

FACTORS INFLUENCING FATIGUE AND FATIGUE-RELATED ILLNESSES

by

Opal Arilla McInnis

A thesis submitted to the  
Faculty of Graduate Studies and Postdoctoral Affairs  
in Partial Fulfillment of the requirements for the degree of

Master of Science

in

Neuroscience

Carleton University  
Ottawa, Canada

©2011 Opal McInnis



Library and Archives  
Canada

Published Heritage  
Branch

395 Wellington Street  
Ottawa ON K1A 0N4  
Canada

Bibliothèque et  
Archives Canada

Direction du  
Patrimoine de l'édition

395, rue Wellington  
Ottawa ON K1A 0N4  
Canada

*Your file* *Votre référence*  
ISBN: 978-0-494-83158-8  
*Our file* *Notre référence*  
ISBN: 978-0-494-83158-8

#### NOTICE:

The author has granted a non-exclusive license allowing Library and Archives Canada to reproduce, publish, archive, preserve, conserve, communicate to the public by telecommunication or on the Internet, loan, distribute and sell theses worldwide, for commercial or non-commercial purposes, in microform, paper, electronic and/or any other formats.

The author retains copyright ownership and moral rights in this thesis. Neither the thesis nor substantial extracts from it may be printed or otherwise reproduced without the author's permission.

---

In compliance with the Canadian Privacy Act some supporting forms may have been removed from this thesis.

While these forms may be included in the document page count, their removal does not represent any loss of content from the thesis.

#### AVIS:

L'auteur a accordé une licence non exclusive permettant à la Bibliothèque et Archives Canada de reproduire, publier, archiver, sauvegarder, conserver, transmettre au public par télécommunication ou par l'Internet, prêter, distribuer et vendre des thèses partout dans le monde, à des fins commerciales ou autres, sur support microforme, papier, électronique et/ou autres formats.

L'auteur conserve la propriété du droit d'auteur et des droits moraux qui protègent cette thèse. Ni la thèse ni des extraits substantiels de celle-ci ne doivent être imprimés ou autrement reproduits sans son autorisation.

---

Conformément à la loi canadienne sur la protection de la vie privée, quelques formulaires secondaires ont été enlevés de cette thèse.

Bien que ces formulaires aient inclus dans la pagination, il n'y aura aucun contenu manquant.

  
**Canada**

## Abstract

Chronic fatigue syndrome (CFS) and fibromyalgia are disabling conditions that are frequently viewed suspiciously by others, and claims of malingering are common. The present study addressed psychosocial factors that may have unique relationships to well-being among individuals living with such ambiguous illnesses. Women with CFS/fibromyalgia (n=39) reported higher unsupport, less trust in physician, and higher depressive scores relative to healthy women (n=55), whereas women with an autoimmune condition (n=28) displayed intermediate scores. Coping styles were related to depression scores, but this outcome was moderated by health status. Specifically, high problem focused coping was associated with low levels of depression in those with an autoimmune condition, but not in those with CFS/fibromyalgia. Among healthy women, perceived stress mediated the relationship between fatigue and depression; this mediated relationship was also present among women with both chronic conditions, yet stronger. These findings have implications for treatment of depression in the face of ambiguous health threats.

## Acknowledgements

First and foremost I owe a debt of gratitude to my thesis supervisor Dr. Hymie Anisman, for his invaluable support over the last two years. Whether it is through his editing, teaching, motivating or putting life into perspective, I am ever so appreciative of his guidance. I would also like to thank my committee members, Dr. Kim Matheson and Dr. Alfonso Abizaid for taking the time out of their busy schedules to provide input and incite stimulating discussion. I feel very fortunate to be a member of the Stress and Pathology laboratory as every one of the members has been generous with their help and kindness throughout this process. Special thanks are owed to Kate Raspopow, for careful review of my writing and for being there to answer any of my questions (no matter how small or frequent they may have been). Thank you to Robyn McQuaid, a great friend and confidant of whose sense of humour and warmth have made the last few years a time to reflect fondly upon. Thank you to my family and friends for without them I would never have achieved any of this. Finally, thank you to my partner Alex, for re-locating his life so that I can pursue my goals.

## Table of Contents

Title.....	i
Abstract.....	ii
Acknowledgements.....	iii
Table of Contents.....	iv
List of Tables.....	v
List of Figures.....	vi
List of Appendices.....	vii
Introduction.....	1
Hypotheses.....	17
Methods.....	18
Results.....	26
Discussion.....	45
References.....	52
Appendices.....	64

## List of Tables

Table 1. Descriptive statistics and inter-item reliabilities of measures.

Table 2. Pearson correlations among social support, unsupport, trust in physician, coping styles, perceived stress, fatigue and depressive symptoms within the healthy group.

Table 3. Pearson correlations among social support, unsupport, trust in physician, coping styles, perceived stress, fatigue and depressive symptoms within the autoimmune disorders group.

Table 4. Pearson correlations among social support, unsupport, trust in physician, coping styles, perceived stress, fatigue and depressive symptoms within the CFS/fibromyalgia group.

Table 5. Moderated Mediated Direct and Indirect Effects of Fatigue on Depressive Symptoms Through Perceived Stress.

## List of Figures

Figure 1. Mean ( $\pm$  SE) depression scores (a) and atypical depression scores (b) as a function of health status.

Figure 2. Mean ( $\pm$  SE) total unsupportive social interactions (a) and unsupportive social interaction subscales (b) as a function of health status.

Figure 3. Mean ( $\pm$  SE) social support as a function of health status.

Figure 4. The endorsement of problem focused coping as moderated by health status in relation to depression scores.

Figure 5. Mean ( $\pm$  SE) trust in physician as a function of health status.

## List of Appendices

Appendix A. Informed Consent

Appendix B. Measures

Appendix C. Distress Debriefing

Appendix D. Debriefing

## Introduction

Chronic fatigue syndrome (CFS) and fibromyalgia are disabling, unexplained medical conditions with similar symptomatology (e.g., fatigue, widespread pain, depression). Despite extensive research efforts, both conditions remain difficult to diagnose, with no objective tests, clear-cut treatments, or established etiologies (Åsbring & Närvänen, 2002). Not only do these conditions impose a great deal of suffering in those living with fibromyalgia and CFS, but from a societal standpoint, Canadian patients suffering from medically unexplained conditions consume higher rates of health services (e.g., repeated visits to general practitioners and specialists even when compared to individuals presenting with other chronic conditions) (Statistics Canada, 2003). Due to the chronic course of CFS and fibromyalgia, the identification of variables associated with their chronicity and severity, especially those that are modifiable in nature (e.g., psychosocial factors), should be considered as they might be fundamental in the development of more efficacious treatment strategies.

Antecedent to fatigue-related illnesses are periods of unexplained fatigue, and it has indeed been suggested that these periods might be common across several disorders that involve fatigue as a primary symptom (e.g., CFS and/or fibromyalgia) (Kumari et al., 2009; Pawlikowska et al., 1994). Individuals who have experienced a period of unexplained fatigue are at greater risk for onset of a first episode of major depression (Addington, Gallo, Ford & Eaton, 2001), and report decreased psychological and physical well-being (Cathebras, Robbins, Kirmayer, Hayton, 1992). Although fatigue, CFS, and fibromyalgia have been associated with stress-related physiological alterations

(Demitrack & Crofford, 1998; Kumari et al., 2009), little is known about how fatigued individuals cope with stressful events. Coping strategies are typically utilized to relieve distress; however some strategies may be maladaptive and may be associated with negative long-term outcomes, such as depression (Kessler, Price & Wortman, 1985; Matheson & Anisman, 2003). Indeed, there is evidence that those living with CFS engage in less effective methods of coping (e.g., escape-avoidance) (Afari & Buchwald, 2003), however, most studies have focused on coping styles with the illness, whereas very few have investigated coping more generally.

Social support is a common coping resource that buffers against the negative effects of stressors (Cohen & Wills, 1985). Alternatively, the experience of unsupportive interactions, such as experiencing withdrawal behaviours, undermines the ability of individuals to cope effectively with stressor events (Grange, Matsuyama, Ingram, Lyckholm, & Smith, 2008), and may lead to adverse mental health outcomes (Ingram, Betz, Mindes, Schmitt, & Smith, 2001). Importantly, the social support received may be influenced by the nature of the medical condition in question; there is research to suggest that individuals with CFS and fibromyalgia may have less social support, and perceive more negative social interactions, than individuals in the general population (Anderson & Ferrans, 1997; Davis, Zautra, & Relch, 2001; Mayer, 2000). In relation to health-related stressors, seeking social support, specifically informational and decision-making support from that of a physician, is a coping strategy employed by many individuals suffering from medical conditions (Stewart, Davidson, Meade, Hirth & Makrides, 2000). Thus, the relationship between patient and physician is crucial.

Both CFS and fibromyalgia are unique in that their etiology and their underlying mechanisms remain largely unexplained, and they are diagnosed by means of excluding other conditions that may be responsible for symptom expression (Åsbring & Närvänen, 2002). Unexplained conditions, particularly those that are chronic, introduce tension on physician-patient interactions (Malterud, 1992; Schwenk, Marquez, Lefevre & Cohen, 1989). As a result, it is possible that individuals suffering from such conditions might have less trust in their physician relative to individuals seeking medical attention for less ambiguous issues.

The current study will examine several psychosocial factors that may influence fatigue and well-being among individuals with CFS and/or fibromyalgia, and those demonstrating sub-clinical levels of fatigue. In particular, this study will assess the potential role that coping styles and coping resources (e.g., (un)support) may have on influencing fatigue, depressive symptoms. The impact of trust in the physician on these outcomes will also be assessed. The findings of this study may provide insights into the underlying stress-related processes that might mediate the presence and expression of psychiatric and inflammatory immune system related illnesses.

### *Chronic Fatigue Syndrome and Fibromyalgia*

Chronic fatigue syndrome (CFS) and fibromyalgia are unexplained conditions with overlapping symptomatology that are associated with serious disability, and are characterized by a diverse set of symptoms (Buchwald, 1996). Specifically, the Center for Disease Control defines CFS as an illness characterized by intense disabling fatigue lasting at least 6 months and accompanied by at least four additional symptoms, including

un-refreshing sleep, post-exertional fatigue, sore throat, tender or swollen glands, memory or concentration difficulties, aching or stiff muscles, multi-joint pain, and new headaches (Fukuda et al., 1994). A diagnosis of fibromyalgia is reached when an individual presents with widespread soft tissue pain, lasting at least 3 months in duration. This soreness is painful to the touch and must be located in at least 11 of 18 paired tender points. It is also often characterized by fatigue, allodynia, memory and concentration difficulties (Wolfe, Anderson & Harkness, 1997). Although CFS and fibromyalgia differ in their definitions, 35%-70% of those with CFS also have fibromyalgia (Buchwald & Garrity, 1994; Goldenberg, Simms, Geiger & Komaroff, 1990) and among those with fibromyalgia, 20%-70% have concomitant CFS (Buchwald & Garrity, 1994; Hudson, Goldenberg, Pope, Keck & Schlesing, 1992). In both conditions, diagnosis is more common in females than males (Burckhardt, Jones & Clark, 1998; Jason et al., 1999), and onset typically occurs between the ages of 30-50 years (Jason et al., 1999; Wolfe, et al., 1997). Overlapping symptoms, demographic similarities, and congruent treatment strategies have prompted some researchers to propose that these conditions have been prematurely classified and should be viewed as different presentations of similar underlying pathological processes (Wessely, Nimnuan & Sharpe, 1999). Although the etiology of these conditions remains unknown, neuroendocrine, infectious, immunological, and psychiatric mechanisms, among others, have all been investigated among individuals with both fibromyalgia and CFS (Afari & Buchwald, 2003; Nampiarampil & Shmerling, 2004).

*Immunological Aspects of Chronic Fatigue Syndrome and Fibromyalgia.* Several viruses (e.g. Epstein-Barr virus, enteroviruses and retroviruses) have been investigated as

possible causal mechanisms of CFS (Afari & Buchwald, 2003), and symptoms also seem to emerge after a flu-like illness in a number of patients with fibromyalgia (Goldenburg, 1993). Even so, some patients have no evidence of infectious factors preceding the development of CFS or fibromyalgia (Farrar, Locke & Kantrowitz, 1995), and the evidence that CFS or fibromyalgia result from a specific infection has not been consistent (Hoptoff & Wessely, 1994). Although there have been several studies investigating immune system dysfunction in relation to CFS and fibromyalgia, the data have again been inconsistent. Individuals diagnosed with CFS have been reported to have increased expression of activation markers on the cell surface of T lymphocytes (Klimas, Salvato, Morgan & Fletcher, 1990; Straus, Fritz, Dale, Gould & Strober, 1993), deficiencies in natural killer cell function (Caligiuri et al., 1987; Morrison, Berhan & Behan, 1991), and increased auto-antibodies (Konstantinov et al., 1996). Taken together, it appears that there is evidence to suggest altered immune system function associated with CFS, but a direct link to pathological processes has yet to be determined (Afari & Buchwald, 2003).

#### *Neuroendocrinological Aspects of Chronic Fatigue Syndrome and Fibromyalgia.*

From a neuroendocrine perspective, both CFS and fibromyalgia appear to be associated with alterations in hypothalamic-pituitary-adrenal (HPA) axis functioning. With regards to fibromyalgia, it was reported that basal plasma cortisol as well as 24-hour urinary free cortisol was reduced (Crofford et al., 1994; Griep et al., 1998; McCain & Tilbe, 1989). Fibromyalgia patients also demonstrated a heightened adrenocorticotrophic hormone (ACTH) response, but a blunted cortisol response, to a corticotropin releasing hormone (CRH) challenge (Crofford et al., 1994; Riedel, Layka & Neeck, 1998). In an extensive review, Parker, Wessely & Cleare (2001) reported that approximately one third of

patients with CFS displayed hypocortisolism. These findings are particularly intriguing, given the co-morbidity between CFS/fibromyalgia and depression, a condition which in contrast is typically characterized by increased cortisol (Monteleone, 2001).

Along with alterations in the stress response, stressful life events have also been associated with CFS and fibromyalgia. Retrospective studies identified traumatic life events as potential risk factors in the development of CFS and fibromyalgia (Heim et al., 2006; Weissbecker, Floyd, Dedert, Salmon & Sephton, 2006). From a psychosocial perspective, factors such as ineffective coping, might result in a deficient regulatory response to stressors, as well as in amplified or extended stress responses, including elevated neuroendocrine and immune activation (McEwen, 1998). This, in turn, could potentially influence the severity of fatigue and related symptoms among those with CFS and fibromyalgia (Demitrack & Crofford, 1998).

Given the unknown etiologies, lack of firm diagnostic criteria or tests, and diverse expression of CFS and fibromyalgia across patients, it is not surprising that there are no clear-cut or even reliably successful treatment strategies for individuals with these conditions (Afari & Buchwald, 2003). However, it appears that both cognitive behavioural therapy (Burckhardt, 2002; Deale, Chalder, Marks & Wessely, 1997) and graded exercise programs (Burckhardt, Jones & Clark, 1998; Fulcher & White, 1997) are moderately effective in managing some of the symptoms in both fibromyalgia and CFS diagnosed individuals. The use of anti-depressants to treat CFS has yielded mixed results, although there has been some success of these methods in the treatment of fibromyalgia (Arnold, Keck & Welge, 2000).

*Chronic Fatigue Syndrome, Fibromyalgia and Depression.* Chronic fatigue syndrome and fibromyalgia show high co-morbidity with psychiatric conditions (e.g. depression, anxiety disorders) (Wessely, Chalder, Hirsch, Wallace & Wright, 1996). This has prompted the suggestion that CFS and fibromyalgia are manifestations of a psychiatric condition (Manu et al., 1988; Greenberg, 1990), perhaps an atypical form of depression (Abbey & Garfinkle, 1991). Depression is highly prevalent among those with CFS and fibromyalgia, with lifetime rates of major depression among individuals with CFS being between 50-75% (Katon, Buchwald, Simon, Russo & Mease, 1991; Wood, Bentall, Gopfert & Edwards, 1991), and approximately 68% in those with fibromyalgia (Epstein et al., 1999). Depression typically precedes the presentation of CFS and fibromyalgia (Manu et al., 1988); however, this is not always the case (Bates et al., 1991; Hotopf & Wessely, 1994). It has also been postulated that depression is secondary to some other underlying related process or consequence of the condition, such as immune system dysfunction, or as a result of the disabling nature of the conditions (Johnson, DeLuca & Natelson, 1999). Characteristically, depression may be distinct from CFS and fibromyalgia; in CFS, patients tend not to display certain common symptoms of depression (e.g. excessive guilt, anhedonia, and lack of motivation) (Powell, Dolan & Wessely, 1990). Moreover, some symptoms of CFS and fibromyalgia (e.g., flu-like symptoms, pain in joints without swelling, post-exertional fatigue) are quite dissimilar from those seen in depression (Afari & Buchwald, 2003).

#### *Sub-clinical Fatigue in the General Population*

Fatigue is a broadly defined subjective symptom of health that can manifest itself as both physical (e.g., muscle weakness or decreased strength) and mental (e.g.,

concentration and attention difficulties) (Chalder et al., 1993). Fatigue is a common complaint in primary care settings (Cathebras et al., 1992); however, complaints of fatigue alone do not result in definitive medical diagnoses (Fuhrer & Wessely 1995). For most, fatigue represents a temporary state, and only a certain population of individuals develop chronic and disabling fatigue-related conditions, like CFS and fibromyalgia. Community estimates of the incidence of medically unexplained fatigue lasting for at least 2 weeks have ranged from 14% (Addington, Gallo, Ford, & Eaton, 2001) to 24.4% (Walker, Katon & Jemelka, 1993). Evidently, fatigue is a relatively common occurrence, yet remains minimally investigated.

