CONSTANT NEGOTIATING:
WORKING WITH WORK-RELATED MUSCULOSKELETAL DISORDERS (WMSDs)

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ABSTRACT

Work-related musculoskeletal disorders (WMSDs) are common in workplaces where repetitive work is performed. Although these conditions have been recognized for a long time and studied extensively there are considerable gaps in the research on how workers who have developed a WMSD are able to remain at work and what strategies they use to make this possible. The purpose of this study was to develop an understanding of the psychosocial process or processes and the strategies used by employed injured workers in dealing with WMSDs. Specifically, the research question was, 'How are workers who have developed a WMSD able to remain at work and what strategies do they use to make this possible?' Grounded theory was used as the research methodology. Participants included twenty-five (16 male and 9 female) workers diagnosed with WMSDs who were currently employed in various workplaces in Newfoundland and Labrador. Constant negotiating was found to be the core category central to the process of remaining in the workplace that enabled workers to respond to social, health, and occupational environments. The process included five main phases: *Becoming Concerned, Getting Medical Help, Dealing with the Workplace, Making Adjustments to Lifestyle, and Taking Charge,* as well as various sub-phases. Findings from this study suggest important implications related to nursing practice, education, and research. Implications for employers are also included.

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CHAPTER 1

INTRODUCTION

Work-related musculoskeletal disorder (WMSD) is a general term used to describe a wide range of injuries to the muscles, tendons, and nerves that are known to develop gradually over an extended period of time in susceptible workers. They are characterized by a variety of symptoms that include, but are not limited to, one or more of the following: pain, joint stiffness, muscle tightness, swelling, numbness, and skin color changes (Canadian Centre for Occupational Health and Safety, 2005). WMSDs are commonly found in a variety of workers, such as assembly-line workers, food processing workers, computer operators, academics, fishers, health care workers, welders, musicians, and other occupations (Alexopoulos, Burdorf, & Kalokerinou, 2003; Alexopoulos, Tanagra, Konstantinou, & Burdorf, 2006; Chiu et al., 2002; Olafsdottir & Rafnsson, 2000; Pascarelli & Hsu, 2001).

Accordingly, many researchers have found that workers exposed to repetitive and monotonous tasks, excessive and rapid production deadlines, forceful and extreme body exertions, standing in awkward, or stationary positions for extended periods of time, cold environments, job stress, increased job demands, low job satisfaction, job insecurity, and poorly designed workstations are at risk for developing these conditions (Andersen et al., 2002; Bang et al., 2005; Cole, Ibrahim, & Shannon, 2005; McBeth, Harkness, Silman, & Macfarlane, 2003). Often the chronic nature, severity of symptoms, and uncertainty associated with WMSDs make it very difficult for many of the affected workers to remain at the same job, that contributed to the development of the condition (Beardwood,

Kirsh, & Clark, 2005). However, some workers choose to remain at the workplace, especially if they can be accommodated, while others will decide to withdraw from the workplace either temporarily or permanently (Adams & Williams, 2003; Amick et al., 2004; Johansson, Lundberg, & Lundberg, 2006; Van Duijn, Miedema, Elders, & Burdorf, 2004).

There is a vast amount of research on WMSDs, associated risk factors, effectiveness of various treatment modalities, as well as factors related to deciding whether or not to return to work after a medical leave. Some researchers have tried to determine how workers cope with musculoskeletal pain (Jensen, Nygren, Gamberale, Goldie, & Westerholm, 1994), or introduce interventions to help workers cope with musculoskeletal symptoms (Larsson, Karlqvist, & Gard, 2008), but a limitation of these studies is that many of these workers are on full or partial disability leave. There has been less research on how individuals who have WMSDs and continue to work full time are dealing with this condition. This thesis addresses that gap by examining how workers who have developed a WMSD are able to remain at their regular work and what strategies they use to make this possible.

Background

As early as the 1700s WMSDs were described in workers, such as clerks and scribes who spent long hours sitting and writing using quill pens (Gilbert, Tick, & VanEerd, 1997). Over the years many studies have associated WMSDs with various work-related tasks (Andersen et al., 2002; Burdorf, Naaktgeboren, & Post, 1998; Pope, Silman, Cherry, Pritchard, & Macfarlane, 2001; Quandt et al., 2006). Several non-

occupational risk factors also have been identified in the literature as contributors to these conditions, including gender, educational level, co-morbidities, age, smoking, obesity, and diet (Gillen et al., 2007; Holmberg & Thelin, 2006; Keniston, Nathan, Leklem, & Lockwood, 1997; Leijon, Hensing, & Alexanderson, 1998; Palmer, Syddall, Cooper, & Coggon, 2003; Strazdins & Bammer, 2004; Thomas et al., 2006; van Eijsden-Besseling, Peeters, Reijnen, & de Bie, 2004; Vroman & MacRae, 2001; Zakaria, Robertson, MacDermid, Hartford, & Koval, 2002). Consensus among researchers is that the risk factors in developing WMSDs are numerous and multifactorial (Bongers, Kremer, & ter Laak, 2002; Cole & Rivalis, 2004; Cole et al., 2005).

A gradual onset of symptoms is typical in the development of WMSDs (Tyrer, 1999). Symptoms reported are numerous and are often linked to specific musculoskeletal disorders that include, but are not limited to, carpal tunnel syndrome, tendonitis, bursitis, epicondylitis, tenosynovitis, and thoracic outlet syndrome (Canada's National Occupational Health & Safety Resource, 2005). WMSDs are different from acute injuries that begin and heal within a specific period of time (Wilson, 2002). Injuries or disorders of the musculoskeletal system that are the direct result of a trauma, such as a fall or an accident are not considered WMSDs (Canadian Centre for Occupational Health and Safety, 2005). It is a challenge to identify when a WMSD begins, and it is only months or sometimes years later when the symptoms recur and become chronic in nature, that the problem may be identified (MacIver, Smyth, & Bird, 2007). Frequently people will receive numerous diagnoses from a variety of health professionals before their problem is identified as a WMSD. Diagnostic tests often do not reveal WMSDs, thus

creating an aura of invisibility, misunderstanding, distrust, and issues of credibility surrounding these conditions (Lippel, 2003; MacEachen, 2005; Reid, Ewan, & Lowy, 1991).

It has been fairly well documented in the literature that there is a stage progression in the development of WMSDs. In the early stages workers exhibit symptoms, such as achiness, fatigue, numbness, that are often relieved by rest after working (Canadian Centre for Occupational Health and Safety, 2005; Maeda, Hirayama, Chang, & Takamatsu, 1979; Tyrer, 1999). As the development of a WMSD progresses, symptoms increase in strength and duration, and are experienced at home and at work. Sleep disturbance is also common during this time (Tanaka, Petersen, & Cameron, 2001).

Treatments are many and varied, as sufferers attempt to alleviate or lessen symptom flare-ups. Injured workers often visit numerous health care providers, such as occupational health nurses, general practitioners, medical specialists, physiotherapists, massage therapists, chiropractors, and surgeons in attempting to find relief from ongoing, chronic WMSD symptoms (Barthel, Miller, Deardorff, & Portenier, 1998; Ostlund, Cedersund, Alexanderson, & Hensing, 2001; Proctor, Mayer, Gatchel, & McGeary, 2004). Treatments have been described in the literature, as either being useful, short-lived, or non-effective (Garfinkel et al., 1998; Green, Buchbinder, Glazier, & Forbes, 2001; Manktelow, Binhammer, Tomat, Bril, & Szalai, 2004).

One of the challenges of research in the area of WMSDs is that the terminology to describe these conditions seems to change and varies from country to country. In the past these conditions had been described in terms of related activities, such as washwoman

strain, tennis elbow, golfer's elbow, or carpet layer's knee (Gilbert et al., 1997; Melhorn, 2004). They have also been identified by the repetitive nature of the work, such as repetitive strain injury or RSI (Gallinaro, Feldman, & Natour, 2001), an accumulation of traumatic injuries, such as cumulative trauma disorder or CTD (Melhorn, Wilkinson, Gardner, Horst, & Silkey, 1999), or by the overuse of muscles in work activities, such as occupational overuse syndrome (Brown & Baker, 2004). The term work-related musculoskeletal disorder, or WMSD, is increasingly used. This term recognizes the place of work in contributing to this injury (Baldwin, 2004). WMSD is the term used in this study.

Scope of the Problem

The reported number of cases of WMSDs has increased worldwide and Canada is no exception. In 2001, 10% of the Canadian population over the age of 19, or over two million adults had WMSDs, significant enough to limit their usual activities and the majority of these injuries were reportedly linked to their workplace activities (Institute for Work and Health, 2007). Gender differences also are noted. Between 1991 and 2001 the percentage of women sustaining WMSDs had risen significantly. Men's rates increased from 8.2% to 9.9%, whereas for women the rates went from 7.9% to 10.3% (Statistics Canada, 2003). The higher increase for women versus men was purportedly due to an increase in women working in jobs traditionally held by men and that women are often involved in tasks where repetitive work is performed. In 2003, it was estimated that 2.3 million adult Canadians suffered from WMSDs (Tjepkema, 2003). However, these estimates indicate only a small portion of injured workers who have been affected with

WMSDs, since most cases go unreported (Evanoff et al., 2002; Morse et al., 2004). Many times injured workers decide to work, despite pain and other symptoms, to avoid entering a compensation system that often is discriminatory and stigmatizing (Lippel, 2003).

The financial costs of WMSDs to injured workers, their families, employers, insurance, compensation, and health care systems are high. The cost of WMSDs in Canada is estimated from $1.3 to $2.0 billion annually and in Newfoundland and Labrador (NL) the costs have increased by 82% from 1994 to 2005 (Institute for Work and Health, 2007). In 2004 the total compensation benefits paid out for all injured workers in NL was reported to be $105 million and in Canada over $6 million (Institute for Work and Health). In 2002 Health Canada estimated that the annual cost of musculoskeletal conditions due to health care costs and lost wages was more than $16 billion (Health Canada, 2002). These costs suggest that the economic implications and decreased worker productivity related to WMSDs are critical issues to address.

The human suffering with WMSDs also is high (Armstrong, McMahon, West, & Lewis, 2005; Baldwin & Butler, 2006). These conditions produce pain, and other related symptoms, such as muscle weakness, numbness, and burning sensations, that often result in a reduction of leisure-time activities and inability to carry out many activities of daily living for affected workers (Tuzun, 2007). The impact of WMSDs on work can be devastating for workers. Some injured workers are able to have some measure of control in the workplace, while others will become victims (Ewan, Lowy, & Reid, 1991). Despite what is known about these conditions, WMSDs remain a significant problem for many workers and there are still some gaps in this research area, such as how workers

who have developed a WMSD are able to remain at work and what strategies they employ to make this possible.

Rationale

Occupational health nurses at worksites often encounter workers with WMSDs and need to respond to these workers' needs and engage in primary and secondary prevention strategies to help these workers (Rogers, 2003). As the numbers of these injuries continue to rise, occupational health nurses will be looking at strategies they can employ to help the workers affected, so that the person may have the best physical and psychosocial outcomes. Therefore, it is important to understand why some workers remain at work despite having a WMSD and what makes this possible. If one can gain a better understanding of the challenges encountered, thought processes engaged in, and strategies employed by injured workers, interventions focused on the unique needs of these workers can be best achieved. This information is also crucial for employers, insurers, and other officials as they develop regulations and policies for injured workers. In addition this knowledge can be useful for friends, co-workers, and family members to help these injured workers adjust, enjoy life, and continue with paid employment, if that is in the worker's best interest from an occupational health and safety position.

There were a number of studies found in the literature that have described factors related to the decision-making process of returning to work after an injury (Cole, Mondloch, & Hogg-Johnson, 2002; Gard & Sandberg, 1998; Heijbel, Josephson, Jensen, Stark, & Vingard, 2006; Nordqvist, Holmqvist, & Alexanderson, 2003). There were also several studies describing workers' perceived barriers in returning to work (Crook,

Moldofsky, & Shannon, 1998; Feurerstein, Huang, Haufler, & Miller, 2000; Guzman, Yassi, Cooper, & Khokhar, 2002; Sampaio et al., 2003; Van Duijn et al., 2004). However, the perspectives and understanding of what it is like to be an injured worker who is attempting to deal with WMSDs at work have seldom been studied. There is a need to adequately conceptualize how workers deal with these conditions at work (Schultz, Stowell, Feurerstein, & Gatchel, 2007).

To explore the complex and dynamic process of dealing with WMSDs at work a qualitative research approach using grounded theory was thought to be most appropriate. Using this methodological approach allowed a more thorough understanding about how individuals who have WMSDs are able to remain at the workplace and what strategies they employed to make this possible. The study resulted in the development of a substantive theory and model that may assist healthcare professionals and others in their encounters with injured workers, as we look for ways of accommodating the growing numbers of workers with WMSDs in the workplace.

Purpose, Objective, and Research Question

The purpose of this qualitative research study was to develop an understanding of the psychosocial process or processes and the strategies used by employed injured workers in dealing with WMSDs. The primary objective was to develop a conceptual model of this process that will help health care providers, such as occupational health nurses and other health professionals involved with injured workers to better understand this problem. Specifically, the research question was, 'How are workers who have

developed a WMSD able to remain at work and what strategies do they use to make this possible?'

Overview of Thesis

Chapter two contains a review of the literature and related findings. An overview of grounded theory methodology and the methods as used in this study are presented in chapter three. In chapter four the findings of the study and the development of the model are described. A discussion of the study findings is presented in chapter five. The study limitations, implications, and conclusions are contained in chapter six.

CHAPTER 2

LITERATURE REVIEW

An extensive literature review was conducted for this study using health databases, including CINAHL (Cumulative Index for Nursing and Allied Health Literature), Pub Med (Periodical Literature in Health Medicine), EMBASE (an International Biomedical and Pharmacological Database for Health Professionals), as well as the Cochrane Library. The literature review was continually updated as new studies were located. The latest search was performed in January, 2009. Search terms included repetitive strain injury, cumulative trauma disorder, musculoskeletal disorder and injury, upper extremity disorder, upper limb disorder, and occupational overuse syndrome, as these are common terms used to identify these conditions. To enable me to understand the relationship of these conditions to work and health, these terms were linked with phrases including management, management strategies, work, psychosocial, qualitative studies, quantitative studies, nursing, treatment, return-to-work, disability, and reporting. To complete my understanding of managing similar types of chronic musculoskeletal conditions, search terms such as arthritis and fibromyalgia were used.

The review of the literature is presented in six sections. Research has attempted to identify why workers do not disclose and report an injury, illness, or disability, and those issues are addressed in the first section. Since many workers may decide to leave work for some periods due to surgery or treatments related to these conditions, the second section addresses predictors of work absence. Work absence is often related to

compensation issues that are discussed in the third section. Often tied in with compensation are 'Return to Work' (RTW) programs that are described in the fourth section. Since each workplace may have a unique way of dealing with illness, injuries, and disabilities, factors related to disability management and workplace culture are found in section five. Combining social life with working life presents challenges for workers who have developed a WMSD, and these issues are addressed in the sixth section of the review. Finally, a summary of findings concludes the chapter. This chapter provides a review of research to inform the study of how workers who have developed a WMSD may be able to remain at work and the strategies they have used to make this possible.

