

RECOVERY FROM WHIPLASH INJURY AND SEQUELAE:
A CRITICAL INCIDENT ANALYSIS

By

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ABSTRACT

Psychological sequelae, chronic pain, as well as other somatic and social problems can develop in some whiplash injured individuals, with a greater impact on quality of life than is usually acknowledged. Quantitative literature reports a high incidence of Posttraumatic Stress Disorder (PTSD), travel anxiety, depression, somatization, cognitive impairment, and low self-efficacy that can develop into a chronic impairment. In some instances, these sequelae can evolve into an intractable disability that often prevents individuals from returning to work or usual activities, prolongs their suffering, impairs family life and interpersonal relationships, increases the costs of insurance, increases the litigation rate, and ultimately increases overall losses and costs to society. The purpose of this study was to develop a set of categories that describe what facilitates and what hinders recovery from whiplash injury from the perspective of those experiencing it. Substantial numbers of quantitative studies and literature reviews have been published on whiplash and its sequelae, reflecting the clinician's perspective but omitting the perspective of those experiencing this mind-body problem. The critical incident technique was used to delineate specific factors, events, and behaviours that affect the recovery process. This methodology allows a richer understanding of how and why certain incidents facilitate or hinder recovery from whiplash injury and the types of changes anticipated to enable the most meaningful improvements in these individuals' lives. Implications for counselling of motor vehicle accident victims with whiplash injury and future research were discussed. It was concluded that the categories are useful in a number of ways for those experiencing the injury, their social network, service providers, and researchers.

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CHAPTER I

INTRODUCTION

Background

Understanding of recovery from a ubiquitous injury with disputed psychosocial, physical, cultural, and medicolegal factors such as whiplash is a complex task. From a medical paradigm, whiplash injury can be defined as a physical injury to the neck, much like a sprain or soft tissue injury, caused by the flexion-extension or torsional movement of the neck (Pearce, 1999), also described as acceleration-deceleration injury (Spitzer, et al., 1995). It is most often caused by motor vehicle accidents, most commonly when a driver or passenger is rear-ended by another vehicle, or less frequently, by a head-on or side collision. The resultant sprain is a mechanical stretching of muscular and ligamentous soft tissues with or without local bruising, causing pain, stiffness, swelling, tenderness, and muscle spasm. Most sprains resolve within 2-6 weeks (Pearce) and would fall into the category of acute whiplash. This is a common phenomenon in most industrialized countries, with B.C. having one of the highest rates in the world: 50,000 injury claims per year (Kent, 1998). However, there are other paradigms from which to view whiplash recovery when the injury appears to be more than a simple sprain.

Psychological sequelae, chronic pain, and other physical and social problems develop in some whiplash injured individuals that have a greater impact on quality of life than is usually acknowledged (Mayou, 1995). This is often described as chronic or late whiplash, and has a prevalence of 33% (Freeman, Croft, Rossignol, Weaver, & Reiser, 1999). Mayou noted that the psychological outcome for whiplash injury included significant depression and anxiety, similar to that for multiple injury, as did several other studies (Gargan, Bannister, Main, & Hollis, 1997;

Kuch, Cox, & Evans, 1996; Sheehan, Maguire, & Vella, 1994). Experiencing additional stressful life events unrelated to the accident are associated with even higher levels of distress and pain at one month in whiplash-injured individuals and may increase the risk of developing a disabling chronic syndrome (Smed, 1997). According to Jaspers (1998), at least 25% of individuals with whiplash injury develop trauma symptoms or Posttraumatic Stress Disorder (PTSD), chronic pain, and depression. PTSD is characterized by arousal, intrusive and avoidant thoughts and behaviours experienced after exposure to a traumatic event. PTSD, chronic pain, somatization, helplessness, and depression are psychological complications often suffered by individuals with whiplash injury (Shalev, Bonne, & Eth, 1996).

The research literature on motor vehicle accidents (MVA) contains ample numbers of correlational and case-control studies showing a significant relationship between psychological complications and return to work (RTW) time or recovery in injured individuals. Interestingly, recent studies have found that preinjury psychological morbidity and injury severity are not related to return to work (Gargan, et al., 1997; Michaels, et al., 1998). Return to work is not the only definition of recovery. Reduction of psychological sequelae, pain, and physical disability are recovery criteria commonly seen in the literature, as well as an increase in coping resources.

Most therapeutic interventions for whiplash injury are somatic treatments and according to the Quebec Task Force Study, have not been evaluated in a traditional scientifically rigorous manner (Spitzer, et al. 1995). The few psychological treatments in the literature are based solely on quantitative research from a medical, scientific paradigm and were designed to treat PTSD and depression in motor vehicle accident victims, not specifically whiplash-injured individuals. Studies of cognitive behavioural treatment (CBT) for PTSD, chronic pain, and depression found some benefits, however, many participants missed treatment sessions, dropped out, worsened

during treatment or relapsed posttreatment (Bryant, et al., 1998; Harrison, Watson, & Feinmann, 1997; Hickling & Blanchard, 1997; Tarrier, et al., 1999).

No interventions have been shown to be entirely efficacious, cost-effective, and widely acceptable. For some interventions, the effect is not clinically significant, not known to be long-lasting, is only effective for acute whiplash injury, may induce pain or other adverse effects, and only treats one of the many sequelae affecting the whiplash-injured (Bogduk, 2000). Rosenfeld, Gunnarsson, and Borenstein (2000) found an active home exercise program effective in reducing pain in individuals with acute whiplash at six months, if administered within 96 hours after trauma, but they did not measure any other outcomes, except range of motion, which improved over time regardless of treatment. Single modality treatment is not likely to be effective if one accepts the premise that there is not one specific injury mechanism or threshold of injury (Davis, 2000) or that chronic whiplash is a complex disorder with multiple etiologies (Munglani, 2000). Two pre-post multidisciplinary intervention programs specifically for chronic whiplash injured have been reported on recently (Heikkilae, Heikkilae, & Eisemann, 1998; Vendrig, van Akkerveeken, & McWhorter, 2000). However, these research studies were not randomized controlled trials, which is required for establishing efficacy of treatments, and their interventions were only partially efficacious for only some of their participants. No interventions have yet been evaluated or proven for cognitive impairment, visual disturbances, or dizziness due to whiplash, according to the 2000 review by Bogduk. The authors of the Quebec Task Force Study specifically recommended more research on psychotherapeutic interventions be done.

Quantitative research, founded on past exploratory research with a positivistic paradigm, on interventions for trauma in victims of MVA's, terrorist attack, crime, industrial accidents, assault, and for coping with chronic pain has been published. The research studies on

psychotherapeutic interventions, psychosocial sequelae, and factors affecting recovery for whiplash injury have all utilized quantitative methodology, governed by an approach where existing treatments defined the problem, and presumed a monolithic wall divides the ailments of the mind from the body (Griffith & Griffith, 1994). Mind-body problems have been studied and treated using the dominant totalizing illness models that construct what is perceived by caregivers and obstruct any other views, such as the patients' or their family's. These authors of a book on narrative family systems therapy for somatoform disorders emphasized that contributions from multiple perspectives are needed to fully understand mind-body problems. As Hodge (1971) observed, "Whiplash injury does not occur only to a *neck*; it happens to a *person*" (p.245). The missing piece of information may be qualitative data on recovery from whiplash injury using a social constructionist paradigm, which suggests that we construct our experiences, meaning, and ourselves within a social context, allowing a broader perspective that is more meaningful to the individuals experiencing mind-body problems.

Rationale

The impact of whiplash injury and its sequelae on the individual and on society is significant, according to the extensive body of positivistic literature. PTSD, depression, travel anxiety, cognitive impairment, low self-efficacy, and somatization are some of the psychological effects of whiplash injury reported (Blanchard, et al. 1996; Gargan et al. 1997; Henry, Gross, Herndon, & Furst, 2000; Lee, Giles, & Drummond, 1993; Mayou & Radanov, 1996; Miller, 1998; Smed, 1997; Soderland & Lindberg, 1999). These complications, notwithstanding the many persistent somatic effects experienced, can then lead to an intractable disability that prolongs a diminished quality of life, prevents returning to meaningful functioning, interferes

with family relationships, impedes return to work, increases the costs of insurance claims, increases the litigation rate, and ultimately increases overall costs to society. Nothing has been published on the experience of having whiplash injury from the point of view of the people experiencing this mind-body phenomenon, nor on what has facilitated or hindered their recovery process from their perspective. Counsellors need to be able to help clients deal with or avoid what hinders their recovery, and to seek or develop what facilitates it. The addition of the absent qualitative data on recovery from whiplash injury could lead to deeper understanding of the process and to the development of more acceptable and effective interventions.

Purpose of the Study

The purpose of this study is to develop a set of categories that describe what facilitates and what hinders individuals' recovery from whiplash injury from their point of view. Beliefs about what would have helped facilitate their recovery will also be studied to address the gap between what actually happened and what did not happen that individuals believe would have helped them recover. This inquiry will contribute to counselling psychology by: (a) providing information on what helps and what hinders recovery from whiplash and its sequelae that can assist with normalizing clients experiences and enable clinicians to better guide clients on their recovery journey; (b) providing a format for whiplash injured individuals to contribute their expertise to the body of knowledge on effective processes facilitating recovery; and c) distributing qualitative data from individuals experiencing the injury from which future researchers and practitioners may design and evaluate improved interventions and preventive measures.

Approach

Since it is the whiplash-injured individuals' perspective on what helps and what hinders their recovery that is missing and potentially useful, this study will employ a qualitative approach using the critical incident technique to discover what facilitates and what hinders motor vehicle accident victims' recovery from whiplash injury. This method is considered most appropriate to answering the research question of this study as well as filling in the gap in the research literature.

Assumptions

There are three underlying assumptions in this study. The first assumption is that in whiplash-injured individuals, malingerers are the minority, and participants will generally be honest about their constructions of their experience. This is supported in the majority of the literature (Bryant, 1997; Ferrari & Russell, 2000; Miller, 1998; Radanov, Bicik, Dvorak, Antinnes, von Schulthess, & Buck, 1999; Swartzman, Teasell, Shapiro, & McDermid, 1996; Wallis & Bogduk, 1996) and by my own experience of people I have met who have endured whiplash injury. It is also congruent with my counselling philosophy, which fits with the social constructionist perspective that allows for multiple meanings, contexts, and selves, allowing for flexibility and reconstruction (Dickerson and Zimmerman, 1996).

A second assumption is that there are factors that people experience as facilitating or hindering recovery from whiplash and its sequelae. Many published studies report (quantitatively) both internal and external factors affecting whiplash injured individuals and their recovery (Berry, 2000; Brison, Hartling, & Pickett, 2000; Evans, 1992; Gargan, et al., 1997; Gibson, Bogduk, MacPherson, & McIntosh, 2000; Heikkilae, et al., 1998; Miller, 1998; Munglani, 2000; Smed, 1997; Soderland & Lindberg, 1999; Soderlund, Olerud, & Lindberg,

2000; Sullivan, Stanish, Waite, Sullivan, & Tripp, 1998; Versteegen, Kingma, Meijler, & ten Duis, 2000). Anecdotal evidence from discussions with whiplash-injured individuals, injury recovery coordinators, physiotherapists, occupational therapists, and psychologists has also supported this assumption.

A third assumption is that recovery from whiplash can be defined holistically, with physical, social, spiritual, and psychological elements and that it is also a process. Since chronic pain, functional disability, and psychological distress are all interrelated (Andersson, Bunketorp, & Allebeck, 1997; Gouzd, 2000; Hodge, 1971; Radanov, Bicik, Dvorak, Antinnes, von Schulthess, & Buck, 1999), the overlap is so great that they cannot be neatly separated into discrete categories. Nor is it helpful to perceive somatoform problems as discretely physical or psychological disorders (Griffith & Griffith, 1994). Whiplash injury will be viewed as a mind-body problem with no dichotomy between mind and body. Accordingly, a holistic definition of recovery will be used, including psychological, physical, social, and spiritual aspects of recovery, as constructed by the participants. It can be a process of returning to pre-injured state or to a higher or lower level, whichever the injured individual perceives as recovery.

CHAPTER II

REVIEW OF THE LITERATURE

The majority of the literature on whiplash explores prevalence, diagnosis, etiology, physical and psychological sequelae, rehabilitation, and treatment. Many articles debate whether chronic whiplash syndrome exists and even if it is an artifact of litigation and cultural sanctions. Within the subcategory of psychosocial aspects of whiplash, most of the literature explores whether PTSD and depression follow or precede the injury, and consists of quantitative research evaluating factors predicting outcome or evaluating various types of psychological treatment for PTSD in motor vehicle accident (MVA) victims.

A sizable percentage of the whiplash literature focuses on the psychosocial effects that accompany the individual experience of whiplash. These articles usually describe psychological problems such as PTSD, depression, travel anxiety, somatization, and impaired self-efficacy. A few describe impairment in cognition, hearing, vision, and disequilibrium. Several studies mention quality of life issues, such as effects on relationships, return to work or activities, and on society. None of the published literature includes the experience of having whiplash injury from the point of view of the people experiencing this phenomenon, nor on what has facilitated or hindered the recovery process from their experience.

The gap in the literature is qualitative research documenting the experience of whiplash injured individuals and what affects recovery from this injury from the injured person's perspective. Treatment and programs for assisting recovery from this injury have had limited success and have been based only on quantitative positivistic research studies that exclude the constructionist approach, insight into a complex experiential process and the individuals' voice. This study is intended to bridge the gap by asking individuals with whiplash injury what has

helped or hindered their recovery process, including internal and external factors, and allowing them to voice what they believe would have helped that didn't happen for them.

The articles reviewed in this chapter can be arranged into two groups: (1) psychosocial sequelae related to whiplash injury; (2) factors affecting individuals with whiplash sequelae.

Psychosocial Sequelae Related to Whiplash Injury

PTSD

Research on motor vehicle accident victims with whiplash estimates the prevalence of Posttraumatic Stress Disorder (PTSD) in this population ranges from 25% (Jaspers, 1998) to 66% (Blanchard, Hickling, Taylor, Loos, & Gerardi, 1994). Ursano, et al. (1999) found that 34% of motor vehicle accident victims had PTSD one month after the accident, while Bennun & Bell (1999) reported that 90% of MVA litigants had high intrusion scores and 74% had high avoidance scores on PTSD subscales. Ethnic (Black, Hispanic, Asian) MVA victims were almost seven times more likely to develop PTSD (Blanchard et al., 1996; Ursano et al., 1999) and females were five times more likely than males (Ehlers, Mayou, & Bryant, 1998; Ursano, et al.). The DSM IV criteria for PTSD include exposure to a traumatic event with a response of intense fear, helplessness, or horror; re-experiencing of the event; avoidance of stimuli associated with the event; numbing; and increased arousal. The symptoms must be present for more than one month and cause significant distress or impairment in social, occupational, or other areas of functioning (American Psychiatric Association, 1994). Early symptoms of traumatization measured by the Impact of Events Scale (IES) predict pain and psychological distress at four weeks post-trauma and compromise return to work (RTW) or activities (Brom, Kleber, & Hofman, 1993; Drottning, Staff, Levin, & Malt, 1995; Michaels, et al., 1998). Mayou (1997) identified a higher incidence of PTSD, anxiety, and depression in

whiplash injured individuals than in the general population and was at a level similar to accident survivors with multiple injuries. He also noted that even when symptoms might be seen as slight, they were often significantly affecting everyday activities. PTSD at one year can be predicted as early as one week after the accident, based on severity of early PTSD symptoms (Koren, Arnon, & Klein, 1999). Two studies found that the first three months postaccident are the critical period for the development of PTSD (Gargan, et al., 1997; Koren, et al., 1999). PTSD follows a pattern of increase in symptoms soon after the trauma, followed by a plateau, with no evidence of alternations between intrusions and avoidance or of delayed onset (Koren, et al., 1999) and remains at a high level over time (Bennun & Bell, 1999).

Depression, Somatization, Chronic Pain

Some of the comorbid or co-existing psychological disorders found with PTSD include depression, driving anxiety, somatization, and chronic pain (Blanchard, et al., 1994; Kuch, et al., 1996). Wallis and Bogduk (1996) found unusually high degrees of somatization as well as depression, obsession, and hostility in individuals with whiplash. High ratings of depression and anxiety were reported in 32% and 62% of potential litigants 11 months, on average, after an MVA (Bennun & Bell, 1999) and were higher in female patients than in male patients with whiplash injury (Lee, et al., 1993). Victims of motor vehicle accidents who develop depression as well as PTSD are more distressed, experience more role impairment, and less frequently experience spontaneous remission than those with only PTSD. Conflicting with this finding, are results showing that depression occurs in about 50% of those with PTSD after MVA (Blanchard, Buckley, Hickling, & Taylor, 1998) and like anxiety, remits over time, but unlike PTSD

symptoms, which remain at a high level for MVA victims (Bennun & Bell, 1999). This leads to a confusing matrix of psychological sequelae with unclear pathways to resolution.

Travel Anxiety

A common complication reported in whiplash and MVA literature is travel anxiety, also identified as driving anxiety or driving reluctance. Since this type of anxiety may be experienced while driving and/or while travelling as a passenger, it will be referred to here as travel anxiety. This complication and its adverse effects on quality of life have been noted by several authors (Blanchard, et al., 1994; Bryant, 1997; Hodge, 1971; Mayou, 1997). With a prevalence of 60% three months after the accident (Mayou, Tyndal, & Bryant, 1997), 50% two years post-MVA (Andersson, et al., 1997), and persistence of similar rates at one and five years, this is a significant complication. Behaviours reported by those experiencing travel anxiety include not driving, driving slower, avoiding the accident scene, avoiding highways and/or heavy traffic, avoiding riding or driving for pleasure, and avoiding driving during certain weather or times of the day (Blanchard, et al. 1994). These kinds of fears and resulting restrictions can seriously impair everyday activities and quality of life.