Fatigue is associated with numerous medical and psychiatric conditions such as, anxiety and depression (Cathebras, Robbins, Kirmayer, & Hayton, 1992). In this regard, recent research seems to suggest that individuals who have experienced a period of unexplained fatigue are at greater risk for the onset of a first episode major depression (Addington et al., 2001). Furthermore, individuals with complaints of unexplained fatigue report more somatic complaints, increased worry of having emotional problems, and greater perceived stress (Cathebras et al., 1992). Little is known about the association between stress and fatigue in non-clinical populations, but there is evidence that alterations in cortisol secretion occurs early in the development of fatigue and may play an etiological role in sub-clinical periods of fatigue (Kumari et al., 2009). Given that stressful experiences have been associated with the development of fatigue, it is possible that the coping strategies employed to respond to stressful events may influence the chronicity of fatigue.

### *Stress, Coping, and Health*

The transactional model of stress and coping described by Lazarus & Folkman (1984) suggest that in response to a potential challenge individuals make a primary appraisal comprising an evaluation of the degree of harm or threat the potential stressor presents to the self. This is followed by a secondary appraisal that entails an assessment of available resources or methods of coping available to deal with the stressor, which ultimately influences a choice of a coping strategy (Lazarus & Folkman, 1984).

Although coping has been described in various ways, coping styles and strategies are typically categorized into problem- and emotion-focused coping (Folkman, Lazarus, Dunkel-Schetter, DeLongis & Gruen, 1986). Problem-focused coping, involves behaviours like information seeking or learning new skills in an attempt to resolve the problem, with an aim at eliminating the source of stressor. Emotion-focused coping, can be broadly grouped into one category involving many behaviours with a common goal of managing the emotional reaction to the stressor (e.g. emotional expression, rumination, self blame, avoidance) (Folkman et al., 1986). However, many researchers have found utility in subdividing emotional coping behaviours into those more associated with emotional expression and those involving escape-avoidance behaviours (e.g., denial, wishful thinking, fantasizing) (Folkman & Moskowitz, 2004).

Coping strategies are not intrinsically adaptive or maladaptive, but their efficacy depends on contextual factors and individual differences. Depression is frequently associated with endorsing lower levels of problem-focused coping and higher levels of emotional expression (Matheson & Anisman, 2003) and it has frequently been assumed that emotion focused coping is a maladaptive strategy. Yet, it has also been suggested

that under certain conditions emotion focused coping may actually be a highly adaptive strategy. For instance, in emotionally charged situations, emotion-focused coping allows the individual to vent and might facilitate the individual's ability to come to terms with their feelings, thus reducing distress (Stanton & Franz, 1999). Furthermore, compared to problem focused coping, emotion-focused coping may be beneficial during health-related stressors where outcomes seem more uncontrollable, involve emotions of anxiety, fear or concern and where interpersonal relationships are threatened (Folkman & Lazarus, 1980). Emotion-focused coping is typically used more frequently when individuals have little informational support in the face of a stressor (Dunkel-Schetter, Folkman, & Lazarus, 1987). Thus, when examining unexplained conditions like CFS and fibromyalgia, where information regarding treatments, causes, and processes is limited, it might be especially pertinent to explore the relation between emotion-focused coping and condition-related health outcomes (e.g., depressive symptoms).

Individuals with CFS and fibromyalgia employ a variety of coping strategies when dealing with daily stressors and their condition, however, it seems that escape-avoidance strategies may be particularly prominent among these individuals (Afari & Buchwald, 2003). It was reported that individuals who perceived it to be a great source of stress (primary appraisal) employed significantly more coping strategies associated with focusing on the symptoms of the illness (i.e., the extent to which one views the illness as dominating one's life), and information seeking (i.e., seeking information about related to their illness) than those who viewed the illness as less distressing. As well, individuals less likely to feel in control of their illness (secondary appraisal) reported higher scores of emotional disturbance and fatigue (Knussen & Lee, 1998).

A study comparing coping styles between individuals with CFS, unexplained chronic fatigue, and healthy controls in a community-based survey revealed that both fatigue groups employed more escape-avoidance strategies than healthy controls. Furthermore, escape-avoidance was associated with greater reports of fatigue and pain, but only among those with CFS (Nater et al., 2006). A similar study with individuals presenting with fibromyalgia indicated that active coping (seeking instrumental and emotional support, acceptance, planning) was not a significant predictor of health outcomes, but the use of restraint coping (coping passively and waiting until an appropriate occasion to deal with issues) was associated with reduced physical functioning (Theadom, Cropley & Humphrey, 2007).

Few studies have explored coping styles, in general, among those with CFS and fibromyalgia, as most studies focused on coping directly with the illness. However, in a study involving twins discordant for CFS or sub-clinical chronic fatigue, allowing for the control of both genetic and common environmental effects, it was revealed that fatigued twins used less problem-focused coping and more wishful thinking, social support, religious and avoidance-coping compared to those twins without CFS or chronic fatigue (Afari et al., 2000).

### *Social Support*

Related to efficacious coping, is social support, which has been found to be particularly important among those coping with chronic conditions (Goodenow, Reisine & Grady, 1990; McIvor, Riklan & Reznikoff, 1984). Social support is a coping resource that individuals might engage when dealing with stressors, and is typically offered by family members, friends, and significant others, (Thoits, 1995). Support can take various

forms, ranging from concrete types of support like providing transportation or financial assistance (tangible support), giving advice or providing information (informational support) to more abstract types of support such as understanding, encouragement or being there to listen (emotional support). Interestingly, perceived social support appears to be particularly important in promoting well-being, and is generally more poignant than the actual amount of social support received (Dunkel-Schetter & Bennett, 1990; Wethington & Kessler, 1986).

A lack of social support has been associated with a host of diseases and psychiatric disorders (e.g., cardiovascular diseases, anxiety disorders) (Smith & Ruiz, 2002; Plaisier et al., 2007), whereas positive social interactions seem to have substantial health benefits (e.g., decreased mortality rates, and better states of mental health) (Seeman, 1996). Notably, social support can buffer against conditions co-morbid with CFS and fibromyalgia, such as depression (Hays, Steffens, Flint, Bosworth, & George, 2001; Sayal et al., 2002). However the role of positive social support on symptom severity or chronicity on conditions like fibromyalgia and CFS has been minimally explored and the reported results have been variable. In this regard, the consumption of instrumental support (e.g., information or advice seeking, membership in support groups) predicted poorer health outcomes among individuals with CFS, particularly as symptom severity increased (Johnson, Gil-Rivas, & Schmaling, 2008). It is possible that membership in self-help groups may represent an attachment to illness, or the exchange of inaccurate information (e.g., regarding treatment strategies). It is also plausible that those who are more severely ill are more likely to seek instrumental support (Johnson et al., 2008). In contrast, CFS affected individuals reported receiving less social support

during the year prior to illness onset compared to healthy individuals during that same period of time (Mayer, 2000). Significantly, among individuals with fibromyalgia and CFS, social support was associated with increased ratings of perceived quality of life (Schoofs, Bambini, Ronning, Bielak, & Woehl, 2004), and was related to fewer illness symptoms (Saltzstein, Wyshak, Hubbuch, & Perry, 1998; Lutgendorf et al., 1995).

It appears that obtaining social support may initially be challenging for those diagnosed with fibromyalgia and CFS. It has been suggested that individuals with CFS have less available social support than those the general population (Anderson & Ferrans, 1997; Mayer, 2000); many patients with CFS report a decrease in social relationships as a negative impact of their illness (Sharpe et al., 1991). This could be attributed to multiple factors: individuals with CFS have reported backing out of activities with friends due to low energy, while others reported isolation due to physical disability. Disconcertingly, people with CFS reported losing support due to the beliefs or doubts of family and friends regarding the validity of their illness (Sharpe et al., 1991). It seems that the experience of social support among those living with CFS and/ or fibromyalgia may be relatively limited, and may have adverse ramifications on their well-being.

### *Unsupport*

Unsupportive interactions refers to the receipt of a negative or upsetting social interaction with another individual when approaching them for help or advice during a challenging or stressful time (Ingram, Jones, Faas, Neidig, & Song, 1999; Ingram, Betz, Mindes, Schmitt & Smith, 2001). Unsupportive responses from others may include minimizing the individual's problems, blaming the individual, distancing from an individual and their problems, and bumbling attempts to provide support. Notably,

unsupport has been revealed as an independent predictor of health outcomes, such as depression, above and beyond the effects of social support and stress (Ingram et al., 2001). Moreover, unsupportive social interactions have been associated with greater levels of depressive symptom among those living with the chronic illness, HIV (Ingram et al., 1999). Negative social interactions may be particularly prevalent among those suffering from CFS and fibromyalgia, as they often perceive individuals within their social networks as questioning the legitimacy of their illnesses, and that this is often deeply upsetting (Åsbring, & Närvänen 2002, Ware, 1997). Many women with CFS perceive others (e.g., a co-workers, friends etc.) as challenging the authenticity of their illness, and this is experienced as a violation of how these women conceptualize themselves (i.e., as honest, hardworking etc.) (Åsbring & Närvänen, 2002). Indeed, such negative social experiences can be considered as a stressor themselves.

The effects of unsupportive interactions on illness presentation or symptom severity have been scarcely investigated in individuals with CFS and fibromyalgia. However, there is evidence that unsupportive interactions were related to poorer psychological adjustment (Manner & Zautra, 1989). Moreover, unsupportive interactions promoted feelings of inability to cope with illness, as well as less effective coping strategies (Schwartz, Slater & Birchley, 1994). Indeed, among those with fibromyalgia an association was evident between greater interpersonal stress and greater pain reports, whereas this was not apparent in other chronic pain conditions (e.g., osteoarthritis) (Zautra, Hamilton & Burke, 1999). Further, women with fibromyalgia perceived more frequent negative social interactions than those with other chronic pain conditions (e.g., osteoarthritis), and it was suggested that women with fibromyalgia may be particularly at

risk to the adverse effects of negative social interactions, possibly because of their increased use of ineffective coping strategies, increased social disengagement, and lower positive affect (Davis, Zautra, & Relch, 2001).

### *Physician-Patient Interactions*

Trust is an essential component of interpersonal relations that typically grows over time, and is much stronger between family and friends than in more distant relationships (Barber, 1983). Still, there are circumstances in which individuals must put their trust in people with whom they are less familiar, and where the repercussions of misplaced trust are considerable. In this regard, there are many possible benefits to developing patient-physician trust, such as increased satisfaction with the care received, progression of care, and compliance to treatment regimens (Safran et al., 1998; Thom, Ribisl, Stewart, & Luke, 1999). Moreover, a positive patient-physician relationship is critical to living with a chronic condition, and has been related to a higher quality of life (Stewart, 1995). Indeed, these positive interactions have been shown to improve the long-term management of CFS (Craig & Kakumanu, 2002), whereas unsupport from health care providers was related to lower quality of life among individuals with CFS and/or fibromyalgia (Schoofs, et al., 2004). Importantly, health care provider support and belief in the patient's illness was more important to their quality of life, as reported by individuals living with fibromyalgia, than the development of better treatments or diagnostic tools for their condition (Bernard, Prince & Edsall, 2000).

Within Canada, patients suffering from CFS and fibromyalgia consume more health services (e.g., repeated visits to general practitioners and specialists) than do individuals who suffer from other chronic conditions (Statistics Canada, 2003). In

addition to societal health costs, CFS and fibromyalgia patients may incur personal financial costs as a result of their uncertainty regarding their disorder. The increased disability, uncertainty of the course of condition, and lack of a clear-cut effective treatment strategy, may lead patients to find alternative medicines to cope with these conditions (Ax, Greg & Jones, 1997). Attempts to find alternative medicines may not only be problematic in terms of sufferers allocating finances to non-effective treatments (Shepherd, 1992), but they might also contribute to problems in patient-physician interactions as they may create tension due to lower compliance with the physician-assigned treatment (Ax, et al., 1997). Yet, ineffective communication between doctors and individuals with CFS is frequently reported by many individuals with this condition (David, 1991).

The quality of communication between patients and their physicians is related to the patient's satisfaction with their medical care, and their compliance with treatment regimes (Ley, 1988). Doctors can encourage patient trust by using effective communication, expressing understanding of the patient's experience, demonstrating respect, and providing effective treatments (Thom & Campbell, 1997). However, meeting these needs might become difficult when confronted with unexplained conditions such as fibromyalgia and CFS, which have no clear-cut diagnostic criteria or treatment. Essentially, unexplained conditions, particularly those that are chronic, introduce mutual tension on physician-patient interactions and may lead to feelings of anger and hopelessness (Schwenk, Marquez, Lefever, Cohen, 1989). As such, it is conceivable that individuals suffering from such unexplained conditions may have less trust in physicians relative to the trust expressed by healthy individuals, or those with less

ambiguous chronic conditions, and the low levels of trust could indirectly affect fatigue symptom severity and chronicity.

### The Present Study

The present investigation was conducted to examine the relations between coping, coping resources, perceived stress, trust in physician, depressive symptoms and fatigue among women with CFS and/or fibromyalgia compared to ‘healthy’ women and those living with unambiguous chronic health conditions. The unambiguous chronic health conditions group was comprised of women with an autoimmune disorder comprising either multiple sclerosis (MS), rheumatoid arthritis (RA) or lupus erythematosus. It was predicted that:

1. Women in the CFS/fibromyalgia group would report greater unsupport relative to those in the autoimmune and healthy groups.
2. Social support would be associated with lower depressive symptoms, and unsupport would be associated with greater depressive symptoms, irrespective of condition. However, the presence of increased unsupportive social interactions among women with CFS/fibromyalgia would diminish the beneficial action of social support on depression in this group.
3. The relationship between coping styles and depressive symptoms would be moderated by health status. Specifically, it was expected that depressive symptoms would be most severe among those women in CFS/fibromyalgia group, but that this effect would be influenced by the individual’s coping style.

4. Among healthy women, greater levels of sub-clinical fatigue would predict depressive symptoms and this relationship would be mediated by perceived stress. This mediated relationship would also be present among those suffering from chronic conditions, but would be stronger, as those living with a medical illness may be particularly susceptible to the adverse effects of perceived stressors.
5. Those with CFS and fibromyalgia would have less trust in their physician relative to those in either the autoimmune disorders or healthy groups.
6. Among women with CFS and/or fibromyalgia, levels of fatigue and depressive symptoms would be lower with elevated levels of trust.
7. As having the support of one's social network may be particularly important to individuals living with unexplained illnesses and may be related to an individual's willingness to trust in their physician, it was hypothesized that health status would moderate the relationship between social support and trust in physician, whereby this relationship would be strongest among those in the CFS/fibromyalgia group.

## Methods

### *Participants*

Women ( $N = 122$ ) over the age of 30, living in Canada participated in this study. Of those women, almost half were categorized as 'healthy' as they reported no current medical or psychiatric diagnoses ( $n = 55, 45.08\%$ ), this group ranged in age from 30 to 65 years ( $M = 40.40, SD = 9.51$ ). The remaining women had either CFS and/or fibromyalgia ( $n = 39, 31.97\%$ ), ranging in age from 30 to 71 years ( $M = 43.23, SD = 10.47$ ) or autoimmune disorders ( $n = 28, 22.95\%$ ), ranging in age from 30 to 58 years ( $M = 43.57, SD = 8.93$ ). The CFS/fibromyalgia group was primarily comprised of

individuals who reported being diagnosed with fibromyalgia ( $n = 22$ , 56.41%), followed by those who reported a diagnosis of CFS ( $n = 11$ , 28.21%), with the remainder reporting concomitant diagnoses of the two conditions ( $n = 6$ , 15.38%). The autoimmune group was primarily comprised of individuals who reported a diagnosis of RA ( $n = 17$ , 60.71%), while the remainder reported having either lupus ( $n = 7$ , 25.00%) or MS ( $n = 4$ , 14.29%).

Most women reported their employment status as full-time ( $n = 52$ , 42.62%), while others reported being unemployed ( $n = 23$ , 18.85%), employed part-time ( $n = 18$ , 14.75%) or retired ( $n = 4$ , 3.28%). To be expected a proportion of women were on disability in the CFS/fibromyalgia ( $n = 11$ , 28.21%) and autoimmune disorder ( $n = 6$ , 21.43%) groups, only. Almost half the women were married ( $n = 60$ , 49.18%), with the remaining being either single ( $n = 28$ , 22.95%), in a serious dating relationship ( $n = 10$ , 8.20%), living with a significant other ( $n = 10$ , 8.20%), divorced or separated ( $n = 6$ , 4.92%), going out with someone ( $n = 4$ , 3.28%), widowed ( $n = 1$ , 0.82%), or recently broken up ( $n = 1$ , 0.82%).

