scores (criterion variables) were calculated for all three subscales of the CSI—problem-solving, seeking social support, and avoidance. Specifically, coping efficacy scores were calculated using the following method [specified by Bar-Tal & Spitzer (1994)]:

First, the z-scores of use and helpfulness for each
item of the scale was calculated. Second, the absolute difference score between the z-score of the use and helpfulness of each item was calculated. Finally, the coping effectiveness index of each coping strategy was constructed by averaging all items belonging to the subscales. In this way, larger figures represent less successful consequences of coping (Bar-Tal & Spitzer, 1994, p.94).

Next, a Pearson product-moment correlation matrix was calculated on demographic as well as predictor variables to be sure that they were divergent.

Missing data were handled by substituting the sample mean on demographic variables, and the participant’s mean for the FIS and the CCS. The participant’s mean for each of the subscales of the CSI were used in cases where responses were omitted. Missing data were sporadic, comprised less than 10% of all data, and were not specific to any items or variables.

Three simultaneous multiple regression analyses were performed to determine to what extent congruence in perceived communication as well as fatigue impact predicted coping efficacy for the three coping subscales. Sample size
was deemed to be large enough to examine the data using
regression analysis. Tabachnick and Fiddell (1989) state
that "a bare minimum requirement is to have at least 5 times
more cases than IV's--at least 25 cases". Furthermore, Green
(1991) states that a typical n for a medium effect size is
53, making this a bare minimum for multiple regression
analysis. Due to the exploratory nature of this study, \( p < .10 \)
was accepted as reflecting significance in the regression
analyses.

Gender differences on predictor and criterion variables
were examined by conducting a multivariate analysis of
variance (MANOVA).

Assumptions for running a regression analysis were
checked and deemed to be acceptable. Because correlations
among independent variables entered into the regression
equation were weak, multicollinearity was not a problem.

Examination of residual plots revealed no abnormality
in normality, linearity, homoscedasticity, or independence.
These scatterplots were examined to ensure that: (a) the
residuals (the difference between obtained and predicted
scores on the dependent variables) were in fact normally
distributed around the predicted scores on the dependent
variables, (b) residuals had a linear relationship with predicted dependent variable scores, and (c) homoscedasticity was normal (Tabachnick & Fiddell, 1989). Homoscedasticity (a measure of uniformity of residuals at all levels of predicted scores) was examined via scatterplots and was acceptable.

No univariate or multivariate outliers were found except for seeking social support coping efficacy (a univariate outlier), which is discussed in the Results section. Outliers were defined as scores occurring more than three standard deviations from the mean. The presence of multivariate outliers was examined using Mahalanobis distance (Tabachnick & Fiddell, 1989).
Results

The purpose of this exploratory study was to examine the similarity between spouses’ perceptions of MS fatigue and couple communication, and the relationship of congruence to coping efficacy.

Means, standard deviations, and percentages were calculated for the demographic information and are reported in Table 1. Next, means and standard deviations for the predictor and criterion variables were calculated and are reported in Table 2. Finally, correlations between predictor and criterion variables were calculated and are reported in Table 3.

Data were screened for outliers, kurtosis, and skewness, and were found to be acceptable (<1.00) with three exceptions. The first two were the number of children and ethnicity. One couple reported having 7 children, and 93% of spouses were Caucasian, causing a large skew in both variables. Finally, results of efficacy of seeking social support were positively skewed, possibly due to responses according to social desirability. This will be discussed further in the Discussion section.
Table 1

Demographic Characteristics of Participants (N=120)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Percent</th>
<th>M</th>
<th>SD</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
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<th>SD</th>
<th>Range</th>
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<tr>
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<td>Graduate Degree</td>
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<tr>
<td>Highest Level of Education Completed for Well Spouses</td>
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<td>Did not Complete</td>
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<tr>
<td>College/Tech School</td>
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<tr>
<td>University Degree</td>
<td>16.70</td>
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<td>Graduate Degree</td>
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<td>$25,000-$44,999</td>
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(table continues)
<table>
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<tr>
<th>Characteristic</th>
<th>Percent</th>
<th>M</th>
<th>SD</th>
<th>Range</th>
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</thead>
<tbody>
<tr>
<td>Employment Status of Individuals with MS</td>
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<tr>
<td>Full-time</td>
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<tr>
<td>Part-time</td>
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<td>Long-term Disability</td>
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<td>Volunteer/Student/Unemployed</td>
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<tr>
<td>Long-term Disability</td>
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<tr>
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<tr>
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<td>Professions of Well Spouses (n=56)</td>
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<td>Agricultural/Fishing</td>
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</tr>
<tr>
<td>mechanic</td>
<td>8.30</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>volunteer/homemaker</td>
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Table 2

Means and Standard Deviations of Predictor and Criterion Variables

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<thead>
<tr>
<th>Variable</th>
<th>M</th>
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<tr>
<td>Congruence Concerning Fatigue</td>
<td>39.88</td>
<td>15.49</td>
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<tr>
<td>Congruence Concerning Communication</td>
<td>43.50</td>
<td>31.40</td>
</tr>
<tr>
<td>Level of MS Fatigue</td>
<td>74.62</td>
<td>29.86</td>
</tr>
<tr>
<td>Number of Years Since Diagnosis</td>
<td>9.95</td>
<td>7.31</td>
</tr>
<tr>
<td>Avoidance Coping Efficacy</td>
<td>4.57</td>
<td>2.48</td>
</tr>
<tr>
<td>Seeking Social Support Coping Efficacy</td>
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<td>2.40</td>
</tr>
<tr>
<td>Problem-Solving Coping Efficacy</td>
<td>5.44</td>
<td>3.16</td>
</tr>
</tbody>
</table>

Note. Higher scores on coping efficacy subscales indicate decreased coping efficacy. Higher scores on congruence concerning fatigue indicate decreased congruence. Higher scores on congruence concerning communication indicate more satisfactory communication.
Table 3

Correlations of Predictor and Criterion Variables (N=60).

<table>
<thead>
<tr>
<th>Variable</th>
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<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
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</thead>
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<tr>
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<td>2. Congruence</td>
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<td></td>
</tr>
<tr>
<td>3. PCA</td>
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<td>-.11</td>
<td>-</td>
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<td>4. Avoid</td>
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<td>.02</td>
<td>-.28*</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Problem</td>
<td>.14</td>
<td>.12</td>
<td>-.15</td>
<td>.31*</td>
<td>-</td>
<td></td>
<td></td>
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<tr>
<td>6. Support</td>
<td>-.09</td>
<td>-.06</td>
<td>-.03</td>
<td>.36**</td>
<td>.26</td>
<td>-</td>
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<tr>
<td>7. Years with MS</td>
<td>.40*</td>
<td>-.19</td>
<td>-.13</td>
<td>.05</td>
<td>-.04</td>
<td>-.25*</td>
<td>-</td>
</tr>
<tr>
<td>8. Years Married</td>
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<td>-.36**</td>
<td>-.19</td>
<td>.01</td>
<td>.04</td>
<td>-.15</td>
<td>.32*</td>
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</tbody>
</table>

Note. Fatigue is the degree of fatigue experienced by the individual with MS, Congruence is congruence concerning fatigue impact (calculated as absolute error), PCA is positive couple agreement, Avoid is use of avoidance coping efficacy, Problem is efficacy of problem solving coping, and Support is efficacy of seeking social support coping.

* p < .05
**p < .01

Overall, correlation matrix is significant (p < .05) using Bartlett's approximation (Norusis, 1993; Tabachnick & Fiddell, 1989).
Research Questions

Fatigue impact. The first two research questions in this study were: "What is the perception of the degree of fatigue impact of the person with MS?" and "What is the partner's perception of the degree of fatigue impact on the spouse with MS?" The average level of fatigue for individuals with MS (as measured by The FIS) was 74.62 (SD=29.86). Their spouses average for level of fatigue was 59.83 (SD=33.64). Fisk et al. (1994) reported a mean fatigue impact score of 66.8 (SD=36.0) as perceived by the individuals with MS. There are no normative data for spouses' rating of their partner's fatigue because this present study has set a precedent in using the scale for spouses as well as individuals with MS. A matched-pairs t-test was performed in order to answer the third research question ("What is the similarity of the perception of fatigue impact between the person with MS and their partner?"), revealing a significant difference in the degree of fatigue perceived within the couple (t (59)=3.78, p<.001). Thus, spouses generally underestimated the degree of fatigue experienced by their partner.
Congruence of fatigue impact was measured by the method cited in Wineman et al.'s (1993) study, in which the absolute differences between the spouses' scores on the fatigue impact scale items were summed. Thus, the higher the congruence score, the more absolute error there was within the couple concerning fatigue impact. The average fatigue congruence score was 39.9, SD= 15.4. A fatigue congruence score of 0 would indicate the highest possible agreement, and a score of 160 would indicate the most extreme disagreement. Once again, these results can not be compared with normative data because this study has set a precedent in calculating congruence in fatigue.