Cognitive Impairment

Another commonly found complication in MVA victims, and in individuals with whiplash injury is cognitive impairment. In a literature review by Evans (1992), he noted a number of studies reporting cognitive deficits in whiplash-injured individuals, specifically deficits in attention, concentration, cognitive flexibility, and memory. Kessels, Aleman, Verhagen, and Van Lijstelaar (2000) performed a meta-analysis of 22 neuropsychological

studies on whiplash and concluded that a consistent overall pattern of cognitive dysfunction exists, some of which improves by six months post-accident, but then relapses in long term patients (Radanov, et al. 1999). The authors hypothesize the possible origins of the cognitive impairments to be cerebral injury, use of medication, chronic pain, PTSD, depression, malingering, pre-existing dysfunctions, or failure to use effective coping strategies and suggest interactions between these factors. Both Smed (1997) and Radanov, et al. identified an association between cognitive impairment after whiplash injury and a high level of anxiety or distress accompanied by pain. Yet, Schmand et al. (1998) concluded it is not possible that brain damage is the origin, since they found a high rate of malingering by cognitive underperformance on standardized tests in late whiplash patients who were undergoing litigation. They conceded that besides being due to malingering, cognitive dysfunction might also be due to chronic pain, fatigue, or depression. Another neuropsychological study found persistent cognitive, behavioural, sexual, and sleep dysfunction years postinjury in symptomatic whiplash patients, in which they postulated a connection to dizziness and visual disturbance (Henry et al., 2000) also reported by Mosimann, Muri, Felblinger, and Radanov (2000). Cognitive impairment may be a factor in the driving disturbances experienced by whiplash injured individuals. Miller (1998) described these driving impairments as inability to concentrate, dizziness and disorientation when turning the head, difficulty reading and comprehending road signs, difficulty judging distance and trajectory, and the perception of other vehicles as moving excessively fast.

Low Self-Efficacy

According to Fogarty and Beck (1995) and Drottning, et al. (1995), some problems experienced by individuals with PTSD include learned helplessness or a sense of loss of personal

control, altered or lost meaning in life, feeling misunderstood, and impaired interpersonal relationships. Perceived inadequate resourcefulness was discovered to be correlated with PTSD subscales on the IES and along with increased distress, was rated as abnormally high in 78% of MVA victims, whether they were physically injured or not (Bennun & Bell, 1999). This corresponds with Bandura's (1986) concept of self-efficacy or cognitive judgements that one can perform certain behaviours in a given situation. In injured individuals, self-efficacy expectancies or a person's belief in the likelihood of return to work is a significant predictor of vocational outcome after disability (Eklund, Eriksson, & Fugl-Meyer, 1991; Sandstrom & Esbjornsson, 1986). Beliefs of being able to cope successfully were found to be related to pain tolerance and level of functioning of chronic pain patients by Dolce (1987) and to disability and pain in chronic whiplash patients (Soderland & Lindberg, 1999; Soderland, Olerud, & Lindberg, 2000). It appears that attribution of responsibility is related to lack of self-efficacy, or learned helplessness, which was found by Blanchard, et al. (1996) and by Delahanty, et al. (1997) to affect PTSD symptoms in MVA victims. Delahanty, et al. established that only other-responsible motor vehicle accident victims demonstrated increased levels of distress at 6 and at 12 months after the accident, as compared to self-responsible accident victims. Blanchard, et al. found that attribution of responsibility for the accident to road conditions was negatively correlated with PTSD. Whiplash injured individuals are other-responsible accident victims and therefore could suffer higher levels of psychological distress due to decreased self-efficacy or loss of internal locus of control.

Impaired Quality of Life

The plethora of psychosocial sequelae combined with chronic pain or increased sensitivity to pain, as well as cognitive and neurological impairments after whiplash injury leads to a sharp decline in quality of life. MVA victims with mild to moderate (some whiplash) injuries reported reduced social and physical leisure activities, seeing friends less often, being unable to return to work, financial loss, and reduced sex life (Andersson, et al., 1997; Bryant, 1997). Those lacking social support or who believed they had received inadequate information about the nature and course of the injury had a higher rate of complications. Miller (1998) outlined the connection between physical and emotional sequelae by delineating how the interpretation of a head injury's cognitive and psychological effects as a threat to self-image and to meaningfulness of life can affect an injured individual. In a study of MVA victims with some whiplash injured, Mayou et al. (1997) found 55% had some adverse impact on four quality of life domains: leisure, social activities, relationships with family and friends, and job satisfaction. He also noted that poor quality of life was predicted by current physical problems. Quality of life domains are interconnected; effects in one domain can have consequences for all the others (Bryant, 1997).

Factors Affecting Individuals With Whiplash

Negative Cognitions, Emotional Suppression

Factors that prolong PTSD in MVA victims, such as persistent physical impairment, may be more important to recovery than the initial cause of PTSD (Kuch, et al., 1996; Mayou, Bryant, & Duthie, 1993). Psychological maintaining variables (negative interpretation of intrusive recollections, catastrophizing, rumination and suppression of recollections, anger) are important

elements that, in addition to persistent physical problems, may slow remission of chronic PTSD (Ehlers, et al., 1998) and are significantly correlated with heightened levels of pain and disability and unemployment, independent of depression and anxiety (Sullivan et al., 1998). These factors may be even more significant than perceived threat during the accident, which was also a predictor of chronic PTSD. Negative interpretations of intrusions and anger cognitions maintain a sense of current threat, preventing the perception of the accident as a past, isolated incident. Thought suppression and rumination may increase intrusive thoughts and reexperiencing, as well as prevent the development of positive cognitions of the trauma. Thought suppression was found to increase intrusion of trauma-related thoughts in victims of MVA's with acute stress disorder in a randomized controlled study by Harvey and Bryant (1997). Suppression of strong emotions can impede the processing of emotionally upsetting experiences according to Rachman (as cited in Joseph, et al. 1997). This was confirmed by their finding that negative attitudes towards emotional expression predicted higher levels of posttraumatic stress in survivors of a disaster. More data on psychological maintaining factors, specifically in whiplash-injured individuals would be useful.

Anger

Trauma and anger are linked. The DSM IV lists outbursts of anger or irritability as one of the five symptoms of increased arousal, one of the criteria for diagnosis of PTSD. Anger may be protective in the early stages, but if not expressed or processed, may lead to problems in the long term. Anger and hostility may amplify or maintain other symptoms experienced by MVA victims (Kuch et al. 1996), such as PTSD at 3 months and at one year, which were both predicted by anger at initial assessment (Ehlers, et al., 1998). Anger is very common in individuals injured

in MVA's, especially in those who feel victimized by the adversarial nature of the claim procedure and litigation process (Lloyd-Bostock, 1997; Mayou, 1995; Miller, 1998).

Most whiplash-injured individuals go through the litigation process in B.C. and other places where it is the cultural norm and the no-fault insurance system is not in place. This can be a prolonged and difficult experience, and may represent a form of validation of the losses experienced by the injured and of retribution for the injury. Hodge (1971) elaborated on this process by hypothesizing how initial self-directed anger in individuals with whiplash injury turns into outward anger at the person who caused the accident, then generalizes to legal and insurance systems, health care providers who cannot make the individual well, and to others who do not validate their experience. Unfortunately, he did not give any evidence in support of this portrayal. Mayou, (1995), however, did provide support for a somewhat similar description. In a prospective study including a whiplash-injured group, he found considerable reporting of anger in those who believed they were not at fault for the accident; anger for their suffering, the lack of contrition by those responsible, and an impression that insurance, legal and other organizations were uninterested. Anger may be causally or dependently related to or maintained by insurance claims and litigation processes or it could be a natural psychological response to the trauma of being injured in an other-responsible MVA; the mechanisms are unknown at this time.

Litigation

Controversy exists over the role litigation plays in the cause of the symptoms of chronic whiplash and their resolution. Two empirical studies (Cassidy, et al., 2000; Schmand, et al., 1998) have shown that litigation and compensation were related to recovery from whiplash injury. Cassidy, et al. (2000) reported that the elimination of compensation for pain and

suffering in Saskatchewan was associated with a decreased incidence and improved prognosis for whiplash injury. Reduction of claims occurred mostly in young men, 18-29 years of age. The authors found that involvement of a lawyer in an injury claim was associated with delayed claim closure, while claim closure was associated with recovery from symptoms. They also found memory problems, broken bones, arm pain or numbness, and being married associated with delayed closure under a no-fault insurance system. Pain intensity, functioning, and depressive symptoms were independently associated with time to closure under both tort and no-fault systems. Therefore, some symptoms of chronic whiplash were not influenced by litigation or compensation. Perhaps qualitative research will contribute additional data that clarifies the role that litigation plays in recovery from whiplash.

Compensation/Malingering

The research in this area is equivocal. Schmand et al. (1998) found that malingering on cognitive tests by chronic whiplash patients in Holland was prevalent (61%) during neuropsychological evaluation for litigation purposes. Findings from another study comparing whiplash patients with healthy students asked to fake having whiplash responses showed that the SCL-90 was a robust diagnostic device to assess psychological distress in whiplash patients and could detect deliberate malingering (Wallis & Bogduk, 1996). The authors concluded that the psychological effects of whiplash injury could not be faked on a standardized test. Both the cognitive and the psychological distress tests could detect significant impairment in whiplash-injured individuals that were considered not to be malingering and could be used to differentiate feigned from unfeigned symptoms. A cognitive test was used to detect malingering in a study of cognitive impairment in whiplash injured individuals and all participants passed (Henry et al.,

2000). Faked performance on eye movement tests was stated to be unfeasible and the impaired eye movement was demonstrated in a methodologically sound study of chronic whiplash patients in Switzerland, where there is no insurance compensation for pain and suffering (Mosimann et al., 2000). Most of the sequelae of whiplash injury were found to be present in the sample of a study in Ontario where there is a no-fault insurance program in place and thus, no compensation was received for pain and suffering (Brison, Hartling, & Pickett, 2000). However, the term malingering can include more than one definition; Schmand et al. looked to the unconscious tendency to underperform induced by several factors: adoption of the sick role, self-protection from fatigue, self-deception, and the need for medical validation in the face of skepticism, in addition to the traditional definition of deliberate fabrication. This concept of malingering is based only on quantitative research; the first-hand view of the individuals experiencing the injury has not yet been documented.

Pearce (1999), in an editorial, and Ferrari (1999) in a letter concluded compensation and deliberate exaggeration helped create chronic whiplash syndrome, however Pearce misinterpreted results of studies by Mayou et al. (1993) and Radanov, DiStefano, Schnidrig, & Sturzenegger (1994) that support the converse of his argument. Radanov et al. showed that psychosocial factors at injury do not predict the outcome, but develop within three months of the injury, and persist after claim settlement. This supports the idea that whiplash sequelae are not caused by pre-existing personality disorders or compensation, they are a result of the injury. Mayou, et al.'s (1993) finding that whiplash-injured individuals experienced the same rate of psychological distress as those with multiple injuries showed that these symptoms are related to experiencing a disabling injury, not malingering for compensation. According to Radanov et al. (1999), Ferrari neglected to consider the relapse in cognitive functioning in long term whiplash

patients that could not be attributed to litigation or brain damage, but could have been due to chronic pain, medication, or change in psychological functioning. In comparison to Ferrari's and Pearce's claims, Lee et al. (1993) cautioned that exaggeration of symptoms need not be intentional; psychological distress stemming from a pending court case could influence the perception and response to pain, particularly if financial security and employment have been affected by the accident. Their results demonstrated that whiplash-injured individuals have a heightened perception of pain in general and suggested that litigation stress may aggravate it.

A number of other studies (Mayou, 1995; Swartzman, et al., 1996) and literature reviews (Evans, 1992; Freeman et al. 1999; Kessels, et al., 2000; Mayou & Radanov, 1996) have challenged the assertion that compensation is related to recovery from whiplash injury and found flaws in some studies making these claims. Kessels, et al. (2000) in a meta-analysis, suggested malingering to gain compensation is only one possible factor contributing to the cognitive impairment found in whiplash injured individuals among many others; these were: failure to use effective coping strategies, chronic pain, PTSD, depression and attribution to others for the MVA. Extensive literature reviews by Evans (1992) and by Freeman et al. noted a number of flaws in the studies on the effect of settlement of litigation on whiplash symptoms. They refuted the suggestion that malingering and exaggeration to gain compensation are present in a majority of those with persistent complaints. Bennun and Bell (1999) also noted that recent reports have challenged the argument that accident-induced psychopathology is associated with secondary gain or compensation. Swartzman, et al. (1996) found no difference between current and post-litigants after MVA whiplash injury in terms of RTW, demographics, or psychological distress and emphasize that lumping postlitigants in with nonlitigants confounded many previous studies' results because of the similarity between postlitigants and current litigants. The authors also

noted that since litigation status did not predict employment status, secondary gain from compensation was not a strong factor in resolution of chronic symptoms of whiplash. Michaels, et al. (1998) also found evidence supporting the argument against the existence of secondary gain. They found a high incidence of preinjury psychological morbidity but this was not related to return to work/activities (RTW/A). PTSD was responsible for delayed RTW/A at 5 months post-injury by a mechanism that was independent from and additive to physical disability. Litigation and RTW were not related. Mayou (1995) concluded that whiplash injury is not a creation of the legal insurance system, but results in considerable reductions in quality of life due to psychological and physical impairment similar to any other physical illness. In a later literature review, he and a co-author formulated the generalization that compensation is not a major determinant of persistent symptoms and resolution of legal proceedings is not followed by a dramatic change in clinical status (Mayou & Radanov, 1996).

Cassidy et al. (2000) and Schmand et al. (1998) both neglected to address PTSD in their studies of factors affecting recovery from whiplash injury. Litigation is related to chronic PTSD, (Blanchard, et al. 1996; Bryant & Harvey, 1995; Ehlers, et al., 1998; Miller, 1998) a common complication of whiplash injury. Possible explanations for this relationship include the interrogations, delays, and correspondence acting as reminders; the sense of injustice; the desire for retribution and validation; and an adversarial system that inhibits trust and safety, all acting as factors that could aggravate PTSD. Blanchard et al. (1998), in a study of MVA victims, found that individuals with litigation either pending or settled showed no reduction in anxiety or depression after one year compared to nonlitigants who did show reductions. However, those who initiated litigation had more severe injuries and higher levels of PTSD. Bennun & Bell (1999) found high PTSD intrusion and avoidance scores in potential litigants referred for

psychological assessment by solicitors after MVA. Those accident victims with more severe cases of PTSD may choose litigation, and the adversarial process may then prolong and exacerbate the PTSD symptoms, as Lee et al. (1993) suggested. It is not clear from the quantitative research literature if PTSD and litigation are linked by a direct causal mechanism or are related in some other more complex manner.

Consistent with the previously mentioned studies, Lloyd-Bostock (1997) outlined how the tort legal system has a harmful effect on existing relationships; how social, psychological and financial costs are underestimated by litigants; and that accident victims express caustic censure of the law and lawyers. Evans (1992) cautioned that by being involved in litigation, the accident victim might be further victimized by a hostile, conflict-ridden experience. Litigation may appear to be a source of vindication for the angry accident victim, a way of getting back at the person at fault. However, the process is fraught with obstacles, delays, and hazards that are not expected by the accident victims, who have usually been convinced by others to enter into it. Clearly, the part that the stress of litigation enacts is complex and the debate over the role malingering and compensation play in recovery from whiplash injury is unresolved.

Physical or Psychological Etiology

Related to the aforementioned controversy is the debate over what causes whiplash or which came first: physical damage or psychological symptoms. Much of the literature on whiplash and MVA support the argument that the physical damage came first. Sixteen reports were found that support the hypothesis that etiology of whiplash is physical and the psychological symptoms developed in response to the pain caused by physical damage. Ten reports could be found supporting the assertion that pre-existing psychological distress,

malingering, litigation or cultural expectations cause chronic whiplash symptoms. The majority of the literature, twenty-two journal articles, supported the interaction of physical and psychosocial factors as the mechanism for chronic whiplash. Mayou and Radanov (1996) stated that the interaction of psychological, social, and physical factors predicted later pain symptoms and quality of life in a similar way to other physical illnesses such as heart attacks and cancer. Consistent with their results, Barnsley, Lord, and Bogduk (1994) found similar evidence for a multifactorial model. They reviewed the American, Swiss, Norwegian, Australian, and New Zealand clinical studies published on whiplash recovery and noted that some of the literature stated that psychological factors are pre-existing and some literature refuted that assertion. Based on these quantitative studies, the authors emphasized that litigation or malingering for financial gain does not contribute to the natural history of whiplash injury and concluded that psychological symptoms after whiplash are a result of the injury and its physical, social, legal, and vocational effects.

More recently, a review of the biomedical and engineering literature refuting chronic whiplash found abundant evidence of methodological flaws significant enough to reject the studies' claims that whiplash is not a valid physiological injury (Freeman, et al., 1999). They included a critique of the findings of the Quebec Task Force (QTF) on Whiplash-Associated Disorders monograph by Spitzer, et al. (1995) which concluded that whiplash injuries are short-lived, have a favorable prognosis, involve temporary discomfort, and that the pain was not harmful. The QTF findings were criticized for defining recovery solely as cessation of time-loss compensation, and for concluding that whiplash disorders are self-limiting and benign when the literature they cited reported that the symptoms persisted in 27-66% of individuals with whiplash, for an average of two years. In contrast, Stovner (1996) earlier reviewed empirical

studies of whiplash and concluded that there was little evidence for the validity of a physically based chronic whiplash syndrome. Recently, the evidence for a physical cause or component has outweighed the evidence for the contrary, with three literature reviews (Davis, 2000; Ketroser, 2000; Ryan, 2000) and seven clinical studies supporting this. Five of these studies documented a central hyperexcitability of the nerves in individuals with chronic whiplash syndrome, chronic pain, or other soft tissue injuries (Bennett, 1999; Johansen, Graven-Nielson, Olesen, & Arendt-Nielsen, 1999; Lee, et al., 1993; Munglani, 2000; Sang, 2000). Another study (Mosimann et al., 2000) demonstrated significant eye movement disturbances in chronic whiplash patients which could not be explained by depression or malingering but were indicative of prefrontal and frontal cortical brain impairment. Henry et al. (2000) demonstrated long term physiological findings consistent with brain injury. Radanov, et al. (1999) published a correlational study that supports the assertion that an undetectable physical injury of the neck may trigger the early symptoms of whiplash (pain) and the continuance of that pain is associated with emotional and cognitive factors that contribute to the maintenance of the symptoms. Ferrari (1999) challenged the results in a letter by indicating their lack of malingering tests when responded to letters (Ferrari & Russell (2000) refuting his criticisms of research by Barnsley, Bogduk, and Radanov. The controversy has not abated; authors continue to argue for both sides.