### *Procedure*

Participant data were collected during fall 2010 and spring 2011. Recruitment notices advertising a study about “factors influencing fatigue and fatigue-related illnesses” were used to invite individuals to participate in an online study on the hosting website, PsychData<sup>®</sup>. These notices were placed on public online classifieds for recruitment of healthy women, while women living with chronic conditions were recruited from support centres and online support forums across Canada. Upon entering the study website, participants were required to indicate if they had been diagnosed with

certain medical conditions in a given list as to ensure that once group (i.e., healthy control, autoimmune disorders, CFS/fibromyalgia) maximums were reached the study would remain open only to those who meet criteria for the remaining groups. Participants were informed that the integrity of their responses would be verified, and those deemed as random or untruthful would not receive a gift card for their participation. An informed consent form was presented to participants to read, explaining what would be asked of them during the study (Appendix A), and once they had indicated their consent, they were asked to enter their email along with a secure password, in order to allow them to log into the survey and complete the questionnaires. Participants were provided with a unique registration identification number (generated by PsychData), which was used as a confidential method of tracking their responses, and was not linked to any personal identifying information. Participants provided demographic information regarding ethnicity, education, marital status, employment and living arrangements. Participants were also asked to list any physical or psychological conditions as well as any treatments or medications received (Appendix B). Following this, participants completed a series of questionnaires assessing coping styles, coping resources, fatigue and depressive symptoms (Appendix B). If a participant indicated 2a or higher on the question assessing suicidal ideation on the BDI they received an additional debriefing with information on depression and contacts for helpful resources (Appendix C). After completing the questionnaires, they were provided with printable debriefing and contact information sheets (Appendix D). The study took approximately 45 minutes to complete, and participants were remunerated with a five dollar gift card of their choosing (Tim Hortons

or Starbucks). Validity checks were performed on all data to ensure the integrity of responses.

### *Measures*

#### *Trust In Physician*

The trust-in-physician scale (Anderson and Dedrick, 1990) consists of 11-items and assessed participants' interpersonal trust in their physician. Participants were asked to think about the last thing their doctor had treated them for and indicate the degree to which they agree (1) or disagree (5) with a set of statements. The total score was taken by calculating the mean across all items. The reliability for this scale was very good (Table 1).

#### *Perceived Stress*

The 14-item Perceived Stress Scale (Cohen, Kamarck & Mermelstein, 1983) was used to assess the degree to which the participants' life is appraised as stressful. Participants were asked about their feelings and thoughts during the last month and asked to indicate how often they felt or thought a certain way, ranging from 0 “never” to 4 “very often”. The total scores for this scale were calculated by taking the mean across all items. The reliability for this scale was very good (Table 1).

#### *Coping styles*

The Survey of Coping Profile Endorsement (Matheson, & Anisman, 2003) is a 50-item scale that assessed the means individuals use to cope. On a scale of 1 “never” to 5 “almost always”, participants indicated the extent to which they would use this as a way of dealing with problems or stresses in recent weeks after each activity listed. This scale measured how often the individual uses methods of problem-solving, active distraction,

cognitive distraction, cognitive restructuring, rumination, emotional expression, humour, social support, other blame, self blame, emotional containment, passive resignation or religion as methods of coping. A principal component analysis with a varimax rotation was performed to determine the factors this scale was comprised of. Based on a scree plot, these coping styles could be grouped into three factors. Items were included on a factor when loadings were greater than 0.40. Emotional containment loaded onto both emotion-focused and avoidance focused coping, but was retained in the latter for theoretical reasons. Emotion-focused coping comprised ruminations, emotional expression, others blame and wishful thinking and had excellent reliability. Avoidance coping comprised cognitive distraction, passive resignation, emotional containment and self blame and had good reliability. Problem-focused coping comprised problem solving, cognitive restructuring, active distraction, humour and social support and had very good reliability (Table 1).

### *Fatigue*

The Fatigue Scale (Chalder et al., 1993) is an 11-item scale that assessed the presence and severity of fatigue. It is comprised of two factors: physical (e.g., difficulties performing task, tiredness) and mental fatigue (e.g. difficulties with concentration or memory). Participants' indicated the extent to which they had been experiencing each difficulty in the last month on a scale of 0 "not at all" to 3 "much worse than usual". The total scores for this scale were calculated by taking the mean across all items. The reliability for this scale was excellent (Table 1).

### *Social Support*

The Consumption of Social Support Questionnaire (Bertera, 1997) is a 12-item questionnaire that measured the social support received during the last month. Participants were asked how often (“not at all” to “about every day”) they received certain resources from other people. It is divided into three subscales receiving informational (e.g. others have provided you advice), emotional (e.g. others have listened) and receiving tangible support (e.g., others have provided transportation). The total scores for this scale were calculated by taking the mean across all items. The reliability for this scale was good (Table 1).

### *Unsupport*

Unsupportive Social Interactions Inventory (Ingram et al., 2001) is a 24-item inventory that assessed how often (from “none” (0) to “a lot” (4)) during the last month the participants' experienced unsupportive responses when they talked with others about events in their life. The scale contains four underlying dimensions measuring unsupportive or upsetting responses that may have received: distancing (behavioural or emotional disengagement), bumbling (behaviours that are awkward, uncomfortable or intrusive), minimizing (attempts to force optimism, or to minimize the individual's concerns), and blaming (criticism or finding fault). Both the minimizing and distancing subscales had excellent reliability and the blaming and bumbling subscales had very good reliability. The reliability for the total scale was very good (Table 1).

### *Depressive Symptoms*

Beck Depression Inventory (Beck, Steer, Garbin 1988) this 29-item inventory (modified from original 21-item scale with an additional 7 items that assessed atypical

depressive symptoms) assessed depressive symptoms by asking participants their agreement on one of four options assessing different dimensions of depression. The responses range from not severe to severe depressive symptoms. The reliability score for the typical component of the scale was excellent, while the atypical component had moderate reliability (Table 1).

Table 1.

*Descriptive statistics and inter-item reliabilities of measures.*

Measure	n	Mean	SD	Number of items	$\alpha$
Trust in Physician	122	3.48	0.59	11	0.86
Coping					
Emotion-Focused	122	1.84	0.74	14	0.91
Avoidant	122	1.96	0.56	14	0.84
Problem-Focused	122	2.13	0.59	20	0.89
Perceived Stress	122	1.99	0.59	14	0.88
Social Support	122	2.05	0.60	12	0.81
Unsupport	122	1.14	0.87	24	0.95
Distancing	122	1.12	1.14	6	0.93
Bumbling	122	1.13	0.91	6	0.82
Minimizing	122	1.57	1.12	6	0.90
Blaming	122	0.75	0.86	6	0.88
Fatigue	122	1.38	0.74	11	0.95
Typical Depression	122	11.96	9.92	21	0.92
Atypical Depression	122	4.64	3.89	6	0.79

## Results

### *Correlational Analysis*

Correlational analyses were conducted to determine the degree to which unsupport was related to certain psychosocial factors in each of the three health groups. Relationships were relatively similar between the three health groups, however, two differences were revealed. First, unsupport was positively correlated with perceived stress only among those in the CFS and/or fibromyalgia (Table 4) and autoimmune groups (Table 3) and second, unsupport was positively related to fatigue levels only among women in the healthy (Table 2) and autoimmune groups. In each of the three health groups unsupport was positively correlated with depressive symptoms, emotion and avoidance focused coping but not to social support, problem focused coping or trust in physician. Social support was not related to many variables as in each of the three health groups no relationships were found among support with either emotion focused coping, fatigue perceived stress or depressive symptoms. However, social support was negatively related to avoidance coping in the autoimmune group and positively related to trust in physician in the CFS/fibromyalgia group.

The autoimmune (Table 3) and healthy groups (Table 2) were similar in their relationships with respect to the relationships involving coping. Specifically, problem-focused coping was negatively related to depression scores as well as perceived stress in healthy women and those with an autoimmune disorder; however, these relationships were not evident among women with CFS/fibromyalgia (Table 4). Each of the health groups had similar relationships with emotion-focused and avoidance coping, in that these dimensions were positively related to perceived stress and depression scores. In

contrast, relationships between coping and fatigue were more similar between the healthy and CFS/fibromyalgia groups, as emotion-focused coping was positively related to fatigue in these two groups. Positive and negative relationships between problem focused coping and avoidance coping and fatigue were only evident among healthy women. Finally depression scores were positively related to fatigue levels and perceived stress across all three groups.

Table 2.

*Pearson correlations among social support, unupport, trust in physician, coping styles, perceived stress, fatigue and depressive symptoms within the healthy group.*

Variable	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
1. Support										
2. Unsupport	0.22									
3. Trust in physician	0.02	-0.15								
Coping										
4. Emotion-Focused	-0.03	0.39**	-0.04							
5. Avoidant	-0.06	0.33*	-0.03	-0.69**						
6. Problem-Focused	0.30*	0.14	0.04	-0.08	-0.01					
7. Perceived Stress	-0.05	0.24	-0.19	0.67**	0.46**	-0.49**				
8. Fatigue	-0.20	0.32*	-0.10	0.64**	0.50**	-0.33*	0.59**			
9. Beck Depression	-0.14	0.44**	-0.02	0.55**	0.51**	-0.41**	0.62**	0.68**		
10. Atypical Depression	0.02	0.37**	-0.02	0.44**	0.36**	-0.28*	0.50**	0.70**	0.67	

\*p <0.05, \*\*p<0.01

Table 3.

*Pearson correlations among social support, unsupport, trust in physician, coping styles, perceived stress, fatigue and depressive symptoms within the RA, MS and lupus group.*

Variable	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
1. Support										
2. Unsupport	0.05									
3. Trust in physician	0.30	0.16								
Coping										
4. Emotion-Focused	-0.11	0.58**	0.10							
5. Avoidant	0.41*	0.51**	0.04	0.70**						
6. Problem-Focused	0.51**	-0.28	-0.01	-0.21	-0.42*					
7. Perceived Stress	-0.30	0.70**	0.12	0.63**	0.60**	-0.69**				
8. Fatigue	0.21	0.45*	0.26	0.31	0.18	-0.15	0.45*			
9. Beck Depression	-0.17	0.62**	0.16	0.45*	0.45**	-0.55**	0.73**	0.55**		
10. Atypical Depression	0.05	0.47*	0.23	0.27	0.39*	-0.37	0.56**	0.47*	0.76**	

\*p <0.05, \*\*p<0.01

Table 4.

*Pearson correlations among social support, unsupport, trust in physician, coping styles, perceived stress, fatigue and depressive symptoms within the CFS and/or fibromyalgia group.*

Variable	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
1. Support										
2. Unsupport	-0.25									
3. Trust in physician	0.36*	-0.20								
Coping										
4. Emotion-Focused	-0.04	0.44**	-0.03							
5. Avoidant	-0.22	0.40*	-0.18	0.62**						
6. Problem-focused	0.38*	-0.24	-0.02	-0.51**	-0.40*					
7. Perceived Stress	-0.02	0.44**	-0.02	0.68**	0.38*	-0.31				
8. Fatigue	-0.06	0.28	-0.01	0.39*	0.23	-0.24	0.53**			
9. Beck Depression	-0.08	0.39*	-0.23	0.60**	0.37*	-0.18	0.74**	0.62**		
10. Atypical Depression	-0.19	0.42**	-0.17	0.49**	0.25	-0.11	0.53**	0.58**	0.74**	

\*p <0.05, \*\*p<0.01

*Social Support, Unsupport, and Depressive Symptoms*

A one-way ANOVA revealed that depression scores varied as a function of health status,  $F(2, 119) = 13.62, p < .0001, \eta^2 = 0.186$ . Tukey follow-up comparisons revealed that depression scores among women with CFS/fibromyalgia were higher than that of healthy women, but did not differ between women in the autoimmune group (Figure 1). Furthermore, atypical depression scores also varied as a function of health status  $F(2, 119) = 19.79, p < .0001, \eta^2 = 0.250$ . Follow-up comparisons revealed that women in CFS/fibromyalgia group had significantly higher atypical depression scores than women in both the healthy and autoimmune groups, and women with autoimmune disorders had higher depression scores than healthy women (Figure 1). As hypothesized, it appeared that total unsupportive social interactions varied as a function of health status,  $F(2, 119) = 7.37, p < .01, \eta^2 = 0.110$ . Specifically, follow-up analysis revealed that the level of perceived unsupport was higher among women with CFS / fibromyalgia relative to that of healthy women, while levels of unsupport among women with autoimmune disorders did not significantly differ from healthy women or those women with CFS / fibromyalgia (Figure 2).

It was of interest to examine the subscales of unsupport as it was thought that the health groups might differ depending on the type of unsupport experienced. A MANOVA performed with the four unsupport dimensions revealed that levels of the unsupport subscales varied as a function of health status *Pillai's Trace*  $F(2, 119) = 3.67, p < .001, \eta^2 = 0.110$ . These differences were examined in univariate ANOVA's for each type of unsupport. Bumbling and blaming, varied across health groups,  $F$ 's  $(2, 119) = 4.22$  and  $4.17, p < .05, \eta^2 = 0.066$  and  $\eta^2 = 0.066$ , respectively. Similarly, the minimizing and

distancing dimensions also varied across health groups  $F$ 's (2, 119) = 3.90 and 11.71,  $p < 0.05$  and 0.001,  $\eta^2 = 0.061$  and  $\eta^2 = 0.165$ , respectively. Tukey follow-up comparisons revealed that, similar to the total unsupport scale, the blame and bumbling dimensions were significantly higher among women in the CFS/fibromyalgia as compared to healthy women, but no significant differences were revealed between CFS/fibromyalgia or healthy groups compared to the autoimmune disorders group (Figure 2). In contrast, women in the CFS/fibromyalgia groups reported significantly higher minimizing and distancing than both the healthy and autoimmune disorders group, while no differences on these dimensions were revealed comparing healthy women to women with an autoimmune disorder (Figure 2). Finally, with respect to social support, a univariate ANOVA revealed no significant differences between health condition groups  $F(2, 119) = .50$ , *ns* (Figure 3).

It was hypothesized that positive social support would be associated with lower depressive symptoms among the three health groups. However, the presence of increased unsupportive interactions among those with CFS/fibromyalgia would be associated with elevated depression, and might actually diminish the potential relationship between support and depressive symptoms. To assess this, health status was dummy coded into two variables: the first comparing women with CFS/fibromyalgia to those in the autoimmune disorders group, and the second comparing women in both chronic condition groups to those in the healthy group. To explore the variance of depressive symptoms explained by these variables, a hierarchical regression was performed with health group dummy variables and standardized dimensions of support/unsupport entered on the first step, two way interactions between the health groups and support/unsupport entered on

the second step, and three way interactions between these variables on the third step. As hypothesized, increased unsupport predicted depressive symptoms,  $B = 4.69$ ,  $t = 5.89$ ,  $p < 0.001$ , whereas the relationship between high support and lower depressive symptoms approached significance  $B = -1.43$ ,  $t = -1.80$ ,  $p = 0.08$ . Furthermore, relative to the participants that were healthy, the two chronic conditions were associated with elevated depressive symptoms,  $B = 1.81$ ,  $t = 3.62$ ,  $p < 0.001$ , whereas the autoimmune and CFS/fibromyalgia groups did not differ significantly in predicting depressive symptoms,  $B = 0.87$ ,  $t = 0.87$ ,  $ns$ ,  $R^2 = 0.39$ ,  $F(4, 117) = 18.38$ ,  $p < .001$ .

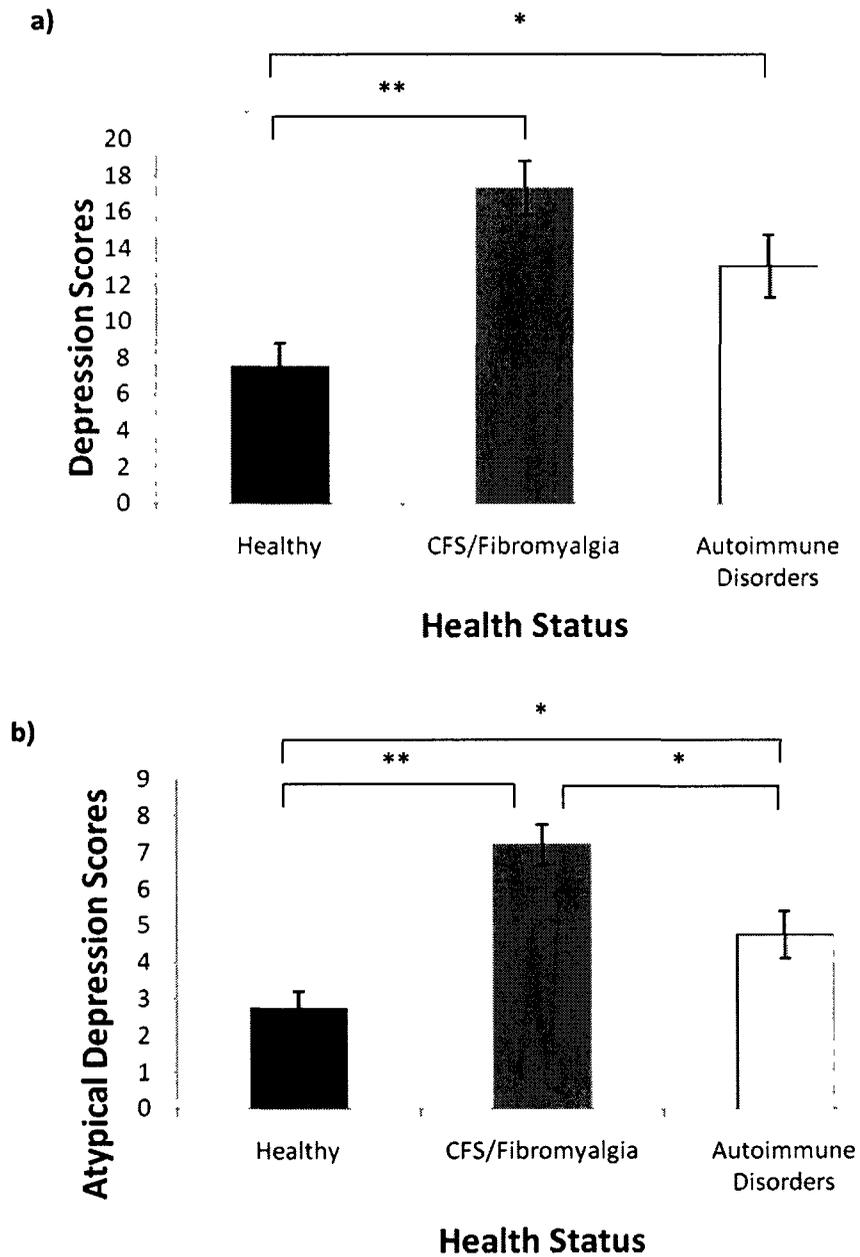


Figure 1. Mean ( $\pm$  SE) depression scores (a) and atypical depression scores (b) as a function of health status. \* $p < .05$ , \*\* $p < .001$