Congruence of fatigue impact was also explored using an additional question at the end of the FIS. For individuals with MS, an additional question (item 41) was added to the FIS and read "How well do you feel your spouse understands your fatigue?" For spouses, the question read "How well do you feel you understand your spouse's fatigue?" The same 4-point Likert scale (ranging from 0 = extremely well to 4 = extremely poorly). Thus, the smaller the score on this item, the more understanding there was. Individuals with MS had an average score of 1.18 (well), and their spouses, an average
of 1.12 (well). Although well spouses felt they understood the impact of fatigue slightly better than their spouses with MS did, a t-test revealed no significant difference.

**Congruence of couple communication.** The fourth research question ("What is the similarity of the perception of communication within the marital relationship between the person with MS and their partner?") was answered by examining the congruence in couple communication. This was calculated by obtaining a positive couple agreement score on the CCS. This score is expressed as a percentage of the number of items on which a couple agrees in a positive direction. The mean score in this study was 43.5%. Comparison with normative data from test developers revealed a mean positive couple agreement score of 54% for happily married couples, and 16% for unhappily married couples (Fowers & Olson, 1989). A mean score for all couples is 35%. Therefore, there was greater couple agreement in spouses who participated in this study than there was in couples on whom the instrument was normed. However, it is important to note that couples on whom the scale was normed were not coping with chronic illness, so the two groups are not directly comparable.
Cronbach's alpha in this study was calculated for positive couple agreement scores, and was .82, suggesting that the scale has satisfactory internal consistency for couples in which one person has MS.

Correlations between positive couple agreement scores and the other variables were calculated to explore any relationships between variables (see Table 3). Congruence in couple communication was negatively correlated with efficacy of avoidance coping ($r = -0.28$, $p < .05$), suggesting that the more satisfied the individual with MS was with couple communication, the more efficacious they found avoidance coping to be.

Positive couple agreement was also negatively correlated with the level of fatigue experienced by the individual with MS ($r = -0.25$, $p < .05$). In other words, the more fatigue the individual experienced, the less congruence there was in couple communication. Even though this is not a strong relationship, it warrants some attention to a possible link between fatigue and difficulty feeling understood by a spouse. This finding is also noteworthy because positive couple agreement scores were higher in this group of participants than they are in the general
population (Olson, 1985). Therefore, the relationship may actually be stronger than it appears to be.

**Coping efficacy.** Although coping efficacy was calculated for each of the three subscales, it was not compared with normative data because coping efficacy has not been investigated by developers of the CSI. Efficacy scores on the three subscales of the CSI were as follows: avoidance coping efficacy, $M=4.57$, $SD=3.16$; problem-solving coping efficacy, $M=5.44$, $SD=3.16$; and seeking social support coping, $M=3.0$, $SD=2.40$. According to Bar-Tal and Spitzer's method (1994), the greater the score, the less efficacious the coping. These results suggest that coping by seeking social support was the most efficacious, followed by avoidance, and then problem-solving. Normative data on CSI subscales concerning use of coping strategies reveals that problem-solving was used the most ($M=26.55$, $SD=4.82$), followed by seeking social support ($M=23.42$, $SD=5.63$), and then avoidance ($M=19.03$, $SD=4.37$). Quantitative comparisons can not be made here as two different constructs have been calculated (coping efficacy and coping use, respectively). However, it is interesting to note that problem-solving was
used the most according to normative data (Amirkhan, 1990), but was the least efficacious in the present study.

Correlations between measures of coping efficacy and all other variables were weak, with the exception of avoidance coping efficacy being positively correlated with level of fatigue and seeking social support coping efficacy being negatively correlated with the number of years since diagnosis ($r=-.25, p<.05$). This correlation, though weak, suggests that the longer an individual has lived with MS, the more efficacious they found seeking social support.

In order to address the fifth research question ("What is the relationship between similarity of perceived fatigue impact, similarity of communication, and coping efficacy, considering the number of years since diagnosis and level of MS fatigue?"), three simultaneous multiple regression analyses were performed for the three coping subscales (see Tables 4 to 6). The overall model showed that congruence on fatigue impact and communication patterns, as well as the number of years since diagnosis and level of fatigue accounted for 13% (adjusted $R^2 = 7\%$) of the variance in avoidance coping efficacy, $F(4, 55)=2.02, p<.10$. 
Table 4

Multiple Regression Analysis of Predictors of Avoidance Coping Efficacy (N=60)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Beta</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Years since diagnosis</td>
<td>-.09</td>
<td>-0.68</td>
<td>.50</td>
</tr>
<tr>
<td>Degree of fatigue</td>
<td>.22</td>
<td>1.61</td>
<td>.10</td>
</tr>
<tr>
<td>Congruence (re: communication)</td>
<td>-.25</td>
<td>-1.88</td>
<td>.07</td>
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<tr>
<td>Congruence (re: fatigue)</td>
<td>-.09</td>
<td>-0.64</td>
<td>.53</td>
</tr>
</tbody>
</table>

Note. Beta is the standardized regression coefficient.

Percentage of variance in efficacy of avoidance coping accounted for by the regression: $R^2$ is .13 (adjusted, .07).

Overall, $F (4,55)= 2.03$, $p < .10$. 
Table 5

Multiple Regression Analysis of Predictors of Seeking Social Support Coping Efficacy (N=60)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Beta</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Degree of fatigue</td>
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<td>-0.67</td>
<td>.51</td>
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<tr>
<td>Congruence (re: communication)</td>
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<td>.47</td>
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<tr>
<td>Congruence (re: fatigue)</td>
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<td>-0.73</td>
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<td>Years since diagnosis</td>
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<td>-2.12</td>
<td>.04</td>
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</table>

Note. Beta is the standardized regression coefficient.

Percentage of variance in efficacy of seeking social support coping accounted for by the regression equation: $R^2$ is .09 (adjusted, .02). Overall, $F (4,55) = 1.31$, $p < .28$. 
Table 6

Multiple Regression Analysis of Predictors of Problem-Solving Coping Efficacy (N=60)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Beta</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Degree of fatigue</td>
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<td>.61</td>
<td>.54</td>
</tr>
<tr>
<td>Congruence (re: communication)</td>
<td>-.13</td>
<td>-.94</td>
<td>.35</td>
</tr>
<tr>
<td>Congruence (re fatigue)</td>
<td>-.07</td>
<td>-.53</td>
<td>.59</td>
</tr>
<tr>
<td>Years since diagnosis</td>
<td>-.04</td>
<td>-.29</td>
<td>.77</td>
</tr>
</tbody>
</table>

Note. Beta is the standardized regression coefficient.

Percentage of variance in efficacy of problem solving coping accounted for by the regression equation: $R^2$ is .04 (adjusted, -.02). Overall, $F (4,55)= .62$, $p < .65$. 
Positive couple agreement accounted for most of this variance (β = -.25, p < .10). These same predictor variables were not significant predictors of either seeking social support or problem-solving coping efficacy (see Tables 5 and 6, respectively).

Gender differences. Finally, the sixth and final research question regarding gender differences ("Are there any gender differences in congruence of fatigue impact, couple communication, and coping efficacy?") was addressed by conducting a MANOVA with gender of the individual with MS as the independent variable, and congruence in communication, congruence in perception of fatigue impact, and coping efficacy subscales as the dependent variables. No significant differences were found [F (5, 54) < 1], indicating that there were no significant gender differences in congruence in fatigue perception, communication patterns, or in avoidance, seeking social support, and problem-solving coping efficacy. Means and standard deviations are reported in Table 7.