Whether physically injured or not, MVA victims experience high levels of intrusion and avoidance, symptoms of trauma that show no remission over time in litigants (Bennun & Bell, 1999). Supporting the results of Michaels, et al. (1998) that PTSD is related to return to work (RTW), is a case report of a worker who suffered PTSD after a life-threatening accident and soft tissue injury, for whom treatment of PTSD facilitated RTW (Phillips, Bruchi, & Harden, 1997). RTW was not found to be related to receiving treatment for somatic symptoms of whiplash

injury at 6 months in Japan (Sato, et al., 1997). Radanov, et al. (1999) propose a model of a continuum between physical and psychological factors in the course of chronic whiplash. It is difficult to choose sides over physical versus psychological causes and whose model best explains the causes of whiplash sequelae based on the investigator's paradigms when the majority of the literature supports a complex, multidimensional model that needs further study.

Culture

The influence of cultural factors on recovery from whiplash and its sequelae has been empirically studied in three publications. Balla (1992), Obelieniene, Schrader, Bovim, Miseviciene, and Sand (1999) and Partheni, et al. (2000) ascribe the dearth of chronic whiplash cases in Singapore, Lithuania, and Greece partly to the absence of personal injury litigation and compensation, and primarily on cultural expectations. For example, Balla (1982) found no reports of chronic whiplash by neurologists, neurosurgeons, orthopedic surgeons, and psychiatrists in Singapore and explains this as the effect of cultural sanctions against the sick role. A study in Greece found no chronic pain, numbness, headache, or dizziness in whiplash cases (Partheni, et al. 2000) and emphasized that Greece has no cultural bias against chronic symptoms, according to the authors. Obelieniene et al. (1999) also found that pain after whiplash in Lithuania was mild and self-limiting and proposed cultural factors were responsible for this. These quantitative studies explain the lack of chronic whiplash cases in Greece, Lithuania, Germany, and Singapore by citing cultural expectations, referring to the lack of compensation for pain and suffering in their insurance systems as the main cause of this phenomenon.

Alternative explanations that have not been considered by any of the authors are that chronic whiplash may exist in Singapore, Lithuania, or Greece but individuals with it either

suffer in silence due to shame, seek help from family or alternative healers, or receive help without asking. These cultures may have built-in releases or buffers that reduce or prevent PTSD, depression, travel anxiety, pain, and the resulting impairment of quality of life that is reported elsewhere. Perhaps being in a collectivistic society they get more support from family and others, so the impact is lessened. The occurrence of natural debriefing, mourning, reconstructing or reframing, reconnecting with others, less blaming and other effective coping mechanisms may protect or minimize the psychological and physical sequelae that trouble the more individualistic societies. Individuals of some cultures may somatize differently and thus seek help from different experts than the ones questioned about chronic whiplash in these studies. In a recent electronic correspondence (Dr. L.B.W. Drummond, personal communication, July 14, 2000), an anecdote of a Singaporean woman with whiplash injury described how friends advised her to go to a Chinese sensai (traditional medicine practitioner) instead of going back to her doctor because of the belief that western medicine wouldn't be able to treat whiplash, illustrating how cultural beliefs may affect help-seeking behaviour and western doctors' statistics on chronic whiplash. In addition, it was stated that Singaporeans rarely use seatbelts, especially in taxis, which are highly utilized as a means of public transportation and that weakness is seen as shameful so many of the sequelae of whiplash may be denied, not brought to the attention of any service providers. In another electronic communication, (Dr. L.B.W. Drummond, October 5, 2000) it was added that chiropractors in Singapore do see chronic whiplash patients but patients do not associate their condition with a car accident that happened previously and doctors wouldn't record most chronic whiplash cases as such. Allodi and Goldstein (1995) outlined how somatization can be a form of protection to self-esteem and public image since there is less social stigma attached to bodily symptoms than mental symptoms.

in some cultural groups. As another example of the effects of cultural sanctions, symptoms of PTSD may be concealed by individuals due to fears of pejorative labeling and ridicule after what is considered only a minor traffic accident (Miller, 1998).

Other determinants could be responsible for the lack of evidence of whiplash sequelae in some geographical areas. Perhaps injured individuals in these countries are not as angry and have fewer negative cognitions about their injury, perceiving the accident as fate or God's will and accept the outcome without blaming any other person or system. Furthermore, seatbelts are not used in Europe or Singapore as commonly as in Canada, where it is mandatory. Whiplash injury is rare if seatbelts are not used; more serious multiple injuries or death are the outcome for individuals not wearing those safety devices. In addition, the authors of the aforementioned studies only asked patients about pain and headache symptoms, omitting questions regarding the myriad other cognitive, functional, and psychosocial complications that may persist after whiplash injury. The two studies by Obelieniene et al. (1999) and Balla et al. (1992) also suffer from inadequate sample size, with the first study having too few females in their sample (who constitute the majority of whiplash-injured individuals in all other studies), and lacked the power to detect a significant chronicity rate while the second study had an inappropriate study design and recall, expectation, selection, and sampling bias. These studies also contain the limitation of all quantitative research: excluding the richer data of the individual's expertise and first-hand experience.

Cultural factors of expectation and attribution were further explained by a co-author of a British study of personal injury claims under the tort system. Social norms and rules provide a basis for ascribing fault of an accident and entitlement to compensation (Lloyd-Bostock, 1997). The legal system reflects the social norms and in Britain, is thought to be producing attributions

of fault. Cultural context for attribution was illustrated in the survey's finding that no compensation was wanted if the other person had already "paid" in some way: had tried to help, was very upset, was making sure it does not happen again, or did not mean to, could not help it. The injured usually embarked on a claim because they were advised to by others or it was expected of them in the circumstances. It depended on whom they contacted after an accident, their pre-existing relationship with the person who might be sued, and the chance that that person will be insured. Ferrari and Russell (1999) and Ferrari, Kwan, Russell, Pearce, and Schrader (1999) believe that symptom expectation, amplification, and attribution in chronic pain define the model for which treatment should be based. However, Ferrari's arguments are based on literature reviews of studies that have been found to contain serious methodological errors (Freeman, et al., 1999). Cultural factors and their influence on recovery from whiplash and its sequelae need further research, perhaps with qualitative approaches to clarify and deepen our understanding of their complex interaction with other factors in the experience of whiplash recovery.

Gender and Age

Gender and age have been found in the literature to be related to whiplash sequelae recovery. Females were found to have a higher risk of whiplash and sequelae (Brison, et al., 2000; Ryan, 2000; Versteegen, et al., 2000). Satoh et al. (1997) found that in Japan, prolonged treatment for whiplash injury was more likely in women and in individuals over 40 years of age. This finding was supported by the discovery in a Saskatchewan study that time to closure of claim was longer for older women, under both tort and no-fault legal systems (Cassidy, et al. 2000) and by Brison, et al. who found the risk for chronic whiplash was highest in 51-70 year

olds. Claim closure time should not be considered precisely the same as recovery from whiplash, however. Andersson et al.(1997) discovered that women over 40 had a higher rate of complications such as pain, fatigue, travel anxiety, psychosocial problems, and quality of life impairment than men. Married men and women reported more complications than those living alone and women with children had more symptoms of distress than women with no children. Balla (1982) noted that women far outnumbered men in whiplash injuries in Australia, although males had a greater risk of being in an MVA. Gender differences in quality of life and in PTSD risk were also found. Women scored significantly higher in quality of life impairment on two subscales: alertness behaviour and home management (Soderlund & Lindberg, 1999). Blanchard, et al. (1996); Ehlers et al. (1998); and Ursano et al. (1999) found that women had a higher risk of PTSD after MVA; the last author found a nearly five times greater risk for acute PTSD. Gender and age appear to be quantitatively associated with the experience of whiplash sequelae.

Concurrent Life Stressors

The role of other factors in the development of sequelae one month after whiplash injury was explored by Smed (1997) in a prospective quantitative study in Denmark. A clinical interview was used to review patients' education, employment, social changes and other stressors apart from the accident, learning deficits, other pre-existing difficulties, and current symptoms. Symptoms of psychological distress such as depression, anxiety, interpersonal inferiority, obsessive-compulsive features, somatization, chronic pain, and subjective cognitive deficiency to a higher degree were found in individuals with whiplash injury who also experienced concurrent personal life stressors unrelated to the accident, such as birth of a child, new job, new partner,

illness or loss of a relative, or robbery (Smed, 1997). He cautioned that the role of life event stress and intrinsic coping resources need to be explored further since Radanov et al. (1994) found that psychosocial stress at first contact did not relate to long term distress or cognitive function for whiplash patients. The connection between these factors is reinforced by Bennett's (1999) reporting that the amount of stress experienced by people in chronic pain is affected by a person's intrinsic coping mechanisms and by the observation that concurrent stress can affect people's ability to cope with transitions, according to Schlossberg, Waters, and Goodman (1995).

Transition

Recovery from whiplash injury sequelae can involve dealing with changes in several life areas and can be viewed as a transition process. Transition theory defines transitions as times of instability and disruption that challenge the coping resources of the individual and family. Transition and stress reduction models were applied by Roessler (1988) in designing a RTW program for mid-career disabled adults. Fassinger and Schlossberg (1992) identified how unanticipated events usually involved crises and most frequently brought more upheaval and change than expected transitions. Whiplash injury due to MVA is certainly an unexpected event involving some degree of change to the individual experiencing it. Borgen (1997) described a similar phenomenon in forced transitions for workers coping with continuing labour market instability. The phases of transition were identified as moving into transition, a period of confusion in the middle, and then returning to stability. The author emphasized how people can get mired in a protracted middle period of uncertainty and the endpoint can become one of persistent uncertainty. This corresponds with the findings of Radanov, Sturzenegger, and

DiStefano (1995) and Radanov et al. (1996) who discovered that late whiplash syndrome was related to concern regarding long-term disability.

Coping Resources

Coping resources affect how well one handles a transition. In a literature review on chronic pain by Bennett (1999), coping mechanisms were considered significant factors affecting the amount of stress experienced by individuals with chronic pain. Kessels et al. (2000) hypothesized that the stress of chronic pain combined with the feelings associated with attribution of the accident to others may hinder the effective use of normal coping strategies after whiplash injury, leading to an increased risk of developing PTSD or depression. Soderlund and Lindberg (1999) found that self-reported use of coping strategies predicted levels of physical pain, dysfunction, and more active coping strategies predicted lower pain scores (Soderlund, Olerud, & Lindberg, 2000) in individuals with chronic whiplash. The degree to which it changes a person's life is an important aspect of a transition. The greater the impact of a transition on a person's life, the more coping resources it requires, and the longer it will take for adaptation. Bennun and Bell (1999) found perceived coping ability is low initially but increases over time in litigants after MVA. Consistent with their results, a Swedish study found that whiplash patients displayed decreased coping resources before a rehabilitation program, which increased in 49% of the patients after the intervention (Heikkilae, et al., 1998). Coping strategies and transition models are clearly found in the body of quantitative research to be related to recovery from whiplash injury.

Methodological Review

Qualitative research methodology was chosen for this study for several reasons. A qualitative approach is preferable when there is a high density of information, a need to increase understanding of individuals' experiences, and a need to provide insight into processes that explain a range of internal or external experiences (Weiss, 1994). The gap in the literature on whiplash recovery is apparent by the absence of three things: a detailed description and fullest report possible of the experience from the injured individuals' perspective, a clear grasp of the complex recovery process and the factors affecting it, and a bridging of intersubjectivities. This bridging can "make it possible for a reader to grasp a situation from the inside, as a participant might, and can foster the kind of understanding expressed as 'had I been in that situation, I'd have acted that way too.'" (Weiss, 1994, p. 10). Much of the meaningful work in the social sciences contributing to the understanding of society has been done by qualitative interview studies. It has provided descriptions of phenomena that could have been learned about in no other way: the effects of bereavement, divorce, and natural disasters on personal lives, and the dynamics of post-traumatic stress disorder (Herman, 1997). Qualitative interview research can identify variables and formulate hypotheses for quantitative research, but it can stand on its own as well.

Critical Incident Technique (CIT), a particular type of qualitative methodology, was selected for this study. Flanagan (1954) described CIT as a flexible set of principles that must be modified to suit the specific situation being studied. He first used it during World War II to identify effective pilot performance, then applied it to research on industry, personnel psychology, job analysis, leadership, quality of life, and psychopathology. Woolsey (1986) described CIT as an exploratory qualitative method asking eyewitness observers for factual

accounts of behaviours or events that significantly contribute to a specified outcome. Its use has grown in counselling research in the last decade. CIT has been used to study high school counselling interventions (Neely & Iberg, 1989), psychology intern performance in counselling centres (Ross & Altmaier, 1990), decision-making processes in divorce (Proulx, 1991), ethical issues in psychologists supervision of student research (Goodyear, Crego, & Johnston, 1992). Other recent applications of CIT consist of semi-structured interviews of participants about their own or others' behaviour, followed by categorization of the responses, such as in Borgen and Amundson's (1984) study of unemployment, in their investigation of factors that hinder and help in group employment counselling (Amundson & Borgen, 1988), and in an evaluation of clinical practicum experience for nurses (Dachelet, et al., 1981).

CIT can be used in a wide variety of applications and is particularly suited to answering the research question in this study because it will delineate specific events and behaviours that affect the recovery process and the outcomes of the incidents from which descriptions, inferences, and conclusions can be drawn. CIT also has satisfactory methodological rigor, according to Andersson and Nilsson (1964) who evaluated reliability and validity of the method. They found that the structure of the material was not significantly influenced by the methods of collection or by the interviewers, and saturation and comprehensiveness were demonstrated by the finding that 95% of the subcategories appeared when two-thirds of the incidents had been classified. Categories were found to be stable for repeatability and between raters. Validity was demonstrated by comparing the contents of published literature with the categories found by the analysis and by ratings of importance by four groups and established that the method covered the essential and important points. Dachelet, et al. (1981) reported that CIT provides a detailed picture of peoples' experiences over time, which is key to describing a process, such as whiplash

recovery. Although quantitative statistics such as means, correlations, and p values can be useful tools for exploring and summarizing data, only a qualitative methodology such as CIT allows a deeper understanding of how and why certain incidents help or hinder recovery from whiplash injury and the types of changes anticipated to enable the most meaningful improvements in these individuals' lives. It also provides an opportunity for participants as eyewitness observers and firsthand sustainers to share their expertise, ideas, thoughts and emotions, which is lacking in most other research methodologies, and is one of the objectives of this study. It was intended that this study act as a feedback mechanism to assist clinicians, clients, and others in the adjustment of their paradigms to take into account multiple possibilities and contexts, instead of either/or totalizing and pathologizing models.

Other methodologies that can be utilized in qualitative research are case studies and phenomenological analysis. Case studies would not have provided the expertise of the whiplash-injured individuals while phenomenology would have focused on the meaning of the recovery experience, not the specific factors that help or hinder recovery. Grounded theory or narrative analysis could have been used to answer questions such as the ones that Kelley and Clifford (1997) asked in their study on chronic pain: 1) what is the experience of these individuals and how has this illness affected their lives, and 2) what coping mechanisms have these people found useful and how are they able to find and use their strengths. However, these methodologies will not specifically reveal critical incidents that facilitated or hindered whiplash recovery, which is the main objective of this study.

CHAPTER III

METHODOLOGY

Design

Critical incident technique (CIT) is a set of procedures for collecting descriptive information from people about their direct observations of their own or other people's behaviour or events and is used when an experience has not yet been portrayed in the literature (Flanagan, 1954). The emphasis is on things that happened that were observed or experienced that significantly affected the outcome. For this study, an incident will be considered critical if the participant believed it to have especially helped or hindered. Analysis will consist of sorting data into similar clusters to create categories.

This research question and methodology changed from quantitative to qualitative when several barriers arose during the initial recruitment phase, thus the group counselling intervention was dropped from the study design and interviews were added to the new design. The initial question was "Is early group counselling efficacious in reducing PTSD, depression, somatization, and RTW time in whiplash-injured individuals?" The proposed design of the study was a pretest-posttest randomized controlled trial. Lack of participant accrual, possibly due to being unable to initiate contact with potential participants, no compensation offered, individuals being too busy with medical appointments, having discomfort with groups or psychology, fearful of ICBC using participation in the study against them, and other possible factors necessitated redesigning the study. The research question became "What helps and what hinders recovery from whiplash injury and sequelae?" Critical incident analysis was chosen for the newer design, being qualitative, enabling a smaller sample size to be effective while allowing a richer, deeper

exploration into the recovery experience from the participant's perspective and the future development of more meaningful and facilitative group and individual interventions.

Participants

A sample of 6 individuals with whiplash (soft tissue neck) injury due to a motor vehicle accident was used. The inclusion criteria were:

- age 20-65
- within 2 years of their most recent whiplash injury
- able and willing to provide informed consent
- able and willing to conduct interviews in English

The exclusion criteria excluded participants who didn't meet the inclusion criteria listed above or were not able to clearly describe their experience of whiplash recovery.