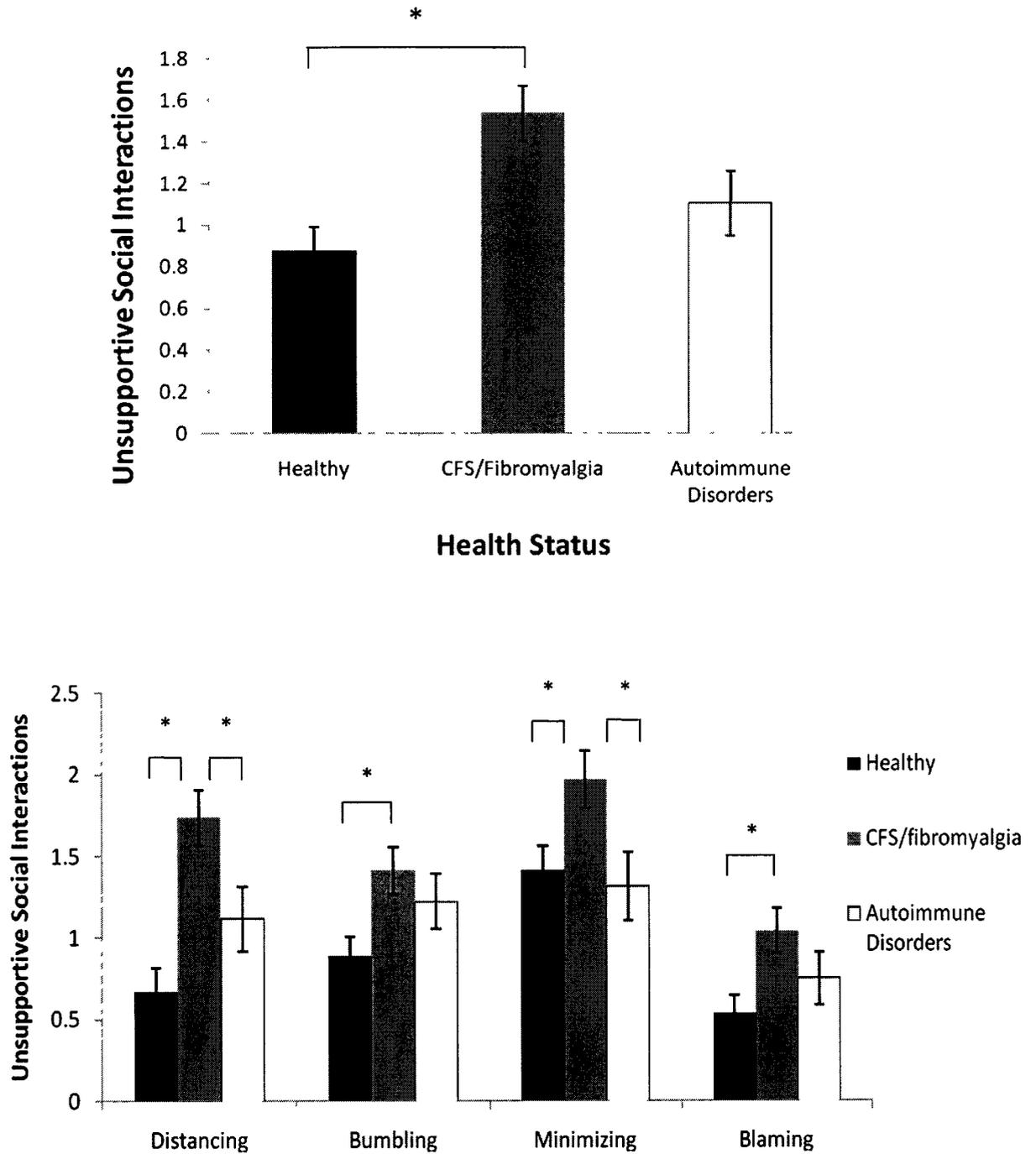
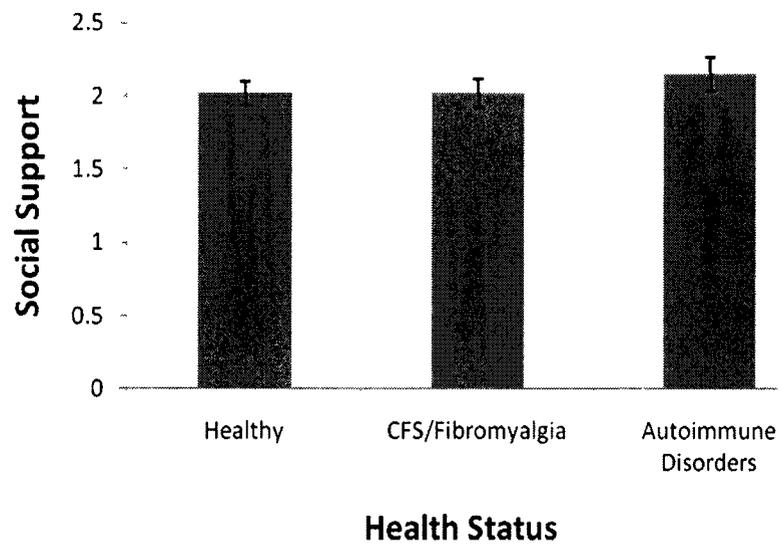


Figure 2. Mean ( $\pm$  SE) total unresponsive social interactions (a) and unresponsive social interaction subscales (b) as a function of health status. \* $p < .05$



*Figure 3.* Mean ( $\pm$  SE) total social support as a function of health status.

The moderating effect of health group and unsupport in relation to depressive symptoms was not significant as the 2-way interactions involving health group and either unsupport or support did not account for a significant proportion of variance  $R^2_{cha} = 0.04$ ,  $F_{cha}(5, 112) = 1.51$ , *ns*. Likewise, the 3-way interactions among these variables were not significant  $R^2_{cha} = 0.01$ ,  $F_{cha}(2, 110) = 0.22$ , *ns*.

### *Coping*

When dealing with a medical condition, particularly one of a chronic nature, the coping styles individuals use may be an important predictor of psychological well being. It was considered that even though coping styles ought to be fairly fixed (unlike coping strategies that might vary across situations), chronic illness such as autoimmune disorders or CFS/fibromyalgia might be associated with different coping styles. To assess this, a MANOVA was performed to determine whether the coping styles differed across health groups. The MANOVA revealed no significant differences between health groups on the coping styles used, *Pillai's Trace*  $F(6, 236) = 1.11$ , *ns*,  $\eta^2 = 0.03$ .

Although levels of coping did not differ across health groups, it was still of interest to examine the relationships based on the a priori predictions that had been made in this regard. To assess the potential moderating role of health status on the relationship between coping and depressive symptoms a hierarchical regression analysis was performed with the two dummy coded variables (as described previously) for health groups entered on the first step, the three standardized coping dimensions entered on the second step and the interactions between coping dimensions and health groups entered on the third step. As expected, coping predicted depressive symptoms over and above the contribution of health status,  $R^2_{cha} = 0.29$   $F_{cha}(3, 116) = 21.17$ ,  $p < 0.001$ . In this regard,

the regression analysis revealed that problem focused coping predicted lower depression scores,  $B = -2.24$ ,  $t = -2.83$ ,  $p < 0.001$  and emotion focused coping predicted greater depression scores,  $B = 4.30$ ,  $t = 4.30$ ,  $p < 0.01$ . In contrast, avoidance focused coping did not predict depressive symptoms,  $B = 0.79$ ,  $t = 0.77$ , *ns*. The moderating role of health status explained a significant proportion of variance of depressive symptoms,  $R^2_{cha} = 0.06$ ,  $F_{cha}(3, 116) = 2.38$ ,  $p < 0.05$ . A significant interaction between the CFS/fibromyalgia group and the autoimmune disorders group with problem focused coping was revealed,  $B = 3.65$ ,  $t = 3.32$ ,  $p < 0.01$ . To further examine the moderating role of health status on the relationship between problem focused coping and depressive symptoms a simple slopes analysis was performed. Women with an autoimmune disorder with high levels of problem focused coping reported lower levels of depressive symptoms than those who engaged in low levels of problem focused coping; however, among those women in the CFS/fibromyalgia group this relationship was not observed (Figure 4).

#### *Perceived Stress, Fatigue and Depressive Symptoms*

Although fatigue is a common occurrence among both healthy individuals and those living with chronic conditions, it may have unique relationships to depression. Indeed, it will be recalled that experiencing a period of fatigue may actually serve as a risk factor for depression. Given that perceived stress was related to depression, it was of interest to examine the mediating role of perceived stress in the relationship between fatigue and depressive symptoms. However, as perceived stress may be particularly detrimental to those living with a chronic condition, it was hypothesized that health status would moderate the mediational relationship between fatigue, perceived stress and depressive symptoms.

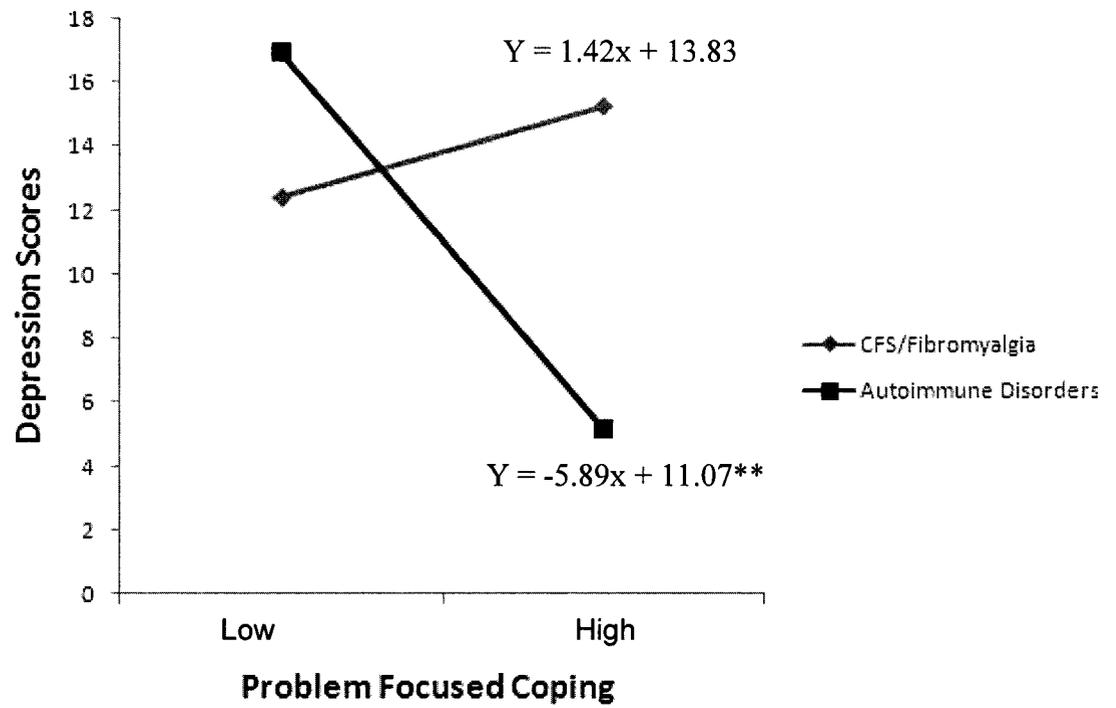


Figure 4. The endorsement of problem focused coping as moderated by health status in relation to depression scores.  $**p < .001$

As suggested by Preacher, Rucker, & Hayes (2007), there are multiple ways that health status could moderate the mediated relation. Two models outlined by Preacher et al., were tested, wherein, 1) health status would moderate the strength of the relation between fatigue and perceived stress 2) health status would moderate the strength of relation between perceived stress and depressive symptoms. These analyses were conducted with 5000 bootstrap samples in each analysis and, given the small sample size and consequently low power; bias corrected confidence intervals were used. As shown in Table 5, when comparing those living with chronic conditions to healthy individuals, health status was found to approach significance as a moderator through its effect on the relation between perceived stress and depressive symptoms. These mediation models were significant in both the healthy and chronic condition groups so that the experience of high levels of fatigue influenced levels of perceived stress, which were associated depressive symptoms. However, the pathway between perceived stress and depressive symptoms was stronger (the interaction term approached significance) among those in the chronic condition relative to healthy individuals.

The model evaluating whether health status moderated the relations between fatigue and perceived stress were not significant. This analysis was also performed using the contrast between the CFS/fibromyalgia group and the autoimmune disorders group as a moderator however this was also not significant. Finally, alternate mediation pathways were tested, and it was found that in fact, perceived stress predicted depression, and this was mediated by fatigue both healthy women (CI; .102, .415) and those living with a chronic condition (CI; .046, .270). However, unlike the previous mediation, this pathway

was not moderated by health status. Thus, it is premature to draw conclusions on the directional nature of these pathways.

### *Trust in Physician*

The trust an individual has in their physician may be particularly important in facilitating a positive doctor-patient relationship. However, as indicated earlier, levels of trust may vary depending on the medical condition in question, and may be particularly low in the case of poorly explained illnesses. A one-way ANOVA was revealed that trust in one's physician varied as a function of health status,  $F(2, 119) = 3.30, p < .05, \eta^2 = 0.05$ . Tukey post hoc comparisons indicated that individuals in the CFS/fibromyalgia group reported less trust in their physician compared to individuals in the healthy group. There were no significant differences between the autoimmune disorders group to either the healthy or CFS/fibromyalgia groups (Figure 4).

Table 5. *Moderated Mediated Direct and Indirect Effects of Fatigue on Depressive Symptoms Through Perceived Stress.*

	B	Std. Error	t	p	BCa 95% Confidence Interval	
					Lower	Upper
Effect of Fatigue on Perceived Stress	.59	.07	8.05	.001		
<b>Dependent Variable Model</b>						
Effect of Fatigue on BDI	3.70	.71	5.23	.001		
Effect Perceived Stress on BDI	4.75	.67	7.09	.001		
Effect of Health Status on BDI	.88	.39	2.22	.029		
Effects of Perceived Stress x Health Status	.72	.39	1.86	.065		
on BDI						
Conditional Indirect Effects of Healthy Group					.92	3.16
Conditional Indirect Effects of Chronic					2.20	4.61
Condition Group						

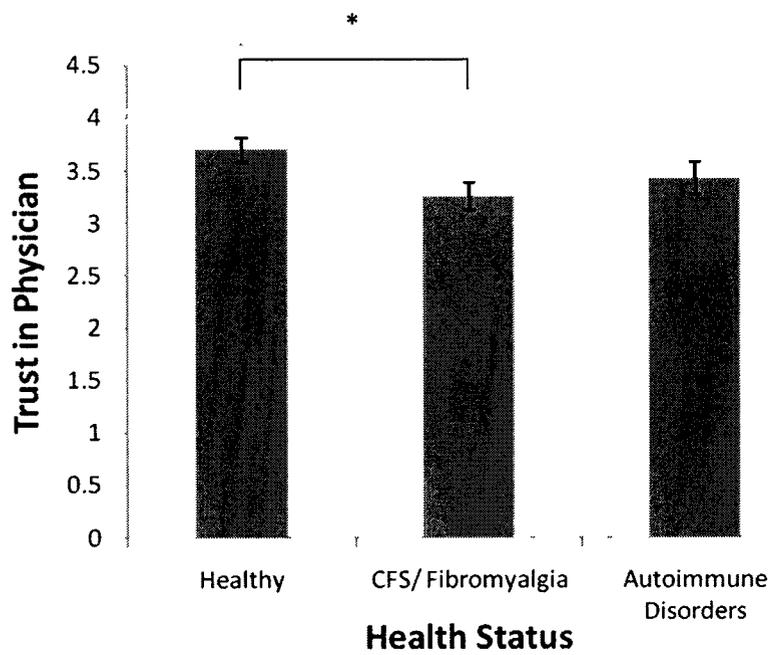


Figure 5. Mean ( $\pm$  SE) trust in physician as a function of health status.  $*p < .05$

In the current study trust was not correlated to any of the variables in either the healthy (Table 2) or autoimmune disorders (Table 3) group. For women who were in the CFS/fibromyalgia group, however, trust was positively related to social support (Table 1). Given that individuals with CFS/fibromyalgia may face a great deal of uncertainty with regard to their medical condition, obtaining positive social support and validation regarding their illness from their social network may influence their willingness to trust and confide in their physician. To assess the potential moderating role of health status on the relationship between social support and trust in physician a hierarchical regression analysis was performed with the two dummy coded variables for health groups entered on the first step, the standardized support dimension entered on the second step and the interactions between support and health groups entered on the third step. Overall, health status predicted trust in physician  $R^2 = 0.05$ ,  $F(2, 119) = 3.30$ ,  $p < .05$ . Living with a chronic condition group relative to healthy women, significantly predicted less trust in physician,  $B = -0.11$ ,  $t = -2.44$ ,  $p < .05$  whereas autoimmune and CFS/fibromyalgia group significantly differed in predicting trust in physician,  $B = -0.06$ ,  $t = -0.58$ , *ns*. Over and above health status, increased social support predicted higher levels of trust in physician,  $R^2_{cha} = 0.04$   $F_{cha}(1, 118) = 4.77$ ,  $p < 0.05$ ,  $B = 0.20$ ,  $t = 2.72$ ,  $p < 0.01$ . The moderating effect of health group on the relationship between support and trust in physician was not significant as the 2-way interactions between support and health groups did not account for a significant proportion of variance  $R^2_{cha} = 0.03$ ,  $F_{cha}(2, 116) = 2.11$ , *ns*.