Post-hoc Analysis

When couple congruence was calculated using absolute error, it did not correlate with any of the coping efficacy
### Table 7

Means and Standard Deviations of Predictor and Criterion Variables for Males and Females with MS.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Males (N=13)</th>
<th>Females (N=47)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>Congruence (re: fatigue)</td>
<td>38.88</td>
<td>16.18</td>
</tr>
<tr>
<td>Congruence (re: Communication)</td>
<td>35.88</td>
<td>34.47</td>
</tr>
<tr>
<td>Avoidance Coping Efficacy</td>
<td>4.61</td>
<td>2.95</td>
</tr>
<tr>
<td>Seeking Social Support Coping Efficacy</td>
<td>2.70</td>
<td>2.92</td>
</tr>
<tr>
<td>Problem-Solving Coping Efficacy</td>
<td>5.12</td>
<td>2.87</td>
</tr>
</tbody>
</table>
subscale scores (see Table 3). However, it was negatively correlated with the number of years the couple had been married ($r = -0.36, p<0.05$), and positively correlated with the degree of fatigue experienced by the individual with MS ($r = 0.30, p<0.05$), suggesting that the longer couples had been married, the more congruent they were regarding fatigue, and the more fatigue experienced by the individual with MS, the less congruent the couple was.

Correlations between congruence concerning fatigue impact and communication, as well as coping efficacy subscales and other variables of interest were, for the most part, very weak. Therefore, alternative methods of quantifying congruence concerning fatigue impact and coping efficacy were investigated in an attempt to capture their essence. Correlations are reported in Appendix G.

**Congruence.** Congruence concerning fatigue impact was examined by calculating $R^2$ between both spouses' responses to items on the FIS, but analyses performed with this method did not reveal any significant relationships. Although this method of operationalizing congruence may have resulted in an increased understanding of the extent to which couples agreed on certain items within the scale, it would not have
reflected the degree to which spouses felt similarly about the amount of fatigue experienced.

Finally, congruence concerning fatigue impact was calculated by taking the standard deviation of the difference scores obtained by partners on the FIS, thus reflecting a measure of variability (variable error) rather than a mean difference (absolute error). This method of measuring the within couple variance is based on a study by Schutz and Roy (1973) who discussed the importance of using both variance and mean differences to measure discrepancy of performance (congruence between performances on a given task). The larger the variable error, the greater the degree of variability.

Calculated in this way, fatigue congruence was significantly related to efficacy of problem-solving coping ($r = .33, p < .05$), suggesting that the more congruent the couple was, the more efficacious the individual with MS found problem solving coping.

In order to gain some insight into the impact of the predictor variables on coping efficacy using variable error as the method of operationalizing fatigue congruence, three
simultaneous multiple regression analyses were performed for the three coping subscales (see Appendices H, I, and J). The overall model showed that congruence on fatigue impact and communication patterns, as well as the number of years since diagnosis and level of fatigue accounted for 13% (adjusted $R^2 = 6\%$) of the variance in avoidance coping efficacy, $F(4,55)=1.97$, $p<.10$. Of all the predictor variables, only congruence concerning couple communication approached significance ($\beta=-.24$, $p<.10$). These same predictor variables were entered into a second regression predicting problem-solving coping, and it was found that they also accounted for 13% (adjusted $R^2 = 7\%$) of the variance, $F(55,4)=2.03$, $p<.10$. In this analysis, congruence concerning fatigue impact was a significant predictor ($\beta=.31$, $p<.05$). The final analysis on seeking social support as a criterion variable yielded no significant results.

**Couple communication.** Although positive couple agreement scores are usually used to interpret the CCS, raw scores were also compared to normative data in this study. Calculated in this way, individuals can score anywhere from 10 (very unsatisfied) to 50 (extremely satisfied). Olson (1985) reported a mean raw couple score of 28.1 (SD was not
reported) on the CCS. In the present study, couples' mean score was 36.58 (SD=7.76), suggesting that their satisfaction with communication was higher than average. In addition, the degree of satisfaction with communication was almost identical between spouses. The individuals with MS had an average CCS raw score of 36.53 (SD=8.47), and their spouses, an average of 36.63 (SD=9.54). These results suggest that spouses rated their communication patterns in a very similar way.

Coping use and helpfulness. Because the method of quantifying coping efficacy proposed by Bar-Tal and Spitzer (1994) is new, and because the coping scale used in this study was not the one used by these researchers, it is possible that important information concerning coping efficacy may not have been captured in the present study. Therefore, the degree of coping use and helpfulness was calculated for the scale used in this study in the original manner suggested by the scale developer (Amirkhan, 1985).

Scores on the avoidance subscale were calculated slightly differently because one of its items ("sleeping more than usual") was deemed to be a necessary coping strategy for individuals with MS fatigue, rather than an
avoidance coping strategy. Therefore, this item was omitted from the calculation of the avoidance subscale, and items were divided by 10, rather than by 11.

Normative data report means and standard deviations for each of the three subscales of the CSI as follows: avoidance coping, $M=19.03$, $SD=4.37$; seeking social support, $M=23.42$, $SD=5.63$; and problem-solving, $M=26.55$, $SD=4.82$ (Amirkhan, 1990). In the present study, similar results were found: avoidance coping, $M=16.92$, $SD=3.78$; seeking social support, $M=20.62$, $SD=4.80$; and problem-solving, $M=27.23$, $SD=5.15$. Helpfulness scores were also similar: avoidance coping, $M=15.12$, $SD=3.12$; seeking social support, $M=20.88$, $SD=5.06$; and problem-solving, $M=25.78$, $SD=4.93$.

Use and helpfulness of avoidance coping were correlated with the degree of fatigue experienced by the individual with MS ($r=.45$, $p<.001$, and $r=.41$, $p<.001$, respectively), and also with couple congruence concerning communication ($r=-.28$, $p<.05$, and $r=-.30$, $p<.05$, respectively). These results suggest that the more fatigue experienced by the individual with MS, the more they used avoidance coping, and the more helpful they found it. These results also suggest that the more congruent the couples were about
communication, the less the individuals with MS used avoidance coping.

Helpfulness of problem-solving coping strategies was correlated with couple congruence about communication \((r = .35, p < .01)\), suggesting that the more the couple agreed about communication patterns, the more helpful the individual with MS found problem-solving coping.

In order to gain some insight into the impact of the predictor variables on coping (as opposed to coping efficacy), three simultaneous multiple regression analyses were performed for the three coping subscales (see Appendices K, L, and M). The overall model showed that congruence on fatigue impact and communication patterns, as well as the number of years since diagnosis and level of fatigue accounted for 26% (adjusted \(R^2 = 20\%\)) of the variance in avoidance coping, \(F(4, 55) = 4.74, p < .05\). Of the predictor variables, the level of MS fatigue was the most significant \((\beta = .37, p < .05)\), followed by congruence of couple communication \((\beta = -.20, p < .10)\). These same predictor variables were entered into a second regression predicting problem-solving coping, and it was found that they accounted for 17% (adjusted \(R^2 = 11\%\)) of the variance \(F(4, 55) = 2.88, p < .05\).
p<.05. Of the predictor variables, the level of MS fatigue was the most significant (β = .34, p<.05), followed by congruence of couple communication (β = .27, p<.05). The final analysis on seeking social support as an outcome variable yielded no significant results.

Specific coping strategies reported in an open-ended question at the end of the CSI were noted and appear in Appendix N. Frequency distributions of demographic characteristics, FIS scores, CCS scores, and CSI scores appear in Appendices O, P, Q, and R, respectively.
Discussion

The purpose of this exploratory study was to examine the similarity between spouses’ perceptions of MS fatigue and couple communication, and their relationship to coping efficacy. The construct of congruence within the marital relationship has been explored by only a few researchers (Reich et al., 1993; Sillars & Scott, 1983; Wineman et al., 1993), and it is still a difficult construct to capture. Coping efficacy, too, has been researched in various ways (Aldwin, 1994; McHaffie, 1992; Filipp & Klauer, 1990; Stone et al., 1991), but it also remains difficult to quantify. For example, some studies report having investigated coping efficacy, yet did not report results (McNett, 1985; Reich et al., 1993) which suggests that difficulties may have occurred in capturing the concept.

Congruence of Fatigue Impact

The first research question in this study was, “What is the perception of the degree of fatigue impact of the person with MS?”, and the second question was, “What is their partner’s perception of the degree of fatigue impact on the spouse with MS?” The average level of fatigue of individuals
with MS was 74.62 and their spouses' average rating was 59.83.

The third research question was, "What is the similarity of the perception of fatigue impact between the person with MS and their partner?" In order to address this question, each partner's perception of fatigue impact, as well as couple congruence of fatigue impact, was examined. A t-test revealed a significant difference in the degree of fatigue perceived within the couple (t=3.78, p<.001). This result indicates that individuals with MS rated their fatigue as significantly higher than did their spouses.