Table 1 Demographics of Participants

Gender	5 / 6 Female
Age	30 years (median) 24 – 40 years (range)
Education	3 Diploma 2 Undergraduate 1 Graduate degree
Occupation	Student, Homemaker, Actor, Chef, Bookkeeper, Teacher
Ethnicity	5 White Canadians, 1 Indo-Canadian
Time Since Injury	10.5 months (median) 5 – 18 months (range)
Previous Injuries	2 (none) 2 (one previous) 2 (two previous)
Off Work, School, or Activities at First Interview	1 (yes) 4 (no) 1 (reduced hours)
Lawyer Involved	4 / 6
Claim Settled	2 / 6
Travel Anxiety	5 / 6

Interview Procedures

The study was conducted by the researcher, who was a graduate student in the third year of the UBC Master's Program in Counselling Psychology with 14 years experience in health care research, and a Bachelor's degree in Nursing. The researcher enrolled participants, interviewed and phoned participants, analyzed the data, and wrote up the results and thesis under the supervision of Dr. Bill Borgen, professor, UBC Counselling Psychology.

All initial contact was made by participants. Participants were recruited from word of mouth by colleagues, acquaintances, friends, relatives, and from the participants enrolled in the previous whiplash recovery research study who consented to be contacted in future when informed that the study would be redesigned to include interviews. The same physiotherapy clinics that consented to allow posters in the original design of the whiplash recovery study were approached again when adequate sample size was not reached by the other methods described here.

After participants phoned and indicated an interest in the study, pre-selection was done over the phone to ensure confidentiality of all individuals participating in the study. During this phone conversation, the researcher ensured that potential participants met all the inclusion/exclusion criteria. Participants were interviewed by the researcher for 1 to 2 hours in a private, mutually agreed upon location, either in a rented office space in the community, or in their home.

The beginning of the interview included establishment of rapport, clarification about the nature of the study, answering questions, discussion of expectations, confidentiality and the option to withdraw from the study at any time, and signing the consent form. The elicitation of the critical incidents occurred next, by asking the questions: "What has helped your process of

recovery from whiplash injury so far? What did not help?" Other questions (see Appendix B, Interview Questions) were asked to get more complete information about helpful and unhelpful events as well as demographic data (age, gender, ethnicity, occupation, time since injury, number of previous accidents/injuries, litigation, case settled). This process continued until participants could not recall any further incidents. Questions were also asked on what would have helped participants' recovery that didn't happen and what does the participant need to do now to further facilitate their recovery. The interviews lasted approximately 1.5 to 2 hours.

At the end of the interview, a mutually convenient time was chosen for a 30 minute follow-up phone call to assess participant agreement with and ranking of the categories, in terms of importance to them. The researcher then conducted the follow-up phone call within 2 to 4 months of the first interview. Phone calls, rather than meetings, were selected for the participant's convenience and benefit, taking less of their time, and reducing transportation costs or arrangements. Feedback consisted of presentation of the categories to participants for confirmation in a follow-up phone call. The total time participants contributed to the study was 2 to 3 hours total, consisting specifically of a 15 minute initial selection phone call, a 1-2 hour interview, and a 30 minute follow-up phone call.

Interviews were audiotaped after gaining consent from the participants. The audiotapes were transcribed and analyzed for categories using critical incident technique. Incidents were extracted after checking the following: (1) Was the participant's account of the incident complete? ; (2) Was the event or factor clearly identified? ; (3) Was the outcome related to the purpose of the study? Incidents were then recorded and divided into source (context of the event), action taken (what happened), and outcome (effect that followed the event). Clearest incidents were categorized first and served as prototypes. Repetitive patterns were noted after

the third interview and no new categories were formed after the fourth interview. A sixth interview was done to ensure redundancy had been reached, which was confirmed by analysis. The usual validity and reliability checks were performed on the categories, as described in the analysis section.

Analysis of the data

A process of inductive reasoning utilizing three steps was applied. Extraction of the incidents from transcribed audiotapes and recording of incidents on index cards occurred first. Forming the categories using logical content based on similarities was done, followed by performance of validation procedures. Attention was paid to descriptive, interpretive, and theoretical validity, by using several procedures to address specific validation questions. These included 1) participant cross-checking; 2) theoretical agreement; 3) expert rater agreement; 4) independent rater agreement; 5) exhaustiveness; 6) participation rate.

Extraction of the incidents

Incidents were extracted from the transcripts of the interviews after meeting the following criteria: (a) the account was complete, including context such as how, who, when, what preceded it; (b) the event or factor was clearly identified; (c) the outcome was related to the purpose of the study. Incidents that did not meet these criteria were not included initially and checked for clarification and validation with the participants during the follow-up phone call. If these incidents met the criteria after validation with the participant, they were then included in the analysis. The three components of each incident were recorded on index cards, with a separate card for each incident. There was no identification on the index cards of which incident was assigned to which category in order to facilitate a blinded check by independent raters as a validation procedure.

Forming the categories

The sorting of incidents into similar clusters to form categories was done by focusing on the event or factor and these clusters emerged intuitively during the analysis. The clearest incidents were categorized first and were used as prototypes. Brief definitions of the initial tentative categories were made and more incidents were classified into them. Incidents that did not appear to fit logically into any category were cross-checked with the participant. As expected, some incidents could be categorized into more than one category and these were noted and cross-checked with the participant who then selected the category of best fit or formed a new category. There were 17 helping and 14 hindering categories formed after the second interview. The final results consisted of eight helping categories and five hindering categories. Some categories were renamed, merged, or separated and some new categories emerged during the process, decided collaboratively by the researcher and the participants.

Validation Methods

Descriptive validity or accuracy of the account was addressed by tape recording interviews and use of transcripts, clarification and checking with participants during the interview, and participant cross-checking of the provisional categories and clarification of unclear incidents by a follow-up phone call. Categories were re-named or transformed collaboratively during the participant cross-checking validation procedure. Interpretive validity or what the incidents meant to the participants was addressed by using the language and concepts of the participants as much as possible and by use of participant cross-checking during the follow-up phone call. Theoretical validity is based on how well the literature supports the categories that emerged from the data (Anderson & Nilsson, 1964) and was assessed by agreement between the categories and previous research and theory on recovery from whiplash

sequelae. If no agreement was found with the literature, a category was classified as questionable, and agreement from participants and expert raters was examined. If these were present, then the category was retained, but noted as not present in the literature.

The expert raters were two rehabilitation counsellors (who were also previously trained as physiotherapists) working with individuals recovering from whiplash injury and were asked to assess the relevance or usefulness of the categories in their practice, which helped establish content validity. Independent raters were two students in the Master's degree program in Counselling Psychology at UBC, familiarized with the categories by the researcher, were asked to place 15% of the critical incidents, randomly selected, in the formed categories. Agreement between each rater's and the researcher's categorization was expressed as percentages, and the cutoff for validity was 75%-85% agreement, as per Anderson and Nilsson's 1964 study. Exhaustiveness was evaluated by leaving 10% of the incidents unexamined until all the categories are formed. Since these incidents could be placed within existing categories, the category system was considered comprehensive. Participation rate was determined by counting the number of participants that contributed incidents to each category and calculating the percentage for each category. A 25% participation rate was considered adequate to verify validity of each of the categories.

Confidentiality

Access to the data was given to Dr. Bill Borgen, UBC Counselling Psychology professor and principal investigator and Pamela Catapia, graduate student in MA Counselling Psychology program, and researcher. Randomly selected segments of transcribed data on index cards were anonymously presented to two independent judges for validity and reliability checks of the initially formed categories.

Confidentiality was maintained by giving each participant a code number upon signing the informed consent form. An index card with participants' names and corresponding numbers was kept in a locked filing cabinet at all times. Participants were not identified by the use of names or initials anywhere else. Only the researcher was aware of the identity of the participants. Audiotapes and diskettes were kept in a separate locked filing cabinet. The transcribed data and the audiotapes were retained for five years after publication and then destroyed by shredding the paper, erasing the diskettes by making data irretrievable, and erasing the tapes through demagnetization. No data identifying individuals was or will be available to any persons or agencies outside the University.

There were no known risks or benefits anticipated for participants. Through the interviewing process, participants may have become more aware of underused strengths and coping skills that have helped or may help them deal with recovery from whiplash injury, and may have been able to apply these to their recovery process and to other similar transitions in their lives. Several participants commented that participating in the interview reminded them of some underutilized coping skills, lifted their mood, and increased their motivation, for which they were appreciative. Participants stated they did not endure any discomfort or incapacity as a result of their participation in this study. However, if any participants had experienced any psychological distress during the interviews, referral for psychological counselling was available. The best interests of the participants took precedence. There was no monetary or other form of compensation for participants. In case of distress experienced by the independent raters or by the researcher, referral for psychological counselling was also available but was not pursued by either.

CHAPTER IV

RESULTS

A total of 137 critical incidents were identified from interviews with six participants concerning what facilitates and what hinders recovery from whiplash injury. The 137 critical incidents were formed into 13 categories: 8 helping and 5 hindering. The themes that emerged from answers to the question "What would have helped your recovery that didn't happen?" are summarized next. The validation procedure results are described in Part II.

Part I Description of the Categories

The 13 categories are presented separately for helping and hindering, in order of higher participation rate first. Categories with the same participation rate are presented by the higher frequency first. Events or factors and outcomes of the critical incidents within each category are presented. The sub-categories of critical incidents within each category are provided, as well as examples of incidents. Table 2 lists the eight helping categories, the five hindering categories, their participation rates and frequencies.

Table 2 Category Frequencies and Participation Rates

Helping Category	Frequency	Participation Rate
1. Emotional Support	27	6 (100%)
2. Effective Physical Treatments	22	6 (100%)
3. Helpful Beliefs	7	5 (83%)
4. Taking Initiative to Find Help, Recover	10	4 (67%)
5. Informational Support	7	3 (50%)
6. Dealing with Emotions & Thoughts Oneself	3	3 (50%)
7. Spiritual Connections	3	3 (50%)
8. Task Support	3	3 (50%)
Hindering Category		
1. Emotional Side Effects	9	6 (100%)
2. Service Providers Attitudes/Actions	21	5 (83%)
3. External Circumstances	11	5 (83%)
4. Hindering Beliefs	10	5 (83%)
5. Activities that Lower Mood, Increase Pain, Stress	4	2 (33%)

Helpful Category 1: Emotional Support (27 incidents – 100% participation rate)

Participants benefited from emotional support from three sources: from service providers, their social network, and from the driver of the other car. The service providers described as providing emotional support were physiotherapists, chiropractors, a GP, a naturopath, a lawyer, and counsellors. The types of behaviours of service providers described here included demonstrating belief, interest, and caring by listening in a nonadversarial way, asking questions in a keen manner, respectfully writing down what you say and looking at you, taking time and sitting with you, adjusting your treatment to how you feel that day, understanding and adjusting your RTW to your particular occupation, frequent normalization and validation of the symptoms, length, and the ups and downs of recovery process, sharing personal information of their own recovery from whiplash, demonstrating knowledge of usual symptoms, demonstrating optimism in your recovery by decreasing frequency of sessions and attributing this to your improvement, empathic listening, strength reinforcing, guiding you through feeling and expressing emotional pain, frustration, anger.

The social network consisted of spouses, parents, friends, church members and peers who were currently experiencing whiplash injury recovery. The behaviours were: inquiring how you are doing and if still going for treatment, listening to the story and to feelings expressed, self-disclosure of experiences, feelings, thoughts, behaviours if also currently experiencing whiplash injury. The emotional support from the driver of the other car consisted of apologizing sincerely, taking responsibility for the accident, expressing concern, and suggesting appropriate actions immediately following the accident.

The outcomes were hope, release of tears and other emotions, feeling heard, cared for, feeling a burden lifted, relief, less alone, less anxious, normalization, validated emotions and

thoughts, beliefs affirmed, feeling stronger, empowered, able to cope, empathy/ connection with the other driver, less angry at the other driver, reassured it wasn't my fault, more energy – less expended on conflict with other driver, feeling respected and understood, clarified things, feel like part of a team, trust in the service provider, inspired to participate in activities, ready to deal with deeper personal issues.

EXAMPLE 1

I felt like I was going crazy. I had post-traumatic shock and I needed reaffirming that I was doing my best to get better. I felt like I was the only person on the planet who's going through it. I met one person who had been a very bad car accident as well and we get together regularly and share experiences of whiplash, our emotional journeys and treatments. It reaffirmed to me that I wasn't alone or doing anything wrong, it decreased my anxiety, increased my confidence, gave me information about different therapies to try, and she helped me see more clearly when I was feeling down.

EXAMPLE 2

I went to psychotherapy because I was so sad, depressed, and having anxiety attacks in my car. It was my third accident and my huge fear of driving has hurt my recovery. I was keeping my anger and pain inside. Even though I was going to my physiotherapist and chiropractor, the relief was temporary because I had all this emotional stuff inside. Seeing my therapist, I bawled my eyes out, she made relaxation/visualization tapes for me and talking has been huge. It's amazing what you uncover when you start to dig around in someone's basement. It brought up stuff and forced me to deal with it and helped my driving fear. I was writing and I read the

books she suggested and it's true there's a huge mind-body connection. I'm getting my priorities in order, and that motivation, lust for life, and hopefulness back.

EXAMPLE 3

With my new GP, we can discuss things, it's not adversarial. If I believe I need a referral for massage therapy or counselling, he asks why I think that works and I tell him and he says OK, go for it, but we'll see what's going to happen next. If he doesn't think a treatment is beneficial he'll tell me very clearly and then we'll discuss it. I can tell he believes me because he doesn't argue with me and is not surprised that I'm still in pain, he's like a neutral observer. He will question and clarify so that shows me he's listening. He writes down everything I say and if he hasn't got it right he asks again and he looks at me. I believe that he wants to work with me, he's on my side. I'm building trust with him. I don't think he's the answer to my recovery but I absolutely have to have him on my team. GP's are not neck or back specialists so they have to trust you to find your way to recovery and he does.

EXAMPLE 4

My chiropractor is probably one of the most empathic people I know, he's a bit of a counsellor, he's a great listener, he can really reflect back what you're feeling and saying. He understands the insurance and medical politics and battles. When I'm self-pitying or angry at ICBC or the Dept of _____, he'll say "you might not want to take that personally, it's actually not about you" and that's a good point. He's also good at referring, like for physiotherapy, reading material, and a church that I now go to which has been psychologically and spiritually helpful. I

affirm my beliefs through him and that makes me stronger. He helps me see my own power, which helps me recover. He's a key to my psychological, mental, as much as physical recovery.

Helpful Category 2: Effective Physical Treatments (22 incidents – 100% participation rate.) Participants found chiropractic adjustments, physiotherapy trigger point pressure/massage, exercises, acupuncture, yoga, feldenkrais, muscle relaxants, anti-inflammatories, nutritional supplements, anti-depressants to be helpful. The outcomes were relief from pain, stiffness, headaches, and increased mobility, can breathe deeper, improved memory and concentration, and feel emotionally lighter and happier for a few days to a few weeks after. They also noted an increase in energy, more positive outlook, increased flexibility and strength, relaxation, mood lift, a sense of power and accomplishment, reassurance, increased ability to cope and ability to perform daily activities.

EXAMPLE 1

I saw a physiotherapist two months after the second accident. My neck was so tight and my posture was off. She would hold my neck and then tell me to resist in the opposite direction while she worked on massaging or stripping my muscle, digging her thumbs into the muscle to get it moving again. She made up an exercise routine for me with pulleys and light weights. The exercise routine helped my mind and my muscles to remember what shape they used to be in and helped me to get my spine back working. I learned how to retrain the injured muscles. I would plateau and then we would try something different. It was slow, but the recovery was there. It helped a lot, actually.

EXAMPLE 2

Before I see my chiropractor I feel out of balance, I drag my right hip, I don't look to the left as well, I'm not aligned, and it blocks my energy, I feel tired, slower, sorer. My right shoulder blade has been out since the accident. His treatments are cracking of the spine and found a way to puzzle out my shoulder blade. We did a week of aggressive back treatments. I get relief for a few days, a week, maybe two. It helps me manage my pain week to week, day to day. It's slow, but I believe what he does is really effective, it's not overnight but it's a useful part of my scenario.

EXAMPLE 3

There were times when the pain was just, I needed medicine to get through that time, like where I thought I'm going to go crazy, it's just so in there. There are days that are really bad, there's days that are OK. I would feel tight, have a bad headache, like a hazy cloud. I'd take two ibuprofen and lie down. Sometimes I would have to take a Robaxacet to loosen up the back muscles as well. It took the edge off, so that you're able to deal with it, cope with life and get going. Some days it would take the headache away.

EXAMPLE 4

Feldenkrais is a great thing, I would highly recommend it. It's so gentle, you're training your mind and your body to connect, listen to each other and you never go past a pain threshold ever. It's basically tricking your brain a little bit and you turn your head to the right while holding your eyes forward a few times and you increase your mobility. They offer it in community centres, it's quite cheap and it's simple, or you can get a book on it but classes are better so you can be social. I felt a lot of pain relief, increased range of motion, and a sense of accomplishment, of

power, if I can move farther now, something positive has happened. After a session you lie on the floor and feel light or heavy – like all your muscles have let go.

Helpful Category 3: Helpful Beliefs (7 incidents – 83% participation rate.)

There were two main types of helpful beliefs: a) belief in a mind-body connection; b) positive optimistic beliefs about recovery and life in general. The outcomes were: seeking and finding help for the emotional and physical sides of the injury, continuing to seek social support, quick recovery from travel anxiety, understanding the connection between emotional irritability and pain and finding a way to ameliorate it, knowing when to rest and knowing what works by listening to one's body, feeling confident about coping ability and comfortable with crying, feeling relaxed, continuing with physiotherapy, and planning on returning to work.

EXAMPLE 1

I'm the victim here. I need the help and ICBC's not helping me. Every time I'm emotionally set back, I feel like it affects my body, I become so tense. The spiritual side of me has come to learn that our mind controls our body more than we know, there's a huge mind-body connection, and we hold emotions in our shoulders. My muscles have clamped themselves onto my joints and they're not letting go, my theory is they're so scared they're going to get hurt again, they've been hurt three times, they hold the memory and they're prepared for the next accident. My muscles are just pissed off and decided to clamp up. I think the emotional side needs to recover first. I think my mental well-being is a lot better because of the antidepressants and a friend who

is going through it too, I have a chiropractor that is a confidante, I have more family here now, and counselling continues to help. I feel like the physical is going to follow eventually and I'm hopeful.