## Discussion

### *Depression and Unsupport*

Depression is a common occurrence among individuals living with medical illnesses (Moldin et al., 1993), and is especially pervasive among those living with chronic conditions (Stewart et al., 1989). Indeed, in the current study women living with a chronic autoimmune disorder had higher depression scores than healthy women, as did those women in the CFS/fibromyalgia group. However, women in the CFS/fibromyalgia condition also displayed higher atypical depression scores than both women with an autoimmune disorder and those who were healthy. This is consistent with previous reports comparing depression in those living with chronic conditions to those with CFS (Pepper, Krupp, Friedberg, Doscher & Kyle, 1993) and fibromyalgia (White, Warren, Harth, Ostbye & Speechley, 2002). However, the mechanisms underlying these differences remain unknown and it is uncertain whether depression is a cause or result of CFS (Afari & Buchwald, 2003) or fibromyalgia (Krsnich-Shriwise, 1997). Leaving aside such issues, the present study sought to address factors and challenges unique to living with such unexplained conditions that may impact outcomes like depression.

As discussed previously, the experience of unsupportive social interactions (unsupport) has been revealed as an independent predictor of depression (Ingram et al., 2001). Chronic fatigue syndrome and fibromyalgia are both legitimate disabling conditions which likely have a biological basis (Parker, Wessely & Cleare, 2001), but have a history of being questioned (Absing & Narvenen, 2002). Thus, it is not surprising that in the current study women with CFS/fibromyalgia reported higher unsupport

relative to healthy women. In this regard, the distancing and minimizing subscales of unsupport were higher among women with CFS/fibromyalgia relative to both healthy women and those with autoimmune disorders. As the unsupport measure was not specifically focused on the individual's chronic condition, it remains to be determined whether the higher reports of minimization and distancing among women with CFS/fibromyalgia compared to those with an chronic autoimmune condition reflects the unique challenges women with these conditions face from those around them who may not acknowledge the veracity or seriousness of their conditions.

Inasmuch as unsupportive social interactions have been associated with greater levels of depressive symptoms among those living with the chronic illness (Ingram et al., 1999), it was expected that this relationship would be significantly stronger among women with CFS/fibromyalgia. Although unsupport predicted depression scores, this relationship was no stronger among those with CFS/fibromyalgia relative to those with an autoimmune disorder.

### *Coping Styles*

Depression has been associated with higher emotion focused coping and lower problem focused coping (Matheson & Anisman, 2003; Ravindran et al, 2002). Given the unique circumstances of women with CFS/fibromyalgia, it had been expected that these women would report greater emotion focused coping relative to the other two groups of women, and that the relationship between coping and depression would be stronger relative to those of healthy women or those with an autoimmune condition. Levels of emotion-, avoidant and problem-focused coping did not differ across the groups;

however, problem-focused coping and health group interactively predicted depressive symptoms. Women with an autoimmune disorder showed a strong relationship between problem-focused and depression scores, but, this relationship was not evident among women with CFS/fibromyalgia. While some researchers have similarly observed no differences in coping styles (Jason, Whitter & Torres-Harding, 2003), others have reported greater endorsement of escape-avoidance strategies (Afari, et al., 2000; Amir et al., 2000) and lower endorsement of problem-focused coping (Afari et al., 2000). It will be recalled, that according to the Lazarus' Framework, coping is not inherently adaptive or maladaptive, and although coping styles are relatively fixed, it remains possible that they may change over time and situations. Ordinarily, it might be expected that a problem-focused coping style would have beneficial effects among those suffering from a chronic condition; however, this was not the case for women with CFS/fibromyalgia. Although attempts to use problem-focused coping were as frequent as those living with autoimmune conditions, it is possible that the challenges these women face (e.g., seeking out information when information is limited, seeking social support but being met with unsupport) would diminish any beneficial effects that this style of coping would normally have on depression. As the current study measured coping styles, an important extension of these findings would be to observe coping strategies among those living with these conditions in the context of different stressors.

#### *Fatigue, Perceived Stress and Depression*

Sub-clinical fatigue was investigated among healthy women in the current study as it has been minimally investigated, but may have important ramifications on well-being. Among healthy women, the relationship between fatigue and depression was

mediated by perceived stress. As outlined, it has been reported that in those who have experienced a period of unexplained fatigue are at greater risk for the onset of a first episode major depression (Addington et al., 2001), and report greater perceived stress (Cathebras et al., 1992). Stress may exacerbate both physical and psychological conditions, including depression and immune-system related diseases (Baum & Posluszny, 1999; Kiecolt-Glaser, 1999). Thus, it was not surprising to find that this mediational relationship was present, but stronger among those living with chronic conditions. Although this pathway is correlational it may be an interesting target for future study concerning the relationship between fatigue and depression.

#### *Trust in Physician*

As expected, women with CFS/fibromyalgia had lower trust in their physician relative to healthy women. It is not unusual that women living with CFS/fibromyalgia would be mistrustful of their physician as these conditions have a recent history of being viewed suspiciously by health care providers, although they have become more widely accepted as legitimate illnesses (Ax et al., 1997). Moreover, even if the treating physician has the best intentions, meeting the needs of an individual living with an unexplained condition where information and efficacious interventions are limited can be an arduous task. This is an unfortunate aspect of living with such illnesses as trust is an essential component of physician-patient relations; as outlined earlier it facilitates progression of care, treatment compliance and overall satisfaction (Safran et al., 1998; Thom et al., 1999). Although it had been expected that lower levels of physician trust would be associated with higher levels of fatigue and depression, this was not in case. In fact, trust in physician was only related to social support among women with CFS/fibromyalgia. As

previously reported (Dunkel-Schetter, Folkman & Lazarus, 1987), individuals who report greater social support tended to be more trusting. It was thought that social support may be especially poignant to those with CFS/fibromyalgia and may even facilitate trust in physician, however, there was no interactive effects found when comparing them to women with an autoimmune disorder.

### *Limitations*

A potential limitation of the current study concerns the generalizability of the current sample. Women with chronic conditions were largely recruited from support centres, and thus this may represent a biased sample as these are individuals who have sought help. For instance it was reported that consuming instrumental support (e.g., information or advice seeking, membership in support groups) predicted poorer health outcomes among individuals with CFS (Johnson, Gil-Rivas, & Schmaling, 2008). As this was a community based study it may not represent those that have the highest illness severity, in fact it has been reported that those with CFS, fibromyalgia and other unexplained conditions recruited from medical clinics had greater impairments and more concurrent psychiatric diagnoses (Aaron et al., 1996; Prescott et al., 1993). Furthermore, recruitment was restricted to women over the age of thirty as this represents the more common demographic associated with these conditions, however, there is still a proportion of men and youth who develop CFS and fibromyalgia and this population is infrequently studied (Buchwald, Pearlman, Kith & Schmaling, 1994; Rowe & Rowe, 2007).

The sample size was also modest especially in the autoimmune disorders group. Given the number of variables examined it is possible that the lack of power precluded

some between-group differences from being detected. As well, owing to the limited sample size, other important variables (e.g., illness duration; history of diagnoses received) could not be assessed, even though these factors could have had a marked impact on coping, support/unsupport and depression.

Another potential limitation is that the current study relies on self-reports of diagnoses. Ideally confirmation by medical records or clinical assessment would have been obtained. This is particularly problematic among those with CFS and fibromyalgia, as these diagnoses are not easily reached without any reliable diagnostic tests and are attained by means of excluding other medical conditions, thus the potential for misdiagnoses is greater (Aaron & Buchwald, 2001). It is also possible that those among the healthy group neglected to report certain medical or psychological conditions that would have been basis for exclusion.

The current study was cross-sectional in design, leaving a lot of questions unanswered regarding the effects found. It's possible that a suboptimal coping style served as a risk factor for developing these stress-related conditions or that such coping styles were a consequence of the challenges of living with CFS/fibromyalgia. Such arguments are frequently a subject of discussion with regards to the high co-morbidity between depression and these conditions (Afari & Buchwald, 2003).

Due to the closed-ended design of the study, responses were relatively restricted. This limits our depth of interpretation. For instance, it is uncertain who the primary sources of unsupport or support were among these women (family, friends, coworkers or a combination), which could have impacted psychological state. Similarly, it is difficult

to ascertain which health care provider women were responding about with respect to their trust responses. Those living with such chronic conditions likely see a variety of physicians (e.g., rheumatologists, psychiatrists, primary physician etc.), and trust may not have been equivalent for each of these health professionals. Finally, it would have been advantageous to collect qualitative data, especially as each woman's illness experience is unique and as such it would be an important extension of this research to collect experiences related to living with CFS and fibromyalgia.

### *Conclusion*

Overall, it appears women living with CFS and fibromyalgia endure unique challenges that impact their well-being. These women appear to experience greater unsupport, lower trust in physician and high levels of depression. Moreover, having a coping style that is typically beneficial in attenuating depressive symptoms does not seem to have the same positive impact as it does in those living with other autoimmune conditions. These findings point to certain psychosocial factors that may potentially be modifiable, perhaps by proper education of the lay public and health care providers regarding such 'unexplained' conditions, ultimately leading to improved quality of life of those living with CFS and fibromyalgia

## References

- Aaron LA, Bradley L, Alarco'n GS, Alexander RW, Triana-Alexander M, Martin MY, et al. (1996) Psychiatric diagnoses in patients with fibromyalgia are related to health care-seeking behavior rather than to illness. *Arthritis Rheumatology*, 39;436-45.
- Aaron, L.A., Buchwald, D. (2001). A review of the evidence for overlap among unexplained clinical conditions. *Research and Measurement Issues*, 134; 868-808.
- Abbey, S.E., Garfinkle, P.E. (1991). Chronic fatigue syndrome and depression: cause, effect, or covariate. *Review of Infectious Diseases*, 18; S73-S83.
- Addington, A.M., Gallo, J.J., Ford, D.E., Eaton, W.W. (2001). Epidemiology of unexplained fatigue and major depression in the community: The Baltimore ECA Follow-up, 1981-1994. *Psychological Medicine*, 31; 1037-1044.
- Afari, N., Buchwald, D. (2003). Chronic fatigue syndrome: A review. *American Journal of Psychiatry*, 160; 221-236.
- Afari, N., Schmaling, K.B., Herell, R., Hartman, S., Goldberg, J., & Buchwald, D.S. (2000). Coping strategies in twins with chronic fatigue and chronic fatigue syndrome. *Journal of Psychosomatic Research*, 48; 547-554.
- Anderson, L.A., Dedrick, R.F. (1990). Development of the trust in physician scale: A measure to assess interpersonal trust in patient physician relationships. *Psychological Reports*, 67; 1071-1100.
- Anderson, J.S. & Ferrans, C.E. (1997). The quality of life of persons with chronic fatigue syndrome. *The Journal of Nervous and Mental Disease*, 185; 359-367.
- Arnold, L.M., Keck, P.E. Jr., Welge, J.A. (2000). Antidepressant treatment of fibromyalgia:a meta-analysis and review. *Psychosomatics*, 41; 104-113

- Asbing, P., Narvanen, A-L. (2002). Women's experiences of stigma in relation to chronic fatigue syndrome and fibromyalgia. *Qualitative Health Research*, 2; 148-160.
- Ax, S., Gregg, V.H., Jones, D. (1997). Chronic fatigue syndrome: sufferers' evaluation of medical support. *Journal of the Royal Society of Medicine*, 90; 250-254.
- Barber, B. (1983). *The Logic and Limits of Trust*. Rutgers University Press; New Brunswick, N.J.
- Baum, A., Posluszny, D. M. (1999). Health psychology: Mapping biobehavioral contributions to health and illness. *Annual Reviews in Psychology*, 50; 137-163.
- Beck, A.T., Steer, R.A., Garbin, M.G. (1988). Psychometric properties of the Beck Depression Inventory: twenty-five years of evaluation. *Clinical Psychology Review*, 8; 77-100.
- Bernard, A.L., Prince, A., Edsall, P.A. (2000). Identification of the health educator's role in the management of fibromyalgia syndrome through an examination of patients' needs. *International Electronic Journal of Health Education*, 3; 19-27.
- Bertera, E.M. (1997). Consumption and generation of social support scale: Its psychometric properties in low socioeconomic status elderly. *Journal of Clinical Geropsychology*, 3; 139-150.
- Burckhardt, C.S, Jones, K.D., Clark, S.R. (1998). Soft tissue problems associated with rheumatic disease. *Lippincotts Primary Care Practice*, 2; 20-29.
- Buchwald, D. Pearlman, T., Umali, J., Schmaling, K., Katon, W. (1996). Functional status in patients with chronic fatigue syndrome, other fatiguing illnesses, and healthy individuals. *American Journal of Medicine*, 101; 364-370.

- Caligiuri, M., Murray, C., Buchwald, D., Levine, H., Cheney, P., Peterson, D., Komaroff, A.L., Ritz, J. (1987). Phenotypic and functional deficiency of natural killer cells in patients with chronic fatigue syndrome. *Journal of Immunology*, 139; 3306-3313.
- Cathebras, P.J., Robbins, J.M., Kirmayer, L.J., Hayton, B.C. (1992). Fatigue in primary care: Prevalence, psychiatric comorbidity, illness behaviour and outcome. *Journal of General Internal Medicine*, 7; 276-286.
- Chalder, T., Berelowitz, G., Pawlikowska, T., Watts, L., Wessely, S., Wright, D., Wallace, E.P. (1993). Development of a fatigue scale. *Journal of Psychosomatic Research*, 37, 147-153.
- Cohen, S., Kamarck, T., Mermelstein, R. (1983). A global measure of perceived stress. *Journal of Health and Social Behavior*, 24; 385-396.
- Cohen, S., Wills, T.A. (1985). Stress, social support and the buffering hypothesis. *Psychological Bulletin*, 98; 310-357.
- Craig, T., Kakumanu, S. (2002). Chronic fatigue syndrome: Evaluation and treatment. *American Family Physician*, 65; 1083-1095.
- Crofford, L.J., Pillemer, S.R., Kalogeras, K.T., et al. (1994). Hypothalamic-pituitary-adrenal axis perturbations in patients with fibromyalgia. *Arthritis Rheumatology*, 37; 1583-1592.
- Davis, M. C., Zautra, A.J., Relch, J.W. (2001). Vulnerability of stress among women in chronic pain from fibromyalgia and osteoarthritis. *Annals of Behavioral Medicine*, 23; 215-226.

- Deale, A., Chalder, T., Marks, I., Wessely, S. (1997). Cognitive behavior therapy for chronic fatigue syndrome: a randomized controlled trial. *American Journal of Psychiatry*, 154; 408–414
- Demitrack, M.A., Crofford, L.J. (1998). Evidence for the pathophysiologic implications hypothalamic-pituitary-adrenal axis dysregulation in fibromyalgia and chronic fatigue syndrome. *Annals NY Academic Science*, 840; 684-697.
- Dunkel-Schetter, C., Bennett, T.L. (1990). *Differentiating the Cognitive and Behavioral Aspects of Social Support*. in *Social Support an Interactional View*, New York: Wiley; 267-96
- Dunke-Schetter, C., Folkman S, Lazarus, R. S. (1997). Correlates of social support receipt. *Journal of Personality and Social Psychology*, 53, 71-80.
- Farrar, D.J., Locke, S.E., Kantrowitz, F.G. (1995). Chronic fatigue syndrome: etiology and pathogenesis. *Behavioural Medicine*, 21; 5-16.
- Folkman, S., & Lazarus, R.S. (1980). An analysis of coping in middle-aged community sample. *Journal of Health and Social Behavior*, 21; 219-231.
- Folkman, S., Lazarus, R.S., Dunkel-Shetter, C., DeLongis, A., Gruen, R.J. (1986). Dynamics of a stressful encounter: Cognitive appraisal, coping, and encounter outcomes. *Journal of Personality and Social Psychology*, 50; 992-1003.
- Folkman, S., Moskowitz, J.T. (2004). Coping: Pitfalls and Promise. *Annual Reviews in Psychology*, 55; 745-774.
- Fuhrer, R, Wessely, S. (1995). The epidemiology of fatigue and depression: A French primary care study. *Psychological Medicine*, 25; 895-905.