Couple congruence in fatigue impact was not significantly correlated with coping efficacy (problem-solving, seeking social support, or avoidance), but it was negatively correlated with the number of years the couple had been married (r = -.36, p<.05), and positively correlated with the degree of fatigue experienced by the individual with MS (r = .30, p<.05). These results suggest that couples who had been married for longer periods of time were more congruent with one another concerning fatigue. Wineman et al. (1993) found a similar, but weaker relationship (r = -.21). These results also suggest that the more fatigue
experienced by the individual with MS, the less congruent the spouses were about its impact on the individual with MS. Because individuals with MS usually look healthy, their experience of fatigue is often not visible, and can, therefore, be minimized by family members (Burnfield, 1993). The difficulty in understanding fatigue does not decrease as fatigue becomes worse (Fisk et al., 1994). Consequently, the more fatigue an individual experiences, the less their spouse is likely to understand it if the individual continues to look healthy.

Because of this problem, individuals with MS were asked how well their spouses understood their fatigue, and the well spouses were asked how well they thought they understood the fatigue of the spouse with MS. Both spouses agreed on this question, indicating that fatigue was well understood. A t-test showed no significant difference in both spouses' impressions of how well the fatigue is understood. This finding is interesting when it is considered in conjunction with the results of the t-test on the overall FIS indicating a significant difference in the degree of fatigue perceived within the couple (t=3.78, p<.001). Although spouses thought they understood MS fatigue
well, and although individuals with MS thought their spouses understood fatigue well, the spouses without MS generally underestimated the degree of fatigue experienced by their partner. This finding is consistent with Lazarus and Folkman's (1984) theory that subjective impressions of a stressor may be more useful than objective measurement.

The moderate negative relationship between fatigue and congruence in couple communication suggests that the more severe the fatigue, the less satisfied couples feel about their communication. Sillars and Scott (1983) found that in situations concerning subjective issues, individuals may overestimate how much they know about their spouse, and Pike and Sillars (1985) suggested that marital dissatisfaction is the result of ineffective communication. It follows, then, that there is a negative relationship between fatigue and congruence in communication.

Corbin and Strauss (1984) found that the extent to which married partners have a shared understanding of illness-related issues is likely related to how much they share their thoughts and feelings with one another. Therefore, it was expected that this relationship would be significant, as the more in sync couples are (measured by
positive couple agreement), the more congruence one might expect concerning MS fatigue. However, the relationship between congruence of fatigue impact and couple communication was not significant. There are two possible explanations for the lack of relationship between these predictor variables. The first is the unconventional use of the FIS (i.e., having spouses rate fatigue). Even though it appears to be a logical method, and despite satisfactory Cronbach's alphas for individuals with MS and their spouses, scale validity and reliability may have been compromised. The second possible explanation is the difficulty in quantifying couple congruence. Although the method employed in this study was consistent with that of a study that reported significant results in couple congruence (Wineman et al., 1993), congruence concerning illness uncertainty, rather than fatigue impact, was measured. Because the present study found a significant difference in both partners' rating of fatigue impact (t = 3.78, p < .001), it appears that there may have been significant incongruence (or disagreement) within the couple. It is possible, then, that this method of tapping congruence was not sensitive enough for this construct. In order to investigate
alternative methods of operationalizing congruence, post-hoc analyses were conducted.

Hereafter, the terms "couple congruence" and "positive couple agreement" are used interchangeably—positive couple agreement being the percentage of items on which the couple agrees in a positive direction on the CCS.

Congruence of fatigue impact (post-hoc analysis). Congruence of fatigue impact was calculated as a measure of variable error rather than absolute error. In other words, it was calculated by taking the standard deviation of the difference scores obtained by partners on the FIS, thus reflecting a measure of variability (variable error) rather than a mean difference (absolute error). The larger the variable error, the less congruence there is within the couple. This method of measuring the within couple variance is based on a study by Schutz and Roy (1973). Calculated in this way, congruence was a significant predictor of problem-solving coping efficacy (β=.31, p<.05). Therefore, the moderate positive relationship suggests that the more congruent the couple was, the more efficacious the individual with MS found problem-solving coping. This finding was in the expected direction, and is supported by
research conducted by Fife (1985) who stated that
"congruence in expectations within family relationships is
necessary if integration is to exist and conflict is to be
minimized" (p. 109). This finding is also supported by
Wineman et al. (1993) who suggested that when illness-
related perceptions differ between husband and wife, their
behaviours and management strategies may not be
synchronized. Thus, they may fail to make the role
adjustments necessary for what they deem to be efficacious
coping.

However, congruence (calculated as variable error) was
not a significant predictor of avoidance or seeking social
support coping efficacy for individuals with MS. These
surprising findings may be due to the fact that problem-
solving coping strategies are external and more easily
recognized than are the avoidance and seeking social support
coping strategies, which are, in contrast, internal
processes. In short, I suggest that it is easier to measure
behaviours (overt) than perceptions (covert). These findings
may also be due, in part, to a phenomenon related to coping
with chronic illness put forth by Wineman et al. (1993). In
their study on congruence in illness uncertainty, they found
that congruence did not predict two of their criterion variables. They suggested that both partners may be so focused on the disease that they are not significantly affected by the other spouse’s perception of the illness.

Absolute error reflects the overall level of differences in scores, whereas variable error reflects the variability of the differences in scores. Congruence (as a measure of absolute error) was operationalized based on research by Wineman et al. (1993). Congruence (as a measure of variable error) was operationalized based on research by Schutz and Roy (1973). However, these methods of quantifying congruence are, otherwise, unprecedented. It is possible that the lack of relationships is due, in part, to the difficulty in capturing the construct of congruence. Because the methods used to operationalize couple congruence in the present study are relatively unresearched, future research is needed to fully understand the results obtained.

Congruence of Couple Communication

The fourth research question in this study was, “What is the similarity of the perception of communication within the marital relationship between the person with MS and their partner?” The mean positive couple agreement score in
this study was 43.5%, indicating a higher than average degree of couple agreement. There are two possible explanations for this. First, a sampling bias may have been inadvertently introduced because spouses had to agree to participate in the study together, thus couples who had difficulty communicating may have automatically been excluded from participating. Second, couples on whom the scale was normed were not coping with chronic illness. Given the higher than average positive couple agreement scores in the present study, it appears that these couples were communicating more effectively than the average couple, and were also more satisfied. This finding is consistent with research conducted by Corbin and Strauss (1984) who explored how couples work together to manage chronic illness. They found that it was through talking that spouses were able to stay in tune with one another’s needs and wants, and maintain the necessary resources to cope with chronic illness. The couples in this study were found to be in tune with one another (high CCS scores). It is possible that talking is necessary when chronic illness is present because of numerous daily stressors that are more likely to occur.
Correlations between positive couple agreement scores and all other variables were examined in order to explore relationships between them (see Table 3). Congruence in couple communication was negatively correlated with avoidance coping efficacy ($r = -0.28$, $p < 0.05$), suggesting that the more satisfied the individual with MS was with couple communication, the more efficacious they found avoidance coping to be. This finding is surprising because one might expect satisfactory couple communication to lead to an increased ability to cope with, rather than avoid, the stressful situation. It is interesting that positive couple agreement did not appear to be related to coping efficacy of seeking social support or problem solving, as satisfactory couple communication appears to be one example of seeking social support and, perhaps, a precursor to problem-solving. Moreover, there is some evidence in the literature that couple congruence in communication helps the individual with the illness to feel more supported and able to adjust (Fife, 1985; Hilton, 1994; Wineman et al., 1993). Therefore, these findings may reflect difficulties in quantifying coping efficacy rather than an actual lack of relationship.
Positive couple agreement was also negatively correlated with the level of fatigue experienced by the individual with MS, suggesting that the more fatigue the individual experienced, the less congruence there was in couple communication. Even though this is not a strong relationship, it warrants some attention to a possible link between fatigue and difficulty feeling understood by a spouse. This problem is underscored in the literature by Burnfield (1993) and Hubsky and Sears (1992). This finding is also noteworthy because positive couple agreement scores were higher in this group of participants than they are in the general population (Olson, 1985). Therefore, the relationship may actually be stronger than it appears.