Disclosing and Reporting an Injury, Illness, or Disability

Making a choice to disclose and report an injury, illness, or disability is a complex process and influenced by various factors. Risk of discrimination, lack of social support, and loss of employment have been found to affect a worker's decision to disclose or report an illness, injury, or disability (Lacaille, White, Backman, & Gignac, 2007). Emotional support at the workplace is another issue workers have considered in disclosure (Munir, Pryce, Haslam, Leka, & Griffiths, 2006). Workers who perceived negative reactions from others tended to hide or mask disabilities, rather than disclose or report them (Linton & Buer, 1995; Munir, Leka, & Griffiths, 2005; Schur, Kruse, & Blanck, 2005).

Lack of overt signs and symptoms of these conditions can cause problems for workers in disclosing or reporting. Those suffering from invisible and stigmatizing conditions were less likely to disclose (Corrigan & Matthews, 2003). In addition,

workers fearing that they might be viewed as a burden to co-workers or employers often choose not to disclose (Munir et al., 2007). Fearing retaliation (Pun, Burgel, Chan, & Lashuay, 2004), being viewed as a costly or less-valued employee, and receiving preferential treatment from employers, also deterred workers from disclosing, reporting, or asking for assistance (Lacaille et al., 2007; Matt & Butterfield, 2006; Munir et al., 2005). Many workers blamed associated symptoms on the normal aspects of aging and therefore did not report or disclose (Tuzun, 2007). Some research has indicated that when workers become more aware of their conditions, they are more likely to report or disclose (Yassi, Sprout, & Tate, 1996).

A worker's perception of autonomy in the workplace has had an impact on a worker's need to disclose an injury, illness, or disability. Autonomous workers, such as academics who often have flexible working schedules and are able to work from home, have been less likely to disclose or report, while workers who required accommodation and support at work have disclosed, yet have controlled the amount of information that was disclosed (Munir et al., 2005).

Access to alternate employment also has contributed to a worker's decision of whether or not to disclose or report an injury or illness. During periods of high unemployment a worker may be less likely to disclose an injury because high unemployment could add to the difficulty of finding alternate employment. Job security and loss of earning capacity reportedly influenced a worker's decision to remain on the job despite illness or injury (Baldwin, 2004; Marshall, 2006). If a worker was

unconcerned over job prospects, this was found to cause less anxiety and discomfort for workers who had developed WMSDs (Carayon, Haims, Hoonaker, & Swanson, 2006).

Predictors of Work Absence

The number of workers failing to report for work due to illness, injury, or disability has increased over the last decade (Statistics Canada, 2006). While there is a gap in research on how workers who have developed WMSDs manage to remain at work (van Tulder, Malmivaara, & Koes, 2007), and little research on the process of returning to work after an injury, illness, or disability (Andersen, Kines, & Hasle, 2007), research on predictors of work absence is more common. The latter research gives some insights into why workers may or may not be able to remain in the workplace, when they have developed these conditions.

Some of the predictors of work absence include being female, being older, experiencing poorer overall general health, having a heavy workload, and visiting a specialist (Lotters & Burdorf, 2006). Perception of harm at the workplace (Bockerman & Ilmakunnas, 2008), increased workload, lack of confidence in the ability to work (Munch-Hansen, Wieclaw, Agerbo, Westergaard-Neilson, & Bonde, 2008), as well as excessive overtime (Breslin et al., 2008) also predicted work absence after developing a musculoskeletal condition. Pain, difficulty sleeping, and mood disturbance were among the factors associated with work absence for back pain sufferers (Dionne et al., 2005). In studies of individuals with rheumatoid arthritis, a painful chronic musculoskeletal condition with symptoms similar to WMSDs, inflexible schedules, lack of control over

pace of work, and limited autonomy contributed to work absence (Lerner, Allaire, & Reisine, 2005).

Being absent from work after an illness, injury, or disability often depends on workplace factors. Belonging to a union can provide workers with a sense of protection as jobs often are safe-guarded, wages supplemented, and absenteeism treated without reprimand (Morse, Punnett, Warren, Dillon, & Warren, 2003). However, workers who feel financially stressed and not adequately compensated during an illness or disability often remain working or return to work too quickly after illness or injury (Franche & Krause, 2002).

Lack of absence from work does not necessarily mean lack of disability or pain for affected workers (Beaton et al., 2000; Feurerstein & Harrington, 2006; Feurerstein, Shaw, Lincoln, Miller, & Wood, 2003). Workers with WMSDs often have recurrent symptoms, such as pain, after an initial work absence (Alexopoulos et al., 2003). It would be helpful to understand if the conventional full-time sick absence, benefits workers who have developed these conditions, or if offering part-time sick absence and part-time work, would be more advantageous. A randomized controlled trial is underway in Finland to discover the effectiveness of early part-time sick leave in workers who have developed WMSDs (Martimo et al., 2008).

Compensation Issues

Workers' compensation and other insurance programs were developed to assist workers who have been injured on the job (Schultz et al., 2007). These programs allow for some financial compensation for lost work, as well as coverage for some of the costs

of treatment for injuries. In NL 97% of the workforce is covered by Workers' Compensation and many injured workers have availed of these services, including those with WMSDs (Institute for Work and Health, 2007). A third of workers' compensation costs in private industries are due to WMSDs (Barr & Barbe, 2002). However, not all workers who have WMSDs will apply for or receive assistance (McBeth et al., 2003; Zakaria et al., 2002). In 2004 it was estimated that 40 to 50% of work-related injuries in Canada went unreported (Thompson, 2007) and underreporting complicates the proper documentation of the number of injured workers (Scherzer & Newcomer, 2007). Many workers will continue to work at their jobs despite increasing symptoms and pain (Evanoff et al., 2002; Pascarelli & Hsu, 2001).

Although workers have a right to be compensated for WMSDs they must first provide evidence that their injury is work-related. If they are unable to demonstrate that connection, workers are then often compelled to continue working in the same job, with ongoing exposure to the same stressors, thus exacerbating their conditions (Karsh & Smith, 2006; Lippel, 2003). An important question is why injured workers either avail, or not, of these services. Limited research has been done on this important question. Severity of injury that takes into consideration factors, such as length of time the person has to stay off work, medical restrictions, and general health has been found to be important in whether or not a worker will apply for and receive compensation (Rosenman et al., 2000). Physical therapists who developed WMSDs reported that dealing with the compensation system was frustrating and expressed the view that their credibility was often questioned. They felt that both the administrators, within the compensation system,

and physicians, who needed to provide documentation, were in positions whereby they could either substantiate or rebuke their claims (Cromie, Robertson, & Best, 2003).

The compensation process often involves multiple medical exams to support the legitimacy of a condition and results in delays in processing that have an impact on injured workers. In fact, the burden of proving these conditions can be so great that it discourages many workers from filing claims. Perhaps many workers do not file claims because they have a lack of knowledge of policies, procedures, and regulations concerning the compensation system. A study by Kirsh and McKee (2003) indicated that workers reported that they had little or no knowledge of their rights and benefits as workers at the time of their injuries. Job protection is another factor in filing claims. Unionized workers are more likely to file claims than non-unionized workers (Morse et al., 2003). However, there are other factors that have been reported. Older workers, lower income workers, and workers who are dissatisfied with their co-workers, are more likely to file claims (Rosenman et al., 2000).

Return-to-Work Programs

Injured workers will need to decide, once they have been off work and have received compensation, whether or not they will return to work. Return-to-Work (RTW) programs are designed to accommodate the injured worker who is deemed healthy enough to resume employment; often with limitations and modifications to previous work. Modified work arrangements with accompanying organizational support, open communication, and trust in their employers have resulted in an increased number of injured workers returning to work (Amick et al., 2004; Baril, Clarke, Friesen, Stock, &

Cole, 2003; Crook et al., 1998; Gard & Larsson, 2003; Gard & Sandberg, 1998; Nordqvist et al., 2003; Ossman et al., 2005; Ostlund et al., 2001; Shaw, Robertson, Pransky, & McLellan, 2003).

Some criticisms of RTW programs are that they do not always result in decreased workload or provide adequate support to make them satisfying to workers (Guzman et al., 2002; Sampaio et al., 2003; Van Duijn et al., 2004). Some workers misinterpreted the purpose of the programs and believe that modified work suggested guarding "fragile body parts" (Loisel et al., 2005), rather than an attempt to keep the worker connected to the workplace. Other areas of dissatisfaction for workers with RTW programs have been inadequate information about the process, limited opportunities for input into the program, and inadequate accommodations (Armstrong et al., 2005; Kirsh & McKee, 2003).

Several studies have found that workers who have positive outlooks in their ability to return to work are more successful in RTW programs (Adams & Williams, 2003; Cole et al., 2002; Waylett-Rendall & Niemeyer, 2004). Fear of re-injury, poor understanding of their injuries, and a lack of self-awareness have been related to being less successful in these programs (Feurerstein et al., 2000; Grahn, Stigmar, & Ekdahl, 2001; Pransky, Robertson, & Moon, 2002; Sullivan et al., 2005). Age of the worker is also a factor and some older workers may need a longer recovery time to be successful in RTW programs (Stikeleather, 2004). The nature and severity of the worker's injury are factors in whether or not workers decided to return to work (Cole et al., 2002; Cole &

Rivalis, 2004). The longer a worker stays off work the less the probability of a worker returning to work (Arnetz, Sjogren, Rydehn, & Meisel, 2003).

Returning to work does not always mean that the period of disability has ended for workers with WMSDs. Studies have found that many of these workers continue to use the health care system even after they return to work (Koehoorn, Cole, Hertzman, & Lee, 2006; Proctor et al., 2004). Up to 26% of workers with WMSDs reported injury-related absences after returning to work (Baldwin & Butler, 2006). A failure to effectively deal with their conditions at work may cause workers to leave work permanently and become further disabled (Wilson, 2002).

Disability Management and Workplace Culture

Disability management is a process designed to help individuals deal with illness, injury, or disease to effectively participate in the work environment (Davis, 2005). WMSDs should be dealt with in the same way as other painful conditions (Littlejohn, 1995). To manage musculoskeletal conditions or disabilities at work, workers set limits (Gustafsson, Ekholm, & Ohman, 2004), seek assistance (Westmorland & Buys, 2004), work shorter hours and take rest breaks (Crook et al., 1998), and compensate for a weaknesses by using another body part, such as grasping a tool with another hand to complete work tasks (Bialocerkowski, 2002).

The level of employer support and degree of flexibility were found to be instrumental in dealing with disabilities, such as WMSDs. Workers who could arrive late, leave early, and receive accommodations and support from their employers and co-workers felt they could better deal with their conditions at work (Adams & Williams,

2003; Grayson, Dale, Bohr, Wolf, & Evanoff, 2005; Munir et al., 2005; Stikeleather, 2004; Westmorland & Buys, 2004). In contrast, workers who perceived a lack of support felt less positive in their abilities to deal with these conditions (Cole et al., 2002; Van Duijn et al., 2004). The level of comfort and security with their employers was also important for workers with disabilities. Individuals who were encouraged to express their limitations felt more successful (Gustafsson et al., 2004), whereas workers who feared retaliation from their employer expressed a lack of security (Pun et al., 2004).

Forcing workers to take sick leave, preventing modifications or accommodations, and being faced with staff shortages can overwhelm workers and that can affect success in dealing with work (Adams & Williams, 2003; Sampaio et al., 2003). A worker who feels unsupported and unable to self-schedule breaks may have a poorer ability to effectively problem-solve (Torp, Riise, & Moen, 2001). Using active coping strategies, such as modifying work tasks or position (Adegoke, Akodu, & Oyeyemi, 2008), were found to be more effective than using passive strategies such as avoiding activities at work (Linton & Buer, 1995).

The culture at work can have an impact on disability management. Workplace culture is based on assumptions, meanings, and values that play out in the everyday life of workers (Schur et al., 2005). Managerial attitudes may influence the way in which workers are hired as well as how disabilities are managed. The manner in which injured or disabled workers are perceived within a workplace, and whether or not they are accommodated at work in a meaningful way, affect the success of returning to work after a worker is injured on the job (Krause, Dasinger, & Neuhauser, 1998; Waylett-Rendall &

Niemeyer, 2004). A workplace culture that "values stoicism in the face of hard work…" (p. 543) may result in underreporting, miscommunication, conflicts, poor accommodation, and reduced support for injured workers (Faucett, 2005).

According to Schur and associates (2005) many disabled workers become "superworkers" attempting to cover up the perception that they may be inadequate in the workplace. This is often precipitated by negative responses from co-workers who resent job modifications for individuals with disabilities. Accommodations usually require some cooperation and support from coworkers. Co-workers are less likely to see an accommodation as warranted if the disability is invisible, thus resulting in marginalization of the injured worker (Schur et al.). Teamwork can have positive effects and acts as a buffer for workers with WMSDs, however, pressures to keep up with team members may present barriers for injured workers (Carayon et al., 2006).

Predominant views of illness and disability in the workplace influence the way that injured or disabled workers are treated. The social organization of employment and workplace environments are predominantly based on assumptions of the "working body" as an "able body" (Moss & Dyck, 2001), and although we can no longer overtly discriminate against workers on the basis of disability, and advertise for able-bodied workers, we have a long way to go to truly accommodate injured or disabled individuals in most workplaces. Individuals with disabling conditions are often left feeling tokenized, patronized, overprotected, and discriminated against at work (Smith-Randolf, 2005). Very few studies have examined how employers' and employees' attitudes and

company policies can influence how injured and disabled workers are socialized into the workplace environment (Schur et al., 2005).

Social Impact of WMSDs on Workers' Lives

WMSDs not only affect the quality of a person's work-life but the quality of his/her personal life because of problems like financial difficulties (Beardwood et al., 2005; Bialocerkowski, 2002; Manktelow et al., 2004), challenges at home (Miller & Timson, 2004), decreased quality of life (Gillen, Jewell, Faucett, & Yelin, 2004), challenges in activities of daily living (Keogh, Nuwayhid, Gordon, & Gucer, 2000), and the maintenance of recreational activities (Manktelow et al.). Injured workers frequently have to cut back on socializing and leisure activities to have the energy to work. Workers suffering from arthritis found that anticipatory coping and cutting back on social and leisure activities were necessary to remain working (Gignac, 2005).

After developing WMSDs workers may be faced with social isolation, sleep disturbances, and family role disruptions (Beardwood et al., 2005). Life after developing a WMSD has been described by individuals as being 'sentenced to life without parole', where involvement in household chores, hobbies and crafts, sports and leisure activities, gardening, and shopping were affected (Ewan et al., 1991). Individuals are confronted with emotional challenges (Moliner, Durand, Desrosiers, & Coutu, 2007). Planning social activities are difficult when faced with the uncertainties of exacerbations surrounding these disorders (Beaton, Tarasuk, Katz, Wright, & Bombardier, 2001).