- Fukuda, Keiji, Straus, S.E., Hickie, I., Sharpe, M.C., Dobbins, J.G., Komaroff, A., and the International Chronic Fatigue Syndrome Study Group. (1994). The chronic fatigue syndrome: a comprehensive approach to its definition and study. *Annals of Internal Medicine*, 121; 953-961.
- Fulcher K.Y., White, P.D. (1997). Randomised controlled trial of graded exercise in patients with the chronic fatigue syndrome. *British Medical Journal*, 314;1647–1652
- Goldenberg, D.L. (1993). Do infections trigger fibromyalgia? *Arthritis Rheumatology*, 36; 1489-1492.
- Goodenow, C., Reisine, S.T., Grady, K.E. (1990). Quality of social support and associated social and psychological in women with rheumatoid arthristis. *Health Psychology*, 9; 266-284.
- Greenberg, D.B. (1990). Neurasthenia in the 1980s: Chronic mononucleosis, chronic fatigue syndrome, and anxiety and depressive disorders. *Psychosomatics*, 31; 129-137.
- Hays J.C., Steffens, D.C., Flint, E.P., Bosworth, H.B., George, L.K. (2001): Does social support buffer functional decline in elderly patients with unipolar depression? *American Journal of Psychiatry*; 158, 1850-1855.
- Hotopf, M.H., Wessely, S. (1994). Viruses, neurosis, and fatigue. *Journal of Psychosomatic Research*, 38; 499-514.
- Ingram, K.M., Betz, N.E., Mindes, E.J., Schmitt, M.M. & Smith, N.G. (2001).  
Unsupportive social interactions from others concerning a stressful life event:

Development of the unsupportive social interactions inventory. *Journal of Social and Clinical Psychology*, 20;173-207.

- Ingram, K. M., Jones, D. A., Fass, R. J., Neidig, J. L., & Song, Y. S. (1999). Social support and unsupportive interactions: their association with depression among people living with HIV. *Aids Care*, 11(3), 313-329.
- Jason, L.A., Richman, J.A., Rademaker, A.W., Jordan, K.M., Plioplys, A.V., Taylor, R.R., McCready, W., Huang, C.F., Plioplys, S. (1999). A community based study of chronic fatigue syndrome. *Archives of Internal Medicine*, 159; 2129-2137.
- Jason, L.A., Witter, E., Torres-Harding, S. (2003). Chronic fatigue syndrome, coping, optimism and social support. *Journal of Mental Health*, 12; 108-119.
- Johnson, S.K., DeLuca, J., Natelson, B.H. (1999). Chronic fatigue syndrome: reviewing the research findings. *Annals of Behavioral Medicine*, 21; 258-271.
- Johnson, S.K., Gil-Rivas, V., & Schmaling, K.B. (2008). Coping strategies in chronic fatigue syndrome: outcomes over time. *Stress & Health*, 24; 305-312.
- Katon, W.J., Buchwald, D, Simon, G., Russo, J.E., Mease, P.J. (1991). Psychiatric illness in patients with chronic fatigue and those with rheumatoid arthritis. *Journal of General Internal Medicine*, 6; 277-285
- Kiecolt-Glaser, J.K. (1999). Stress, personal relationships and immune system function. *Brain Behavior and Immunity*, 13; 61-72.
- Klimas, N.G., Salvato, F.R., Morgan, R., Fletcher, M.A. (1990). Immunologic abnormalities in chronic fatigue syndrome. *Journal of Clinical Microbiology*, 28; 1403-1410.

- Knussen, C., Lee, D. (1998) Chronic fatigue syndrome: symptoms, appraisal and ways of coping. *British Journal of Health Psychology*, 3; 111-121.
- Konstantinov, K., von Mikecz, A., Buchwald, D., Jones, J., Gerace, L., Tan, E.M. (1996). Autoantibodies to nuclear envelope antigens in chronic fatigue syndrome. *Journal of Clinical Investigations*, 98; 1888-1896.
- Kumari, M., Badrick, E., Chandola, T., Adam, E., Stafford, M., Marmot, M.G., Kirschbaum, C., Kivimaki, M. (2009). Cortisol secretion and fatigue: Associations in a community based cohort. *Psychoneuroendocrinology*, 34; 1476-1485.
- Lazarus, R.S. & Folkman, S. (1984). *Stress, Appraisals and Coping*. Springer publishing company Inc; New York, NY.
- Ley, P. (1988) *Communicating with Patients*. London, Croom Helm.
- Manne, S., Zautra, A.J. (1989). The effects of spouse critical remarks on psychological adjustment in rheumatoid arthritis. *Journal of Personality and Social Psychology*, 56; 608-617.
- Manu, P., Matthews, D.A., Lane, T.J., Tennen, H., Hesselbrock, V., Mendola, R., Affleck, G. (1988). The mental health of patients with a chief complaint of chronic fatigue: a prospective evaluation and follow-up. *Archives of Internal Medicine*, 148; 2213-2217.
- Mayer, M.I. (2000). The role of severe life stress, social support and attachment in the onset of chronic fatigue syndrome. *Dissertation Abstracts International*, 60 (10-A), p. 3605. US: University Microfilms International.

- Matheson, K., Anisman, H. (2003). Systems of coping associated with dysphoria, anxiety, and depressive illness: A multivariate profile perspective. *Stress*, 6; 223-234.
- McCain, G.A., Tilbe, K.S. (1989). Diurnal hormone variation in fibromyalgia syndrome: a comparison with rheumatoid arthritis. *Journal of Rheumatology Supplementary*, 19; 154-157.
- McEwen, B.S. (1998). Protective and damaging effects of stress mediators. *New England Journal of Medicine*, 338; 171-179.
- McIvor, G.P., Riklan, M., Reznikoff, M. (1984). Depression in multiple sclerosis as a function of length and severity of illness, age, remissions, and perceived social support. *Journal of Clinical Psychology*, 40; 1028-1033.
- Moldin, S.O., Scheftner, W.A., Rice, J.P., Nelson, E., Knesevich, M.A., Akiskal, H. (1993). Association between major depressive disorder and physical illness. *Psychological Medicine*, 23; 755-761
- Morrison, L.J.A, Berhan, W.H.M., Behan, P.O. (1991). Changes in natural killer cell phenotype in patients with post-viral fatigue syndrome. *Clinical Expression of Immunology*, 83; 441-446.
- Monteleone P. (2001). Endocrine disturbances and psychiatric disorders. *Current Opinion in Psychiatry*, 6; 605-10.
- Nater, U.M., Wagner, D., Solomon, L., Jones, J.F., Unger, E.R., Papanicolaou, D.A., Reeves, W.C., Heim, C. (2006). Coping styles in people with chronic fatigue syndrome identified from the general population. *Journal of Psychosomatic Research*, 60; 567-573.

- Park, J., Knudson, S. (2003). Medically unexplained physical symptoms. *Statistics Canada Health Reports*, 18; 43-47.
- Parker, A.J.R., Wessely, S., Cleare, A.J. (2001). The neuroendocrinology of chronic fatigue syndrome and fibromyalgia. *Psychological Medicine*, 31; 1331-1345.
- Pawlikowska, T., Chalder, T., Hirsch, S.R., Wallace, P., Wright, D.J.M., Wessely, S.C. (1994). Population based study of fatigue and psychological distress. *British Medical Journal*, 308; 763-770.
- Pepper, C.M, Krupp, L.B, Friedberg, F., Doscher, C., & Kyle, P.K. (1993). A comparison of neuropsychiatric characteristics in chronic fatigue syndrome, multiple sclerosis and depression, *Journal of Neuropsychiatry and Clinical Neuroscience*, 5;200-205.
- Plaisir, I., de Bruijn, J.G.M., de Gaaf, ten Have, Margreet, Beekman, T.F. Aartjan, Pennix, W.J.H. Brenda (2006). The contribution of working conditions and social support to the onset of depressive and anxiety disorders among male and female employees. *Social Science & Medicine*, 64; 401-410.
- Powell, R., Dolan, R., Wessely, S. (1990). Attributions and self-esteem in depression and chronic fatigue syndrome. *Journal of Psychosomatic Research*, 34; 665-673.
- Ravindran, A.V., Matheson, K., Griffiths, J., Merali, Z., Anisman, H. (2002). Stress, coping , uplifts, and quality of life in subtypes of depression: a conceptual frame and emerging data. *Journal of Affective Disorders*, 71; 121-130.

- Riedel W, Layka H, Neeck G. (1998). Secretary pattern of GH, TSH, thyroid hormones, ACTH, cortisol, FSH, and LH in patients with fibromyalgia syndrome following systemic injection of the relevant hypothalamic-releasing hormones. *Z Rheumatology*, Suppl 2:81-87
- Safran, D.G., Taira, D.A., Rogers, W.H., Kosinski, M., Ware, J.E., Tarlov, A.R. (1998). Linking primary care performance to outcomes of care. *Journal of Family Practice*, 47; 213-220.
- Saltzstein, B.J., Wyshak, G., Hubbuch, J.T. & Perry, J.C. (1998). A naturalistic study of the chronic fatigue syndrome among women in primary care. *General Hospital Psychiatry*, 20; 307-316.
- Sayal, K., Checkley, S. Rees, M., Jacobs, C. Harris, T., Papadopoulos, A., Poon, L. (2002). Effects of social support during weekend leave on cortisol and depression ratings: A pilot study. *Journal of Affective Disorders*, 71; 153-157.
- Schoofs, N., Bambini, D., Ronning, P., Bielak, E., Woehl, J. (2004) Death of a lifestyle: The effects of social support and healthcare support on the quality of life of persons with fibromyalgia and/or chronic fatigue syndrome. *Journal of Orthopaedic Nursing*, 23; 364-371
- Seeman, T.E. (1996). Social ties and health: the benefits of social integration. *Annals of Epidemiology*, 6; 442-451.
- Shepherd, C. (1992). *Living with ME*. London: Cedar.
- Smith, T.W., Ruiz J.M. (2002). Psychosocial influences on the development and course of coronary heart disease: Current status and implications for research and practice. *Journal of Consult Clinical Psychology*, 70; 548-568.

- Stewart, A.L., Greenfield, S., Hays, R.D., Wells, K., Rogers, W.H., Berry, S.D., McGlynn, E.A., Ware, J.E. (1989). Functional status and well-being of patients with chronic conditions. *Journal of the American Medical Association*, 262; 907-913.
- Stewart M.A. (1995). Effective physician-patient communication and health outcomes: a review. *Canadian Medical Association Journal*, 52; 1423–1433.
- Straus, S.E., Fritz, S., Dale, J.K., Gould, B., Strober, W. (1993). Lymphocyte phenotype and function in chronic fatigue syndrome. *Journal of Clinical Immunology*, 13; 30-40.
- Thoits, P.A. (1995). Stress, Coping and Social Support Processes: Where are we? What next? *Journal of Health and Social Behavior*, 35; 53-79.
- Thom, D.H., Campbell, B. (1997). Patient-physician trust: an exploratory study. *Journal of Family Practice*, 44; 169-176.
- Thom, D.H., Ribs, K.M, Stewart, A.L., Luke, D.A. (1999). Validation of a measure of patients' trust in their physician: The Trust in Physician Scale. *Medical Care*, 37; 510-517.
- Ware, N.C. Suffering and the social construction of illness: The delegitimization of illness experience in chronic fatigue syndrome. *Medical Anthropology Quarterly*, 6; 347-361.
- Wessely S, Chalder T, Hirsch S, Wallace P, Wright D (1996). Psychological symptoms, somatic symptoms, and psychiatric disorder in chronic fatigue and chronic fatigue syndrome: a prospective study in the primary care setting. *American Journal of Psychiatry*, 153;1050–1059

- Wessely S., Nimnuan, C., Sharpe, M. (1999). Functional somatic syndromes: one or many? *Lancet*, 354; 936-939.
- Wethington, E, Kessler, R.C. (1986). Perceived Support, Received Support, and Adjustment to Stressful Lifer Events. *Journal of Health and Social Behavior*, 27; 78-89.
- White, K.P, Warren, W.R., Harth, M., Ostbye, T., Speechley, M. (2002). Chronic widespread musculoskeletal pain with or without fibromyalgia: Psychological distress in a representative community sample. *Journal of Rheumatology*, 29; 588-594
- Wolfe, F., Anderson, J., Harkness, D. (1997). A prospective, longitudinal, multicenter study of service utilization and costs in fibromyalgia. *Journal of the American College of Rheumatology*, 40; 1560-1570.
- Wood, G.C., Bentall, R.P, Gopfert, M., Edwards, R.H.T. (1991). A comparative assessment of patients with chronic fatigue syndrome and muscle disease. *Psychological Medicine*, 21; 618-628.
- Zautra, A.J., Hamilton. N.A., Burke, H.M. (1999). Comparison of stress responses in women with two types of chronic pain: Fibromyalgia and Osteoarthritis. *Cognitive Therapy and Research*, 23; 209-230.

## Appendix A

### Informed Consent

*The purpose of an informed consent is to ensure that you understand the purpose of the study and the nature of your involvement. The informed consent has to provide sufficient information such that you have the opportunity to determine whether you wish to participate in the study.*

**Study title:** Factors influencing fatigue and fatigue-related illnesses.

### Contacts

The following people are involved in this research project and may be contacted at any time if you have further questions about this project, what it means, or concerns about how it was conducted:

Opal McInnis, Graduate Researcher  
Phone: 613 520-2600 ext. 4199  
Email: [omcinnis@connect.carleton.ca](mailto:omcinnis@connect.carleton.ca)

Dr. Hymie Anisman, Faculty Member, Department of Psychology  
Phone: 613 520-2600 ext. 2699  
Email: [hanisman@ccs.carleton.ca](mailto:hanisman@ccs.carleton.ca)

**If you have any ethical concerns** about this study please contact Dr. Monique Sénéchal, Chair of the Department of Psychology Research Ethics Committee at Carleton University at 613 520-2600 ext. 1155.

**Any other concerns:** Dr. Janet Mantler, Chair of Carleton University Psychology Department, 613-520-2600, ext. 4173 email: [janet\\_mantler@carleton.ca](mailto:janet_mantler@carleton.ca).

**Purpose and Task Requirements:** The purpose of this study is to assess the various coping strategies you use to cope (e.g., social support) with potentially stressful events, and how these may be related to physical and psychological health outcomes. As such, we are also interested in experiences with your physician in dealing with health-related issues. We will be asking you to fill out a number of questionnaires regarding information related to health, fatigue, stressors, corresponding coping strategies, as well as those factors which may influence these behaviours (e.g., social support, mood disturbances, and health conditions). Within 2 – 6 weeks after valid completion of the study you will be mailed a \$5.00 gift certificate of your choosing (Tim Horton's or Starbucks). The questionnaire should take approximately 45 minutes to complete.

**Potential Risk and Discomfort:** There are no physical risks in this study. There may be some discomfort or anxiety experienced when responding to some of the questions in this study or thinking about various stressors or difficulties in your life. If this is the case, the Debriefing form at the end of the study contains contact information for people who are available to help. You can also choose to withdraw from the study at any point.

**Anonymity/Confidentiality:** The data collected in this study will be kept confidential, and is associated only with a numeric code. Your personal information is stored in a computer file separate from the information provided in the questionnaires. All data are stored in secured files that will only be accessible by the researchers and research assistants (identified by code and not your name) involved in this study. All information is stored on a server only accessible by this research lab.

**Right to Withdraw:** Your participation in this study is entirely voluntary. At any point during the study you have the right to not complete certain questions or to withdraw.