**Congruence of couple communication (post-hoc analysis).** Finally, raw scores on the CCS were analyzed. Couples' mean score was 36.58, suggesting that satisfaction with communication was higher than average. In addition, the degree of satisfaction with communication was extremely similar for individuals with MS (36.53) and their spouses (36.63). This may be a reflection, in part, of the fact that both spouses had to agree to participate in this study, thus
yielding a sample with a higher-than-average level of couple communication.

**Coping Efficacy**

The fifth research question was "What is the relationship between similarity of perceived fatigue impact, similarity of communication, and coping efficacy considering the number of years since diagnosis and the level of MS fatigue?" This was examined using three simultaneous multiple regression analyses for the three coping subscales (see Tables 4 to 6). The overall model showed that congruence on fatigue impact and communication patterns, as well as the number of years since diagnosis and level of fatigue accounted for 13% (adjusted $R^2 = 7\%$) of the variance in avoidance coping efficacy. Positive couple agreement accounted for most of this variance, suggesting that it may be a stronger predictor of avoidance coping efficacy than the number of years with MS or the level of fatigue.

The second regression demonstrated that congruence on fatigue impact and communication patterns, as well as the number of years since diagnosis and level of fatigue accounted for 9% (adjusted $R^2 = 2\%$) of the variance in seeking social support coping efficacy. However, the overall
model was not significant. The third regression analysis (predicting efficacy of problem-solving coping) yielded no significant results.

The four predictors that were entered into the regression analysis were: the number of years since diagnosis, degree of fatigue experienced by the individual with MS, congruence concerning fatigue impact, and congruence concerning positive couple communication. In the regression analysis that was significant, congruence concerning couple communication was a significant predictor of avoidance coping efficacy. Congruence concerning fatigue was not a significant predictor in any of the three regression analyses. There are three possible explanations for this. First, the concept of congruence may not have been adequately captured, thus yielding no significant results. Second, difficulties in quantifying coping efficacy may have affected what might otherwise have been significant findings. Third, it is possible that the degree of agreement between spouses concerning MS fatigue is not a significant predictor of coping efficacy.

Correlations between predictor variables and coping efficacy were weak, with one exception. Avoidance coping
efficacy was positively correlated with the degree of fatigue experienced by the individual with MS ($r = .26$, $p < .05$), indicating that the worse the fatigue, the less efficacious they found avoidance coping. The only study that specifically addresses efficacy of strategies used to cope with MS fatigue found that the longer an individual had had MS, the more efficaciously they felt they were coping with fatigue (Sears & Hubsky, 1993). Therefore, it was expected that the longer an individual had been living with MS, the greater the coping efficacy in all subscales of the CSI. However, this was not borne out in the present study.

One explanation for these weak correlations between variables is the use of a new method of calculating coping efficacy (Bar-Tal & Spitzer, 1994). Furthermore, the coping scale used in the present study was not the one used by Bar-Tal and Spitzer. Having employed a complex calculation of coping efficacy on a scale other than the one suggested may have compromised the validity. It is important to note that Amirkhan’s coping scale (1990) used in the present study yielded Cronbach’s alpha scores of .84, .89, and .93, respectfully. Clearly, internal consistency was significantly lower when coping efficacy scores were
calculated using the CSI. Therefore, the associations between variables that were found with coping efficacy are noteworthy, and may actually have been stronger had the internal consistency of the measure been higher. In order to understand the extent of the possible negative effects of having computed coping efficacy, post-hoc analyses were done examining coping (rather than coping efficacy) as per Amirkhan's scale.

Coping use and helpfulness (post-hoc analysis). The degree of coping use and helpfulness was calculated for the scale used in this study in the manner suggested by the scale developer (Amirkhan, 1985). Results from regression analyses conducted with coping use subscale scores as criterion variables were very different from those found when coping efficacy subscale scores were the criterion variables (see Appendices L, M, and N). The overall model showed that congruence on fatigue impact and communication patterns, as well as the number of years since diagnosis and level of fatigue, accounted for 26% (adjusted $R^2 = 20\%$) of the variance in use of avoidance coping. Of the predictor variables, the level of MS fatigue accounted for the most variance, followed by congruence of couple communication.
The moderate positive relationship between fatigue and avoidance coping indicates that the more severe the fatigue, the more avoidance coping an individual is likely to use. This finding is consistent with the theory that emotion-focused coping tends to predominate when people feel that the stressor is something that must be endured (Folkman & Lazarus, 1980).

These same predictor variables (congruence on fatigue impact and communication patterns, as well as the number of years since diagnosis and level of fatigue) were entered into a second regression predicting problem-solving coping, and it was found that they accounted for 17% (adjusted $R^2 = 11\%$) of the variance. Of the predictor variables, the level of MS fatigue accounted for the most variance, followed by congruence of couple communication. The moderate positive relationship between fatigue and problem-solving coping indicates that the more severe the fatigue, the more problem-solving coping an individual is likely to use. At first glance, this finding appears to be inconsistent with Lazarus and Folkman's (1984) theory that problem-focused coping tends to predominate when an individual feels that something can be done about the situation. However, it is
likely that individuals with MS feel that something can be
done to cope with fatigue, such as taking naps, or
decreasing their workload.

The final analysis on seeking social support as an
outcome variable yielded no significant results. A possible
explanation for this is that many people admit to not
wanting to depend on others, even though there is evidence
in the literature that social support is useful as a coping
strategy (DesRosier, Catanzaro, & Piller, 1992; Gulick,
1994; McNett, 1987). Another possible explanation is the
measure itself. The seeking social support subscale of the
CSI had two items on which almost every participant
commented. These were, “accept sympathy and understanding
from someone” and “accept sympathy and understanding from a
friends who have the same problem”. Most participants
reacted negatively to the use of the word “sympathy” rather
than “empathy, and in some cases, argued that there were two
questions being asked in one. Therefore, many people said
they did not use this at all (in response to the word
“sympathy” rather than in response to the word
“understanding”).
Gender Differences

Finally, exploration of the sixth and final research question: ("Are there any gender differences in congruence of fatigue impact, couple communication, and coping efficacy?") revealed no significant differences in congruence in fatigue perception, communication patterns, or in avoidance, seeking social support, and problem-solving coping efficacy. Because gender differences were explored in individuals with MS (and not in their spouses), it is important to note that the two groups were not equal. There were 47 women with MS and 13 men. Furthermore, the sample was small, and not representative of the gender breakdown of the general population of individuals with MS.

There were no expected gender differences in congruence concerning fatigue. Fisk et al. (1994), who developed the FIS, did not report gender differences in fatigue, nor did they explore congruence of fatigue impact. Gender differences in congruence concerning communication were not expected because instrument developers reported very little difference between men and women's scores on the CCS. Results of this study suggest that women were slightly more
satisfied with communication patterns than were their male partners.

The question of gender differences in coping is more complex. First, research on gender differences in coping is inconclusive (Billings & Moos, 1981; Endler & Parker, 1990). The most important factor affecting gender differences appears to be controlling for the stressor. When the stressor is controlled for, there are fewer gender differences (Long & DeLongis, 1989). However, Amirkhan (1990, 1994) found gender differences on seeking social support coping, even when the stressor was controlled for. In studies where no differences were found, it is possible that there were some hidden differences if men and women responded in what they believed to be a socially desirable manner (Ptacek et al., 1992). For example, some men may not wish to admit that they find seeking social support to be a useful coping strategy, when in fact it may be very efficacious.

Because the stressor in the present study was controlled for (fatigue), and because social desirability may influence responses, the lack of gender differences in coping is not surprising.
Summary

Individuals with MS rated their fatigue as significantly higher than did their spouses. Although no specific hypotheses were put forth (due to the exploratory nature of this study), this outcome was expected. Couples who had been married for longer periods of time were significantly more congruent with one another concerning fatigue. This is consistent with results of previous research (Wineman et al., 1993). An unexpected but important finding was that the more fatigue experienced by the individual with MS, the less congruent the spouses were about fatigue’s impact on the individual with MS. Implications of this relationship include a need to help spouses to understand the impact of fatigue on the individual who experiences it, and to encourage couples to communicate to decrease the incidence of misconceptions within the marital relationship.

The results concerning coping efficacy are mixed. The more satisfied the individual with MS was with couple communication, the more efficacious they found avoidance coping to be. However, positive couple agreement did not appear to be related to coping efficacy of seeking social
support or problem solving. In contrast to these findings, there is some evidence in the literature that couple congruence in communication helps the individual with the illness to feel more supported and able to adjust (Hilton, 1994; Wineman et al., 1993). Furthermore, fatigue was related to avoidance coping efficacy, suggesting that the more fatigue experienced by the individual with MS, the less efficacious they found avoidance coping, which is not consistent with Lazarus and Folkman’s (1984) theory of stress and coping.