EXAMPLE 2

I had three people in my car and it was lucky only I got hurt, is what I think. I'll be feeling worse if my friends got hurt. I usually think "what do I have this for, it is for the better," that's my attitude. I look more broadly, if people say bad things, I just think, "oh, it's your problem." I won't stay back, always forward. Before I go out, I think people are going to say these things, but who cares. It doesn't stop me from socializing, I don't withdraw. It doesn't give me an after-effect.

EXAMPLE 3

After the accident, I had trouble in driving for a few days, I would drive really slow. I would see a car and think "where is that going, not coming to me, no." or "he's coming fast, is he going to stop?" It's just anxiety, especially as a passenger. My state of mind helped me recover from that anxiety. I always keep telling myself "it happened once, it doesn't mean that happens all the time, just be careful and cautious, it doesn't mean that you have to be nervous, just drive carefully." I keep telling myself "that's a problem that's gone, try to think positively." I'm a positive person. That anxiety went away fast, in a week or ten days. Then after that, I never got a problem, just driving as before.

Helpful Category 4: Taking Initiative to Find Help, Recover (10 incidents – 67% participation rate.) This category included proactive behaviours such as seeking out effective and supportive treatments, activities, and service providers; goal setting; setting limits with

others; reducing one's busy schedule; asking questions; developing an honest relationship with service providers; ending nonsupportive relationships with service providers. Outcomes included a sense of control over one's schedule and recovery, feeling empowered, setting goals for recovery and reaching them, creating a trusting supportive relationship with service providers, feeling heard and being referred to other helpful services when needed, finding effective treatments and competent service providers, increased self esteem, decreased stress, relief at finding help.

EXAMPLE 1

I felt like I was going crazy. I had occasions of being really emotional, out of control in public. I was aware that I needed counselling but I felt a huge sense of failure that I needed it, and kept putting it off. After I called to make the first appointment to see a counsellor, I felt a huge weight taken off of me, finally somebody was going to help me. I thought it would be this terrible feeling like a failure, but as soon as I made the appointment I felt so much better.

EXAMPLE 2

I suspected my first GP didn't believe me so I fired her and found a new one that is supportive. It's taken some effort to realize this is a different person, and I've been really honest with him about my previous experience and what I need from him. I just wanted to work with someone that believes me, especially when it's someone who has power. I'm building trust with him and getting support from my new GP. I've had my best months of my recovery since I've found him.

EXAMPLE 3

I felt worried because I wasn't getting better and it hindered my life so I took a close look at my life and decided to take care of my neck and back and fit exercise into my schedule. I wrote down my goals, my 5 major goals for this year and one of them is that my back gets better and where am I going to fit that into my schedule, is it taking priority. It's freeing because I know I'm going to get to it because it's in the schedule. I feel more of a sense of control because I'm saying I'm going to get better because I'm going to exercise, and if I'm not getting better then we need to take something else out, look at something closer, and say where am I heading with this. It forced me to say I have to have help with this.

Helpful Category 5: Informational Support (7 incidents – 50% participation rate.)

The information came from counsellors, physiotherapists, chiropractors, and a naturopath and the types of information included information on psychological effects, coping mechanisms, PTSD, muscle compensation and exercises, pain, whiplash injury, the insurance system, and on treatments. The outcomes were feeling more in control, understanding the effects and what to do about them, being able to visualize and better exercise the muscles, finding other effective physical treatments and coping strategies, feeling relieved, validated, hopeful, and empowered.

EXAMPLE 1

In the beginning, I wanted to believe the typical information on recovery from soft tissue injury that said that if you return to work earlier, you recover sooner. I was in a lot of pain and in denial. My chiropractor gave me lots of articles to read on whiplash, orthopaedic surgery, and pain, which I read to increase my knowledge about this injury. This information validated my

personal experience and I realized I wasn't going crazy. I felt relieved, I learned to slow down and explore the mind-body connection and I realized I could manage my recovery on my own.

EXAMPLE 2

I didn't want to be a burden on my family and friends, especially after six months when they think you should be well on your way and you're not. I thought I was going crazy, I'm not used to depression or anxiety. In a session with a counsellor, we talked and she diagnosed that I had post-traumatic shock. She listened, understood, and told me I wasn't going crazy. It made me feel so much better to know that I had something real and clinical. After my first visit with her, I remember being very aware that I was smiling as I was leaving. I hadn't smiled in six to seven months, smiling where I was actually so happy. I remember thinking that this was going to be so good, I was on my way to recovery now, someone can mentally help me sort all these things out.

EXAMPLE 3

In my car accident nobody died, I walked away with no broken bones, and I was an emotionally stable person prior. I didn't realize how I coped in my life. Seeing the counsellor helped me see how I relieved my stress, got my enjoyment, how I coped, was through physical activities. I used to go to the gym, used a personal trainer, cycle, rock climb and suddenly all that is taken away from me – my coping mechanisms and my love, which is a very scary, lonely, dark place to be. The counsellor told me I needed to find simple things, like to lie on the floor and listen to a piece of music I loved and use that as my time away. That made me realize I had to find other

things besides physical activities to help me cope while I'm getting better, which I did, and they really helped me cope.

Helpful Category 6: Dealing with Thoughts & Emotions Oneself (3 incidents – 50% participation rate.)

Participants reported physical expressions of anger and frustration (throwing, kicking, punching pillows), using music and breathing, meditation, affirmations and processing personal issues to be helpful to their recovery. The outcomes were: releasing some anger and frustration, less struggling with feelings, slowing down, feeling more connected with one's body, escape from thinking, lessened physical symptoms, feeling more able to cope.

EXAMPLE 1

I felt like I was drowning in an emotional mess. The counsellor explained you can't truly give yourself a break from it because you have to bring you and your body, mind, and broken spirit with you everywhere, so you have to have some way to cope. I needed to replace the physical coping activities that I'd lost. I started listening to music and lying on the floor and breathing which really helped me not think about things for a while. I needed to take a break from constantly thinking and feeling and that would be my escape. I felt like my body was almost wanting to thank me for allowing it to have that escape and I thought why couldn't I have seen this before. The counsellor showed me how to cope while my doctors helped me get my body better and that was vital to my recovery.

EXAMPLE 2

I was in a state of high struggle and low acceptance. I started doing meditation and I practiced some of the affirmations, and I worked through some personal issues in my life. After, there was less struggle, I slowed down, and I became better connected with my body.

Helpful Category 7: Spiritual Connections (3 incidents – 50% participation rate.)

This categories involved expression hope, praying, handing it over to a higher power, and meaning-making or believing in a purpose for the experience. The outcomes were described as letting go, less anxious, feeling grounded, connected, relief, feeling like things had eased up, things were less overwhelming, on a stronger road to recovery.

EXAMPLE 1

A spiritual element is so positive for me, even when I lost my child, it helped me get through it. I often prayed when feeling really stressed and say “God, help me out with this.” I have a strong faith in God. Knowing that there was someone in control who also loved me, who knows me – I felt there was someone who was holding me. It’s like venting “I’m having a lousy day today.” You know you’ve talked to someone, you’ve let it go, put it in that box and handed it over and then I don’t need to have that anxiety any more. I can give it over to something.

EXAMPLE 2

“I can’t cope, I can’t do this anymore,” I would think. I was sobbing, thinking there’s got to be something to make this go away and I talked to God and started screaming that I needed him to ease up on me because I was about to fold, and I was chanting “I can’t, I won’t do this anymore”

because it was so bad. Call it whatever you want – God, faith, my body hearing myself, I felt like things had eased up a little. Next morning, I felt things were less overwhelming, things are improving, I was on a stronger path to recovery.

Helpful Category 8: Task Support (3 incidents – 50% participation rate.)

Participants described family members babysitting one's children, carrying heavy things for you, helping you move, and getting a lawyer to deal with ICBC for you as helpful. The outcomes were: avoiding the stress of phone calls with ICBC, feeling supported and loved, being able to rest when needed, feeling relieved, less things to worry about, able to avoid heavy lifting and aggravating the pain.

EXAMPLE 1

I was feeling some stress about having to move. My partner was helpful – he took charge of moving, was very understanding, saying "I'll move the heavy boxes, you just take care of yourself." He did most of the work, and he carried my book bag for me at school. I felt relieved, one less thing to worry about. It was good to have that option to stop lifting and aggravating the pain.

EXAMPLE 2

It was very stressful having to get a lawyer because I knew that my adjuster would be switched to one who deals with lawyers, and they would take away the beneficial things like massage, and they would make things a lot more difficult. Getting a lawyer that goes to bat for me for everything was probably one of the best things that helped me in terms of the emotional part, getting off the phone with ICBC and crying because they were rude and blaming. Not having to

come home, check my messages and hear that it's somebody from ICBC has been hugely helpful.

The eight helpful categories outlined above included a number of themes, events, factors, and outcomes that participants described in critical incidents that they believed facilitated their recovery. At the time of the interview, none of the participants thought they were completely recovered, however, two believed they were about 80% recovered and the other four indicated they had made some progress in their recovery process. In addition to facilitative incidents, participants reported critical incidents that hindered their recovery process. These were grouped into the five categories that are elaborated upon next.

Hindering Category 1: Emotional Side Effects (9 incidents - 100% participation rate.)

Participants reported self-doubt, loss of mood control, putting on weight due to depression, and travel anxiety as hindering effects of their injury. The outcomes were aggravation of neck pain, back pain, headaches, not pursuing treatments that may have facilitated recovery, loss of friendships, isolation, lowered self esteem, difficulty driving, worry about wife having passenger anxiety, thinking one is going crazy, loss of energy, giving up participation in recovery activities and self care, impaired memory and concentration, impaired spousal relationships, avoidance of family vacations by car.

EXAMPLE 1

I think it's good to allow my body to feel the sorrow and loss, but it's not like you just cry once and it's over – you still feel that loss. It's a huge one, it's the loss of my goals, my dreams, my health, my personality. My character traits shifted, I'm very moody, very irritable now. I've lost

several good friends who I thought I'd have for life. I would say to myself "you know you're not like this, why are acting like this?"

EXAMPLE 2

I'm not better, and I've tried working and I've tried not working, and doing exercises and relaxation. I wonder if I'm babying myself too much, why else would they make you return to work so soon. Maybe you need to go through the pain, get the circulation going, get new muscles – but I couldn't stand it. I don't know what to do next. I don't do any activities anymore, my energy's gone, my memory's gone, the pain level is as much as before, I don't keep up with my self-care as well.

EXAMPLE 3

We went skiing with the family and we were driving home at night, my husband was driving, and the road conditions were not good. I remember feeling incredible anxiety, it was really scary for me, I was crying, tearful, I felt very out of control. It's only when someone else is driving. So I sat in the back but then I thought I hope he doesn't fall asleep, I feel like cars are coming at me, we're going to be hit, or drive off the road. It affected our family life, the kids started giggling, saying mommy's getting cuckoo here, mommy's always scared when daddy drives. It affects our spousal relationship, we had an intense dialogue, and I said "I know I'm being irrational, it's not you, you're a good driver." My husband wants to do this trip again and I said we have to drive in daylight. I don't ever feel like taking these trips anymore.

Hindering Category 2: Service Providers Attitudes & Actions (21 incidents - 83% participation rate.)

Participants described attitudes of condescension, lack of caring or interest, or being judged, criticized, accused, invalidated, belittled, disbelieved, not heard, or manipulated by service providers as hindering their recovery. The actions they outlined included pressuring them to put a price on the injury and close the file before recovered, not explaining how claim system works or how to put a price on the injury, denying, stalling, or cutting off payment for treatments, requesting return to one's GP before allowing continuance of treatments, being videotaped or knowing it's possible, referring you to an Independent Medical Examiner (IME), giving inadequate medical information and no reassurance, lying to you, laughing at you, writing a report full of errors, telling you to learn to live with it and get cognitive-behavioural therapy. The service providers they described as responsible for these attitudes and behaviours included occupational therapists, personal trainers, adjusters, injury recovery coordinators, physiatrists (physician specialists in physical medicine and rehabilitation), orthopaedic surgeons, GP's, and IME's. The outcomes were crying, feeling accused of fraud, stalked, violated, worthless, wrong, tense, exhausted, depressed, discouraged, helpless, betrayed, punched in the stomach, panicked, paranoid, sick to one's stomach, fearful, blocked from recovery, increased pain, anxiety, self-doubt, rumination, pacing, anger, financial debts & worries, frustration, insomnia, continuing hindering activities, quitting personal training which resulted in having physiotherapy and massage therapy cut off by ICBC, getting a lawyer, not answering the phone, not participating in recovery activities in case it's used against you, hiding in your home, and giving up on recovery.

EXAMPLE 1

ICBC sent an occupational therapist (OT) to my house to discuss what we could do to try and get me better. I had a tremendous amount of hope in what this person could offer me and we sat in my house and talked. I've never had anyone cut into me the way she did. She said that we all get sore and have problems in our bodies at times, and that she skies, does aerobics and gets stiff and sore but that doesn't mean she has to run over and see a chiropractor, or physiotherapist - Mother Nature heals her. On the phone she would turn around what I was saying. I told her this personal trainer was useless and she said "what you're saying is you didn't need a trainer." I said, "no, I do, but this trainer didn't help and she'd say " you didn't need a trainer because you weren't that bad." She wouldn't hear me. I can remember sitting there in so much pain, just wanting to somehow transfer my pain into her for just three seconds so she could feel it and know that I was being honest. I was on trial with her, she didn't believe me, and it was terrible to hear because I was in terrible amounts of pain, anxiety and depression, I couldn't even walk up a flight of stairs. I broke down crying, choked up on the phone, and she didn't even acknowledge the fact that I was crying or upset, she just said "Okay, well, have a good day, bye, bye," so detached.

EXAMPLE 2

My lawyer told me what to expect in the discovery, which I'm totally terrified of, and said they're probably going to show me any videotape they've taken of me, they find out where your appointments are, when you get off work, follow you home, to the gym, grocery shopping. When you're ready to settle, they'll probably get in touch with old boyfriends or co-workers and interview them about anything they remember about your state when you were hurt. Hearing all this, knowing they're just out to sabotage me, do they know how much that hurts, how that just

makes me want to run away and hide and not try and get better? I'm not the criminal here. It hinders because it angers me, it makes me negative, upset, tense, sick to my stomach, totally paranoid, and looking over my shoulder. I got back in my car and I remember sitting there for a minute, scared to drive away, thinking somebody could be watching right now. I drove to work and I remember wanting to burst into tears, where's the humanity in all of this? If they talk to me for five minutes they'll realize I'm not out to break their bank, I just want to get better. It's making me second guess myself, what am I doing wrong?

EXAMPLE 3

I only have problems with continuous movements like cutting _____ for four hours on a table this high, that's different than carrying groceries to your car for three minutes. I have to do my own cooking at home and I can lift a four litre milk and I want to do that to help my recovery, like at physiotherapy I am doing some weight lifting, but I'm not lifting 25 kilos. They can take your photograph or a video and that can cost you the claim. So you can't lift a four litre milk in public. When I buy groceries, I have to carry all the bags in my left hand because others may not understand. I don't want to keep my right hand idle, for my recovery. If I carry a bag of shirts, maybe 300 grams, but somebody thinks, he can lift that, he can work – that affects your daily activities. If I want to put oil in my car and lift four litres of oil with my right hand it will be a problem. You feel very bad, you can't live in society the way it was, because of the worries.

EXAMPLE 4

My lawyer sent me to see a physiatrist, a medical doctor who specializes in rehabilitation and physiotherapy. I was looking forward to it, my lawyer told me he's very good. The physiatrist

told all I needed was to lose weight, exercise, and buy better running shoes, and I already knew those things. I already tried to exercise and lose weight. He did the brief tests in his physical examination, and I am so sick of being touched by so many doctors by now, and he didn't even introduce himself or what he was. I felt treated like a number. I was so frustrated, I thought he was wrong and he just didn't care. I was incredibly disappointed, I felt my shoulders just drop, like, I give up, and I sat in my car and cried.

Hindering Category 3: External Circumstances (11 incidents - 83% participation rate.)

Three main types of circumstances that were outside their control were described by participants as hindering: 1) the invisibility of the injury and its sequelae; 2) circumstances of the accident; 3) circumstances of life. The invisibility of the injury hindered by making it harder for service providers, friends and family, and society in general to believe the participant's symptoms. Accidental circumstances included having a head-on life-threatening collision, having an accident that is someone else's fault, having passengers with you who were injured, having three accidents with injuries, driving someone else's car when the accident happened, and having the other driver accuse you of being responsible. Life circumstances consisted of having kids, having to move, having school assignments due, having a marriage breakdown, having siblings with marriage breakdown, and having increased physical activity required at work, and having financial debts and concerns. The outcomes were: irritability with children, having to postpone starting a recovery activity, not being as kind and patient at work, increased frustration and stress, impaired self esteem, driving anxiety, anxiety about being able to work and financial consequences, aggravating the injury by doing necessary activities, feeling guilty about other person's car being damaged, feeling discouraged at lack of support, feeling offended or angry at

other driver, having flashbacks, nightmares, depression, crying, being paranoid about passengers being hurt.

EXAMPLE 1

The physiotherapist asked me when do I think I can fit the one to one strength training into my schedule and I said when the kids are back in school so I can really maintain it. Otherwise it's useless. A very hindering thing is having children, my schedule is very busy, they are in very demanding school programs and music programs and summers are very non-routine. I think it affects me psychologically. I'm used to that fast pace and because the physical pain is stopping me from doing things, or the irritability – I was just not as patient with them when I was getting overwhelmed with things. And physically, I couldn't start strength training until my kids were back in school.

EXAMPLE 2

There's still a lot of pain and socializing can only free you a little bit from being depressed. You pray every day "let me get back to work, I still have to pay my bills." You see people, even friends and they say "Oh, you're not back to work, oh really? What's wrong?" You hear these kinds of comments every day. They say "Oh, you'll be getting lots of money." People are not accepting that you are in trouble because you are not limping, you are not in a wheelchair, so visually, they can't see what it is, it's a feeling within me – the pain. Nobody can see it except me. These kinds of comments only discourages you, you think you shouldn't be going to socialize, there's nobody supporting.