This study has been approved by the Carleton University Ethics Committee for Psychological Research (Ethics #10-113)

*I have read the above description of the study. The data collected will be used in research publications and/or for teaching purposes. My selection of "Accept" indicates that I agree to participate in the study, and this in no way constitutes a waiver of my rights.*

## Appendix B

## Demographic Information

1. Sex: Female/ Male (please select one)

2. Age: \_\_\_\_\_

3. What is your citizenship status?

\_\_\_\_\_ Canadian citizen

\_\_\_\_\_ Landed immigrant Since what year? \_\_\_\_\_ Country of origin

\_\_\_\_\_

\_\_\_\_\_ Student visa Since what year? \_\_\_\_\_ Country of origin

\_\_\_\_\_

\_\_\_\_\_ Temporary visa Since what year? \_\_\_\_\_ Country of origin

\_\_\_\_\_

\_\_\_\_\_ Refugee Since what year? \_\_\_\_\_ Country of origin

\_\_\_\_\_

4. What is your first language? \_\_\_\_\_

If your first language is not English, how long have you been **fluent** in reading, writing and comprehension of the English language? \_\_\_\_\_

5. What is your ethnic/racial background? *Please select the one that best applies to you.*

\_\_\_\_\_ Asian (e.g., Chinese, Japanese, Korean)

\_\_\_\_\_ South Asian (e.g., East Indian, Pakistani, Punjabi, Sri Lankan)

\_\_\_\_\_ South East Asian (e.g., Cambodian, Indonesian, Laotian)

\_\_\_\_\_ Arab/West Asian (e.g., Armenian, Egyptian, Iranian, Lebanese, Moroccan)

\_\_\_\_\_ Black (e.g., African, Haitian, Jamaican, Somali)

\_\_\_\_\_ Latin American/Hispanic

\_\_\_\_\_ Aboriginal

\_\_\_ White/Euro-Caucasian

\_\_\_ Other (please specify): \_\_\_\_\_

6. What is your religious affiliation? *Please select the one that best applies to you.*

\_\_\_ None—Atheist (e.g., belief that there is NO God)

\_\_\_ None—Agnostic (e.g., belief that the existence of God cannot be known)

\_\_\_ Protestant (e.g., United, Anglican, Baptist, Presbyterian, Lutheran, Pentecostal, Mennonite, “Christian”)

\_\_\_ Catholic (e.g., Roman Catholic, Ukrainian Catholic)

\_\_\_ Jewish

\_\_\_ Muslim

\_\_\_ Buddhist

\_\_\_ Hindu

\_\_\_ Sikh

\_\_\_ Bahá’í

\_\_\_ Other (please specify): \_\_\_\_\_

7. What is your current living arrangement? *Please select the one that best applies to you.*

\_\_\_ Living alone

\_\_\_ Living with friends

\_\_\_ Living with roommates

\_\_\_ Living with parents

\_\_\_ Living with spouse/significant other

\_\_\_ Living with spouse/significant other and young children (13 years and younger)

\_\_\_ Living with spouse/significant other and older children (13 years and older)

\_\_\_ Living alone with young children (13 years and younger)

\_\_\_ Living alone with older children (13 years and older)

\_\_\_ Other (please specify) \_\_\_\_\_

8. What is your current relationship status? *Please select the one that best applies to you.*

\_\_\_\_\_ Single, and not seeing anyone

\_\_\_\_\_ Going out with someone

\_\_\_\_\_ In a serious dating relationship

\_\_\_\_\_ Have recently broken up ..... Please specify how many weeks ago you broke up

\_\_\_\_\_ Living with an intimate other

\_\_\_\_\_ Engaged

\_\_\_\_\_ Married

\_\_\_\_\_ Separated/Divorced ..... Please specify how many months ago you separated

\_\_\_\_\_ Widowed

9. Is your current (or most recent) partner: Male \_\_\_\_\_ OR Female \_\_\_\_\_?

10. Please provide your current height: \_\_\_\_\_ (ft) OR \_\_\_\_\_ (metres)

Please provide your current weight: \_\_\_\_\_ (lb) OR \_\_\_\_\_ (kg)

11. What level of education have you completed?

\_\_\_\_\_ 8 years or less of elementary school

\_\_\_\_\_ some high school but no diploma

\_\_\_\_\_ a high school diploma or equivalent

\_\_\_\_\_ 1 to 3 years of college/university (including study at a technical college or CEGEP)

\_\_\_\_\_ an undergraduate university degree

\_\_\_\_\_ a master's degree

\_\_\_\_\_ a doctoral degree

\_\_\_\_\_ a professional degree [medicine (M.D.), dentistry (D.D.S.), law, or other similar degrees]

12. Have you had or do you currently have any health related (i.e., medical) illnesses or physical conditions? *Please select the one that best applies to you.*

\_\_\_\_\_ No, I don't

\_\_\_\_\_ Yes, I did but I no longer do

\_\_\_\_\_ Yes, I do

If YES, please specify illness/condition you had/have

\_\_\_\_\_

If YES, please specify treatment received or currently receiving

\_\_\_\_\_

14. Have you ever experienced a psychological disorder/condition (e.g., depression or anxiety)? No \_\_\_\_\_ Yes \_\_\_\_\_

If YES, please specify disorder/condition \_\_\_\_\_

If YES, have you ever sought treatment for these symptoms? No \_\_\_\_\_

Yes \_\_\_\_\_

If YES you have sought treatment, please specify type

\_\_\_\_\_

13. In your opinion, how would you describe your health?

\_\_\_\_\_ Poor

\_\_\_\_\_ Fair

\_\_\_\_\_ Good

\_\_\_\_\_ Very good

\_\_\_\_\_ Excellent

14. Are you on any of the following medications (please check all that apply)?

\_\_\_\_\_ Anti-inflammatories (please specify) \_\_\_\_\_

\_\_\_\_\_ Anti-depressants (please specify) \_\_\_\_\_

\_\_\_\_\_ Anti-anxieties (please specify) \_\_\_\_\_

\_\_\_\_\_ Allergy medication (please specify) \_\_\_\_\_

\_\_\_\_\_ Other prescription drugs (please specify) \_\_\_\_\_

15. What is your estimate of your family's gross income per year? *Please select the one that best applies to you.*

\_\_\_\_\_ under \$15,000

\_\_\_\_\_ \$60,000 - \$74,999

\_\_\_\_\_ \$15,000 - \$29,999

\_\_\_\_\_ \$75,000 - \$89,999

\_\_\_\_\_ \$30,000 - \$44,999

\_\_\_\_\_ \$90,000 - \$104,999

\_\_\_\_\_ \$45,000 - \$59,999

\_\_\_\_\_ \$105,000 or more

16. What is your employment status?

\_\_\_\_\_ Employed Part-time

\_\_\_\_\_ Employed Full-time

\_\_\_\_\_ Unemployed

\_\_\_\_\_ Retired

\_\_\_\_\_ Other : \_\_\_\_\_

## Trust in Physician Scale

Thinking about the last thing that your doctor treated you for, please indicate the degree to which you agree or disagree with the following statements.

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
I doubt that my doctor really cares about me as a person	1	2	3	4	5
My doctor is usually considerate of my needs and puts them first	1	2	3	4	5
I trust my doctor so much I always try to follow his/her advice	1	2	3	4	5
If my doctor tells me something is so, then it must be true	1	2	3	4	5
I sometimes distrust my doctors opinions and would like a second one	1	2	3	4	5
I trust my doctors judgments about my medical care	1	2	3	4	5
I feel my doctor does not do everything he/she should do for my medical care	1	2	3	4	5
I trust my doctor to put my medical needs above all other considerations when treating my medical problems	1	2	3	4	5
My doctor is a real expert in taking care of medical problems like mine	1	2	3	4	5

I trust my doctor to tell me if a mistake was made about my treatment	1	2	3	4	5
I sometimes worry that my doctor may not keep the information we discuss totally private	1	2	3	4	5

### Perceived Stress Scale

The questions in this scale ask you about your feelings and thoughts **during the last month**. In each case, you will be asked to indicate how often you felt or thought a certain way. Although some of the questions are similar, there are differences between them and you should treat each one as a separate question. The best approach is to answer each question fairly quickly. That is, don't try to count up the number of times you felt a particular way, but rather indicate the response option that seems like a reasonable estimate.

<b>Response options:</b>	0	1	2	3	4
	<b>Never</b>	<b>Almost</b>	<b>Sometimes</b>	<b>Fairly</b>	<b>Very</b>
		<b>Never</b>		<b>Often</b>	<b>Often</b>

1. How often have you been upset because of something that happened unexpectedly? \_\_\_\_\_
2. How often have you felt that you were unable to control the important things in your life? \_\_\_\_\_
3. How often have you felt nervous and "stressed"? \_\_\_\_\_
4. How often have you dealt successfully with irritating life hassles? \_\_\_\_\_
5. How often have you felt that you were effectively coping with important changes that were occurring in your life? \_\_\_\_\_
6. How often have you felt confident about your ability to handle your personal problems? \_\_\_\_\_
7. How often have you felt that things were going your way? \_\_\_\_\_
8. How often have you found that you could not cope with all of the things that you had to do? \_\_\_\_\_
9. How often have you been able to control irritations in your life? \_\_\_\_\_

10. How often have you felt that you were on top of things? \_\_\_\_\_
11. How often have you been angered because of things that happened  
that were outside of your control? \_\_\_\_\_
12. How often have you found yourself thinking about things that you  
have to accomplish? \_\_\_\_\_
13. How often have you been able to control the way you spend your time? \_\_\_\_\_
14. How often have you felt difficulties were piling up so high that you  
could not overcome them? \_\_\_\_\_

### Coping Strategies Scale

The purpose of this questionnaire is to find out how people deal with their problems or the stresses in their lives. The following are activities that you may have done. After each activity, please indicate the extent to which you would use this as a way of dealing with problems or stresses in recent weeks.

---

<i>Ordinarily, in recent weeks have you</i>	<i>Never Seldom Sometimes Often Almost always</i>				
1. accepted that there was nothing you could do to change your situation?	0	1	2	3	4
2. tried to just take whatever came your way?	0	1	2	3	4
3. talked with friends or relatives about your problems?	0	1	2	3	4
4. tried to do things which you typically enjoy?	0	1	2	3	4
5. sought out information that would help you resolve your problems?	0	1	2	3	4
6. blamed others for creating your problems or making them worse?	0	1	2	3	4
7. sought the advice of others to resolve your problems?	0	1	2	3	4
8. blamed yourself for your problems?	0	1	2	3	4
9. exercised?	0	1	2	3	4
10. fantasized or thought about unreal things (e.g., the perfect revenge, or winning a million dollars) to feel better?	0	1	2	3	4
11. been very emotional compared to your usual self?	0	1	2	3	4
12. gone over your problems in your mind over and over again?	0	1	2	3	4
13. asked others for help?	0	1	2	3	4
14. thought about your problems a lot?	0	1	2	3	4

<i>Ordinarily, in recent weeks have you</i>	<i>Never Seldom Sometimes Often Almost always</i>				
15. became involved in recreation or pleasure activities?	0	1	2	3	4
16. worried about your problems a lot?	0	1	2	3	4
17. tried to keep your mind off things that are upsetting you?	0	1	2	3	4
18. tried to distract yourself from your troubles?	0	1	2	3	4
19. avoided thinking about your problems?	0	1	2	3	4
20. made plans to overcome your problems?	0	1	2	3	4
21. told jokes about your situation?	0	1	2	3	4
22. thought a lot about who is responsible for your problems (besides yourself)?	0	1	2	3	4
23. shared humorous stories etc. to cheer yourself and others up?	0	1	2	3	4
24. told yourself that other people have dealt with problems such as yours?	0	1	2	3	4
25. thought a lot about how you have brought your problems on yourself?	0	1	2	3	4
26. decided to wait and see how things turn out?	0	1	2	3	4
27. wished the situation would go away or be over with?	0	1	2	3	4
28. decided that your current problems are a result of your own past actions?	0	1	2	3	4
29. gone shopping?	0	1	2	3	4
30. asserted yourself and taken positive action on problems that are getting you down?	0	1	2	3	4
31. sought reassurance and moral support from others?	0	1	2	3	4
32. resigned yourself to your problems?	0	1	2	3	4

<i>Ordinarily, in recent weeks have you</i>	<i>Never</i>	<i>Seldom</i>	<i>Sometimes</i>	<i>Often</i>	<i>Almost always</i>
33. thought about how your problems have been caused by other people?	0	1	2	3	4
34. daydreamed about how things may turn out?	0	1	2	3	4
35. been very emotional in how you react, even to little things?	0	1	2	3	4
36. decided that you can grow and learn through your problems?	0	1	2	3	4
37. told yourself that other people have problems like your own?	0	1	2	3	4
38. wished I was a stronger person or better at dealing with problems?	0	1	2	3	4
39. looked for how you can learn something out of your bad situation?	0	1	2	3	4
40. asked for God's guidance?	0	1	2	3	4
41. kept your feelings bottled up inside?	0	1	2	3	4
42. found yourself crying more than usual?	0	1	2	3	4
43. tried to act as if you were not upset?	0	1	2	3	4
44. prayed for help?	0	1	2	3	4
45. gone out?	0	1	2	3	4
46. held in your feelings?	0	1	2	3	4
47. tried to act as if you weren't feeling bad?	0	1	2	3	4
48. taken steps to overcome your problems?	0	1	2	3	4
49. made humorous comments or wise cracks?	0	1	2	3	4
50. told others that you were depressed or emotionally upset?	0	1	2	3	4

### The Fatigue Scale

The purpose of this questionnaire is to measure the severity of fatigue you may be experiencing. After each question, please indicate the extent to which you have been experiencing each difficulty in the last month

---

	<i>not at all</i>	<i>no worse than usual</i>	<i>worse than usual</i>	<i>much worse than usual</i>
1. Do you have problems with tiredness?	0	1	2	3
2. Do you need to rest more?	0	1	2	3
3. Do you feel sleepy or drowsy?	0	1	2	3
4. Do you have problems starting things?	0	1	2	3
5. Are you lacking in energy?	0	1	2	3
6. Do you have less strength in your muscles?	0	1	2	3
7. Do you feel weak?	0	1	2	3
8. Do you have difficulty concentrating?	0	1	2	3
9. Do you have problems thinking clearly?	0	1	2	3
10. Do you make slips of the tongue when speaking?	0	1	2	3
11. Do you have problems with your memory?	0	1	2	3

## Chronic Fatigue Syndrome Screening Questionnaire

The purpose of this questionnaire is to assess the presence and severity of symptoms associated with chronic fatigue syndrome.

1. Do you have a sore throat?

\_\_\_\_\_ Yes

\_\_\_\_\_ No

If YES, please indicate how long it has been present:

Less than one week	Less than one month	Longer than one month	Longer than six months
-----------------------	------------------------	--------------------------	---------------------------

2. Do you have mild fever or chills?

\_\_\_\_\_ Yes

\_\_\_\_\_ No

If YES, please indicate how long it has been present:

Less than one week	Less than one month	Longer than one month	Longer than six months
-----------------------	------------------------	--------------------------	---------------------------

3. Do you have swollen glands of the neck or underarm?

\_\_\_\_\_ Yes

\_\_\_\_\_ No

If YES, please indicate how long it has been present:

Less than one week	Less than one month	Longer than one month	Longer than six months
-----------------------	------------------------	--------------------------	---------------------------

4. Do you have unexplained weakness in muscles?

\_\_\_\_\_ Yes

\_\_\_\_\_ No

If YES, please indicate how long it has been present:

Less than one week	Less than one month	Longer than one month	Longer than six months
-----------------------	------------------------	--------------------------	---------------------------

5. Do you have aching or stiff muscles?

\_\_\_\_\_ Yes

\_\_\_\_\_ No

If YES, please indicate how long it has been present:

Less than one week	Less than one month	Longer than one month	Longer than six months
-----------------------	------------------------	--------------------------	---------------------------

6. Do you feel sick for more than 24 hours after exercising?

\_\_\_\_\_ Yes

\_\_\_\_\_ No

If YES, please indicate how long this has been present:

Less than one week	Less than one month	Longer than one month	Longer than six months
-----------------------	------------------------	--------------------------	---------------------------

7. Have you been experiencing headaches?

\_\_\_\_\_ Yes

\_\_\_\_\_ No

If YES, please indicate how long they have been present:

Less than one week	Less than one month	Longer than one month	Longer than six months
-----------------------	------------------------	--------------------------	---------------------------

8. Have you been experiencing new or different headaches than before?

\_\_\_\_\_ Yes

\_\_\_\_\_ No

If YES, please indicate how long it has been present:

Less than	Less than	Longer than	Longer than
one week	one month	one month	six months

9. Do you have pain in joints without swelling?

\_\_\_\_\_ Yes

\_\_\_\_\_ No

If YES, please indicate how long it has been present:

Less than	Less than	Longer than	Longer than
one week	one month	one month	six months

9. Do you feel rested after a night's sleep?

\_\_\_\_\_ Yes

\_\_\_\_\_ No

If NO, please indicate how long this has been present:

Less than	Less than	Longer than	Longer than
one week	one month	one month	six months

10. Do bright lights bother your eyes?

\_\_\_\_\_ Yes

\_\_\_\_\_ No

If YES, please indicate how long this has been present:

Less than	Less than	Longer than	Longer than
one week	one month	one month	six months

11. Do you experience temporary periods of blindness?

\_\_\_\_\_ Yes

\_\_\_\_\_ No

If YES, please indicate how long this has been present:

Less than one week	Less than one month	Longer than one month	Longer than six months
-----------------------	------------------------	--------------------------	---------------------------

12. Do you get easily irritated?

Yes

No

If YES, please indicate how long this has been present:

Less than one week	Less than one month	Longer than one month	Longer than six months
-----------------------	------------------------	--------------------------	---------------------------

13. Do you feel depressed?

Yes

No

If YES, please indicate how long this has been present:

Less than one week	Less than one month	Longer than one month	Longer than six months
-----------------------	------------------------	--------------------------	---------------------------

14. Do you feel confused?

Yes

No

If YES, please indicate how long it has been present:

Less than one week	Less than one month	Longer than one month	Longer than six months
-----------------------	------------------------	--------------------------	---------------------------

15. Do you feel forgetful?

Yes

No

If YES, please indicate how long this has been present:

Less than one week	Less than one month	Longer than one month	Longer than six months
-----------------------	------------------------	--------------------------	---------------------------

16. Is it difficult for you to concentrate?

\_\_\_\_\_ Yes

\_\_\_\_\_ No

If YES, please indicate how long this has been present:

Less than	Less than	Longer than	Longer than
one week	one month	one month	six months

If YES, does this concentration difficulty interfere with work or study?

\_\_\_\_\_ Yes

\_\_\_\_\_ No

If YES, please indicate how long this interference has been present:

Less than	Less than	Longer than	Longer than
one week	one month	one month	six months

17. Is it difficult for you to remember things?

\_\_\_\_\_ Yes

\_\_\_\_\_ No

If YES, please indicate how long this has been present:

Less than	Less than	Longer than	Longer than
one week	one month	one month	six months

If YES, does this concentration difficulty interfere with work or study?

\_\_\_\_\_ Yes

\_\_\_\_\_ No

If YES, please indicate how long this interference has been present:

Less than	Less than	Longer than	Longer than
one week	one month	one month	six months

18. Do you experience fatigue that develops over a few hours or days?

\_\_\_\_\_ Yes

\_\_\_\_\_ No

19. Do you experience a high level of fatigue after normal daily activity?

Yes

No

If YES, please indicate how long this has been present:

Less than	Less than	Longer than	Longer than
one week	one month	one month	six months

20. Please indicate how often you feel fatigued:

Less than than	20% of the time	30% of the time	40% of the time	Greater than
10% of of the time				50% of the time

21. A) Have you been fatigued or tired?

Yes

No

If YES, please indicate how long this has been present:

Less than	Less than	Longer than	Longer than
one week	one month	one month	six months

B) Has your fatigue problems reduced energy levels by 50%?