Summary of Findings

Although we have learned much about WMSD, this condition continues to pose challenges for workers. The fact that many of these workers chose not to disclose or report these conditions suggests that there are obstacles to disclosing and reporting these conditions. Although it is an individual's right to choose whether or not to disclose or report an injury, illness, or disability, this can influence whether or not they receive the necessary support. Work absence after an illness or injury, such as WMSD can be complicated if a worker is not protected by a union or policies that protect injured workers. Even though the Worker's Compensation system was intended to help injured workers, accessing it involves challenges. Being able to provide evidence of a condition that has few objective findings and many subjective complaints is challenging. The literature suggests that there are both pros and cons to RTW programs. These programs, although shown to be effective, can present challenges when an individual's need to be accommodated affects another individual's need for fairness and equality in the workplace. Managing disabilities at work and providing a workplace culture that embraces diversity in its workforce are responsibilities of the employer that requires careful examination, especially when workers become disabled and are looking for opportunities to remain working. The impact that WMSDs have on workers' lives outside of working hours also requires consideration. Many times workers have few resources left at the end of the working day to enjoy social and recreational activities to which they are accustomed. Little is known about how individuals who have developed a

WMSD are able to remain at work and what strategies they can use to make this possible. This study can contribute to that body of knowledge.

CHAPTER 3

METHODOLOGY AND METHODS

Grounded theory is very beneficial in nursing research to understand illness behaviors and uncover new theories rather than simply supporting or validating existing ones (Strauss & Corbin, 1998). It is especially useful to understanding how individuals cope with illnesses and chronic conditions and to exploring social processes in human interactions (Morse, 2009). Hence, grounded theory is the method that has been chosen for this study.

The first section of this chapter will provide a brief overview of grounded theory methodology (Strauss & Corbin, 1998). The second section outlines the methods used in this study, including participant selection, setting, data collection and analysis, trustworthiness, and finally, ethical considerations will be discussed.

Overview of Grounded Theory

Grounded theory was developed as a systematic way of generating theory from data collected in a particular substantive area (Glaser & Strauss, 1967). In grounded theory the assumption is that all concepts pertaining to a particular phenomenon have not yet been uncovered and can be discovered by using everyday behaviors or experiences to generate theory (Glaser & Strauss). Through the use of grounded theory techniques, the researcher is able to develop a theory based on individual participants' experiences with a real life event or events, and through data collection and analysis derive a theory. Data collection and analysis are interactive processes, rather than separate activities. Theories that are developed through this methodology fit the area that is being studied, and include

Variation, so as to be applicable to a variety of contexts, and provide a basis for actions (Strauss & Corbin, 1998).

The key to grounded theory is to generate enough in-depth data to illustrate patterns, concepts, categories, properties, and dimensions of the given area under study (Strauss & Corbin, 1998). A constant comparative method of data analysis is used in grounded theory whereby data are collected, coded, and analyzed simultaneously, beginning with the first interview and continuing until data collection is completed. Data are examined line by line identifying processes and using three levels of coding. Level one coding or 'open coding' is where data are examined line by line, writing as many codes as necessary in the margins of the transcripts. The identified codes are called substantive codes and use wording of the participants, rather than concepts. Level two coding is called categorization. Level one codes are put into categories, ensuring all categories are mutually exclusive, to more fully describe what is going on in the phenomenon. Finally, level three coding takes place wherein a central theme is identified (Speziale & Carpenter, 2007). A central theme or the discovery of the basic social process is fundamental to developing a substantive theory using grounded theory methodology.

The literature forms an important part of theory development (Strauss & Corbin, 1998). In grounded theory the literature review is partly delayed to ensure that any preexisting concepts do not shape analysis and theory formation. After the research has been completed the researcher returns to the literature to find studies to compare and contrast with current findings. In this way the grounded theorist uses both deductive and

inductive reasoning to inform theory development. How well the researcher reports the participant's meanings of events or behaviors, based on words or actions, as well as accuracy of the data, as represented in the findings, provide trustworthiness to grounded theory (Glaser & Strauss, 1967; Strauss & Corbin).

Research methods in keeping with an understanding of grounded theory were employed in this study to gain an understanding of how workers with WMSD remain at work and the strategies used to make that possible. The methods of grounded theory were adapted to assist with the analysis of a large amount of unstructured and semi-structured interview data. They were used mainly to provide a means of thinking about this data to develop a model of the process studied (Morse, 2009). These methods are described in the following section.

Participant Selection

To meet the inclusion criteria for this study, I needed individuals over the age of 19 who had developed WMSDs and were currently working. To obtain this sample of individuals I contacted a director of an occupational health and safety clinic who works with individuals who have developed WMSDs and helps them with their workplace activities. I explained my research study and asked for her assistance in obtaining participants. She agreed to post brochures and posters in her clinic (see Appendix A) and that resulted in two volunteers. Two interested workers from the clinic, who were willing to take part contacted me by phone and we made arrangements for a convenient time and place to conduct the interview. A second source of participants was through an office setting, wherein individuals who knew about my work through a participant, volunteered

to take part in the study. Three participants from this setting contacted me directly. Because I wanted to include a wider variety of participants, another source was through contact with an occupational health nurse at a food processing plant. This particular plant was reported to have a number of individuals who had developed WMSDs because of the nature of the work that is performed there. An occupational health nurse at the plant agreed to post my brochures and posters. Twenty individuals at the plant who were willing to take part in the study contacted the occupational health nurse and we mutually agreed to schedule interview times at the plant during the workday. Recruitment and interviewing of workers took place over a period of twelve months. As a result, participants came from a number of workplaces and occupations.

Setting

Interviews were conducted in a setting that provided comfort, privacy, confidentiality, was acceptable to the participants, and as free as possible from any interruptions. Interviews with five of the participants were conducted in a private seminar room at the university. Interviews with twenty of the participants were conducted in a private board room at a workplace.

Data Collection and Analysis

Data were collected first through open, unstructured, face-to-face interviews. I began by asking the participants how they managed to remain at work despite their injury and allowed them to proceed with that description. I developed some prompts to assist with the interviewing (see Appendix C), and as the study progressed and categories of responses were identified, I used more focused semi-structured questions in the

interviews (Appendix D). Participants were asked to describe when they first noticed symptoms, any help or treatments that were sought, and the effectiveness of the treatment. A focus in the interviews was on how they were able to remain at work. Interviews lasted approximately one hour and concluded when participants had no new information to tell me and I had clarified any areas that were not clear or more fully described. They were audio-recorded with written and verbal permission from each participant and immediately transcribed.

Data analysis began as soon as each interview was completed and transcribed. Using line by line analysis I began coding each transcript by writing substantive codes in the margins of the transcript using open coding. I then developed those codes into categories to capture the repeated patterns of behaviors that were emerging from the data. Next I began organizing the data into more discrete categories and formulating these into the developing theory. As I collected data I noted similarities in what the participants were saying and wrote memos to that effect.

When categories appeared to be saturated, and no new categories were being identified, I began sorting out relationships using diagrams and coded for phases and sub-phases, noting any variations. One central category "constant negotiating," to which all the categories related, was apparent. It became the core category. The process model, working with WMSDs, was continually redesigned until the final model was developed that explained the process of how workers were dealing with WMSDs in the workplace and the strategies they used to make this possible. I returned to the literature to see if any

studies had been done on negotiation and dealing with illness or disability in the workplace in order to compare my findings with other research.

Trustworthiness

It is important to establish the trustworthiness of the research or to what extent it can be claimed that the findings are an accurate account of the experience studied (Speziale & Carpenter, 2007). Strauss and Corbin (1998) outlined a number of areas to evaluate when considering a grounded theory study and to judge to what extent the substantive theory had explanatory power about the particular group or population studied. In order to establish trustworthiness of my research findings I followed the criteria for evaluating the research process and findings of the study as indicated by Strauss and Corbin (1998). I presented my preliminary findings at a national occupational health and safety research conference where my findings were discussed and confirmed, with minor modification, by researchers with expertise in the field of musculoskeletal disorders within the context of occupational health and safety. We discussed the preliminary model I had developed. I also presented preliminary findings at a nursing research conference where I learned that nurses who had developed these conditions could relate to the preliminary model of findings.

Research Process

Participants had to meet the criteria of a WMSD as outlined by Saunders (1997) for example, have a physical or subjective finding of the condition and take or receive treatment for this condition. They also had to continue with paid employment. Theoretical sampling was used in the study and proceeded on the basis of including

workers with different occupations (professional versus non-professional), skills (skilled versus unskilled), workplace control (autonomy versus lack of autonomy for work processes), and support (support versus unsupportive supervisors).

Data collection continued until no new categories were developed thus ensuring data saturation. The model and core category were developed in consultation with my thesis supervisors, both experienced in grounded theory methodology and with expertise in work and health. Additionally, I was able to identify and account for the variation within the phases and sub-phases of the model.

Ethical Considerations

This research was conducted with full consideration for rights of human subjects and was in keeping with the Tri-Council Policy Statement (1998) of the Canadian Institutes of Health Research (CIHR), the Natural Sciences and Engineering Research Council (NSERC), and the Social Sciences and Humanities Research Council (SSHRC), that outlines the principles of research involving human participants. At the beginning of each interview the study was explained and written consent obtained from each of the participants (see Appendix E) to ensure an informed consent. The participants were told that they were not required to participate, could stop the interview at any time or refuse to answer any questions, and assured that whether or not they participated would have no bearing on their employment status or record thus, reinforcing the voluntary nature of their participation. The participants were assured confidentiality, and advised that although the information they provided would be published, their names would not be associated with any publications. They were each given a copy of their signed consent

that included a statement of their rights as participants in the research and the names and phone numbers of whom they could contact should they have any questions. Interviews were conducted in a private setting. My research focused on workers and not on a particular workplace or organization, and while health professionals and employers assisted with recruitment and supported my study, I have not identified them in the study to maintain confidentiality of the workplaces as well as the workers.

Taped interviews are kept in a locked cabinet in a locked room at the Nursing Research Unit at Memorial University of Newfoundland, School of Nursing. All identifying information including individual and organizational names was removed from the interviews during the transcribing process. All interviews were coded and consent forms stored separately from the data. Interview tapes will be kept for a five year period following publication of data and at that time can be erased.

CHAPTER FOUR

FINDINGS

This chapter presents the findings from the study. The first section is a brief description of the individuals who took part in the study. The second section describes the phases of the process "working with work-related musculoskeletal disorders" as well as the theoretical model of that process. The core category is identified and described in the third section. Finally, a summary of the findings concludes this chapter.

Description of Participants

The participants were nine female and sixteen male workers with self-reported WMSDs for a total study sample of twenty-five workers ranging in ages from approximately twenty-five to fifty-five years. These workers had been working in their current jobs between five and twenty-four years, for an average of ten years. Seventeen workers reported they had a WMSD. Four workers had been told by a physician that they had "soft tissue injuries," three workers did not have a specific diagnosis or label, and one worker had been injured on the job, as well as having a WMSD. All workers met the following criteria for a WMSD in that either they had a physical sign of the disorder (e.g., loss of motion, swelling, or deformity), or experienced one or more subjective symptoms (e.g., numbness, pain, or stiffness), and the worker had acted on the condition by seeking medical help, self-medicating, or requesting, or having work modification because of the condition (Sanders, 1997). Twenty of the workers were currently working at a food processing plant and took part in a number of work processes

at that plant. These jobs included butchering, packing, hanging, sorting, and cutting. The other five workers were performing primarily office-related duties that included filing, writing, and using a computer. The sample included professional, non-professional, skilled, and non-skilled workers. All workers reported that their jobs included deadlines, with some stricter than others. They often felt pressured to keep up with their work. Overall work satisfaction was high for all workers. This profile of participants enabled me to gain perspectives from a range of workers who had developed WMSDs and were able to remain at their regular work.

Introduction to the Process of Negotiating

In this study individuals who had developed WMSDs and were able to remain working were found to engage in a complex and dynamic process in which they had to deal with occupational, health, and social issues. The process model that was developed is identified as *Constant Negotiating: Working with Work-Related Musculoskeletal Disorders (WMSDs)*. There were five main phases that included becoming concerned, getting medical help, dealing with the workplace, making adjustments to lifestyle, and finally, taking charge. The various sub-phases of each of the phases will be described under each main phase. The core category central to the process was *constant negotiating.*

There was variation within each of the phases and sub-phases and that is captured in the findings. Most of the variation was noted in phases two, three, and four of the process as workers were actively engaged in getting medical help,

dealing with the workplace, and making adjustments to their lifestyle. Nevertheless, workers used the strategies identified in the model to remain in the workplace.

The process is not linear but does begin with a concern for what is happening to their bodies and with their health and ends with the workers achieving a successful negotiation through all the phases in that they feel they are the ones in charge of the situation. The third, fourth, and fifth phases of the model overlap as many of the strategies employed in these phases occurred together. There is also a bidirectional flow between the various phases as a worker may move back and forth between the phases depending on what was happening with their WMSD. The model developed from the findings is presented in Figure 1.

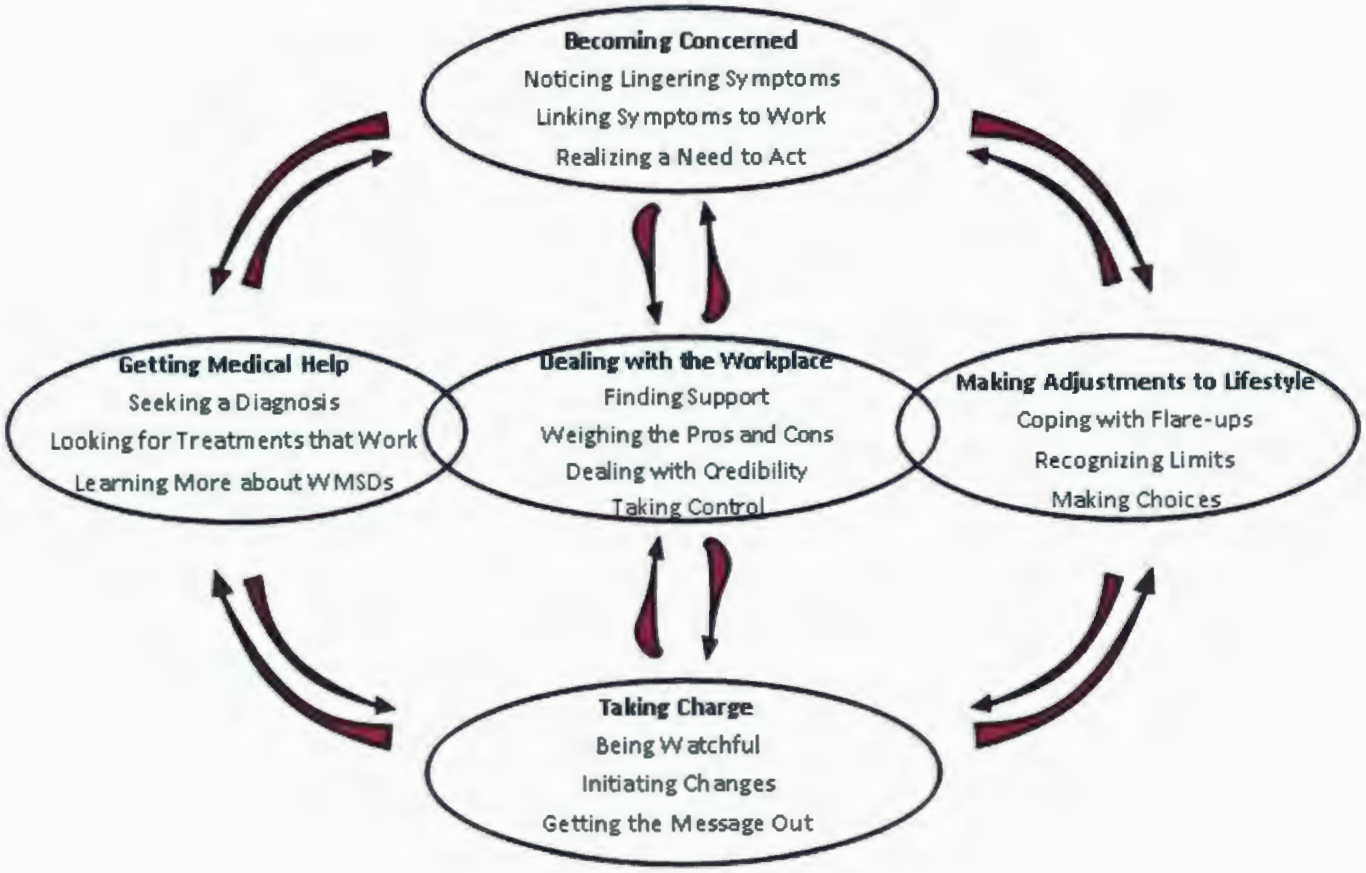


Figure 1. Process of Negotiating

Phase One: Becoming Concerned

The first phase in the process is becoming concerned. This phase began when the workers started to become concerned about the reoccurring and episodic musculoskeletal symptoms they were experiencing. The nature of their symptoms did not fit the pattern of an acute injury and they began to suspect something else must account for the problems they were having:

I know what it means to get hurt – you get hurt but it gets better....