EXAMPLE 3

It was the third accident, I saw it happen, and it was a head-on, there was nothing I could do about it. My knees hit the dash and I realize that I probably could have died in that car accident.

It was blatantly her fault and she actually accused me of it being my fault. To this day I'm so angry. I've been to hell and back. I've had flashbacks, nightmares, I became depressed, I have anxiety attacks in my car.

Hindering Category 4: Hindering Beliefs (10 incidents - 83% participation rate.)

There were four types of beliefs in this category: 1) time limit for recovery beliefs (participant's, service providers and family, friend's, and society's); 2) society's fraud beliefs of whiplash; 3) beliefs in unchanged physical abilities added to competitive athletic and professional role identities. The outcomes were: thinking one is useless if one can't perform at one's usual level in athletic or professional role, pushing oneself too hard in work or exercise and then increased pain and headaches after, frustration, self doubt, self criticism and blame, worry over why not recovered yet and being able to return to work and leisure activities, feeling no control over one's body and one's recovery, giving up thinking long term, feeling insulted, discouraged and unsupported, distrusting one's GP, loss of optimism & hope.

EXAMPLE 1

People think it's been a week, it's been a month, oh, you're better now, come on, you're fine. When you say you have to go to these doctor's and physio's appointments or go to the gym to work out, people don't understand why. You have the insurance company saying you should be fine and they know you're not, they don't want to pay for everything anymore. You hear that and you start to have all this self-doubt and inner torment, thinking "why aren't I better and what am I doing wrong, I must not be trying hard enough." Which does not help the healing process at all.

EXAMPLE 2

In Aquafit class, I would go into my competitive athletic mode and do too much, push it too far. I would think I was useless because I couldn't do what the 70-year-olds could do. It's really hard to give up a competitive attitude and not do well at something. I've grown up with this attitude all my life. I would do an exercise and feel it was tweaking this, I should probably slow down, but I wouldn't. I'd think I can go through it and go too far and I'd pay. I'd have headaches, a sore back and neck after.

EXAMPLE 3

I was feeling stress from my GP not believing me, stress from the general public not believing you, thinking everyone is trying to get money. I felt distrust of my GP and offended. I'm an honest person and I'm in pain. It set me back.

Hindering Category 5: Activities that Lower Mood, Increase Pain & Stress (4 incidents - 33% participation rate.)

Participants described activities such as writing only about pain and other symptoms that are not improving in a daily journal, returning to work, and overdoing aquafit or yoga exercises. The outcomes were increased pain, headaches, and stress, cessation of physical exercises, loss of energy, motivation, hyperawareness of bodily sensations, depressed mood.

EXAMPLE 1

My lawyer asked me to write in my journal every day how I was that day, but it's hard to do. I was pretty diligent about it, and I started to write little summaries like "I woke up with a headache, I was achy, stiff, and sore, and I felt really sick after lunch because I'm having these

digestion problems and bloating, not able to swallow properly, clicking jaw when I chew, ringing in the ears, and pain in my back. I thought "Oh, God, what can I write about, I'm in pain every single day, and nothing's getting better." It sort of brought back everything, it was depression, a constant reminder, and after writing for a few hours, my shoulders hurt. So I stopped for quite a few months.

EXAMPLE 2

I have a martyr tendency, I still struggle with it. It's like I have to reduce my work but I don't want to, I should still be there, being responsible, and so I returned to work right away and tried to just reduce my hours a bit, hang in there and grit my teeth, and have a replacement 2 days a week. I had to work extra hard three days a week just so she'd have a nice 2 days and it was stressful wondering how she's doing. That hindered me. I was not listening to my body, and I thought that what the system said would work, would work. But it didn't. I suffered for eight months. I didn't get any physical relief. Then I worked full time for a month and I was as sore as one can get.

Four of the five hindering categories grouped incidents that consisted of factors that can be modified; one category contained external circumstances that could not easily be altered. The hindering factors and outcomes in these five hindering categories and the eight helping categories evolved out of participants' answers to questions concerning what happened; the following section includes their answers to the question regarding what didn't happen.

What Would Have Helped

Five themes were noted from answers to this question by five participants: 1) more aggressive physical treatments, exercise programs, etc. earlier in the recovery process; 2) not

returning to work immediately; 3) receiving more counselling; 4) more informational and emotional support from service providers; 5) a support group. One participant couldn't think of anything when asked this question. Following are summaries of the comments by five of the participants:

1. Focusing only on recovery at the beginning by not returning to work and trying aggressive treatments right away: acupuncture, chiropractic treatments, massage therapy, analgesics and anti-inflammatories frequently and immediately.
2. Receiving more specific information from GP right away about what will aggravate the injury and what won't, and what other people's experiences have been so I could understand my injury better and take steps to minimize the symptoms and be more proactive in pursuing physiotherapy or massage.
3. Alerting my GP sooner that my recovery was taking too long so we could have treated it more aggressively (more physiotherapy and personal training exercises) in the beginning. A drivers support group (after being in a car accident).
4. The occupational therapist hired by ICBC or some other person or system helping me by coordinating my doctor's appointments and therapies and help me to help myself, instead of fighting me on allowing coverage of chiropractic, massage therapy, and counselling. Joining a recovery group with other people with this injury.
5. More support from ICBC: offered me some sort of assistance, what can I expect to go through, how to prepare for the obstacles, the symptoms, normalize them, remove the obstacles to getting the treatments, positive comments like "you're going to get better, you're going to get through this, I'm on your side," suggested treatments that might be helpful to give me some

hope. Not returning to work immediately. More counselling. A support group for people with whiplash injury.

Part II Validation Procedure Results

Exhaustiveness

The purpose of this validation check was to ensure saturation and comprehensiveness. As described by Andersson and Nilsson (1964), 10% of the incidents were left unclassified until all the categories had been formed. All of these incidents fit within the formed categories and so the categorization system was considered comprehensive and exhaustiveness was considered achieved.

Participation Rate

This was determined by counting the number of participants that contributed incidents in each category and then calculating the percentage out of the total number of participants interviewed. A 25% or higher participation rate is recommended as sufficient to demonstrate validity of the categories (Borgen & Amundson, 1984). The participation rates ranged from a low of 33% (Activities that Lower Mood, Increase Pain & Stress) to a high of 100% (Emotional Support, Emotional Side Effects, and Effective Physical Treatments). The higher the participation rate, the more valid the category is (Flanagan, 1954). Table 2, in the results section, lists the participation rates and frequency rates for the 13 categories.

Participant Cross-Checking

This validation procedure was performed to address descriptive and interpretive validity and took place during the follow-up phone call. Unclear incidents were clarified and the

tentative categories were confirmed, transformed, or renamed collaboratively in order to create meaningful and accurate categories. During this process, the original 10 helping and 6 hindering categories were transformed into 8 helping and 5 hindering categories. Emotional support from service providers, social network, and the other driver were merged from three separate categories into one category with three sub-themes. Service providers actions and attitudes were combined to form one category due to much overlap found in the sub-themes. Thus the original 16 categories evolved into 13 categories.

Independent Rater Agreement

Anderson and Nilsson (1964) indicated that the acceptable level of agreement between raters on the categorization is 75-85%. Two independent raters participated in a one-to-one training session with the researcher explaining the names of the categories and the sub-categories. The raters were both graduates of the UBC Master's in Counselling Psychology Program. The researcher read the 13 categories to the rater and clarified the definitions when asked. All the incidents had been written on index cards and the researcher had randomly chosen 42 (31%) critical incidents (three or four for each category). The original plan was to use only 21 (15%) critical incidents but this would have required only 2 incidents be sorted per category because there are 13 categories, and this was deemed insufficient for assessment of agreement. The independent raters sorted the 42 index cards into the 13 categories. 86% agreement was achieved by the first rater's sorting and 83% agreement was obtained by the second rater's categorization, which are considered acceptable levels for validation.

Expert Agreement

The researcher asked two rehabilitation counsellors who were also trained as physiotherapists, and had extensive experience working with individuals recovering from whiplash injury to judge the relevance and usefulness of the categories in their practice. Further comments were invited. They both indicated finding the categories to be very useful and relevant to both service providers and to those suffering from whiplash injury. One commented that emotional support from service providers often required exploring by clients to find, which connects with the Taking Initiative category. She also described demonstrations of lack of interest and caring by service providers and being pressured by ICBC to settle the claim before recovered as very important sub-categories because of their significant impact on her clients. She suggested that cognitive-behavioural therapy is useful for some clients and that some client's pursue an unrealistic number of different treatments or sessions and cutting off payment may be found particularly hindering to them. This counsellor also indicated that she has noticed that many medical professionals can only recognize acute disorders and feel inadequate regarding their failures in resolving chronic ailments. She described the hindering sub-theme of writing in a journal as very helpful for her as a counsellor to be aware of because she often suggests this activity to clients as a helpful one. I clarified with her that this only included writing about pain and other unresolved symptoms, which differed greatly from her activity of writing about positive aspects as well. She concluded with the thought that the main category headings and sub-categories are useful for well-grounded clients; anxious clients might find the main headings alone and presented slowly over time more helpful.

The second rater commented that the category of spiritual connections may be of particular use as a coping mechanism for whiplash-injured clients. She validated the emotional

side effects category and added that this reminded her of many clients that had fallen into the victim stance and become very dependent which can hinder recovery. She also emphasized the value of two hindering subcategories of external circumstances i.e. invisibility and having kids. Both experts suggested that the subcategory of weight gain due to depression was also linked to self-soothing, not working, and inactivity. The second rater added that return to work pain is common and can be helped by giving clients information, coping skills, a gradual return to work, and support in setting boundaries. After describing the belief in unchanged physical abilities sub-category, this rater explained that some clients with competitive beliefs suffered from role ego loss and socializing time loss due to inability to compete with their friends in their usual athletic activities. She further explained that some clients need holding back from overdoing physical activities and others need encouragement to participate adequately. These comments from two experts confirm the content validity of the 13 categories.

Theoretical Agreement

Agreement with previous research and theories on whiplash injury sequelae was assessed and found for 12 of the 13 categories. The exceptional category was "Activities that Lower Mood and Increase Pain and Stress since it was not found in the literature. Since this category was agreed upon by participants and the subtheme of overdoing exercises validated by expert raters, it was decided to preserve it. One expert rater found it useful to be aware of the hindering outcome of journalling only about continuing pain and remarked that many of her clients have been asked to do this activity by their lawyers to assist in the claim process. Further research is needed to confirm or disconfirm this category, especially the subthemes of early return to work and journalling one's symptoms. The certainty of the validity of the categories was increased by

the literature supporting the theoretical validity of 12 of the categories, which is summarized next:

Emotional Side Effects

The hindering emotional effects described by participants included sadness, anger, anxiety, nightmares, flashbacks, self-doubt, depression, and a feeling of a loss of control over their emotions. These are extensively summarized in the literature on whiplash, PTSD, and motor vehicle accidents as travel anxiety, PTSD, depression, lowered self esteem and self efficacy (Blanchard, et al., 1998; Hickling & Blanchard, 1997; Kuch et al., 1996; Mayou, 1997; Miller, 1998; Shalev et al., 1996). These researchers also found these sequelae led to outcomes that interfered with recovery: increased pain, impaired memory and concentration, social withdrawal, driving avoidance or impairment, belief that the world is dangerous and one is forever vulnerable, impaired family relationships and overall quality of life.

Service Providers Attitudes/Actions

Many of the attitudes and actions in this category were supported by the literature. However, no literature was found describing the effects of videotaping insurance claimants with whiplash, nor of ceasing payments for treatments. Lack of informational support from service providers correlated with higher rate of complications in traffic accident victims (Andersson, et al., 1997). Attitudes of condescension, disbelief, or disinterest, and actions such as invalidating, belittling or manipulating correspond to descriptions of hindering factors in the literature. Bennett (1999) describes chronic whiplash as a form of neurogenic pain and lists a number of negative consequences to patients when their physicians misdiagnose their pain: ordering of expensive and inappropriate tests; labelling of these patients as somatizers or malingerers; and treating the

pain with ineffective interventions. He supports the participant's comments in his statement that "questioning the veracity and moral fibre of the patient is not therapeutically helpful," (p. 15). Griffith and Griffith (1994) describe similar hindrances to patients with mind-body problems due to service providers attitudes and actions such as demeaning and dehumanizing pathologizing perspectives; accusing patients of immoral and illegal behaviour; invalidating patient's stories about their experiences and venerating the expert's story; resulting in anger, hurt, humiliation, despair, fight or flight responses; hindering of the therapeutic alliance, creative problem-solving, and resolution of the symptoms.

External Circumstances

The literature strongly supports the subthemes of invisibility, particular accident or life circumstances as hindering and lists the reported outcome of prolonged recovery due to fear of being seen participating in activities, PTSD, hopelessness, driving anxiety, anger, depression, cognitive impairment and impaired family life (Delahanty, et al. 1997; Lloyd-Bostock, 1997; Hodge, 1971; Khan, et al. 2000; Smed, 1997).

Hindering Beliefs

Many of these beliefs were convincingly validated by the literature. Bennett (1999) and Gouzd (2000) reported that thoughts and beliefs as well as anxiety, depression, anger, and helplessness can dampen or amplify pain. Time-limit beliefs of clients such as "I should be better by now, what if I never recover" and "I'm still not better, I must be doing something wrong, what's wrong with me" appear to correspond to catastrophizing, negative interpretations of intrusions, and ruminations such as "I must be going crazy" and "I will never get over it." Informing whiplash-injured individuals that recovery time can vary is recommended by Gouzd to minimize their frustration if they don't see rapid progress. Negative thoughts are psychological

maintaining variables that slow remission of chronic PTSD as well as possibly preventing the development of positive cognitions of the trauma (Ehlers, et al., 1998) which are therapeutic (Schwartz & Prout, 1991) and negative cognitions are significantly correlated with heightened levels of pain and disability and unemployment (Soderlund, Olerud, & Lindberg, 2000; Sullivan, et al., 1998). The rumination subscale was the strongest predictor of pain and disability. For example, "I can't stop thinking about how much it hurts," was frequently endorsed and corresponds to participant's comments such as "I can't cope, I can't, the pain is so bad."

Another of the sub-themes was fraud or exaggeration beliefs of society, and of health care providers. The negative impact of these beliefs has been confirmed by Griffith and Griffith (1994), and Mayou (1997) who declared these widely held beliefs are inaccurate and harmful. Griffith and Griffith (1994) described how the medical system's dichotomizing beliefs about mind-body problems lead health care professionals to often assume malingering or psychopathological reasons for these problems, resulting in alienation and stigmatization of patients, disrespect for the patient's beliefs, obfuscation of any insight that other perspectives may bring, and wasted funding of failing interventions. Another study described how individuals with whiplash injury are especially viewed with scepticism by society and thus may feel an increased need to make certain their pain is believed (Swartzman, et al., 1996). One participant described feeling angry and insulted when her physician suggested she seek cognitive-behavioural therapy, although studies support its qualified success in reducing PTSD (Foa, et al., 1995) depression, or chronic pain symptoms but noted the lack of acceptability in many patients (Bryant, et al., 1998 Harrison, Watson, & Feinmann, 1997; Hickling & Blanchard, 1997; Tarrrier, et al., 1999). Beliefs regarding role competence and competitive athletic schemas were not found in the whiplash literature.

Activities that Lower Mood, Increase Pain, Stress

Journalling was helpful to group participants who were directed to include thoughts on their strengths and coping strategies, which are positive and allow shifting the focus away from pain and other disabling symptoms (Kelley & Clifford, 1997). However, it was hindering for a participant in this study who was instructed to record only her pain and other disabling symptoms, which were not improving and thus served as a reminder of her losses and increased her negative thoughts and emotions. The sub-themes of returning to work early and overdoing exercises as hindering recovery were not found in the literature.

Emotional Support

Normalizing, nonadversarial listening to the story, asking questions in an interested, caring manner, respect, validation, supporting feeling and expressing emotional pain, and strength reinforcing were all noted and well supported in the literature. Questions that inquire into unspoken dilemmas were effective in therapy for body-mind symptoms after demonstrating respect for clients by accepting their perspective and minimizing pathologizing language and assumptions (Griffith & Griffith, 1994). Emotional reliving of a traumatic experience combined with cognitive restructuring was found to be effective in reducing PTSD symptoms and depression by Foa, et al. (1995); Hickling, et al. (1997). Interventions that support the positive attitude towards emotional expression are recommended for survivors of traumatic experiences by Joseph, et al. (1997), Lebowitz et al. (1993) and by Borgen (1997, 1999) who recommended normalizing and focusing on strengths as helpful for adults in transition to accept and express their emotional reactions and by Schwartz and Prout (1991) who describe how potent normalizing can be for those with trauma symptoms as well as the importance of the therapeutic alliance.

Emotional support was mentioned by participants as coming from family and friends as well as in the literature, which suggested that family members, friends, (Gouzd, 2000); teachers, school nurses, lay helpers and formerly treated patients can serve as sources of emotional support under professional supervision (Turk et al., 1993). Emotional support in the form of validation from family, friends, and church as well as health care professionals and other patients was cited as very helpful for maintaining overall well-being and even facilitated a decrease in anger when acceptance of partial understanding was valued by patients with chronic pain (Kelley & Clifford, 1997). This social support was described as enabling experiences of empowerment, which increased self-esteem. No literature was found describing emotional support from the driver that caused the motor vehicle accident, however, some reported hindering effects of anger and entitlement to compensation when there was no expression of remorse from the other driver that they perceived as at fault (Lloyd-Bostock, 1997).