Yes

No

If YES, please indicate how long this has been present:

Less than	Less than	Longer than	Longer than
one week	one month	one month	six months

C) Do you have a medical doctor overseeing your fatigue problem?

Yes

No

D) Does disease or illness account for the fatigue?

\_\_\_\_\_ Yes

\_\_\_\_\_ No

If YES, please indicate the disease and/or illness:

\_\_\_\_\_

E) Does anything else account for the fatigue?

\_\_\_\_\_ Yes

\_\_\_\_\_ No

If YES, please indicate what you feel accounts for it:

\_\_\_\_\_

F) How long have you had the fatigue? \_\_\_\_\_

E) Has fatigue, tiredness, or lack of energy caused:

No	Minor	Moderate	Severe
Problems	Problems	Problems	Problems

G) How frequently do you feel fatigued, tired, or lack of energy?

Not at all	Less than	1-4 times a	More than 4
	once a week	week	times a week

H) Would you describe your fatigue problem as:

\_\_\_\_\_ Getting worse

\_\_\_\_\_ Staying the same

\_\_\_\_\_ Getting better

I) Which of following statements best describes your fatigue in the last month:

\_\_\_\_\_ Bedridden

\_\_\_\_\_ Able to do light housework

\_\_\_\_\_ Work part-time or complete some family responsibilities

\_\_\_\_\_ Work full-time or finish all family responsibilities, but no energy for anything else

\_\_\_\_\_ Able to fulfill work and all family responsibilities

## SOCIAL SUPPORT SCALE

**In the past, how often *did you receive* these activities from other people in the past month? Please read each statement carefully and circle or underline the answer that best describes your experience.**

---

**1. Someone gave you some information to help you understand a situation**

Not at all   Once or twice   About once a week   Several times a week   About every day

**2. People who have helped you have checked back to see if you have followed their advice**

Not at all   Once or twice   About once a week   Several times a week   About every day

**3. Others gave you information on how to do something**

Not at all   Once or twice   About once a week   Several times a week   About every day

**4. Others gave you feedback on how you were doing without saying it was good or bad**

Not at all   Once or twice   About once a week   Several times a week   About every day

**5. Others told you that you were O.K. just the way you are**

Not at all   Once or twice   About once a week   Several times a week   About every day

**6. Others have expressed interest and concern in your well-being**

Not at all   Once or twice   About once a week   Several times a week   About every day

**7. Others listened to you talk about your private feelings**

Not at all   Once or twice   About once a week   Several times a week   About every day

**8. Other have joked and kidded to try to cheer you up**

Not at all   Once or twice   About once a week   Several times a week   About every day

**9. Others have provided you with transportation**

Not at all Once or twice About once a week Several times a week About every day

**10. Others have pitched in to help do something that needed to be done**

Not at all Once or twice About once a week Several times a week About every day

**11. Others have provided you with a place where you could get away for a while**

Not at all Once or twice About once a week Several times a week About every day

**12. Others have loaned or given you something (a physical object other than money) that you needed**

Not at all Once or twice About once a week Several times a week About every day

### Unsupportive Social Interactions Inventory (USII)

Think about times you have talked with other people about events in your life during the past month. Please circle the appropriate answer in regards to how much of the following responses you have received from others.

	<b>None</b>				<b>A lot</b>
Would not seem to want to hear about it.	0	1	2	3	4
Would refuse to take me seriously.	0	1	2	3	4
Would change the subject before I wanted to.	0	1	2	3	4
Would refuse to provide the type of help or support I was asking for.	0	1	2	3	4
When I was talking about it, the person wouldn't give me enough time, or would make me feel like I should hurry.	0	1	2	3	4
Would discourage me from expressing feelings such as anger, hurt or sadness.	0	1	2	3	4
Would not seem to know what to say, or would seem afraid of saying or doing the "wrong" thing.	0	1	2	3	4
Would seem to be telling me what he or she thought I wanted to hear.	0	1	2	3	4
From voice tone, expression, or body language, I would get the feeling he or she was uncomfortable talking about it.	0	1	2	3	4
Would try to cheer me up when I was not ready to.	0	1	2	3	4
Would respond with uninvited physical touching	0	1	2	3	4

(e.g., hugging).

Would do things for me that I would want to do and  
could do myself. 0 1 2 3 4

Would feel that I should stop worrying about the  
event and just forget about it. 0 1 2 3 4

Would tell me to be strong, to keep my chin up,  
or that I should not let it bother me. 0 1 2 3 4

Would feel that I should focus on the present or  
the future and that I should forget about what has  
happened and get on with my life. 0 1 2 3 4

Would feel that it could have been worse or was  
not as bad as I thought. 0 1 2 3 4

Would say that I should look on the bright side. 0 1 2 3 4

Would feel that I was overreacting. 0 1 2 3 4

Would ask “why” questions about my role in the  
event. 0 1 2 3 4

Would make “Should or shouldn’t have” comments  
about my role in the event. 0 1 2 3 4

Would tell me that I had gotten myself into the  
situation in the first place, and now must deal  
with the consequences. 0 1 2 3 4

Would blame me, or try to make me feel responsible  
for the event. 0 1 2 3 4

Would make "I told you so" or similar comments.	0	1	2	3	4
Would seem to be disappointed in me.	0	1	2	3	4

## Beck Depression Inventory (BDI)

On this questionnaire are groups of statements. Please read the entire group of statements in each category. Then pick out ONE statement in that group which best describes the way you feel. Check off the number beside the statement you have chosen.

---

1. \_\_\_ 0 = I do not feel sad  
\_\_\_ 1 = I feel sad or blue  
\_\_\_ 2a = I am blue or sad all of the time and I can't snap out of it  
\_\_\_ 2b = I am so sad or unhappy that it is very painful  
\_\_\_ 3 = I am so sad or unhappy that I can't stand it
  
2. \_\_\_ 0 = I am not particularly pessimistic or discouraged about the future  
\_\_\_ 1 = I feel discouraged about the future  
\_\_\_ 2a = I feel I have nothing to look forward to  
\_\_\_ 2b = I feel I won't every get over my troubles  
\_\_\_ 3 = I feel that the future is hopeless and things cannot improve
  
3. \_\_\_ 0 = I do not feel like a failure  
\_\_\_ 1 = I feel I have failed more than the average person  
\_\_\_ 2a = I feel I have accomplished very little that is worthwhile or that means anything  
\_\_\_ 2b = As I look back on my life, all I can see is a lot of failures  
\_\_\_ 3 = I feel I am a complete failure as a person
  
4. \_\_\_ 0 = I am not particularly dissatisfied  
\_\_\_ 1a = I feel bored most of the time

- \_\_\_ 1b = I don't enjoy things the way I used to
- \_\_\_ 2 = I don't get satisfaction out of anything anymore
- \_\_\_ 3 = I am dissatisfied with everything
5. \_\_\_ 0 = I don't feel particularly guilty
- \_\_\_ 1 = I feel bad or unworthy a good part of the time
- \_\_\_ 2a = I feel quite guilty
- \_\_\_ 2b = I feel bad or unworthy practically of the time now
- \_\_\_ 3 = I feel as though I am very bad or worthless
6. \_\_\_ 0 = I don't feel I am being punished
- \_\_\_ 1 = I have a feeling that something bad may happen to me
- \_\_\_ 2 = I feel I am being punished or will be punished
- \_\_\_ 3a = I feel I deserve to be punished
- \_\_\_ 3b = I want to be punished
7. \_\_\_ 0 = I don't feel disappointed in myself
- \_\_\_ 1a = I am disappointed in myself
- \_\_\_ 1b = I don't like myself
- \_\_\_ 2 = I am disgusted with myself
- \_\_\_ 3 = I hate myself
8. \_\_\_ 0 = I do not feel I am any worse than anybody else
- \_\_\_ 1 = I am very critical of myself for my weaknesses or mistakes
- \_\_\_ 2a = I blame myself for everything that goes wrong

\_\_\_ 2b = I feel I have many bad faults

9. \_\_\_ 0 = I don't have thoughts of harming myself

\_\_\_ 1 = I have thoughts of harming myself but I would not carry them out

\_\_\_ 2a = I feel I would be better off dead

\_\_\_ 2b = I have definite plans about committing suicide

\_\_\_ 2c = I feel my family would be better off if I were dead

\_\_\_ 3 = I would kill myself if I could

\*Individuals who respond 2a or greater will receive an additional debriefing.

10. \_\_\_ 0 = I don't cry anymore than usual

\_\_\_ 1 = I cry more now than I used to

\_\_\_ 2 = I cry all the time now. I can't stop it

\_\_\_ 3 = I used to be able to cry but now I can't cry at all even though I want to

11. \_\_\_ 0 = I am no more irritable than usual

\_\_\_ 1 = I am more irritable than usual

\_\_\_ 2 = I am much more irritable than usual

\_\_\_ 3 = I am irritable all the time

12. \_\_\_ 0 = I have not lost interest in other people

\_\_\_ 1 = I am less interested in other people than I used to be

\_\_\_ 2 = I have lost most of my interest in other people and I have little feeling for them

\_\_\_ 3 = I have lost all my interest in other people and don't care about them at all

13. \_\_\_ 0 = I make decisions about as well as ever

- \_\_\_ 1 = I am less sure of myself now and try to put off making decisions
- \_\_\_ 2 = I can't make decisions anymore without help
- \_\_\_ 3 = I can't make decisions at all anymore
14. \_\_\_ 0 = I don't feel I look any worse than I used to
- \_\_\_ 1 = I am worried that I am looking old or unattractive
- \_\_\_ 2 = I feel that there are permanent changes in my appearance and they make me look unattractive
- \_\_\_ 3 = I feel that I am ugly or repulsive looking
15. \_\_\_ 0 = I can work about as well as before
- \_\_\_ 1a = It takes extra effort to get started at doing something
- \_\_\_ 1b = I don't work as well as I used to
- \_\_\_ 2 = I have to push myself very hard to do anything
- \_\_\_ 3 = I can't do any work at all
16. \_\_\_ 0 = I can sleep as well as usual
- \_\_\_ 1 = I wake up more tired in the morning than I used to
- \_\_\_ 2 = I wake up 1-2 hours earlier than usual and find it hard to get back to sleep
- \_\_\_ 3 = I wake up early every day and can't get more than 5 hours sleep
17. \_\_\_ 0 = I don't get any more tired than usual
- \_\_\_ 1 = I get tired more easily than I used to
- \_\_\_ 2 = I get tired from doing anything
- \_\_\_ 3 = I get too tired to do anything

- 18a. \_\_\_ 0 = My appetite is no worse than usual  
\_\_\_ 1 = My appetite is not as good as it used to be  
\_\_\_ 2 = My appetite is much worse now  
\_\_\_ 3 = I have no appetite at all any more
- 18b. \_\_\_ 0 = I am not eating more than usual  
\_\_\_ 1 = I am eating a little more than usual  
\_\_\_ 2 = I am eating somewhat more than usual  
\_\_\_ 3 = I am eating a lot more than usual
- 18c. \_\_\_ 0 = I have had no change in food preferences lately  
\_\_\_ 1 = I have been craving more carbohydrates (starches or sweets lately)  
\_\_\_ 2 = I have had irresistible craving for sweets and starches lately
- 19a. \_\_\_ 0 = I haven't lost much weight, if any, lately  
\_\_\_ 1 = I have lost more than 5 pounds  
\_\_\_ 2 = I have lost more than 10 pounds  
\_\_\_ 3 = I have lost more than 15 pounds
- 19b. \_\_\_ 0 = I have not gained any weight lately  
\_\_\_ 1 = I have gained more than 5 pounds  
\_\_\_ 2 = I have gained more than 10 pounds  
\_\_\_ 3 = I have gained more than 15 pounds

20. \_\_\_ 0 = I am no more concerned about my health than usual
- \_\_\_ 1 = I am concerned about aches and pains or upset stomach or constipation or other unpleasant feelings in my body
- \_\_\_ 2 = I am so concerned with how I feel or what I feel that it's hard to think of much else
- \_\_\_ 3 = I am completely absorbed in what I feel
21. \_\_\_ 0 = I have not noticed any recent change in my interest in sex
- \_\_\_ 1 = I am less interested in sex than I used to be
- \_\_\_ 2 = I am much less interested in sex now
- \_\_\_ 3 = I have lost interest in sex completely
22. \_\_\_ 0 = I have not had any increase in nightly sleep length lately
- \_\_\_ 1 = I have had at least 1-hour increase in sleep length
- \_\_\_ 2 = I have had at least 2-hour increase in sleep length
- \_\_\_ 3 = I have had at least 3-hour increase in sleep length
- My average nightly sleep length in the past week is: \_\_\_\_\_ hours
23. \_\_\_ 0 = I am not feeling more fatigued than usual
- \_\_\_ 1 = I feel more fatigued than usual lately, but it does not interfere with my daily functioning
- \_\_\_ 2 = I feel more fatigued than usual lately, and it interferes somewhat with my daily functioning
- \_\_\_ 3 = I feel more fatigued than usual lately, and it significantly interferes with my daily functioning

24. \_\_\_ 0 = I have not had any mood swings or slumps lately
- \_\_\_ 1 = I have had some mood swings or slumps lately but very minor
- \_\_\_ 2 = I have had more mood swings or slumps than usual
- \_\_\_ 3 = I have had severe mood swings or slumps lately

## Appendix C

### Distress Debriefing

Depression is a stress-related response that can occur for many reasons, including workplace stressors, traumatic life events, as well as discrimination. Approximately 10-15% of people will suffer some degree of depression during their lifetime. With advances in modern medicine, most people can readily be treated for this illness, which if unattended can be long lasting and affect many aspects of one's life. The symptoms of depression comprise:

Poor or depressed mood, or a reduction in the pleasure gained from otherwise positive experiences

- Sleep disturbances
- Eating disturbances (loss of appetite, or overeating despite not being hungry), which may be linked to weight changes
- Lack of sexual interest
- Fatigue and lethargy (you don't feel like doing anything)
- An inability to focus (e.g., have a hard time reading)
- Reduced interactions with family and friends
- Thoughts of suicide

Someone who is depressed may experience several (3-4), but not necessarily all of the above symptoms.

It is likewise the case that 60% of individuals will encounter a severe traumatic event and of these people, a fair number will develop symptoms that cause severe anxiety. Illnesses of this nature, including posttraumatic stress disorder (PTSD) can be treated. Once again, if unattended, the repercussions can be severe. Symptoms include:

- Hyperarousal (e.g., feelings of anxiety and reactive even to minor situations)
- Intrusive thoughts (the event comes into your head frequently)
- Avoiding thoughts or stimuli related to the event

These symptoms persist for more than a month following the event, and influence your day-to-day functioning.

Your responses to this survey suggest that you may be experiencing one of the above. If you are not already receiving attention for this problem, it is suggested that you contact your family physician. It is not a good idea to allow problems to fester, as ruminating over these problems will typically not make them go away. Your family physician or counsellor will usually be able to help you or to refer you to someone who can. If you do not have a family physician, then you can contact any of the following.

## Appendix D

### Debriefing

#### *What are we trying to learn in this research?*

Individuals are faced with a variety of stressful events in daily life, and they may use different ways of coping to deal with each of these types of events. These ways of coping may be especially important, as they are related to many poor mental and physical health outcomes (e.g., depression, worsening of a pre-existing illness). Also, research has shown that stress has been associated with the development of fatigue. Chronic fatigue syndrome (CFS) and fibromyalgia are conditions which share certain similarities. A symptom often experienced by people with these conditions is fatigue. However, it is unclear why some people have few symptoms of fatigue, while others develop more severe levels of these symptoms. Several studies have shown that social support is a common coping resource that protects against the negative effects of stressors. Therefore, the positive and negative support we get from the people around us may be very important in influencing our health, and more specifically, our symptoms of fatigue. Seeking support from a physician is another form of social support looked for by individuals suffering from medical conditions and the level of trust we have in our physicians may influence how often we go to these individuals for information.

In this study we are trying to determine whether or not a relationship exists between the ways of coping people use to respond to stressful events, and the severity of fatigue they experience. As well, we will determine whether a relationship exists between the positive and negative support people feel they have in their lives, their depressive symptoms, and severity of fatigue. We also hope to gain a better understanding of how individuals with fibromyalgia and CFS perceive their doctor-patient relationship and the level of social support they receive from other sources as compared to those not diagnosed with these conditions. We hope that the information gained from this study will help us to understand the factors that may contribute to the development and/or severity of fatigue.

#### *What if I have questions later?*

##### **Please contact**

Opal McInnis, Graduate Researcher

Phone: 613 520-2600 ext. 4199

Email: [omcinnis@connect.carleton.ca](mailto:omcinnis@connect.carleton.ca)

Dr. Hymie Anisman, Faculty Member, Department of Psychology

Phone: 520-2600 ext. 2699

Email: [hanisman@ccs.carleton.ca](mailto:hanisman@ccs.carleton.ca)

**Ethical concerns:** Dr. Monique Sénéchal, Chair of Carleton University Ethics Committee for Psychological Research, 613 520-2600 ext. 1155, monique\_senechal@carleton.ca

**Any other concerns:** Dr. Janet Mantler, Chair of Carleton University Psychology Department, 613-520-2600, ext. 4173 email: janet\_mantler@carleton.ca

*Is there anything that I can do if I found this experiment to be emotionally draining?*

Thank you very much for your participation in this study. If you have experienced any distress while completing these measures, please consult the resources below, and/or consult the directory provided by the Fibromyalgia-Chronic Fatigue Syndrome Canada for a support organization in your area (<http://fm-cfs.ca/support.html>).