They were not getting better and noticed their symptoms persisted. They also began to see a connection between work and the symptoms occurrence and severity. However, they began to realize that they needed to do something about the symptoms, because of the limitations the symptoms were imposing on their work and outside activities. Included under this phase are three sub-phases: noticing lingering symptoms, linking symptoms to work, and realizing a need to act.

Noticing Lingering Symptoms

In this first sub-phase of becoming concerned, individuals began noticing changes in the quality and quantity of their symptoms. They also noticed that the symptoms did not necessarily go away with usual attempts to treat them, whereas previously these attempts had helped with the symptoms. They were beginning to notice recurring and persistent symptoms that included typical signs and symptoms of WMSDs such as tightness, swelling, tingling, stiffness, numbness, redness or skin discoloration, loss of sensation, or a feeling of pins and needles,

burning, heaviness, weakness, and loss of grip and strength. Workers also described pain in various ways such as shooting, sharp, or associated pain with movement. Others described their pain as a feeling of tenderness, soreness, burning, throbbing, nagging, unbearable, severe, or as an achy sensation similar to a toothache.

Due to the nature of WMSDs, with gradual development and episodic symptoms, individuals were often uncertain exactly when their symptoms began or when they started to be concerned. Some estimated the problems started a few months back and still others thought their condition started years ago. Again, unlike acute injuries, these injuries did not have a clearly demarcated beginning, so it was often difficult for workers to clearly describe the onset of a WMSD or pinpoint when they became concerned. Rather a typical description was:

> *I probably became aware that something was not quite right about two or three years ago. There was a different feeling in the little finger, the ring finger, and the index, and middle finger on both hands, but worse on my left. I sort of didn't pay a lot of attention to it...*

Early symptoms did not cause too much concern nor did they seem particularly worrisome. There was some intermittent discomfort, but symptoms were alleviated with rest or by avoiding certain activities. Some workers became aware that symptoms worsened with certain activities. "*If I'm doing something repetitively for an hour it* [my hand] *gets really tired...* " so usually the person made adjustments to these activities. A few had even received some form of treatment from a family doctor. It was only when the symptoms persisted and

actually started interfering with work and other daily activities that the condition seemed more problematic. It was no longer looked at as a temporary problem. Many reported that they only became really concerned when their symptoms worsened, or they did not get relief, or they had an episode of pain that interfered with their activities. Some described the latter as a time when symptoms were becoming incapacitating or as a *"crisis point"* in the process.

> *It had become really bad. I could hardly turn my neck at all. That was I think a crisis point in the whole thing. I can't do work. I'm in pain. I'm short* [tempered]. *I'm pretty cranky with people. I'm not happy about it...*

Symptoms were worse during the night, in the morning, or in the evenings, predominantly after working. The symptoms would prevent individuals from going to sleep or wake them up during the night. Sometimes they would think the pain was of a more serious nature.

> *The first time I noticed something wrong was one day when I had a pain going up my arm. Since I didn't know the difference I really thought I was having a heart attack. I had a tingling in my fingers and numbness there...*

Conversely some of the injured tried unsuccessfully to normalize or dismiss the symptoms by attributing them to getting older.

> *Maybe it's arthritis. I associate these things with aging. It's frightening. I really honestly don't know what it is but there is definitely something going on there. This is really bothering me to the point where I'm worried...*

It was the fact that the symptoms seemed to remain or as some had said, *"to linger"* after they stopped working or doing some other activity that seemed

to create concern among the workers. They identified these as "*lingering symptoms*" because the symptoms remained even after they attempted to relieve the symptoms. It was at this time they started to see a pattern to their symptoms or noticed a disruption in routine activities because of what they were experiencing.

Typical patterns recounted were finding symptoms worse or more bothersome at night when trying to fall asleep or being awakened at night because of tingling or heaviness in the upper limbs. A few tried to look for causes such as falling asleep with their hands under their heads as the cause of the numbness or tingling. Some began to notice a symptom at work and blamed it on the cold environments in which they were working.

Linking Symptoms to Work

Information at the workplace played a part in workers becoming concerned. There were pamphlets and posters at some of the workplaces and they knew of other co-workers who had developed carpal tunnel and other WMSDs. A few could even recall learning about these conditions in workplace courses on ergonomics or health and safety. This information, coupled with some of the symptoms they had, made them aware that they might be developing a WMSD. This awareness created some feelings of anxiety, concern, worry, and uncertainty.

> *So you don't necessarily do what you need to do* [about problem] *'cause I think it is a longer term problem, but then you start to wonder, "Is there anything else wrong? Is it just because I'm doing this type of activity and this is what's causing the problem?" Or you wonder is it* [activity] *doing any damage?*

In this sub-phase workers described observations they made related to their work and symptom experience. In fact, some made changes to how they worked or purchased new equipment, such as a gel mouse for a computer, but still their problem seemed to persist.

> *It's mostly my wrist and elbow* [affected] *because once it gets to my elbow I'll just stop* [working on computer] *because I have to. I can't let it go. If it goes up half my elbow, then it'll definitely go to my neck and it'll really be bad then, like I won't be able to go back to it for longer, so I try to stop it earlier so I can go back to it* [work]…

Whether it was being aware from information they had received that certain jobs are linked to WMSDs, knowing these problems were present in other colleagues at work, or noticing the patterns of their symptoms in relation to work, or a combination of all of these factors, the workers began to establish a link between the WMSD symptoms and their work. Although they began to see a pattern to their symptoms in relation to work, they did admit it was difficult at the time "*making the connections.*"

It was when the participants reflected on the problems they were experiencing that many began to describe the symptoms in relation to a particular work activity, such as they first noticed the problem when involved in "*hard lifting,*" "*constant computer use,*" or some similar activity. However, it was usually in retrospect that they were aware of the link to work because of the episodic nature of the symptoms. One of the factors that sometimes delayed

linking of symptoms to work was that they experienced the pain or other symptoms outside of the workplace.

> *The first symptom was pain in the arm in the middle of the night. The pain was so unbearable where you wake up and you practically hold on to your arm and you try to alleviate the pain. In a matter of time it subsided but that was the routine...*

They described jobs that often consisted of performing repetitive work, such as constant pushing, pulling, reaching, standing, or sitting while attempting to keep up with fast-paced and demanding work environments. They recognized as well that WMSDs were common conditions among other workers and some even described their job site as "*injury-prone.*"

> *All the work here is repetitive. You're stuck in one spot for eight hours, standing in one spot, not moving. You've got some soreness at the end of the day and it takes its course from there. Continuous motion, the line is so fast out there and you're trying to keep up, trying to keep pace...*

Some workers did not think of their problems as related to work because they had no problems in previous jobs. One worker recounted how he had worked in a job for twenty-five years and had no problems with his hands until he started working in his present job. He had been in this new job less than a year but had permanent damage to his hands. Other workers described the set up of workstations that were ill-fitted to their height and how they had to overreach for objects. They would identify "*poor ergonomics*" as a cause of injuries. One described it as a "*general wear and tear of work.*"

Realizing a Need to Act

The final sub-phase in becoming concerned was when individuals realized that if they were going to get help with this problem or indeed help themselves, they would need to take action. It was usually when their pain or other symptoms were more frequent, more severe, or constant that they realized they needed to do something about the problem. Many times this awareness was because their symptoms were interfering with other activities.

> *I couldn't move my hands much – couldn't grip. There were lots of things I couldn't do, for example driving. I couldn't grip the wheel and I had to use my fingers for driving. I didn't know where my hands were because I had no sensation...*

Many described similar instances where they dropped hot beverages or could not take part in leisure activities such as sports or playing a musical instrument. Others were prompted by a spouse or partner to do something, because sleep disturbances resulting from the WMSD also affected that person's sleep.

Many of the injured workers felt they should have acted earlier because of the seriousness of the problem. At this point they reflected on the insidious nature of WMSDs and regretted not seeking help sooner. It was not that these individuals had not done anything to help themselves; rather it was that forms of self-treatment were not effective or were no longer effective. Workers described that although they had treated their injuries at home with things like heat and ice

or even by changing activities at work they were still not able to alleviate symptoms, such as pain, which often kept them awake at night.

> *It really didn't get better...I thought there was something pathologically wrong...as the day went on it never went away completely...so that's when I realized something was not really right – this is not as it should be – I can't sort of fix it myself anymore – there's nothing more I can do...*

By this time workers had used up all their own resources and found their usual means of dealing with these conditions were, at best, not working anymore and at worst had been ineffective all along. It was somewhere at this point that workers entered the second phase in the process by getting medical help.

Phase Two: Getting Medical Help

The second phase was when individuals began to look for and get medical help as opposed to mainly the self-help they engaged in previously. At this point in their experiences most had attempted self-treatments such as exercising, applying heat or ice, and taking over-the-counter medications, but these efforts were not successful in alleviating symptoms. Not being able to fix the problem themselves, workers began looking elsewhere for answers and the healthcare system was often the first place where they sought assistance. The sub-phases in this phase were seeking a diagnosis, looking for treatments that worked, and learning more about WMSDs.

Seeking a Diagnosis

In this sub-phase the participants were seeking a diagnosis primarily from their general practitioner. Seeking a diagnosis was not easy in that they had

multiple subjective symptoms and few objective findings. Individuals often had to wait for diagnostic tests that were scheduled far into the future. Some workers diagnosed with carpal tunnel syndrome described long delays in having to wait six or eight months before seeing a medical specialist and then waiting another six months for surgery. Many were frustrated with these long delays and challenges in getting help. Finding medical help could be difficult because of the way the general practitioner dealt with the problem.

> *The doctor always treated it as a discreet new injury. Physicians need to localize it not just in the area of the body, but in time. There are those acute episodes but there are those problems that are occurring longer term...*

Getting a diagnosis could also be affected by the fact that the injury was work-related. It was in this situation that some felt that physicians were more concerned with the fact that their injuries might be work-related and not with what was happening with the person.

> *But you know the first thing that happens when you go to a doctor with a workplace injury they ask, "Is this Workers'?" and then they get all caught up on that and not on the person who is injured, not at all. I definitely need a new doctor who is going to tell me what I want to know. It is my body after all...*

For a number of the injured workers this was a long and difficult journey while others were diagnosed fairly quickly, once they were referred to a specialist and had appropriate tests performed. A stumbling block was that frequently they went through a series of different treatments before either receiving one that

helped or getting a necessary referral. Other times it was that the family physician did not seem to know how to help the injured worker with the problem.

> *I went to see my family doctor and he prescribed an anti-inflammatory and physiotherapy. The anti-inflammatory definitely helps but physiotherapy has not really started. Not the treatment. I went and had an assessment but he never said what was wrong. I am still waiting for the treatment. The doctor said I had soft tissue injuries and he told me to do neck exercises. I had many questions to ask and said, "Something is going on here and I want to know why does this hurt? What is going on here?" The doctor didn't want to answer these questions and really didn't want me to ask so I guess I have to get a new doctor. I don't think he had any idea how to make things as simple as, "Don't reach over your head..."*

Eventually workers received a diagnosis with carpal tunnel syndrome (CTS) being the most common. Others had diagnoses of tenosynovitis, tendonitis, Raynaud's syndrome, or thoracic outlet syndrome (TOS). Some had been diagnosed with more than one condition. Sometimes a primary diagnosis provided by a physician was confirmed through testing, such as electromyography (EMG), yet other times the first diagnosis was not confirmed and a second or third diagnosis was provided.

> *At first the doctor thought I had carpal tunnel syndrome but when I finally got my nerve conduction test I found out it wasn't that at all. The test was normal. When it turned out I didn't have carpal tunnel and I was having this pain in my shoulder, the doctor thought I had thoracic outlet syndrome because that can cause problems in your hands. Now I am diagnosed with Raynaud's syndrome and that makes sense...*

Some workers had identified their conditions themselves and then had them confirmed by a physician. Some had discussed their conditions with other workers and because of similarities in symptoms felt they had the same diagnosis.

Talking to other people, questioning what was happening, and finding out about these types of conditions enabled many workers to figure out what was happening and as a result be diagnosed by a physician.

> *But I asked him* [physician] *to define carpal tunnel and he described you have pain here and you have numbness here* [indicates last three fingers] *so I said to him, "I have all this." You see I had been talking to other workers and they told me about carpal tunnel because it is so common here. The doctor then had me have EMG studies and sure enough I had carpal tunnel...*

Looking for Treatments that Work

Workers wanted a treatment that would alleviate their symptoms and address the problem and hopefully resolve it. In this sub-phase workers attempted various treatments that were prescribed by a variety of health professionals. As not every WMSD responded in the same way, workers were offered multiple treatment options, such as series of physiotherapy, massage, acupuncture, and chiropractic sessions. Some only had short-term relief and this was discouraging for many workers.

> *The doctor sent me for physiotherapy - it helped a little but only just after it was done...*

Contrast bathing (heat and cold), using splints, and resting helped others. Prescribed medications provided some respite; however, many workers described the side effects as being intolerable.

> *The doctor gave me Vioxx®, Advil®, Atasol®30s at different times. I have taken so many medications that it was burning the stomach right out of me....*

Frequently WMSDs were resistant to treatment and this was particularly difficult for those who had undergone surgery for carpal tunnel syndrome. One worker had undergone three surgeries before he had any relief.

> *My surgery was not successful because I still have symptoms of carpal tunnel syndrome in both hands. I'm having the same problems as before – numbness, tightness in the wrists, and sharp pains...*

This sub-phase was marked by a great deal of searching. A challenge for the workers was that not all, even if they had the same diagnosis, responded in the same way to a particular treatment.