Although congruence concerning couple communication was a significant predictor of avoidance coping efficacy, congruence concerning fatigue was not a significant predictor on any of the three subscales. Therefore, post-hoc analyses were conducted. First, correlations between coping use, coping helpfulness, and other variables of interest were calculated. Second, coping use subscales (as opposed to coping efficacy) were used as criterion variables in the regression analyses.

Use and helpfulness of avoidance coping were related to the degree of couple congruence concerning communication, suggesting that the more congruent the couples were about
communication, the less the individuals with MS used avoidance coping. These results are in the expected direction, yet they are in opposition to those found using efficacy of avoidance coping as a criterion variable.

Contrary to findings concerning avoidance coping efficacy, there was a moderate relationship between fatigue and avoidance coping use and helpfulness, suggesting that the more fatigue individuals with MS experienced, the more they used avoidance coping, and the more helpful they found it. This finding is more consistent with the theory that emotion-focused coping tends to predominate when people feel that the stressor is something that must be endured (Folkman & Lazarus, 1980).

Finally, helpfulness of problem-solving coping strategies was correlated with couple congruence about communication, suggesting that the more the couple agreed about communication patterns, the more helpful the individual with MS found problem-solving coping. This finding is supported in studies conducted by Fife (1985) and Wineman et al. (1993).

Because relationships between predictor and criterion variables (using coping efficacy as the criterion variable)
are contrary to findings cited in the literature, and because relationships between predictor and criterion variables (using coping use as the criterion variable) are consistent with the literature, I suggest that these results likely reflect difficulties in quantifying coping efficacy.

Post-hoc regression analyses revealed some interesting results. When coping (as opposed to coping efficacy) was the criterion variable, the results were similar, except that predictor variables accounted for more variance in the coping use subscales than for the coping efficacy subscales. In contrast, congruence concerning fatigue (absolute error) was not a significant predictor of coping. Fatigue congruence (calculated as variable error rather than absolute error) was a significant predictor of problem-solving coping efficacy, but not of avoidance or seeking social support coping efficacy.

Although these are promising findings, future research is needed to fully understand the nuances of operationalizing congruence and coping efficacy.

Limitations

This study involved an attempt to quantify two relatively new constructs; (a) congruence of perception of
fatigue in individuals with MS and their spouses, and (b) coping efficacy. Although I conducted a thorough literature search on both topics, both constructs are new and have not been rigorously studied. Therefore, this was an exploratory study, the results of which are valid to the extent that the instruments used are psychometrically sound. Precedent was set by: adapting the FIS to spouses of individuals who actually experience fatigue, (b) calculating a congruence score of fatigue impact by taking the absolute difference of two scores on this particular instrument, and (c) measuring coping efficacy using a coping scale other than the one used in the research in which the coping efficacy calculations are described (Bar-Tal & Spitzer, 1994).

A potential limitation to the study is that people may tend to rate the strategies they use as helpful when this may not actually be the case (Newman & Revenson, 1993). In other words, it is possible that, due to social desirability, people may not want to admit that they use a coping strategy that they do not feel is helpful, or visa-versa.

It is possible that there are limitations in the CSI itself. Items designated to subscales may confound validity
of the scale when it is used with individuals coping with fatigue. For example, "sleeping more than usual" is designated as avoidance coping, but was omitted from the calculation because it was deemed to be a problem-solving coping strategy, given that fatigue is the stressor. Furthermore, "watching television more than usual" (an avoidance coping strategy) may actually be a problem-solving coping strategy if it allows the individual to rest and regain energy.

A limitation in this study is that coping efficacy of the individual with MS only was examined, without actually taking the spouse's coping into consideration. Therefore, there may be some interaction effects within the marital relationship that have not been explored (DesRosier et al., 1992; Revenson & Majerovitz, 1991). Furthermore, a sampling bias may have been introduced because the participants comprised a convenience sample of couples in which both partners were willing to participate. Another limitation is that this study used a cross-sectional analysis for the variables of interest. Therefore, any correlations do not reflect cause and effect between these variables.
Furthermore, the small sample size decreases the power of the correlations.

**Future Research**

Fisk et al. (1994) developed the FIS to enhance the understanding of the impact of fatigue caused by a medical problem on the individual's daily life. Previous studies had investigated only fatigue severity and fatigue frequency (Krupp et al., 1988; Krupp et al., 1989). In meeting with participants, verbal feedback reflected a need for more research on psychological effects of fatigue on individuals and their families. No quantitative studies have investigated the similarity of perception of fatigue in couples. Although this was done in the present study, more research is needed to validate the methodology used to quantify couple congruence. The construct of congruence within the marital relationship has been explored by only a few researchers, and it remains a difficult construct to capture. The question of whether one should use absolute error or variable error or neither to operationalize congruence needs much more investigation.

Coping efficacy, too, is a difficult construct to quantify (McHaffie, 1992; Stone et al., 1991). Some studies
report having investigated coping efficacy, yet did not report results (McNett, 1985; Reich et al., 1993) which suggests that difficulties may have occurred in capturing the concept. The method employed in this study is only cited in one study (Bar-Tal & Spitzer, 1994) and may not have adequately captured coping efficacy, thus yielding no significant relationship in regression analyses for problem-solving and seeking social support coping efficacy. The question remains as to whether there were no actual relationships or whether coping efficacy has not been adequately captured.

**Implications for Counsellors**

Due to the exploratory nature of this study, implications are suggested with caution. There is a need for replication of this study before any specific recommendations can be made. Nevertheless, implications for counsellors are reviewed.

There are four important implications of this study. First, it provides additional research on coping efficacy, a poorly understood construct. Second, it provides increased understanding of the congruence of perception of an invisible symptom such as fatigue in people who are ill and
their spouses. Third, it demonstrates the need to sensitize the key people in the lives of those who have fatigue as a symptom, due to any medical problem, to the impact of this invisible symptom on their daily lives. Finally, it is hoped that this study will raise awareness of physicians, counsellors, and family members who wish to support those who have fatigue as a major symptom.

Individuals with MS rated their fatigue as significantly higher than did their spouses. This finding has implications for counsellors to offer couple and group counselling for people coping with chronic illness, especially when the symptoms lend themselves to misinterpretation, as does fatigue. It is also important to note that as fatigue severity increased, so did the couple’s incongruence regarding fatigue severity. Therefore, counsellors may need to use a psychoeducational approach with the well spouse as symptoms progress, and encourage open communication in couples to decrease the incidence of misconceptions within the marital relationship. The FIS may prove to be a useful objective assessment tool for couples counselling if its use with both spouses has been validated. Individuals with MS and their spouses could then discuss
their results with their counsellor and, hopefully, gain more insight into the impact of fatigue on daily life.

Couples who had been married for longer periods of time were significantly more congruent with one another concerning fatigue. Therefore, counsellors would be prudent to take note of the length of time the couple has been together, rather than the number of years an individual has had MS.
References


APPENDIX A

ENRICH Couple Communication Scale (sample items).

In thinking about your relationship, please indicate the response that best describes your level of agreement with each statement. The possible responses to each item range from:

1 2 3 4 5
strongly moderately neither agree moderately strongly
agree agree nor disagree disagree disagree

1. It is very easy for me to express all my true feelings to my partner.

5. I wish my partner was more willing to share his/her feelings with me.

8. I am very satisfied with how my partner and I talk with each other.

9. I do not always share negative feelings I have about my partner because I am afraid he/she will get angry.
Appendix B

Participant Consent Form

I am a graduate student at the University of British Columbia (Master of Arts, Counselling Psychology). I am conducting a research study, under the supervision of UBC professor Dr. Bonnie Long. The title of my project is "Perception of Fatigue and Communication in People with MS and their spouses: Relationship to Coping Efficacy".

I am interested in learning more about the impact of fatigue on the daily life of the individual with MS and their spouse.

I feel that the knowledge gained from your participation in this study could make a valuable contribution to our understanding of how an invisible symptom such as fatigue affects individuals with MS and their spouses.

If you are willing to participate in this study, you will be asked to complete two or three questionnaires. (If you are the individual with MS, you will be asked to complete three questionnaires. If you are the spouse, you will be asked to complete two questionnaires). This will take approximately 30 minutes at a time and place convenient for you.