Effective Physical Treatments

Yoga was reported to be helpful by group participants in a study by Kelley and Clifford (1997) as well as by a participant. Medications such as analgesics, anti-inflammatories, (Bennett, 1999; Bogduk, 2000) and antidepressants, as well as acupuncture and physiotherapy (Munglani, 2000) were listed as helpful for chronic whiplash pain in the literature and by participants. Bennett also recommended physiotherapy, exercise, in addition to psychological help. Rosenfeld, et al., 2000 found an early active home exercise program to be effective in reducing whiplash pain, which was also reported by the participants. Two studies (Khan, Cook, Gargan, & Bannister, 1999; Woodward, Cook, Gargan, & Bannister, 1996) confirmed the effectiveness of chiropractic treatment in reducing whiplash pain that four participants also described as beneficial in critical incidents in this category. Three controlled trials established the efficacy of Feldenkrais body

movement awareness methods; in increasing neck flexion range of motion and lowering of perceived effort (Ruth & Kegerreis, 1992); in decreasing prevalence, pain intensity, sick leave and disability at work and leisure for female workers with neck and shoulder complaints (Lundblad, Elert, & Gerdle, 1999); in reducing anxiety (Kolt & McConville, 2000). No literature was found on, massage therapy, or nutritional supplements as treatments for whiplash injury.

Helpful Beliefs

Being positive and optimistic about recovery and life corresponds to self-efficacy beliefs in the literature. Cognitive therapists recommend fostering these beliefs in self competence and safety to assist recovery from PTSD (Shalev, 1996), self-efficacy theory purports that these beliefs decrease anxiety and facilitate performance (Bandura, 1986), and research studies confirm that self-efficacy beliefs, coping and mastery self-talk, and positive interpretations all facilitate recovery from injury and psychosocial sequelae, aid return to work, as well as improve activity participation, interpersonal relationships, use of coping resources, pain and exercise tolerance (Dolce, 1987; De L. Horne, 1997; Dolce, et al., 1986; Eklund et al., 1991; Hickling & Blanchard, 1997; Soderlund, et al., 2000). Several authors support the other helpful sub-category: belief in a mind-body connection. Griffith and Griffith, (1994), Kelley and Clifford, (1997) discussed the interaction between pain, cognitive and emotional experiences and the success of narrative approaches to facilitating recovery from chronic pain, achieving outcomes similar to those reported by participants. Andersson et al. (1997), Gouzd (2000), and Radanov, et al. (1999) recommend a holistic approach to recovery from whiplash injury due to their finding no clear distinction between psychological, social, and physical consequences.

Taking Initiative to Find Help, Recover

Goal-setting, setting limits, and taking action were some of the sub-themes in this category and were apparent in three programs: one for adults with mid-career disabilities (Roessler, 1988) one for adults in career transition (Borgen, 1997) and one for whiplash-injured individuals (Soderlund, Olerud, & Lindberg, 2000). Roessler developed a group counselling program based on stress reduction and adult transition models that emphasized the usefulness of coping strategies such as problem-solving/goalsetting, information seeking, assertion, structuring, taking action and Soderlund, et al. found that the pain-free patients were using more active problem-solving strategies than patients with pain at six months. Persistently seeking and finding effective treatments, service providers and coping strategies was not found in the literature per se but relate to the literature on self-efficacy, which is one of the precursors to taking action (Bandura, 1986).

Informational Support

Two sources of helpful informational support described by participants and the literature were counsellors and other rehabilitation specialists (Borgen, 1999; Roessler, 1988). The participants described receiving informational support on an individual basis, and these two authors incorporated it into group programs based on transition models. Another study reported a lack of informational support led to a higher rate of complications (Andersson et al., 1997) and described the outcome of difficulty coping with a bureaucracy that most of the participants described. They also mentioned informational support from a system or beaurocracy would have been helpful to their recovery.

Dealing with Emotions & Thoughts Oneself

A sub-theme in this category is tied to the theme of loss and resulting grief and anger in the participant's comments and in the literature. Crying in private was cited in a depression theme of a study on group support for adults with chronic pain (Kelley & Clifford, 1997) as well as by a participant, and emotional expressiveness was measured as a coping strategy for whiplash-injured individuals (Heikkilae, et al., 1998). In addition, the usefulness of music and meditation was described (Kelley & Clifford, 1997).

Spiritual Connections

This category was solidly supported by the literature. Griffith and Griffith (1994) describe several reasons why it is helpful to ask questions about one's relationship with God or spirituality in a therapy addressing a mind-body problem. It is a way of learning and speaking the language of the client, which allows us into their meaning-making world; it offers a chance for the client to view the situation from a reflecting observer position that may illuminate new options; it allows access to a private intrapersonal discourse that otherwise cannot be safely communicated to anyone; it opens the door to exploring perspectives on justice, abuse of power, and oppression in the personal or societal realm from which mind-body symptoms often arise. Heikkilae et al., 1998) assessed spiritual/philosophical subdomain of a coping resources inventory in whiplash-injured individuals and found their scores in this domain increased after a rehabilitation program and theorized that this type of coping may assist meaning-making and finding appropriate interventions. Hickling and Blanchard (1997) included addressing of existential, mortality, and anger issues in their treatment, which they found to be effective, Lebowitz, et al. (1993) included a meaning-making component to a model for recovery from trauma, and spiritual or healing meaning-building was listed in two literature reviews on

treatment of PTSD (Shalev, et al., 1996; Schwartz & Prout, 1991). Michaels, et al. (1998) found regular religious practice to be negatively correlated to PTSD and positively to return to work after traumatic injury. Meaning making corresponds with the descriptions of participant's experiences classified in this category.

Task Support

Two studies of the effectiveness of group programs (Borgen, 1999; Kelley & Clifford, 1997) generated themes reflecting the helpfulness of task support, validating the participant's comments in this category.

What would have helped

A support group for people experiencing driving/passenger anxiety was suggested by three participants and is supported in the literature. One participant mentioned a system that helped her help herself would have been useful. A support group of some type could fit this description as a source of information and empowerment. A study using a narrative group approach for individuals with chronic pain found this intervention to be helpful in learning coping strategies and in shifting their focus away from their symptoms and on to their strengths (Kelley & Clifford, 1997). Shalev, et al. (1996) in their literature review found studies supporting that group therapy has a major role in resolving PTSD and Borgen (1999) reported the success of a group program for unemployed adults in transition.

A need for informational and emotional support from ICBC and associated health professionals as well as removal of obstacles and hindering attitudes and actions were listed by a participant, which were discussed in the theoretical validation of those categories and are associated with a higher rate of complications when lacking (Andersson, et al., 1997).

Not returning to work until further recovery achieved was described in one report (Andersson, et al.). Getting more aggressive (physio, massage) treatment earlier (Rosenfeld, et al, 2000; Soderlund, et al., 2000), acceptance of the level of recovery, more spiritual or holistic connections (Andersson, et al.), and more counselling (Andersson, et al.; Bennett, 1999; Bryant, et al., 1998; de l. Horne, 1997; Ehlers, 1998; Hodge, 1971; Gouzd, 2000; Munglani, 2000; Sullivan, 1998) were all recommended in the literature as well.

CHAPTER V

DISCUSSION

The purpose of this qualitative study was to generate categories describing what facilitates and what hinders recovery from whiplash injury and its sequelae from the perspective of those experiencing this mind-body problem. The participants, not the investigators, were the experts on the subject, and shared their experiences. Thirteen valid and exhaustive categories emerged from 137 critical incidents described by six participants; eight categories of what facilitated recovery from whiplash sequelae and five categories of what hindered recovery were the result. Beliefs about what would have helped their recovery were described by five of the six participants which corresponded closely with the categories that were generated from the first question, with the literature, and with the expert rater's comments. To further evaluate the purpose of the study and to illustrate the effects on recovery associated with facilitative or hindering factors, the outcomes of the facilitative and hindering categories are considered.

Outcomes of Helpful Categories

The following themes were extrapolated from the outcomes in the facilitative categories:
a) self-efficacy and empowerment; b) improved coping; c) experiences of recovery.

Self-Efficacy Participants reported lower levels of self-doubt and stronger belief in themselves and their abilities, higher self esteem, self-confidence and hope. They appeared to become empowered to take action and be proactive in their own recovery when this self-efficacy was present. Examples of these were searching for and finding service providers that they found

supportive and competent, booking counselling appointments, ability to build a reciprocal relationship with doctors, and goal-setting and achieving those goals.

Coping Descriptions of using new coping strategies and participating in new activities, establishing connections to self, others and spirituality, using a new belief in mind-body connections by applying it to behaviours that improve well-being and positive thinking were all examples of coping that increased as an outcome of the facilitative categories.

Experiences of Recovery Improved physical, mental, emotional, social, and spiritual well-being were demonstrated by examples participants gave of improved flexibility, strength, breathing, relaxation, memory, concentration, reduced pain, stiffness and headaches, and rapid resolution of travel anxiety, belief in a purpose for the injury and its positive effects in their lives, awareness of new strengths and coping resources, new social connections made, planning and succeeding in return to school, work, and leisure activities.

Outcomes of Hindering Categories

These included thoughts, feelings, and behaviours that were often the mirror opposite of the helpful outcomes. A worsening or increased awareness of symptoms was described: increased negative and distressing emotions, cognitions, behaviours, and pain; and decreased positive emotions, cognitions, and behaviours. Behaviours that impeded recovery were also included, such as overdoing physical activities, getting a lawyer, postponing or quitting helpful activities or treatments. These outcomes affected all the domains of participant's lives: psychological, social, physical, work, leisure, family, spiritual, and resulted in low self efficacy, self doubt, perceived lack of control, isolation, loss, and despair. This resonates with transition

theory, which describes these outcomes in adults who get stuck in the transition process (Borgen, 1997).

The outcomes of both helpful and hindering categories provided information as to how or why factors, behaviours, or events were facilitative or hindering the recovery process. For policymakers and practitioners, the outcomes may reveal more of the 13 categories' direct impact on and relevance to people with whiplash injury.

Based on the outcome, factor, and context data from most of the categories, which cited the influence of service providers in most of the critical incidents, the experience of recovery appears to a large degree to be co-constructed by service providers and individuals with whiplash injury. Society, family, friends, church members, the other driver, and the relationships with them were less frequently mentioned as sources or co-constructors of the recovery experience as well as the self. The co-constructions that were associated with positive outcomes were those that were consistent with a holistic, normalizing, and empowering growth paradigm consisting of relationships built on mutual trust, empowerment, and similar beliefs, with both parties taking responsibility for their roles in the process. Those relationships with negative outcomes were reported in critical incidents describing the predominant medical, pathologizing, dichotomizing, paternalistic model evident in behaviour and attitudes which occurred with data reflecting anger, self-doubt, helplessness, and worsening of symptoms in participants, with victim role expectations. The suspicion of malingering by society, insurance companies, lawyers, and health professionals and awareness of this in whiplash-injured individuals may facilitate co-construction of the cycle of fear of disbelief, the need to exaggerate or prove one's helplessness, and expectation of mistrust, which may result in a self-fulfilling prophesy of paternalistic victimization. The trust, respect, and partnership between the injured and service providers may

co-create a cycle of support, taking initiative, helpful beliefs, and improvement in symptoms and coping strategies in the injured.

Transition Theory & Recovery from Whiplash

An example of a model embodying the holistic, empowering, growth paradigm that encourages trust, respect, and partnership is transition theory. A whiplash injury due to a motor vehicle accident is an unexpected event, which can trigger a transition process. Schlossberg, Waters, and Goodman (1995) described the continuous process of appraisal during adult transitions and the more severe impact of off time events. If an individual's appraisal of the transition is that the event is serious, impacts critical life domains, and that the person's coping resources, self, and social support are inadequate, confusion, helplessness and despair may result. These outcomes resemble the ones summarized in the hindering categories. If the individual's appraisal of their situation, support, self, and coping strategies is positive, increased agency and self efficacy can follow, which assist in negotiation through transition (Schlossberg, 1995). These reflect the themes of the helpful and hindering categories of emotional, informational, and task support, emotional side effects, helpful and hindering beliefs, and external circumstances. Transitions compel us to reflect on the narratives of our lives and can lead to an increase in personal agency, by choosing what guides us, what fits, what is helpful, useful, or preferred (Dickerson & Zimmerman, 1996). Normalization, exploration of strengths and resources, empowerment to increase personal agency are recommended for helping for adults in transition (Borgen, 1997; Roessler, 1988) and are reflected in the categories of emotional support, informational support, spiritual connections, helpful beliefs, dealing with emotions and thoughts oneself, and taking initiative.

Limitations

There are a number of limitations due to the methodology of this study. The limitations of qualitative interviews according to Weiss (1994) include the imperfections of recall due to gaps in memory, the tendency for withholding negative information that may be self-implicating or cause conflict, and the shading to present a positive picture of oneself which happens when discussing values, beliefs, attitudes, opinions, and evaluations. Participant's memories may have been improved by the chance to offer more information in the follow-up phone call. Honesty from the participants was presumed by the researcher but awareness of the inclination to present one's best image was always in attendance. The tendency to withhold some information may have been augmented by the secrecy participants stressed due to the adversarial relationship they described in the claims process with ICBC. Sources of bias include the selection of respondents (a wide range on important factors is needed); the interview (leading questions and being friendlier toward certain responses are not desirable). These issues were addressed by establishing a clear description of the participants and researcher's roles, explaining that an accurate report with detailed concrete material was needed, and repeating the questions as worded in the interview schedule. A narrower range than what was desired was achieved for two demographic variables: ethnicity and gender; this is difficult to control when selection is by self-volunteering from the community and only six participants were eligible. In analysis, bias can creep in when investigators tend to support their own views by making better arguments for a certain position and are advised to use self discipline to include everything during that process and when reporting the results, which was adhered to during both analysis and reporting.

In qualitative research, one cannot generalize to a broader population so the results of this study may not apply to other types or groups of whiplash-injured individuals. However,

counsellors and other service providers may use the categories as a guide for discussion with individual whiplash-injured clients who can decide what aspects fit them or do not fit them. If clients find some of the categories fit them well, this can allow a normalization process to occur, facilitating the process of change and recovery. One cannot imply causation, measure correlation, or evaluate efficacy with this type of study. These accomplishments would require quantitative study designs. Those who volunteered to participate may have been individuals who recovered faster or were more satisfied with their recovery. With CIT (critical incident technique), the focus is on discrete aspects, and the results may not provide a complete understanding of the process as a whole (Ross & Altmaier, 1990).

The order and timing of the incidents that helped or hindered may affect the recovery process, several comments by participants hinted at this. Participants only mention incidents they are aware of, remember, and can articulate, so one may get incomplete categories. The interview process may affect this as it is co-constructed by two individuals in different contexts that vary with time and place. Flanagan (1954) found that recalled data was reliable when the critical incidents reported were relatively recent and when the participants were motivated. This was true for this investigation. It is possible that some incidents were unclear or could fit in more than one category; therefore, participants were asked for their input on categorization, which was then incorporated. Dachelet (1981) also noted that the meaning of the frequencies in CIT is uncertain. Participants could be invited to rank the categories in a follow-up telephone call in order of importance to them to add more meaningful information (Alfonso, 1997). This was planned but not achieved in this study due to difficulties participants had in assigning rankings over the phone for so many categories and to interview length limitations for some participants.

Implications for Practice

The results of this study provide information that deepens understanding of the experience of whiplash injury recovery for individuals and their families, friends, co-workers, employers, counsellors, psychologists, insurers, physicians, physiotherapists, chiropractors, lawyers, and other service providers. Counsellors and others could use the categories as tentative guides in discussion with clients, who may find similarities with their own experience and normalization would likely occur. This then facilitates further steps in the change process to be taken, which may promote recovery, especially if counselling is initiated soon after the injury. With the knowledge of the categories, the understanding demonstrated by the helper may also deepen rapport between the client and the helper. The relationship between service provider and receiver was emphasized many times in participant's critical incidents and was evident in several categories, particularly in the emotional support category. This may require a change in perspectives in some helpers. It is hoped that the results of this study form a bridging of intersubjectivities to assist clinicians, clients, and others in the adjustment of their paradigms to take into account multiple possibilities constructed from multiple contexts such as the clients' and empowering holistic models such as transition theory, rather than focusing solely on a dichotomizing pathologizing model that has been less than successful in facilitating recovery from whiplash injury.

It also contributed information for the design and evaluation of more helpful and acceptable assessment and treatment or programs for whiplash injury and sequelae. More holistic interventions may be created, based on the key stakeholders' perceptions. Schmelzer, R.V., Schmelzer, C.D., Figler, R.A., & Brozo, W.G. (1987) suggested that service providers

could improve their assessment procedures and effectiveness or fit of their interventions if they were aware of the factors that contribute to or hinder a process, such as prompt recovery from whiplash from the individuals' perspective. Assessment of life and accident circumstances, self-efficacy, PTSD, depression, travel anxiety, anger, hindering beliefs, coping strategies, spiritual connections, sources of emotional, informational, and task support could be incorporated into health care professional's practice. Counsellors could create assessment tools and interventions to assist individuals with whiplash through their transition such as a) providing emotional and informational support and encouraging clients to seek these from other sources; b) explore helpful and hindering beliefs with clients; c) educate and train service providers and lay helpers in what facilitates and what hinders, how to normalize, validate, empower, and listen empathetically; d) develop brochures or posters to distribute to health care and other service provider's offices for clients to read; e) design and lead support groups for clients based on transition theory; e) co-create effective coping strategies and action plans with clients. Policy change may be explored to support payment for earlier and a wider range of interventions, including counselling, acupuncture, yoga, and meditation and to determine if a format for drivers at fault for accidents could be encouraged and the opportunity to make amends to the injured individuals be made available.

Since critical incident interviewing was in itself found to be helpful to the participants by making them aware of their strengths and underutilized coping strategies, and by giving them a voice which could increase their self-efficacy, it could be established as a therapeutic intervention for ICBC claimants and as a continuous feedback mechanism as a form of quality control for ICBC since it's role as a service provider and policy maker was so evident in the data and had such a far-reaching impact on the outcomes in the recovery process.

Individuals with whiplash injury could use the categories themselves in a number of ways. They could use them to normalize and validate their own experience, to find ways to facilitate their own recovery, and to share the information with their service providers, family, co-workers, etc., enabling the co-construction of facilitative, supportive relationships.