> *I saw a doctor, family doctor, for my back and shoulder – he sent me for physiotherapy. That didn't really help – well maybe it helped a little but only just after it was done. It didn't last – so just after I had it, it felt good. For my shoulder I finally saw a chiropractor and that helped a great deal. I went to different chiropractors. I had one chiropractor who really helped but he was in* [city]. *He had this machine and it helped. I wished I could find a chiropractor who had that machine and did that treatment. It might help the pain...*

Non-medical approaches were important for the workers. Some workers found that ergonomic changes and the addition of ergonomic equipment to their workstations helped. Others found relief from using orthopedic aids such as hand splints. Workers also talked about how doing exercises, taking stretch breaks, and resting provided relief. A few had challenges getting treatment because they had to get approval from Workers' Compensation to access their treatment. Others were just challenged by the bureaucracy of the system.

> *I used to go to massage therapy and that would help but Workers'* [Compensation] *won't cover it and I can't do it until the doctor recommends it. You're not getting anything unless you have a doctor's note...*

Learning More about WMSDs

In this final sub-phase of getting medical help workers were actively looking for information about WMSDs. Once they had some idea what was happening to them, they wanted to find more information on what their conditions were, how they could be treated, and what could be done to help, or what activities to avoid. Many began finding out about WMSDs through the workplace, and some through family, friends, and co-workers. The posters and pamphlets at the workplace now had more meaning. A few talked to other co-workers who also had these conditions.

> *We have charts on the wall. They tell you how to prevent injuries and what to do. I also got sent on some ergonomic courses...*

Medical and health-related information is readily available via computer and increasingly people are actively seeking this information. The Internet is fast becoming the most frequent place for health information. Workers described how they had read medical literature, or searched the Internet to find information.

> *I checked a medical book, one that I have at home and it told you all about carpal tunnel syndrome and what you have to do...*

For some the information was helpful and confirmed what they knew. However, many workers described feeling scared about their conditions as they began to learn more about these conditions.

> *What is really scary is that I have seen pictures about good hands and bad hands and know what the problem bad hands can be...*

The workplace was a source of information. Workers talked to the occupational health nurse and occupational health and safety workers when available. Others who spoke to a health care provider had their concerns reinforced.

> *I guess until I started to read up on this and started to get some literature by the physiotherapists I said okay, I'm not imagining this...*

Some had only received information after they had reported an injury. Many individuals were finding out about WMSDs through their own observations.

> *Certain activities made it worse, a long time on the computer and reading in bed. It was educating myself and making the connections...*

Phase Three: Dealing with the Workplace

In the third phase workers began to deal with their problem through the workplace. This phase overlapped with the second phase for individuals who needed the support from the workplace to get referrals and treatment. There were workers who had other options open to them because they did not need referrals for treatment. They could also decide whether or not they were willing to report or disclose their conditions at the workplace in this stage. Again, there was variation among workers as to the degree disclosure occurred and thus who was

informed. The sub-phase in this third phase were finding support, weighing the pros and cons, dealing with credibility, and taking control.

Finding Support

In this sub-phase there was some effort to obtain whatever support was available in the workplace. Many workers felt that the biggest challenge they had was *"getting help."* Workers reported they had brought in numerous doctors' notes asking for accommodations and these forms would get lost or misplaced. Others felt they didn't want to *"bother"* management. Some workers felt in order to deal with the workplace you needed to keep your problem in view as *"the squeaky wheel gets the oil."*

The injured workers had to decide whether or not they needed to inform a supervisor or manager. Following through on these decisions, workers were beginning to discover who and where their supports were at the workplace. Many found that the worksite occupational health nurse was supportive, if there was one available. Some individuals found co-workers to be supportive. However, many individuals found that co-workers did not believe them, or were uncooperative in any attempt to make changes in the workplace.

> *There are some people who don't believe I have any problems and think I am using my shoulder as an excuse...*

Similarly, although some managers and supervisors were found to be supportive; others put up barriers.

> *I hit a brick wall at work. The administrator called me, yelling at me. The administrator has not been supportive...*

Workplaces that had early-and-safe-return-to-work programs were more supportive of injured workers and the modified duties required. This could be challenging for the employer because the number of injured workers needing accommodation made it difficult for the employer to provide modified work for all. Many injured workers received complaints from co-workers because the injured worker was treated differently:

> *Right now I'm on modified duties. The worst part is that people are complaining because I have this job. It's making my life miserable...*

Seniority levels at the workplace also had an influence on accommodation. Being classified as a part-time or full-time worker was significant in being able to rotate positions or modify work activities. Some found out that if they wanted changes made to their work, complaining was a strategy that would get results. Others found that fighting was a strategy that would eventually result in gaining support.

> *Co-workers don't give a shit. Down here seniority means everything. Everyone is worried about himself or herself. They don't care much. There are times you got to be really ready to fight...*

Support at the workplace varied greatly. Many supervisors were supportive and provided accommodation willingly, although some workers still felt they had been supported simply because *"they had to."* Other factors influenced whether or not to report a WMSD or a flare-up. Individuals talked about the differences in reporting acute injuries versus chronic conditions, such as

WMSDs. They felt that workers were treated differently based on whether it was an acute or chronic condition. Generally, making a claim to Workers' Compensation was difficult and presented financial challenges because they had to wait several weeks to receive compensation payments.

> *Workers' Compensation will basically harass you before they pay you. They'll make you go forever without money. That's why you'll find people who work injured. I'd have to be dead before I'd go off. Most people can't afford to go ten to twelve weeks with no money. It's just too much to deal with...*

However those who had a chronic condition marked by exacerbations of the condition felt the problem with getting compensation was compounded by the fact that Workers' Compensation was more geared towards short-term and well-defined conditions.

> *Workers' Compensation really gives you the run around so you have to be up on them. You have to know the difference between going off on a new claim and going off on a reoccurrence. You have to wait ten or twelve weeks for a payment so you go week to week with no money and then you have no food to put on the table. So if you figure that it is going to be a reoccurrence you tend to work in pain. I know people who have done that. I have done that...*

Weighing the Pros and Cons

This was a sub-phase, as well as a strategy, that individuals used to determine whether or not to consult those in authority. For some the disadvantages of reporting their WMSDs outweighed the advantages, therefore individuals weighed the pros and cons of disclosing or reporting their conditions.

Some individuals decided not to disclose because of the timing of the injury or flare-up and how they would be affected.

> *I knew if I went my doctor would have put me off* [work] *for sure. I should have but I didn't want to go off especially at that time of year, just after Christmas...*

Some were afraid their physicians would take them off work if they reported so they chose not to disclose. Financial reasons were discussed as barriers to disclosing or reporting.

> *The money issue is a big problem with people. They're afraid to be off because they're losing money so they stay with the job, tolerate the pain on a daily basis until it gets to a situation where it's unbearable. I can't afford to be off...*

Some had experience with reporting an injury and being off on Workers' Compensation in the past and this influenced their decision to disclose or report.

> *I was on Workers' before. It's financially hard. They don't make it easy for you. We were struggling just trying to make ends meet. To go off you're going to be a month before you get the cheque and that's if they approve it. If they don't you could be waiting two months and then if you do get it you're only getting 80%. That's what I was getting when I was off on it. Then when you go back it is worse again because they starve you. They won't let you go back on eight hours right away...*

Those who chose not to disclose or report thought if they had a WMSD this might indicate a weakness in their work abilities. These individuals would attempt to hide their conditions.

> *I'm good at hiding it. I didn't complain because I didn't want it to be, 'she's not carrying her weight'...*

Those who did not feel a need to disclose had a number of other options for obtaining treatment or relief. They were able to obtain necessary treatments through workplace medical insurance plans, arrange a more flexible workday, or plan and pace work activities more independently. Even the workers who attempted to deal with the workplace by pacing themselves still found when managers were around they had to keep up a certain pace and this often made their problems worse. This sometimes made them rethink their position on disclosure.

Another pro and con to be weighed was the reaction from co-workers if they disclosed their problem. Some injured workers who did not disclose their injuries to colleagues felt they would have understanding.

> *I don't think anybody on staff knows. I'd like to think that people at work would understand...*

Longevity on the job and having some sense of what the workplace culture was like was an influencing factor for some workers. New workers who did not know what the reaction of colleagues would be tended to carefully weigh the pros and cons of disclosure.

> *When you are new at a place you are intimidated and you really don't understand your rights. New people come in and they wait until their first eighteen weeks are over and they are able to get compensation, so before that they will work even with an injury. You can see they are weighing their options...*

Part of this sub-phase of weighing the pros and cons extended to whether or not to stay in the workplace that was associated with their WMSD. These individuals wondered if they should be working at the same workplace in jobs that contributed to their conditions. They did not feel that work would change and were frustrated because they felt management would not take steps to correct the problems. Others contemplated going back to school to learn a new trade but felt there were also financial challenges related to that option:

> *If you quit and go back to school then there's no money coming in....*

Dealing with Credibility

Those workers who opted to make known their WMSD in the workplace had the added challenge of dealing with issues of credibility. The more widespread their disclosure, the greater this challenge could be. Combined with the invisible nature of musculoskeletal disorders co-workers and management often questioned the credibility of injured workers and this created a lot of tension for many workers.

> *I know some of them don't think I am hurt because you don't see anything. There are people who really don't believe you...*

Some described instances where co-workers said they were making up symptoms to avoid work or that they were indeed *"lazy."* They often were accused of *"faking"* symptoms in order to avoid doing certain work.

> *The biggest thing I find down here is a lot of people don't believe that people are injured. There probably has been a lot of faking down here over the years, but now if you're injured, people right off the bat instinctively think that you're just screwing the system...*

Some were aware that there were cases of *"abuse"* associated with the compensation system or that some workers had used it to their own advantage. They also reported how administrators would use the term, "*scammer"* to describe those who were using the compensation system, inferring abuse.

> *The administrator told me that anybody on Workers' Compensation is a scammer. If there's not an arm hanging off you or if you're not limping or coming in on crutches, you're a scammer...*

As a result during this phase many of the injured workers reported a great deal of tension and stress. They were concerned about how they would be viewed by co-workers, but also the type of treatment they might be subjected to, because of how negative workers on compensation were viewed.

> *There is a lot of tension among your co-workers and you see this when you have a problem. I know some of them think you're lazy, that you don't want to work...*

Although many workers felt that others were *"faking"* injuries these same workers wanted others to believe them, *"You have to know what is legitimate and what is not."*

Taking control

Workers knew that they had to take control if they were to remain in the workplace. Taking control would depend on whether workers were feeling in

control of the situation, as well as, the amount of workplace support they perceived.

> *In terms of how I manage I have done most things to help on my own. I work alone so I don't really have a supervisor. I can control the work, just have to get it all done and that is not a problem. I am my own boss...*

In this phase the workers had a better understanding of the relation to work activity and their injury and if they were to do anything about their injury that would entail taking control or making a modification to their work or how they carried out their work. It was during this sub-phase that they could monitor symptoms at work, and use that information to help with symptom management.

> *I'm taking control in my own hands as to how to take care of the problem. If I see pain or I see a little bit of stiffness in the hands, I'll subside. I'll take care of the matter myself. I know how far I can go with it. I get signals. You take the ball in your own hands. You have to speak up and express your concerns. It's your life...*

The workers knew that there were areas where they could exercise some control. They employed strategies that gave them a better sense of being in charge of the job.

> *You need to control your pace and watch what you're doing. I like to rotate and move around. It really helps at this job. As I move around it gets better...*

For some, controlling the smaller things at the workplace was as equally important.

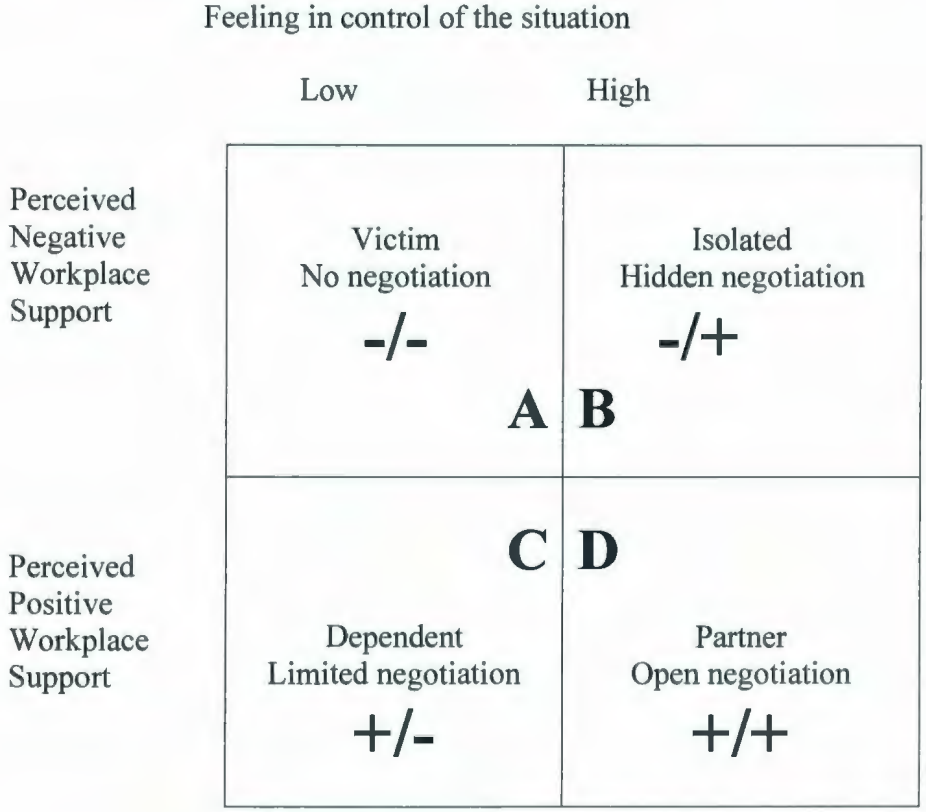
> *Some things you have control over. If you use a knife you look after your own knife and make sure it is good to work with...*

Others felt penalized for being injured on the job and their only option would be to leave their place of work.

> *I feel like walking. It's all about money for the company. They're worried about how much they have to pay for Workers'; the high premiums. It's unfair to penalize workers. They don't care...*

Figure 2 illustrates the various ways that workers approached negotiation efforts and attempted to take control in working with WMSDs.