There are no risks anticipated in participation in this study.

Information gathered from the questionnaires will remain confidential and will be accessible only to myself, my supervisor, and the other two members of my thesis committee at the university. Names and other identifying information will not be included in the final thesis. Questionnaires will be kept in a locked filing cabinet for two years, after which time they will be shredded.

The information that will be gathered from this project will be analyzed and the results reported in my Master's thesis, and potentially in journal articles that will be accessible to the public.

Your participation in this study is entirely voluntary. If you decide not to participate, or choose to withdraw at any time, your present care by the staff at the MS Society will not be compromised.
By signing this consent form, you are indicating that you have read and understood the purpose of this study, and that you are participating voluntarily. You will be given a copy of this form for your records.

If at any time, you have any questions, please do not hesitate to contact me at 822-9199 or Dr. Bonnie Long at 822-5259.

Signed

Date

INVESTIGATOR:

Jane Whittall
Graduate Student
Department of Counselling Psychology
University of British Columbia
Telephone: 822-9199

THESIS COMMITTEE SUPERVISOR

Dr. Bonnie Long
Professor
Department of Counselling Psychology
University of British Columbia
Telephone: 822-5259
Appendix C

Fatigue Impact Scale (selected items)

Below is a list of statements that describe how fatigue may cause problems in people's lives. Please read each statement carefully, and choose one of the following options as a response that best indicates HOW MUCH OF A PROBLEM YOU FEEL FATIGUE HAS BEEN FOR YOU THIS PAST MONTH, INCLUDING TODAY. Please indicate the severity of the problem by selecting a number from the following options:

0  No Problem
1  Small Problem
2  Medium Problem
3  Large Problem
4  Extreme Problem

Because of my fatigue, I find I am more forgetful.

Because of my fatigue, I am more irritable and more easily angered.

Because of my fatigue, I have to be careful about pacing my physical activities.
Appendix D

Fatigue Impact Scale for Spouses (selected items)

Below is a list of statements that describe how fatigue may cause problems in people's lives. Please read each statement carefully, and choose one of the following options as a response that best indicates how much of a problem you feel fatigue has been for your spouse this past month, including today.

0 • No Problem
1 • Small Problem
2 • Medium Problem
3 • Large Problem
4 • Extreme Problem

___ Because of my spouse's fatigue, s/he finds s/he is more forgetful.

___ Because of my spouse's fatigue, s/he is more irritable and more easily angered.

___ Because of my spouse's fatigue, s/he has to be careful about pacing his/her physical activities.
Appendix E

Coping Strategies Indicator (sample items)

I am interested in how people cope with the problem of MS fatigue. Listed below are several ways of coping. I would like you to indicate (a) to what extent you use each of these coping methods and (b) to what extent you find them helpful if you do use them. Try to think of how your fatigue has affected you over the past few weeks or so. With that in mind, indicate how you cope and how helpful each coping strategy is to you by putting an "X" beside the appropriate response for each coping behaviour listed on the following pages. Answer each and every question even though some may sound similar. If the answer to (a) is "not at all", you do not need to answer part (b). Please circle your answers.

Accept help from a friend or relative?*

<table>
<thead>
<tr>
<th>a) a lot</th>
<th>a little</th>
<th>not at all</th>
</tr>
</thead>
<tbody>
<tr>
<td>b) helpful</td>
<td>somewhat helpful</td>
<td>not at all helpful</td>
</tr>
</tbody>
</table>

Let your feelings out on a friend?*

<table>
<thead>
<tr>
<th>a) a lot</th>
<th>a little</th>
<th>not at all</th>
</tr>
</thead>
<tbody>
<tr>
<td>b) helpful</td>
<td>somewhat helpful</td>
<td>not at all helpful</td>
</tr>
</tbody>
</table>

Daydream about better times?**

<table>
<thead>
<tr>
<th>a) a lot</th>
<th>a little</th>
<th>not at all</th>
</tr>
</thead>
<tbody>
<tr>
<td>b) helpful</td>
<td>somewhat helpful</td>
<td>not at all helpful</td>
</tr>
</tbody>
</table>

Spend more time than usual alone?**

<table>
<thead>
<tr>
<th>a) a lot</th>
<th>a little</th>
<th>not at all</th>
</tr>
</thead>
<tbody>
<tr>
<td>b) helpful</td>
<td>somewhat helpful</td>
<td>not at all helpful</td>
</tr>
</tbody>
</table>

Tell people about the situation because just talking about it helps you to come up with solutions?***

<table>
<thead>
<tr>
<th>a) a lot</th>
<th>a little</th>
<th>not at all</th>
</tr>
</thead>
<tbody>
<tr>
<td>b) helpful</td>
<td>somewhat helpful</td>
<td>not at all helpful</td>
</tr>
</tbody>
</table>
Weigh your options very carefully?***

a) a lot              a little              not at all
b) helpful          somewhat helpful      not at all helpful

Is there a coping strategy that you use that is not listed above?

* seeking social support
** avoidance
*** problem-solving
APPENDIX F

Demographic Information Sheet

For purposes of statistical analysis only, please answer the following questions about yourself. Your answers will remain strictly confidential. Please answer the following questions by putting an "X" beside the appropriate response.

YOU ARE   ___ the individual who has MS  ___ the spouse of the individual who has MS

SEX  ___ Male  ___ Female  AGE     ___

HOUSEHOLD INCOME
___ Less than $15,000  ___ $25,000 to $34,999  ___ $45,000-$55,000
___ $15,000 to $24,999  ___ $35,000 to $44,999  ___ Greater than $55,000

NUMBER OF YEARS MARRIED (OR IN COMMON-LAW RELATIONSHIP)  

TYPE OF MS  MS FATIGUE (check whatever type(s) you experience)
___ Relapse-Remitting  ___ Normal  (fatigue anyone might have after a long day)
___ Chronic-Progressive  ___ Episodic  (marked energy loss, usually with depressed mood)
___ Relapse-Progressive  ___ Muscular  (sudden onset of weakness, interrupting activity)
___ Benign  ___ MS Fatigue  (overwhelming tiredness without warning)

NUMBER OF YEARS SINCE DIAGNOSIS  

NUMBER OF CHILDREN  

EDUCATION
___ Less than Grade 12  ___ College or Technical school
___ Graduate degree (2-3 yr diploma)  ___ University degree (4-5 yr)
___ Completed Grade 12  ___

ETHNICITY
___ Native  ___ Asian  ___ Other (please specify
___ White  ___ Indo-Canadian

WORK
Are you currently working?  ___ Yes  ___ No
If employed, do you work  ___ F/T  ___ P/T?
If not working, are you on LTD?  ___ Yes  ___ No
Are you on short-term leave?  ___ Yes  ___ No
Other

OCCUPATION

Appendix G

Correlations of Variables Calculated in Post-hoc Analysis
(N=60).

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Fatigue</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Congruence</td>
<td>.15</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. PCA</td>
<td>-.25*</td>
<td>-.05</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Avoid Use</td>
<td>.45**</td>
<td>-.12</td>
<td>-.28*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Avoid Help</td>
<td>.41**</td>
<td>.18</td>
<td>-.30*</td>
<td>.78**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Problem Use</td>
<td>.22</td>
<td>.18</td>
<td>-.10</td>
<td>.30*</td>
<td>.35**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Problem Help</td>
<td>.16</td>
<td>-.18</td>
<td>.35**</td>
<td>.05</td>
<td>.13</td>
<td>.77**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Support Use</td>
<td>.09</td>
<td>.02</td>
<td>.12</td>
<td>.20</td>
<td>.25*</td>
<td>.25*</td>
<td>.18</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Support Help</td>
<td>.09</td>
<td>-.12</td>
<td>.21</td>
<td>.15</td>
<td>.20</td>
<td>.25*</td>
<td>.13</td>
<td>.93**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Years with MS</td>
<td>-.03</td>
<td>-.23</td>
<td>-.13</td>
<td>-.13</td>
<td>-.08</td>
<td>.15</td>
<td>.07</td>
<td>.15</td>
<td>.25</td>
<td></td>
</tr>
<tr>
<td>11. Years Married</td>
<td>-.15</td>
<td>-.22</td>
<td>-.19</td>
<td>.01</td>
<td>.13</td>
<td>.09</td>
<td>.04</td>
<td>-.16</td>
<td>.20</td>
<td>.32*</td>
</tr>
</tbody>
</table>

**Note.** Fatigue is the degree of fatigue experienced by the individual with MS, Congruence is the congruence concerning fatigue impact (calculated as variable error), PCA is positive couple agreement, Avoid Use is use of avoidance coping, Avoid Help is helpfulness of avoidance coping, Problem Use is use of problem solving coping, Problem Help is helpfulness of problem-solving coping, Support Use is use of seeking social support coping, and Support Help is helpfulness of seeking social support coping.