Figure 2. Negotiation Strategies in Taking Control



Cell A -/- Feels like a victim – cannot negotiate – does not negotiate and continues as best as he/she can

Cell B -/+ Feels isolated – often hidden negotiation or seeks help on his/her own

Cell C +/- Feels dependent – limited room to negotiate so does as suggested

Cell D +/+ Feels like a partner – open negotiation at workplace

If a worker did not feel in control of the situation and perceived negative workplace support, the individual could not and did not negotiate, and continued as best he or she could, and often left feeling like a ***victim*** in negotiations (Figure 2, Cell A), *"I really don't think they treated me very well. I think they wrote me off. It is the responsibility of Workers' to take care of the injured...."* Whereas, workers who felt in control of the situation and perceived positive workplace openly negotiated and often felt like a ***partner*** (Figure 2, Cell D), *"There are just two people in this department and we decide among ourselves who will do what...."*

Similarly, workers who felt in control of the situation at work but perceived negative workplace support used hidden negotiation, seeking help on his or her own and therefore felt ***isolated*** at the workplace (Figure 2, Cell B),

> *It boils down to your supervisor. When I hurt my knee I couldn't walk. I was carried to the office and the jerk at the time that was there made me sit there for twenty-five minutes filling out forms...*

Finally, workers who felt less in control at the workplace, but perceived positive workplace support had limited room for negotiation. They would do as suggested feeling ***dependent*** in negotiations (Figure 2, Cell C), *"I do what I can do. If I have something wrong I look after it. When I have to change, I ask...."*

As individuals began to take control in dealing with the workplace, efforts concurrently took place in their social life or activities outside the workplace.

Phase Four: Making Adjustments to Lifestyle

One of the confounding factors with WMSDs is that once these conditions develop they are not confined to the workplace; they affect all aspects of the person's life. In this phase workers discussed how having WMSDs had altered their life outside of work. Making adjustments to lifestyle was the fourth phase in this process. This phase frequently overlapped with phase three and other times it was evident later in the process. The phase consisted of the sub-phases of coping with flare-ups, recognizing limits, and making changes.

Coping with Flare-ups

Patterns of symptom experience varied greatly among the workers. Some experienced almost constant symptoms and others had periods when they felt relatively symptom-free. Whatever the situation was, all individuals reported that this condition was marked by flare-ups of having symptoms or symptoms being almost unbearable. It was during these periods of flare-ups that they had to make the most adjustments to cope with the flare-up. Living and coping with persistent pain and other chronic WMSD symptoms were found to be an integral part of the challenges faced in this sub-phase in making adjustments to lifestyle.

> *I have flare-ups. Sometimes it's worse than other times. Then I have to take it easier and that's hard....*

Individuals described how coping with WMSDs was irritating, tiring, and exhausting. Feelings of fear, anger, frustration, discouragement, and depression emerged in this phase. *"I was so tired because of constantly fighting with this. It's exhausting...."*

Some were able to cope with their flare-ups better than others and learned what they needed to do to avoid the symptoms. Flare-ups were part of the course of their lives and they had developed strategies to help.

> *I have to help myself, figure out what is wrong and what is causing the problem and what I can do about it...*

Others felt they had no choice. *"It's acknowledging it and learning to live with it. You make changes. You have no choice...."* Still others decided that work would take priority and these individuals decided to give up other hobbies and activities to remain working. *"No hobbies. You're restricted to get yourself better and not make your injury worse than what it is...."*

Recognizing Limits

In this second sub-phase workers were confronted with various lifestyle challenges. For some this phase was harder for some than others. Daily life challenges were dependent on how much workers were willing to endure or give up. Whatever the case they needed to decide what was possible for them.

> *I am limited in what I can do. I know that every day it is a matter of how much I am willing to take or give up. I've changed my lifestyle to realize I have limits now...*

Some workers referred to this sub-phase as *"pushing the limit." "I almost look at it as pushing the limit. How much I can get away with without making it worse or making it so that it's going to be hard for me to go to work...."* In recognizing limits workers also acknowledged that choices were limited in job prospects. Some workers spoke about feeling stuck and felt limited in that way.

> *When I came out of high school I was accepted for university. Then I had this relative and he told me he could get me a job down here. I was just out of high school and offered ten dollars an hour. How could I turn that down? All I could see was the money. I could get a car! Now I feel like I'm trapped, stuck...*

Some individuals thought they had gained weight because of giving up sports and other recreational activities. For all individuals many aspects of their lives were affected.

> *It screws up your family life. I've changed my lifestyle to realize I have limits now...*

Many talked about feeling angry, depressed, and discouraged in this phase.

> *Sometimes I'm angry and a little depressed. I'm only 25 years old and if I keep working here I won't be able to do what I want to do. I know my life is altered because of my injury...*

These individuals realized that they took their symptoms home with them and these symptoms interfered with how they interacted at home, had an effect on relationships, and also occupied their thoughts. Pain, one of the most common symptoms of WMSDs was the most difficult to deal with, and had the greatest effect on social life. Pain made them aware of their limits.

> *Sometimes I go home I feel discouraged because it's bothering me and I feel a bit cranky. Pain has a way of occupying you, making you think about it, and how to get rid of it. It has affected me outside of work, if you didn't have to take the pain home with you...*

The idea of 'pain for gain' was evidenced in one worker's comments, *"Don't get into the cycle of it, testing those limits; pushing yourself – maybe at work if you want to get something done maybe the trade-off is more pain...."* Workers were mindful that choices were sometimes necessary so that they could continue working while trying to avoid flare-ups of WMSD symptoms.

Some workers felt limited by the choices they had at work. Many of the food processing workers had to work in cold environments even though they recognized this was detrimental to their conditions. Many found they were unable to engage in any overtime so they felt limited in that way.

Making Choices

This sub-phase of making adjustments to lifestyle came down to the workers' ability to choose. Workers had to decide which activities they would be willing to let go of and which ones they would choose to continue despite exacerbations of WMSDs symptoms. Some decided to discontinue activities they knew would cause them distress. For some it was a matter of continuously letting go of any activities outside of work.

> *I used to do weight lifting. I don't do it anymore. I used to golf, now I can't. I can't do as much as before. I constantly have to think about how what I'm doing at home may affect me...*

Most physical activities they engaged in such as hobbies, sports, driving, lifting, knitting, sewing, writing, gardening, and snow shoveling at times caused exacerbations of symptoms or they could not pursue these activities as they would have liked but it was a choice they needed to make.

Some individuals would decide to endure pain and other symptoms rather than completely stop taking part in a favorite activity or hobby. Others chose to plan activities on the weekend or holidays so as not to cause unnecessary hardships during the workweek.

> *I play ball hockey. I get sore sometimes but I want to do this. You can't stop everything you do. I tolerate it because I want to play hockey. Sometimes after a game I really pay for it. This one week-end we had a game and I had to take Monday off it was that bad, the next day was hell...*

Phase Five: Taking Charge

The final phase of the process was termed taking charge and most of the workers had achieved this phase. Efforts were many and varied in this phase in order to take charge and work with WMSDs. In this final phase individuals would continue to discover ways to live and work with WMSDs. Sub-phases included being watchful, initiating changes, and lastly, getting the message out.

Being Watchful

This first sub-phase in the last phase of the process was the strategy of being watchful to attempt to avoid exacerbations of WMSD symptoms.

> *I have been watching myself more. Now I watch what I do, how I feel. I know there is a domino effect to injuries so I try to avoid that. I have found out I have to pace myself...*

Attempting to alleviate or curtail symptom flare-ups still remained a challenge in this phase. Realizing that WMSDs were chronic conditions requiring careful monitoring and vigilance became even more apparent.

> *You have to get to the bottom of it and take it in your own hands. It's really you managing it. You have to become really smart yourself about it, how to handle it, what you can do to make it better...*

Workers found that pacing, being aware, engaging in job rotation, changing positions or how they performed their work, and monitoring work tasks were important strategies in being watchful.

> *You need to control the pace and watch what you are doing. I like to rotate and move around, it really helps at this job...*

Many workers had developed a greater awareness of how work affected their symptoms and talked about the importance of being conscious of this awareness and use it to their best advantage.

> *The trick is if I do something not to do it for too long. I try to be aware of how my hand is, notice if problems are occurring...*

Workers felt that if they learned to lift the right way then they would have less chance of injuring themselves. They became aware of signs indicating when problems were occurring. They did not feel pressured into doing things in the workplace that would make their conditions worse. Before taking on any additional responsibilities, they would consider all factors.

Initiating Changes

Individuals began to discover ways and means to initiate changes in the workplace as a strategy in taking charge. They were finding ways to negotiate with managers and supervisors, as well as co-workers, in attempting to make necessary changes to their work environments in order to minimize or prevent WMSD symptom flare-ups.

> *I've tried to become more aware of how I sit at the computer. I try not to sit at the computer too long, do other types of activities, take a break, and try to vary the day...*

> *If I lift anything above the usual it is worse. I don't work as fast as before. You have to look after yourself. I don't want to be off work...*

Workers described that initiating changes at the workplace was difficult and that it was hard to change accustomed behaviors. Some had made suggestions to management for change but found that nothing was done about it or it would take a long time for changes to occur and this was frustrating for workers. Several mentioned having a suggestion box at their workplace where workers could make suggestions on how to improve safety at their workplaces. The food processing workers could change positions at the workplace easily if they were trained to do the various jobs, for the others this was not such an issue. All talked about approaching their work with *"care and caution."* Workers were initiating changes on their own in their workplaces in dealing with WMSDs to remain working.

> *I've learned to do things differently...I've changed the things that I do...there are ways I can make myself more comfortable...what I do is modify myself...you make changes...you have no choice...*

Getting the Message Out

In the third sub-phase in taking charge, workers discussed the importance of getting the message out to others and sharing their experiences. They felt it was the responsibility of employers to train and educate workers on prevention strategies. Others made suggestions on how workplace administrators and supervisors could ensure safer workplaces by simply listening to workers as they offered safety initiatives. The importance of advocating, educating, and training workers as well as developing prevention and awareness strategies was integral in getting the message out. All workers acknowledged the importance of a healthy workplace. Other workers stressed the importance of educating physicians and other health care workers about WMSDs as it was a fairly common problem for workers. Some individuals thought that although information had been provided it was almost too late for many of the workers.

> *We had some information through work on carpal tunnel syndrome because it is so common here. There is awareness now but it is too late for many of the workers...*

Standing up and speaking out for workers' rights were also the hallmark of this sub-phase. Many felt that early recognition and reporting of symptoms was integral to being able to deal with these conditions. Workers emphasized how important it was to be able to stand up for themselves and know their rights as workers. Others thought that legislation was an important strategy in getting the

message out and that government should try to step in and stop the problems. Several workers mentioned that it was important to get away from the old mentality of working even if you are injured.

Workers also stressed the importance of proper equipment, such as providing special gloves for those who work in cold environments. They felt that workers should be informed and that on job applications it should be listed if you have a *"high chance of injury"* with certain positions. Having a *"worker-friendly environment"* was talked about by several of the workers as a strategy to attempt to avoid these injuries instead of trying to fix the problems later. They felt it was the responsibility of employers to develop awareness of WMSDs in workers and stressed that information offered should be easy-to-read and understand.

> *There needs to be more education...I think workers need proper ergonomic assessments right from the start. In the long term they will save a lot of money because they're able to save their employees from getting WMSDs...there are a couple of courses on ergonomics and they are helpful if people understand but I would like it in more layman's terms... Literacy is a big problem for some...*

Core Category: Constant Negotiating

Constant negotiating, the core category, captures the process of how workers who have developed a WMSD are able to remain at work and the strategies they use to make this possible. Workers responded to environmental conditions and negotiated within health, occupational, and social contexts in these environments. The verb "to negotiate" or noun "negotiation" has a number of similar meanings that captured very well some of the social psychological

processes these injured workers engaged in throughout working with their WMSDs. Some of these meanings are "discuss, consult together, try to reach a compromise or an agreement, arbitrate, moderate, come to terms, conciliate, bargain, haggle, thrash out, or work out" (Hanks, 2000, p. 644).

In Phase 1 becoming concerned negotiation took the form best described as "working something out." The injured worker was attempting to work out for him/her self what was happening to his/her health and specifically within his/her body and how this related to the work he/she was doing. As they reported it was sometimes hard to make the connection, but all became aware they needed to act and begin a different form of negotiation with the health care system, work, and in their broader social life.

The type of negotiation in Phase 2, getting medical help, was negotiation that at times took the form of "consultation" as in consultation with a physician or other health care provider. However, this was not often a consultative relationship and in those instances the negotiation may be better described as "coming to terms." The injured worker needed to come to terms with diagnosis and treatment options.

In Phase 3 dealing with the workplace was where different styles of negotiation were evident and the variation could be examined in terms of two variables; workplace support and how much control the worker felt he or she had over the situation. Thus, different styles or types of negotiation were evident from no negotiation to an open style of negotiation at the workplace. Some

workers could work out satisfactory relationships through their negotiations and felt more of a partnership and could "bargain" within that partnership, while others felt victimized (see Figure 2).

In Phase 4 making adjustments to lifestyle negotiation was partially on the basis of "working something out" but also "reaching an agreement or compromise" with self and others. At times the compromise was between what could be accomplished at work versus leisure time and here there were trade-offs. Other times negotiation was with family and friends and how much the injured worker could do outside of work.

Phase 5 taking charge did represent the successful negotiators, or those who were able to feel more in control of their situations. As stated before, this was not a linear process and perhaps not all the workers had successfully reached this stage. Because of the challenges in phase 2-3 and the nature of WMSDs some of the workers felt they needed to renegotiate within those three environments.

Summary of Findings

This process of working with work-related musculoskeletal disorders was gradual with workers becoming concerned because they noticed lingering symptoms or symptoms that did not resolve or go away. It was when they made the connections between the symptoms and work that they realized they needed to act. This action was beyond self-care activities that they had used. The realization that they needed to move beyond their own actions led to workers

getting medical help including a diagnosis, effective treatment, and more information about WMSDs. They also had to deal with the workplace and make adjustments to their lifestyle in conjunction with medical treatment. All these phases had different challenges and each demanded different strategies and types of negotiation. Being able to have support and have credibility were big issues in the workplace.

In their personal life they also had some of the same challenges, but addressed them slightly differently when they coped with flare-ups and recognized some of their limitations, if they wanted to remain at work. Finally, these individuals did realize they needed to be the ones in charge and monitored their WMSDs by being watchful of what was happening to them. They also made changes either on their own or with others in the workplace. One of the important actions was to make sure the message about these conditions was communicated so other workers could be protected.

CHAPTER FIVE

DISCUSSION

The findings from this research suggest that being able to remain at work when an individual has a work-related musculoskeletal disorder is a complex process that involves all areas of a person's life and requires him or her to engage in a multifaceted process or more aptly processes of negotiation that previously have not been explored to any great extent. My starting point was how individuals are able to deal with these conditions at work but it became evident that all aspects of workers' lives were affected. Some aspects of the process have been explored in past research, while others less so. In this discussion chapter I would like to explore some of the findings in greater depth. I will frame the discussion in relation to each stage identified in the process.

Becoming Concerned

Although the symptoms the workers reported are characteristic of WMSDs it took some time for the affected person to realize what was happening or to get the help that he or she needed. Recognizing there is a problem is difficult in the early stages of these conditions as symptoms are often intermittent and episodic. It is only at the time when workers become more worried that they begin to 'voice' their concerns and begin the processes of negotiation. WMSDs are similar to chronic fatigue syndrome and fibromyalgia with their broad, unspecific symptoms not easily proven through testing and quite often challenged by medical, insurance and compensation systems. Negotiation strategies while attempting to manage chronic illnesses is not a novel concept (Alsaker & Josephsson, 2003; Crooks, Chouinard, & Wilton, 2008; Goodachre & Goodachre, 2003).

Many times the public has difficulty in accepting these types of conditions and individuals are required to make efforts in negotiating these illnesses (Swoboda, 2008).

Reflection on causation of these illness conditions soon was common and it is not a new finding that individuals who have developed these conditions begin to blame work activities, voicing concerns that they were 'conscientious and hardworking' individuals who had developed these conditions through no fault of their own but as a result of hard work (Reid et al., 1991). The terms 'voicing' and 'negotiating' have been mentioned before in the research literature as a means of expressing concern over illnesses and, or injuries (Crooks, 2007; Reid et al.).

There is a non-linear pattern of phases in managing most chronic conditions (Young et al., 2005), so it is not surprising that the shift in the first phase from symptom experiences in becoming concerned and moving onward to the next phase(s) had variation. This has been described in the research literature as 'transitioning points' or a 'points of evaluation' when symptoms are perceived as illnesses (Beaton et al., 2001; Reid et al., 1991).

Getting Medical Help

The finding that the injured workers did not seek medical treatment earlier in the process is familiar as this is noted in both the clinical and research literature (Rogers, 2003; Tuzun, 2007). One of the challenges of treating WMSDs is by the time the problem is identified, the affected worker is beyond early stages when preventative measures could be more effective. An important question is, why is the problem not identified earlier? One reason no doubt has to do with the nature of the symptoms.

WMSDs are described in the research literature as complex, ill-defined conditions that challenge not only workers but health professionals, and using conventional forms of diagnostic imaging such as X-rays, provides little information to physicians about these types of conditions (Russell, Brown, & Stewart, 2005), yet going to the doctor is seen as a legitimizing task for those affected by these disorders (Reid et al., 1991).

In the clinical literature it was noted that self-reported symptoms or functional impairments may be more informative than physical examinations since there are no 'gold standard' objective tests available for diagnosis of WMSDs (Punnett & Wegman, 2004). Labeling and defining medical terminology for these disorders still remains problematic and there is still no firm consensus on the condition, because of the diversity of terms and definitions that are used. In the clinical literature authors repeatedly suggest that developing criteria for classification and diagnosis is needed to better deal with these conditions (Huisstede, Bierma-Zeinstra, Koes, & Verhaar, 2006).

Individuals experiencing symptoms desire health professionals who have knowledge about their medical conditions, listen to their concerns, and support them in finding assistance at the workplace and home (Gustafsson, et al., 2004; Reid et al., 1991). Apparent from the findings in the current study, however, many health professionals still do not recognize WMSDs and the course and consequences of these conditions remain uncertain. Similar to what was found in previous research findings in dealing with chronic illnesses or conditions, these findings reinforce the view that individuals require services from health professionals for acute episodes and for further chronic healthcare needs (Jones, 2006).

In this study negotiation was a process that individuals used to sort out and decide the aspects of health care that were acceptable and those that were not. Sometimes individuals would change physicians to find one who would answer their questions and provide information and help. Other times they would form partnerships with their physicians to help them deal with WMSDs to remain working. The literature indicates that individuals who suffer chronic illnesses desire information and a firm diagnoses (Swoboda, 2008). Individuals in this study also negotiated their treatment options, deciding what treatments were acceptable. It is not uncommon for individuals with chronic conditions to endure chronic pain and other symptoms rather than take prescribed treatments that have undesirable side-effects (Carder, Vockovic, & Green, 2003).

Another issue that arises is who has the responsibility to manage these disorders. While they occur mainly because of conditions in the workplace and risk factors are well recognized; they are often seen and internalized as individual worker problems. In a study on attitudes toward management of these conditions among the general populations in Sweden, there was support for the idea that it is the worker's or individual's responsibility for management (Larsson & Nordholm, 2008). Most of the respondents in Larsson and Nordholm's study felt it was their responsibility to look after their musculoskeletal problems. A smaller percentage thought it to be a shared responsibility with the medical community. In this study, it was shown that the responsibility to manage WMSDs was not only to be shared but negotiated between the worker and others in health, social, and occupational settings. This was a complex process of negotiating that involved participation and cooperation from individuals in all these sectors. Returning to

work after an injury or illness is often seen as a success resulting from medical interventions (Franche, Baril, Shaw, Nicholas, & Loisel, 2005) and dealing with the workplace would be something all workers would have to contend with in addition to efforts in the healthcare arena.

Dealing with the Workplace

There is value given to the working role in society (Franche & Krause, 2002) and individuals often identify themselves by their working roles (Conyers, 2004). It is very common in social interactions for individuals to ask, 'Where do you work?' or 'What type of work do you do?' Although work has been shown to have a positive effect on health and a value given to the worker in society (Franche & Krause; Zeytinoglu, Denton, Webb, & Lian, 2000), fulfilling this role still remains a challenge for workers with a disability.

In this study negotiating to remain working was the core variable (or the basic psychosocial process) and it was important for workers to maintain their working roles. The concept of negotiating an illness or injury to maintain a working role is not new and has been reflected in the literature in studies related to other chronic conditions such as arthritis and fibromyalgia (Crooks, 2007; Crooks et al., 2008; Reynolds & Prior, 2003; Whitehead, 2006). Unfortunately, as in other studies negotiation efforts often meant battling, fighting, and struggling for affected workers.

Disclosure of a WMSD created challenges for the injured workers in this study and this finding is understandable. In the research literature it has been reported that many supervisors react with indifference or hostility when an injured worker discloses WMSDs

(Franche et al., 2005). The research literature also indicates that employers often blame workers for workplace injuries such as WMSDs (MacEachen, 2005). Support from co-workers and employers has been identified as an important determinant of disclosure and depending on the situation, necessity, and comfort level of the worker he or she may share information about the health conditions on a 'need-to-know' basis or wait until it feels safe to disclose (Olney & Brockelman, 2003). Disclosure issues go beyond reporting and to the reactions of others about their conditions. Deciding whether or not to disclose, and weighing the possibilities of negative impacts on job security and advancement, are important issues related to disclosure. However, choosing not to disclose can prevent individuals from accessing assistance that would allow them to remain at work, and benefit from any supports that are available to them (Zeytinoglu et al., 2000). Financial reasons were discussed as barriers to reporting by individuals in this study and this has been a factor in other studies as well (Zeytinoglu et al.; Reid et al., 1991).

Disclosure issues can be a concern not only for workers but for health professionals as well. In fact, disclosing patient information to the workplace for workplace accommodations was found to be an issue for physicians in regards to patient confidentiality (Russell et al., 2005). Adherence to confidentiality has been shown to limit the nature of helpful information that is often provided to the workplace for accommodation and support for workers with disabilities (Russell et al.). This was not discussed by workers in this study; however, a study conducted with physicians would be beneficial to find out if this is the case with workers who have developed WMSDs.

In this study efforts aimed at attempting to hide their conditions at the workplace were evidenced. Individuals who feel that they need to put on a 'mask' to hide their disabilities is not a new finding (Lacaille et al., 2007; Miller & Timson, 2004; Olney & Brockelman, 2003). Unfortunately, these reactions result in maintaining the invisibility of these conditions, thus barring understanding, openness, and acceptance of diversity in the workplace. Legitimacy and understanding of chronic and invisible conditions such as WMSDs is enhanced when communication is open and clear; resulting in organizational culture that is more tolerant of disabilities in the workplace (Westmorland, Williams, Amick III, Shannon, & Rasheed, 2005).

Interpersonal relationships at work were a major challenge for workers in this study. This is not surprising as it is noted in the research literature that individuals often gauge the response of others before revealing their conditions (Olney & Brockelman, 2003). The findings from this study, that workers sensed resentment from co-workers for receiving preferential treatments for accommodations, were also familiar as organizational cultures can be intolerant of individuals with disabilities (Polanyi & Tompa, 2004). Many workers in this study had to rely on each other to complete tasks at work. When work involves a team effort, and the rights of one worker conflict with others, there are challenges for both the affected worker and the rest of the team (Franche et al., 2005; Lacaille et al., 2007).

Credibility and legitimacy related to musculoskeletal disorders are well documented in the literature (Baril et al., 2003; Beaton et al., 2001; Werner, Widding Iaksen, & Malterud, 2004) and evidenced in these findings. The discriminatory attitudes

towards injured and disabled workers are well known (Franche & Krause, 2002; Reid et al., 1991) and it seems as though little has changed in this regard. Evidence that injured workers are discriminated against in the workplace are supported in these findings. Uncertainties in diagnosis and prognosis of these conditions leave individuals open to reactions of disbelief, thus promoting stigma surrounding these conditions. Many times, there is no physical proof of these conditions except from surgical scarring most evidenced in cases of carpal tunnel syndrome. As the signs and symptoms of WMSDs are not always visible, they are poorly understood and accepted. Individuals often were accused of 'using' the compensation system and being called 'scammers,' not unlike the women poultry processing workers described in an earlier study in Australia where injured workers were accused of 'exploiting' the compensation system and being called 'bludgers' (Reid et al.).

The idea of negotiating a "win-win" situation at work to remain working with disabilities has also been reported in the research literature (Dunstan & Covic, 2006; Habeck & Hunt, 1999; Mortelmans, Donceel, Lahaye, & Bulterys, 2007). It is well known that the best success for injured workers in returning to work after an illness, injury, or disabling condition is when they are able to return to their original jobs with necessary accommodations or modifications (Silverstein & Evanoff, 2006). Similar to these findings, individuals who were offered opportunities to adjust to working with chronic conditions could then become 'unstuck' and 'gain a sense of control' in dealing with disabling conditions to remain at work (Mitchell, 2004).

Making Adjustments to Lifestyle

It is not surprising that individuals would have to make adjustments to their lifestyle to be able to remain working with these conditions. Since it is often difficult to separate work and home activities the demands of balancing home and work have both physical and emotional consequences. Individuals in this study negotiated levels of assistance with family members and others. Managing challenges in living with chronic conditions at home is not new and the impact on family relationships has been well studied (Crooks et al., 2008; Goodacre & Goodacre, 2003; Hamberg, Johansson, Lindgren, & Westman, 1997). Women often carry the dual workload of paid work and unpaid domestic work, spending considerable time in childcare responsibilities. That makes it even more difficult for injured and disabled women workers to remain working. Employment and health needs must be examined in relation to other roles in society such as parenting (Miller & Timson, 2004). Fathers have a role in society as well. Maintaining a fatherly role was important to the men in this study. They described how being able to throw a ball to their children, teaching their children to ride a bicycle and other 'fatherly' activities were challenged by their conditions. Workers in this study had to carefully balance the competing demands of home, work, and social activities that is similar to other findings where workers had expressed difficulties in planning and participating in social and family activities in attempting to find balance (Franche, Pole, Hogg-Johnson, Vidmar, & Breslin, 2006; Keogh et al., 2000; Richardson, Ong, & Sim, 2008).

Taking Charge

Making adjustments, using effective coping skills, and developing a sense of self-efficacy are well documented in the literature as important strategies in being able to manage chronic conditions such as, WMSDs; that has been confirmed in these findings (Jensen, Turner, Romano, & Karoly, 1991; Larsson et al., 2008). Having control over work is a well known aspect of being able to manage these types of conditions to remain working (Mitchell, 2004). Studies have shown that affected individuals can learn to function normally in society and maintain a working role despite chronic disabilities (Jensen et al., 1991; Zeytinoglu et al., 2000).

Being able to take charge for individuals in this study meant they believed in their ability to negotiate in order to remain working with WMSDs. Self-efficacy has been shown to have an effect on the ability to deal with chronic conditions to maintain a working role. In recent literature high self-efficacy, ability to self-manage, and a heightened sense of self-control were evident in managing chronic illnesses and conditions (Bishop, Shephard, & Senhoff, 2007; Jones, 2006; Larsson et al., 2008; Larsson & Nordholm, 2008).

This study illustrated how workers used negotiation strategies in order to deal with WMSDs and remain working. Participants in this study were a primary source of knowledge and were able to identify the negotiation strategies useful to them so they could remain working after having developed a WMSD.

CHAPTER SIX

LIMITATIONS, IMPLICATIONS, AND CONCLUSION

In this study I attempted to develop a model of the psychosocial processes involved in working with work-related musculoskeletal disorders (WMSDs). Using Grounded Theory I developed an explanatory model, *Constant Negotiating: Working with Work-Related Musculoskeletal Disorders.* In this chapter I will present the limitations of the research, nursing implications that include practice, education, and research, and implications for employers. A conclusion finalizes this chapter.

Limitations

One of the limitations of the study was related to obtaining appropriate participants or sampling. In grounded theory theoretical sampling or sampling for the purpose of developing a theory of a phenomenon of interest is especially challenging as it is limited by resources, time, and access to participants. The aim of theoretical sampling is to sample until saturation occurs in the developing model that can fully explain a particular phenomenon at a particular time (Strauss & Corbin, 1998). Typically, the number of participants in a grounded theory research study is between twenty and thirty participants (Strauss & Corbin). In this study twenty-five participants were included that I believe provided a range of variation to adequately address the challenges in achieving a rigorous theoretical model to explain the process of how workers deal with WMSDs to remain working.

While every means was used to include a variety of workers, most of my participants came from a single workplace and occupation. Although I did have some

workers from other workplaces and occupations, it may be that the experiences of the larger group of workers may have influenced the model that was developed from these findings. More diversity of workers and workplaces may have produced a slightly different model and thus my sampling may be considered a limitation.

Nursing Implications

Nurses have a role in occupational health and safety and prevention of WMSDs is one of the areas where they can make a contribution. There are a number of implications of the research and the model developed for how nurses can contribute. These are outlined under practice, education, and research.

Nursing Practice

Nurses are in a vital position to help achieve the occupational health and safety objectives for Healthy People 2010 in reducing the impact and number of WMSDs (Chikotas, Parks, & Olszewski, 2007). Nurses can act on an individual level, as a team member, and on a broader scale. On an individual level nurses who work in physicians' offices or emergency departments can obtain a full case history of injured workers that includes a complete work history as well as listing any hobbies, sports, and activities. By ensuring accurate recording keeping and tracking recurring visits the physician may become more informed on patterns of illness associated with these conditions.

There needs to be collaboration between workers, employers, and healthcare providers. Occupational health nurses can be a vital link in these collaborative efforts. Communication and negotiation strategies for injured workers can be enhanced by information-sharing among nurses, employers, compensation insurers, unions, health care

providers, and other workers. Occupational health nurses need to understand the complexity of interpersonal relationships, the reluctance of persons to disclose or draw attention to their injuries, and barriers to obtaining supports or accommodations. Nurses can advocate for injured workers and enhance disclosure by ensuring strict confidentiality throughout the disclosure process.

Occupational health nurses can develop a plan for injured workers outlining work limitations or modifications needed for them to remain at work safely after developing these conditions if they wish to do so. This plan can also be used as a negotiation tool among physicians, other health care providers, employers, and employees as they offer accommodations, modifications, or alternative work schedules. Occupational health nurses can also provide feedback and counsel injured workers to help clarify issues if the need arises. Nurses can be advocates for injured workers by dealing directly with employers on their behalf, if a request is made.