* p<.05
**p<.01

Overall correlation matrix is significant (p<.01) using Bartlett’s approximation (Norusis, 1993; Tabachnick & Fiddell, 1989).
Appendix H

Multiple Regression Analysis of Predictors of Avoidance Coping Efficacy Using Variable Error as the Method of Operationalizing Congruence (N=60)

<table>
<thead>
<tr>
<th>Source</th>
<th>Beta</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Degree of fatigue</td>
<td>.19</td>
<td>1.42</td>
<td>.16</td>
</tr>
<tr>
<td>Congruence (re: communication)</td>
<td>-.24</td>
<td>-1.81</td>
<td>.07</td>
</tr>
<tr>
<td>Years since diagnosis</td>
<td>-.06</td>
<td>-0.50</td>
<td>.66</td>
</tr>
<tr>
<td>Congruence (re: fatigue)</td>
<td>-.06</td>
<td>0.45</td>
<td>.66</td>
</tr>
</tbody>
</table>

Note. Beta is the standardized regression coefficient. Percentage of variance in efficacy of avoidance coping accounted for by the regression equation: $R^2$ is .13 (adjusted, .06). Overall, $F (4, 55) = 1.97, p < .11.$
Appendix I

Multiple Regression Analysis of Predictors of Seeking Social Support Coping Efficacy Using Variable Error as the Method of Operationalizing Congruence (N=60)

<table>
<thead>
<tr>
<th>Source</th>
<th>Beta</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Degree of fatigue</td>
<td>-.10</td>
<td>-0.77</td>
<td>.45</td>
</tr>
<tr>
<td>Congruence (re: communication)</td>
<td>-.10</td>
<td>-0.73</td>
<td>.47</td>
</tr>
<tr>
<td>Years since diagnosis</td>
<td>-.30</td>
<td>-2.18</td>
<td>.03</td>
</tr>
<tr>
<td>Congruence (re: fatigue)</td>
<td>-.12</td>
<td>-0.93</td>
<td>.36</td>
</tr>
</tbody>
</table>

Note. Beta is the standardized regression coefficient.

Percentage of variance in efficacy of seeking social support coping accounted for by the regression equation: $R^2$ is .09 (adjusted, .02). Overall, $F_{(4,55)} = 1.40, p < .25$. 
Appendix J

Multiple Regression Analysis of Predictors of Problem Solving Coping Efficacy Using Variable Error as the Method of Operationalizing Congruence (N=60)

<table>
<thead>
<tr>
<th>Source</th>
<th>Beta</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Degree of fatigue</td>
<td>.06</td>
<td>0.49</td>
<td>.62</td>
</tr>
<tr>
<td>Congruence (re: communication)</td>
<td>-.12</td>
<td>-0.91</td>
<td>.36</td>
</tr>
<tr>
<td>Years since diagnosis</td>
<td>-.02</td>
<td>0.13</td>
<td>.90</td>
</tr>
<tr>
<td>Congruence (re: fatigue)</td>
<td>.31</td>
<td>2.39</td>
<td>.02</td>
</tr>
</tbody>
</table>

Note. Beta is the standardized regression coefficient.

Percentage of variance in efficacy of problem solving coping accounted for by the regression equation: $R^2$ is .13 (adjusted, .07). Overall, $F (4, 55) = 2.03$, $p = .10$. 
Appendix K

**Multiple Regression Analysis of Predictors of Avoidance Coping Use Using Absolute Error as the Method of Operationalizing Congruence (N=60)**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Beta</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Congruence (re: fatigue)</td>
<td>.78</td>
<td>.63</td>
<td>.53</td>
</tr>
<tr>
<td>Congruence (re: communication)</td>
<td>-.20</td>
<td>-1.65</td>
<td>.10</td>
</tr>
<tr>
<td>Degree of fatigue</td>
<td>.37</td>
<td>2.94</td>
<td>.01</td>
</tr>
<tr>
<td>Years since diagnosis</td>
<td>.13</td>
<td>-1.09</td>
<td>.28</td>
</tr>
</tbody>
</table>

**Note.** Beta is the standardized regression coefficient.

Percentage of variance in avoidance coping accounted for by the regression equation: $R^2$ is .26 (adjusted, .20). Overall, $F(4, 55) = 4.74, p < .05.$
Appendix L

Multiple Regression Analysis of Predictors of Seeking Social Support Coping Use Using Absolute Error as the Method of Operationalizing Congruence (N=60)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Beta</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Congruence (re: fatigue)</td>
<td>.13</td>
<td>-0.94</td>
<td>.53</td>
</tr>
<tr>
<td>Congruence (re: communication)</td>
<td>.06</td>
<td>0.48</td>
<td>.10</td>
</tr>
<tr>
<td>Degree of fatigue</td>
<td>-.04</td>
<td>-0.26</td>
<td>.79</td>
</tr>
<tr>
<td>Years since diagnosis</td>
<td>-.21</td>
<td>-1.52</td>
<td>.13</td>
</tr>
</tbody>
</table>

Note. Beta is the standardized regression coefficient.

Percentage of variance in seeking social support coping accounted for by the regression equation: $R^2$ is .06 (adjusted, -.005). Overall, $F(4,55) = .93, p$ ns.
Appendix M

Multiple Regression Analysis of Predictors of Problem Solving Coping Use Using Absolute Error as the Method of Operationalizing Congruence (N=60)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Beta</th>
<th>t</th>
<th>p&lt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Congruence (re: fatigue)</td>
<td>-.18</td>
<td>-1.38</td>
<td>.17</td>
</tr>
<tr>
<td>Congruence (re: communication)</td>
<td>.27</td>
<td>2.11</td>
<td>.04</td>
</tr>
<tr>
<td>Degree of fatigue</td>
<td>.34</td>
<td>2.59</td>
<td>.01</td>
</tr>
<tr>
<td>Years since diagnosis</td>
<td>.17</td>
<td>1.31</td>
<td>.20</td>
</tr>
</tbody>
</table>

Note. Beta is the standardized regression coefficient.

Percentage of variance in problem solving coping accounted for by the regression equation: $R^2$ is .17 (adjusted, .11).

Overall, $F (4, 55)= 2.89, p < .05.$
Appendix N

List of Coping Strategies Used that were not on The Coping Strategy Indicator

helping other people (3)
dependence on a higher power for guidance and strength
positive thinking (3)
resting (3)
making a conscious effort to avoid stress
pacing activities (2)
journaling (2)
being close to nature (2)
having a dog (3)
reading
meditating (2)
having Christian beliefs (praying) (3)
sharing workloads
having temper tantrums (throwing things)
denial (3)
gardening,

driving in the country
choosing not to participate in negative discussions,
music (3)
biofeedback (relaxation)
exercise (4)
consciously turning my mind off
trying not to feel guilty about sleeping during the day
changing activities to less demanding ones
keeping my mind very active
watching funny movies
panic
acknowledging limitations
visiting neighbours
determination

Note Coping strategies are listed in no particular order.
Appendix O

**Frequency Distribution of Salient Demographic Characteristics of Participants (N=120)**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Range</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age of Individuals with MS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24-34</td>
<td>6</td>
<td>10.00</td>
<td></td>
</tr>
<tr>
<td>35-44</td>
<td>20</td>
<td>33.30</td>
<td></td>
</tr>
<tr>
<td>45-54</td>
<td>25</td>
<td>41.70</td>
<td></td>
</tr>
<tr>
<td>55-65</td>
<td>9</td>
<td>15.00</td>
<td></td>
</tr>
<tr>
<td>Age of Well Spouse</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24-34</td>
<td>5</td>
<td>8.30</td>
<td></td>
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Appendix P

**Frequency Distribution of Scores on the Fatigue Impact Scale**
(N=120)

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Appendix Q

Frequency Distribution of Scores on the Couple Communication Scale (N=60)

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Appendix R

Frequency Distribution of Coping Efficacy Scores (N=60)

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