It is important to have policies in place at workplaces to protect workers. Occupational health nurses can be instrumental by informing policy-makers and suggesting changes to regulations such as ensuring proper protection and equipment for "at risk" workers. Occupational health nurses can encourage flexible working hours and job-sharing initiatives at their workplaces. They can be trained in ergonomics and assess new workers ensuring the worker fits the workstation and if any modifications are needed these are promptly put in place. It is important to train and educate employers and employees about the types of WMSDs and the possibility of injuries. Occupational

health nurses can educate workers and provide assertiveness training so workers do not feel intimidated in asking for assistance or information.

On a broader scale, nurses can focus on identifying and developing policies to alleviate the burdens of disability. Negotiating disabilities in a system that is unsupportive can have long-term negative implications for physical and emotional health and well-being of disabled workers. Attitudes towards disabilities can be addressed by encouraging and promoting diversity at the workplace and valuing disabled workers. Nurses can develop posters and participate in a media campaign to illustrate the contributions that workers with disabilities can make to the workforce.

Some workers with disabilities such as WMSDs have indicated that working part time or having flexible hours may be indicated as the type of work arrangements under which they would like to work. However, since most part time work has few benefits associated with it and rarely provides job security, this can be problematic for affected workers. Disability employment policies must take into consideration the fluctuating nature of WMSDs. Nurses can advocate that regulations be adopted to allow for the possibility of partial disability income assistance that can provide adequate income for workers who find they are unable to work at specified periods and then re-negotiate full-time reintegration into the workforce at a later date.

Nursing Education

In Newfoundland there is a need for basic nursing education programs to develop curriculum specifically geared to occupational health nursing. Other countries have developed educational programs specifically geared towards nurses choosing to work in

the field of occupational health and safety. These nurses study the occupational health nurses' roles, epidemiology, occupational diseases and injuries, toxicology, and ergonomics, as well as issues related to disability management and behaviors, laws and policies, promotion, and prevention (June, Hong, & Cho, 2003; Lin, Hong, & Yeh, 2008). There is also a need to develop post-basic nursing courses at the Master's and PhD levels so that nurses can further advance their careers and specialize in their chosen field. Advancing the quality of occupational health nursing services can promote wellness and prevent the occurrence of occupational injuries, diseases, and disorders (American Association of Occupational Health Nurses Inc., 2007).

Efforts aimed at increasing knowledge and understanding of occupational illnesses, diseases, injuries and disabilities may also assist with alleviating problems associated with stigmatization and discrimination. Nurses can develop programs to assist in knowledge development and dissemination at workplaces as well as in the public domain. Providing educational learning experiences has a potential to decrease misunderstanding and discrimination for workers and others with disabilities thus promoting a culture of understanding and respect for differences.

Education and research are often intertwined. These conditions potentially can be eradicated by increasing efforts towards specialization in the field of occupational health nursing and research in WMSDs and other occupational injuries and diseases.

Nursing Research

There are research implications for understanding workplace factors that affect health and well-being of injured workers. Evidence from this study spurs research

interest in a variety of areas. Individuals often attribute meanings to illness, injury and disabilities (Miller & Timson, 2004) and the meanings associated with developing a WMSD is worthy of further research. The present study did not aim to explore gender differences but looking at the differences between men and women's roles in dealing with WMSDs could be another research topic. Since most individuals will be affected by some sort of musculoskeletal problem at some point in their lives (Larsson & Nordholm, 2008) it is important to study their effects on health. In particular, it would be useful to study the impact on health over a longer period of time with individuals who have developed these conditions. This model can be tested with a larger population of affected workers at a variety of workplaces over an extended period of time. A number of research questions are suggested:

- How do family members of individuals who have developed WMSDs deal with these at home?
- How do health professionals deal with individuals who have developed WMSDs?
- How do co-workers, managers and, or supervisors at work deal with individuals who have developed WMSDs?
- How do insurers, such as Workers' Compensation deal with individuals who have developed WMSDs?
- How do seasonal workers deal with WMSDs to remain working?
- What are the differences in how men and women deal with these conditions at work?

Implications for Employers

The findings from this study have implications for employers so that they can address some of the challenges that workers with WMSDs experience related to the workplace. These fall into four main areas and are addressed below.

1. Take a pro-active approach by:
    - Providing training for supervisors working with individuals who have developed WMSDs so that they may recognize health problems in workers early on in the process.
    - Accommodating injured workers – implementing ergonomic or other changes that are needed.
    - Providing body mechanics training for all workers.
    - Creating a positive working atmosphere – promoting social activities at the workplace to avoid overwork. Being aware of the signs when a worker is feeling stressed and overwhelmed by work.
    - Ensuring programs are in place to educate workers about WMSDs and other work-related injuries and diseases.
    - Encouraging early reporting and creating a workplace culture that makes it safe and easy to report.
2. Address credibility issues by:
    - Being aware that WMSDs may be considered a stigmatizing condition. Many workers may choose to conceal or not disclose their conditions fearing discrimination and stigmatization. Since 'disorder' connotes a sense that

something is in 'disarray', you may consider using the term 'condition' when referring to WMSDs.

- Being aware of workers' attitudes and behaviors such as, injured workers' perceptions of control and support at the workplace
- Avoiding offering jobs seen as inappropriate or unimportant to injured workers and by cooperating with injured workers to find suitable work tasks.
- Increasing the focus on what injured workers can do rather than what they cannot do.
- Increasing acceptance of injured workers by communicating with them when they are absent from the workplace and ensuring they feel welcome on their return to work.
- Avoiding 'tokenizing' injured or disabled workers and seeing injured workers as 'risky' and more likely to take more absence days from work.
- Providing support to co-workers who may have to take on new roles and responsibilities in accommodating injured workers. Informing co-workers and giving them a rationale when making these plans.

3. Create a safe workplace culture by:
    - Creating a workplace climate of genuine concern for workers and investing in workers' health by offering health and safety initiatives for workers.
    - Developing strategies for managing relationships between injured workers, supervisors, managers, and co-workers and enabling open discussions among all parties involved. Improving dialogue and creating a win-win situation.

- Recognizing and respecting the rights of all workers.
- Adopting policies that promote safety in the workplace.
- Using the process model developed in these findings as a guide to how injuries affect workers and where interventions may be best implemented.
- Promoting an inclusive workplace through an organizational climate and culture that provides ongoing support for all individuals who want to work including those with temporary or permanent disabilities, as well as older workers.
- Providing flexibility in working patterns including allowing workers to work from home when required.
- Investing in workers' health.

4. Help to get the message out by:
    - Communicating workplace health information so it is accessible and usable by all workers and recognizing differences in literacy levels.
    - Advocating with government for assistance (financial or otherwise) as a means of providing employers with compensation for some or all of the costs associated with accommodating injured workers and providing safety practices in the workplace (especially for smaller firms).

Conclusion

Workplaces are complex social communities (Baker, Moon, & Ward, 2006). Workers who are able to remain at work with WMSDs do so as a result of a dynamic balance of negotiation strategies used among employees, employers, insurers, healthcare

providers, as well as family and society in general. WMSDs are a shared responsibility among these groups. Persons with disabling conditions such as WMSDs have been marginalized and their contributions to the workplace undervalued. Increasing a worker's power and control at work has implications for health and well-being for affected workers. Facing a belief that one's integrity has been questioned has been identified in the research literature as a threat to one's health and well-being (Franche & Krause, 2002); thus it is important to teach workers strategies to successfully negotiate to promote the integrity of these affected workers. We must not blame workers for being injured.

The findings from this study have shown that negotiation is a central concern to workers in attempting to deal with WMSDs to remain working and issues surrounding and promoting successful negotiations must be enhanced in health, occupational and social contexts of individuals' lives to promote health and well-being for workers who are challenged by these conditions.

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Collaborative Study

This study is part of a larger research project on Cumulative Trauma Disorders through a Community Alliance for Health Research (CAHR) entitled 'Safety Net' (http://www.safetynet.mun.ca)

The overall project is funded by Canadian Institutes for Health Research (CIHR).

Contacts

If you would like to take part in this study, please call:

Joanne Smith-Young,
1-709-777-7106 (Nursing Research Unit) or
1-709-745-0938 (at home).

The Process of Managing Cumulative Trauma Disorders in the Workplace Using a Grounded Theory Approach

A Research Study

Background

Cumulative Trauma Disorder (CTD) is also called repetitive strain injury or overuse syndrome. It is a term that describes a variety of conditions that result in pain and discomfort in areas such as muscles, nerves, and tendons.

CTD is common in workplaces where repetitive work is performed. CTDs are increasing and the costs are high both to workers and employers.

The Research Study

This study will examine how Cumulative Trauma Disorder develops in workers and how they manage this condition.

The results of this study will provide a better understanding for occupational health nurses and other health professionals who are working with workers affected by Cumulative Trauma Disorder.

This study has been approved by the Human Investigation Committee at Memorial University of Newfoundland.

How To Participate

If you are 19 years or older, are presently employed, and have been diagnosed with Cumulative Trauma Disorder, you may be eligible to participate in the study.

If you are interested in participating, a meeting will be arranged so that you may participate in an interview.

Your participation in the study and any information obtained will be strictly confidential.

Appendix B: Poster

A Research Study on CTDs

- Do you have Cumulative Trauma Disorder/Repetitive Strain Injury? Are you 19 years or older and presently working?
- Are you willing to participate in a study?
- If so, please contact: Joanne Smith-Young, School of Nursing, Memorial University
- 1-709-777-7106 or 1-709-745-0938

Appendix C: Interview Questions

Interview Script

Opening statement: Thank you for agreeing to take part in my study on how people manage cumulative trauma disorders, especially in the workplace. I would like for you to tell me all you can about this problem beginning with when you first noticed something was wrong. I am interested in the treatment you sought and what seemed to make it better and what worse.

If participants need prompts for the interview process or do not address these areas I will use these questions as prompts:

1. When were you first aware that you had this problem?
2. What kind of treatment(s) have you used?
3. How do you manage with this condition at work?
4. How has having a CTD affected you outside of the workplace?
5. Have you had to make any changes in your workplace? At home? Because of this condition. What were they? Have they helped?

Appendix D: Focused Questions

Interview Questions:

1. When were you first aware that you had this problem? What were the first symptoms that you noticed? (Feelings)
2. What kind of treatment(s) have you used? Do you have any special ergonomic equipment at work – computer desk, chair, mouse, etc.
3. How do you manage with this condition at work? Describe a typical day for you (include time for breaks, lunch – do you normally take these on a regular basis) What were the reactions from co-workers, supervisors, management? (Feelings)
4. How has having a CTD affected you outside of the workplace? Hobbies? Sports? Recreational activities? Home life? (Feelings)
5. Have you had to make any changes in your workplace? At home? Have these helped?
6. Have you had any previous trauma to the area affected? Automobile accident (whiplash)?
7. In relation to your medical history – do you have hypertension, diabetes, arthritis, or any other medical condition? Do you smoke?
8. Personality factors – do you consider your self to be a Type A personality – highly motivated, perfectionistic, driven? Or a Type B personality – laid back, experience life on a fairly even basis?
9. What would you say to someone who may be at risk for a CTD? That may have recently been diagnosed with a CTD? Any suggestions, recommendations for supervisors, managers, employers?

Appendix E: Informed Consent Form

Revised 2002/1

**Faculty of Medicine, School of Pharmacy, School of Nursing of Memorial University of Newfoundland;
Newfoundland Cancer Treatment and Research Foundation;
Health Care Corporation, St. John's**

Consent to Take Part in Health Research

TITLE: The Process of Managing Cumulative Trauma Disorders in the Workplace in Newfoundland: Using a Grounded Theory Approach

INVESTIGATOR(S): Joanne Smith-Young,
24A Torngat Crescent,
St. John's, NL A1E 3C7 (1-709-745-0938)

SPONSOR: SafetyNet: Community Alliance for Health Research

You have been asked to take part in a research study. It is up to you to decide whether to be in the study or not. Before you decide, you need to understand what the study is for, what risks you might take and what benefits you might receive. This consent form explains the study.

The researchers will:

- discuss the study with you
- answer your questions
- keep confidential any information which could identify you personally
- be available during the study to deal with problems and answer questions

If you decide not to take part or to leave the study this will not affect your work status.

1. Introduction/Background: Cumulative trauma disorder (CTD) is also called repetitive strain injury or overuse syndrome. It is a term that describes a variety of conditions that result in pain and discomfort in areas such as muscles, nerves, and tendons. CTD is common in workplaces where repetitive work is performed. CTDs are increasing and the costs are high both to workers and employers.

2. Purpose of study: The purpose of the study is to examine how you manage your cumulative trauma disorder especially in the workplace.

3. Description of the study: This study will examine how cumulative trauma disorder develops in workers and how they manage this condition. I will interview approximately fifteen workers affected by CTD. I am interested in when the problem was first noticed, how it affects work and home, and what problems workers are encountering at present. The results of this study will provide a better understanding

Initials: _____

for occupational health nurses who are working with workers affected by cumulative trauma disorder.

4. Length of time: I will interview you at two different time periods approximately three months apart. Each interview will last approximately one hour and with your permission will be audiotaped.

5. Possible risks and discomforts: The two interviews require a time commitment of approximately one hour each, which may be considered a potential inconvenience.

6. **Benefits:**

It is not known whether this study will benefit you personally.

7. **Liability statement:**

Signing this form gives us your consent to be in this study. It tells us that you understand the information about the research study. When you sign this form, you do not give up your legal rights. Researchers or agencies involved in this research study still have their legal and professional responsibilities.

8. Confidentiality: Any information you give me will be kept confidential. You will not be identified in any way. The audiotapes will be destroyed after the study is completed. Any information provided during the study will be kept under lock and key in the Memorial University School of Newfoundland School of Nursing, Room H3456. Only the researcher, thesis supervisors and the Human Investigation Committee will have access to information provided in the study.

9. Questions:

If you have any questions about taking part in this study, you can meet with the investigators who are in charge of the study at this institution. That person is:

Joanne Smith-Young, (1-709-745-0938).
Dr. Shirley Solberg, (1-709-777-6873).

Or you can talk to someone who is not involved with the study at all, but can advise you on your rights as a participant in a research study. This person can be reached through:

Office of the Human Investigation Committee (HIC) at 709-777-6974
Email: hic@mun.ca

Initials: _____

Signature Page

Study title: The Process of Managing Cumulative Trauma Disorders in the Workplace in Newfoundland: Using a Grounded Theory Approach

Name of principal investigator: Joanne Smith-Young

To be filled out and signed by the participant:

	Please check as appropriate	
I have read the consent [and information sheet].	Yes { }	No { }
I have had the opportunity to ask questions/to discuss this study.	Yes { }	No { }
I have received satisfactory answers to all of my questions.	Yes { }	No { }
I have received enough information about the study.	Yes { }	No { }
I understand that I am free to withdraw from the study	Yes { }	No { }

- at any time
- without having to give a reason

I understand that it is my choice to be in the study and that I may not benefit. Yes { } No { }

I agree to take part in this study. Yes { } No { }

_____ _____

Signature of participant Date

_____ _____

To be signed by the investigator:

I have explained this study to the best of my ability. I invited questions and gave answers. I believe that the participant fully understands what is involved in being in the study, any potential risks of the study and that he or she has freely chosen to be in the study.

_____ _____

Signature of investigator Date

Telephone number: _____

Initials: _____