Implications for Research

Further research needs to be done to evaluate the validity of the activities that lower mood and increase pain and stress category. The hindering subthemes of journaling and returning to work early were not supported in the literature and need more confirmation. Future research could extend this study by gathering an increased number of critical incidents (CI), more types of CI, a wider range of whiplash experiences and of participants from different cultures and by studying other stakeholders, such as family, counsellors, or health care providers to determine if new categories would emerge. The concepts of malingering, exaggeration, somatization, invisibility of the injury and how culture interacts with these factors would be useful to investigate further. Support groups and training programs could be evaluated by additional research. More qualitative research such as grounded theory or narrative analysis would be a valuable addition to the literature that would add to the understanding of the experience of individuals with whiplash receiving psychological treatment or counselling, which in turn, would further enrich the paradigms with which we assess and treat individuals in the field of rehabilitation counselling. A combination of quantitative and qualitative methods would be very time-consuming, but would be a complimentary and comprehensive way of further

exploring this topic. Using quantitative measures of the categories gained from this study, new interventions could be designed and evaluated in randomized controlled trials.

Conclusions

The main aim of this investigation was to provide a set of categories that summarize what facilitates and what hinders recovery from whiplash injury and its sequelae, from the perspective of those experiencing the injury. This was achieved by the emergence and validation of 13 categories, which were separated into 8 helping and 5 hindering categories. This information can assist in normalizing client's experiences and enabling clinicians to better understand and guide clients on their recovery journey. The secondary objectives of (a) providing a format for whiplash injured individuals to contribute their expertise to the body of knowledge on effective processes facilitating recovery; and b) distributing qualitative data from individuals experiencing the injury from which future researchers and practitioners may design and evaluate improved interventions and preventive measures were also met.

Further research can expand on this study by investigating cultural and gender effects on the categories, evaluation of early return to work and journalling symptoms categories, recovery process exploration through narrative study, qualitative exploration of other stakeholders' perspectives, evaluation of groups and training programs, and treatment efficacy trials.

REFERENCES

- Alfonso, V. (1997). Overcoming depressed moods after an HIV+ diagnosis: A critical incident analysis. Unpublished doctoral dissertation, University of British Columbia, B.C.
- Allodi, F., & Goldstein, R. (1995). Posttraumatic somatoform disorders among immigrant workers. Journal of Nervous and Mental Diseases, 189 (9), 604-607.
- American Psychiatric Association. (1994). Diagnostic and statistical manual of mental disorders (4th ed.). Washington, D.C.; Author.
- Amundson, N.E., Borgen, W.A (1988). Factors that help and hinder in group employment counseling. Journal of Employment Counselling, 25, 104-114.
- Andersson, A.L., Bunketorp, O., & Allebeck, P. (1997). High rates of psychosocial complications after road traffic accidents. Injury, 28 (8), 539-543.
- Andersson, B.E., & Nilsson, S.G. (1964). Studies in the reliability and validity of the critical incident technique. Journal of Applied Psychology, 48 (6), 398-403.
- Balla, J.I. (1982). The late whiplash syndrome: A study of an illness in Australia and Singapore. Culture, Medicine and Psychiatry, 6 (2), 191-210.
- Bandura, A. (1986). The explanatory and predictive scope of self-efficacy theory. Journal of Social and Clinical Psychology, 4 (3), 359-373.
- Barnsley, L. (2000). Epidemiology of whiplash. Annals of the Rheumatic Diseases, 59 (5), 394.
- Barnsley, L., Lord, S.M., & Bogduk, N. (1994). Whiplash injuries. Pain, 58, 283-307.
- Bennett, R.M. (1999). Emerging concepts in the neurobiology of chronic pain: Evidence of abnormal sensory processing in fibromyalgia. Mayo Clinic Proceedings, 74 (4), 385-398.
- Bennun, I.S., & Bell, P. (1999). Psychological consequences of road traffic accidents. Medicine, Science and the Law, 39 (2), 167-172.
- Berry, H. (2000). Chronic whiplash syndrome as a functional disorder. Archives of Neurology, 57 (4), 592-595.
- Blanchard, E.B., Buckley, T.C., Hickling, E.J., & Taylor, A. (1998). Posttraumatic stress disorder and comorbid major depression: Is the correlation an illusion? Journal of Anxiety Disorders, 12 (1), 21-37.

- Blanchard, E.B., Hickling, E.J., Taylor, A.E., Loos, W.R., Forneris, C.A., & Jaccard, J. (1996). Who develops PTSD from motor vehicle accidents? Behaviour Research and Therapy, 34 (1), 1-10.
- Blanchard, E.B., Hickling, E.J., Taylor, A.E., Loos, W.R., & Gerardi, R.J. (1994). Psychological morbidity associated with motor vehicle accidents. Behaviour Research and Therapy, 32 (3), 283-290.
- Bogduk, N. (2000). Epidemiology of whiplash. Annals of the Rheumatic Diseases, 59 (5), 394-395.
- Bogduk, N. (2000). Whiplash: "Why pay for what does not work?" Journal of Musculoskeletal Pain, 8 (1/2), 29-53.
- Borgen, W.A. (1997). People caught in changing career opportunities: A counseling process. Journal of Employment Counseling, 34, 133-143.
- Borgen, W.A., and Amundson, N.E. (1984). The experience of unemployment. Toronto: Nelson Canada.
- Brison, R.J., Hartling, L., & Pickett. (2000). A prospective study of acceleration-extension injuries following rear-end motor vehicle collisions. Journal of Musculoskeletal Pain, 8 (1/2), 97-113.
- Brom, D., Kleber, R.J., & Hofman, M.C. (1993). Victims of traffic accidents: Incidence and prevention of post-traumatic stress disorder. Journal of Clinical Psychology, 49 (2), 131-140.
- Bryant, B. (1997) Road accidents: The impact on everyday life. In M. Mitchell (Ed.), The Aftermath of Road Accidents (pp.190-204). New York: Routledge.
- Bryant, R.A., & Harvey, A.G. (1995). Avoidant coping style and posttraumatic stress following motor vehicle accidents. Behaviour Research and Therapy, 33, 631-635.
- Bryant, R.A., Harvey, A.G., Dang, S.T., Sackville, T., & Basten, C. (1998). Treatment of acute stress disorder: A comparison of cognitive-behavioural therapy and supportive counseling. Journal of Consulting and Clinical Psychology, 66, 862-866.
- Bryant, B., Mayou, R., & Lloyd-Bostock, S. (1997). Compensation claims following road accidents: A six-year follow up study. Medicine, Science, and the Law, 37, 326-336.
- Cassidy, J.D., Carroll, L.J., Cote, P., Lemstra, M., Berglund, A., & Nygren, A. (2000). Effect of eliminating compensation for pain and suffering on the outcome of insurance claims for whiplash injury. New England Journal of Medicine, 342 (16), 1179-1186.

Cote, P., Cassidy, J.D., & Carroll, L. (2000). Is a lifetime history of neck injury in a traffic collision associated with prevalent neck pain, headache, and depressive symptomatology? Accident Analysis and Prevention, *32* (2), 151-159.

Dachelet, C.Z., Wemett, M.F., Garling, E.J., Craig-Kuhn, K., Kent, N., & Kitzman, H.J. (1981). The critical incident technique applied to the evaluation of the clinical practicum setting. Journal of Nursing Education, *20* (8), 15-29.

Davis, C.G. (2000). Injury threshold: Whiplash-associated disorders. Journal of Manipulative and Physiological Therapeutics, *23* (6), 420-427.

Delahanty, D.L., Herberman, H.B., Craig, K.J., Hayward, M.C., Fullerton, C.S., Ursano, R.J., & Baum, A. (1997). Acute and chronic distress and posttraumatic stress disorder as a function of responsibility for serious motor vehicle accidents. Journal of Consulting and Clinical Psychology, *65*, 560-567.

De L. Horne, D. (1997). Treatment of pain, fear, and loss following a road accident. In M. Mitchell (Ed.), The Aftermath of Road Accidents (pp.36-47). New York: Routledge.

Dickerson, V.C. & Zimmerman, J.L. (1996). Myths, misconceptions, and a word or two about politics. Journal of Systemic Therapies, *15* (1), 79-88.

Dolce, J.J. (1987). Self-efficacy and disability beliefs in behavioural treatment of pain. Behavioral Research and Therapy, *25* (4), 289-299.

Dolce, J. J., Crocker, M.F., & Doleys, D.M. (1986). Prediction of outcome among chronic pain patients. Behavioural Research and Therapy, *24* (3), 313-319.

Drottning, M., Staff, P.H., Levin, L., & Malt, U.F.R. (1995). Acute emotional response to common whiplash predicts subsequent pain complaints. Nordic Journal of Psychiatry, *49* (4), 293-299.

Ehlers, A., Mayou, R.A., & Bryant, B. (1998). Psychological predictors of chronic posttraumatic stress disorder after motor vehicle accidents. Journal of Abnormal Psychology, *107* (3), 508-519.

Eklund, M. Eriksson, S., & Fugl-Meyer, A.R. (1991). Vocational Rehabilitation in Northern Sweden II. Scandinavian Journal of Rehabilitation Medicine, *23*, 73-82.

Evans, R.W. (1992). Some observations on whiplash injuries. Neurologic Clinics, *10* (4), 975-997.

Fassinger, R.E., & Schlossberg, N.K. (1992). Understanding the adult years: Perspectives and implications. In S. Brown & R. Lent (Eds.), Handbook of counseling psychology (2nd ed.), (pp.217-249). New York: John Wiley & Sons.

Ferrari, R. (1999). Relation between neuropsychological and neuroimaging findings in patients with late whiplash syndrome. Journal of Neurology, Neurosurgery and Psychiatry, *67*, 831-832.

Ferrari, R., Kwan, O., Russell, A.S., Pearce, J.M., & Schrader, H. (1999). The best approach to the problem of whiplash? One ticket to Lithuania, please. Clinical and Experimental Rheumatology, *17* (3), 321-326.

Ferrari, R., & Russell, A.S. (1999). Whiplash: Heading for a higher ground. Spine, *24* (1), 97-98.

Ferrari, R., & Russell, A.S. (2000). Epidemiology of whiplash. Annals of the Rheumatic Diseases, *59* (5), 396-397.

Flanagan, J.C. (1954). The critical incident technique. Psychological Bulletin, *51*, 327-358.

Flanagan, J.C. (1978). A research approach to improving our quality of life. American Psychologist, *33*, 138-147.

Flanagan, J.C., & Schmid, F.W. (1959). The critical incident approach to the study of psychopathology. Journal of Clinical Psychology, *15*, 136-139.

Fogarty, C.A., & Beck, R.J. (1995). Work adjustment for individuals with PTSD. Vocational Evaluation and Work Adjustment Bulletin, *28* (3), 76-80.

Freeman, M.D., Croft, A.C., Rossignol, A.M., Weaver, D.S., & Reiser, M. (1999). A review and methodologic critique of the literature refuting whiplash syndrome. Spine, *24* (1), 86-98.

Gargan, M., Bannister, G., Main, C., & Hollis, S. (1997). The behavioural response to whiplash injury. The Journal of Bone and Joint Surgery, *79-B*, 523-526.

Gibson, T., Bogduk, N., MacPherson, J., McIntosh, A. (2000). Crash characteristics of whiplash associated chronic neck pain. Journal of Musculoskeletal Pain, *8* (1/2), 87-95.

Goodyear, R. K., Crego, C.A., & Johnston, M.W. (1992). Ethical issues in the supervision of student research: A study of critical incidents. Professional Psychology: Research and Practice, *23* (3), 203-210.

Gouzd, B.A. (2000). Whiplash injury. American Journal of Nursing, *100* (3), 41-42.

Griffith, J.L., & Griffith, M.E. (1994). The body speaks: Therapeutic dialogues for mind-body problems. New York: BasicBooks.

Harrison, S., Watson, M., & Feinmann, C. (1997). Does short-term group therapy affect unexplained medical symptoms? Journal of Psychosomatic Research, 43 (4), 399-404.

Hartling, L., Brison, R.J., Ardern, C., & Pickett, W. (2001). Prognostic value of the Quebec classification of whiplash-associated disorders. Spine, 26 (1), 36-41.

Harvey, A.G., & Bryant, R.A. (1998). The effect of attempted thought suppression in acute stress disorder. Behaviour Research and Therapy, 36, 583-590.

Heikkilae, H., Heikkilae, E., & Eisemann, M. (1998). Predictive factors for the outcome of a multidisciplinary pain rehabilitation programme on sick leave and life satisfaction in patients with whiplash trauma and other myofascial pain: A follow-up study. Clinical Rehabilitation, 12 (6), 487-496.

Henry, G.K., Gross, H.S., Herndon, C.A., & Furst, C.J. (2000). Nonimpact brain injury: Neuropsychological and behavioral correlates with consideration of physiological findings. Applied Neuropsychology, 7 (5), 65-75.

Herman, J. (1997). Trauma and recovery. New York: BasicBooks.

Hickling, E.J., & Blanchard, E.B. (1997). The private practice psychologist and manual-based treatments: Post-traumatic stress disorder secondary to motor vehicle accidents. Behaviour Research and Therapy, 35 (3), 191-203.

Hickling, E.J., Loos, W.R., Blanchard, E.B., & Taylor, A. (1997). Treatment of post-traumatic stress disorder (PTSD) after road accidents. In M. Mitchell (Ed.), The Aftermath of Road Accidents (pp.172-187). New York: Routledge.

Hodge, J.R. (1971). The whiplash neurosis. Psychosomatics, 12 (4), 245-249.

Jacobson, N.S., & Truax, R. (1991) Clinical significance: A statistical approach to defining meaningful change in psychotherapy research. Journal of Consulting and Clinical Psychology, 59 (1), 12-19.

Jaspers, J.P. (1998). Whiplash and posttraumatic stress disorder. Disability and Rehabilitation, 20 (11), 397-404.

Johansen, M.K., Graven-Nielson, T., Olesen, A.S., & Arendt-Nielsen, L. (1999). Generalised muscular hyperalgesia in chronic whiplash syndrome. Pain, 83 (2), 229-234.

Joseph, S., Dalgleish, T., Williams, R., Yule, W., Thrasher, S., & Hodgkinson, P. (1997). Attitudes towards emotional expression and posttraumatic stress in survivors of the Herald of Free Enterprise disaster. British Journal of Clinical Psychology, 36, 133-138.

Kelley, P., & Clifford, P. (1997). Coping with chronic pain: assessing narrative approaches. Social Work, 42 (3), 266-277.

Kent, H. (1998). B.C. tackles whiplash-injury problem. Canadian Medical Journal, 158 (8), 1003.

Kessels, R.P.C., Aleman, A., Verhagen, W.I.M., Van Lijntelaar, E.L.J.M. (2000). Cognitive functioning after whiplash injury: A meta-analysis. Journal of the International Neuropsychological Society, 6 (3), 271-278.

Ketroser, D.B. (2000). Whiplash, chronic neck pain, and zygapophyseal joint disorders. Minnesota Medicine, 83 (2), 51-54.

Khan, S., Bannister, M., Gargan, M., Asopa, V., & Edwards, A. (2000). Prognosis following a second whiplash injury. Injury, 31 (4), 249-251.

Khan, S., Cook, J., Garga, M., & Bannister, G. (1999). A symptomatic classification of whiplash injury and the implications for treatment. Journal of Orthopaedic Treatment, 21 (1), 22-25.

Kolt, G.S., & McConville, J.C. (2000). The effects of a Feldenkrais™ Awareness through Movement program on state anxiety. Journal of Bodywork & Movement Therapies, 4 (3), 216-220.

Koren, D., Arnon, I., & Klein, E. (1999). Acute stress response and posttraumatic stress disorder in traffic accident victims: a one-year prospective, follow-up study. American Journal of Psychiatry, 156 (3), 367-373.

Kuch, K., Cox B.J., & Evans, R.J. (1996). Posttraumatic stress disorder and motor vehicle accidents: A multidisciplinary overview. Canadian Journal of Psychiatry, 41 (7), 429-433.

Lee, J., Giles, K., & Drummond, P. (1993). Psychological disturbances and an exaggerated response to pain in patients with whiplash injury. Journal of Psychosomatic Research, 37 (2), 105-110.

Lloyd-Bostock, S. (1997). The natural history of claims for compensation after an accident. In M. Mitchell (Ed.), The Aftermath of Road Accidents (pp.135-144). New York: Routledge.

Lundblad, I., Elert, J., & Gerdle, B. (1999). Randomized controlled trial of physiotherapy and Feldenkrais interventions in female workers with neck-shoulder complaints. Journal of Occupational Rehabilitation, 9 (3), 179-194.

Mayou, R. (1995). Medico-legal aspects of road traffic accidents. Journal of Psychosomatic Research, 39 (6), 789-798.

Mayou, R. (1997). The psychiatry of road traffic accidents. In M. Mitchell (Ed.), The Aftermath of Road Accidents (pp.36-47). New York: Routledge.

Mayou, R., Bryant, B., & Duthie, R. (1993). Psychiatric consequences of road traffic accidents. British Medical Journal, *307*, 647-651.

Mayou, R., & Bryant, B.M. (1994). Effects of road accidents on travel. Injury, *25*, 457-460.

Mayou, R., & Radanov, B.P. (1996). Whiplash neck injury. Journal of Psychosomatic Research, *40* (5), 461-474.

Mayou, R. & Smith, K.A. (1997). Post traumatic symptoms following medical illness and treatment. Journal of Psychosomatic Research, *43* (2), 121-123.

Mayou, R., Tyndel, S., & Bryant, B. (1997). Long-term outcome of motor vehicle accident injury. Psychosomatic Medicine, *59*, 578-584.

Michaels, A.J., Michaels, C.E., Moon, C.H., Zimmerman, M.A., Peterson, C., & Rodriguez, J.L. (1998). Psychosocial factors limit outcomes after trauma. Journal of Trauma, Injury, Infection & Critical Care, *44* (4), 644-648.

Miller, L. (1998). Motor vehicle accidents: Clinical, neuropsychological, and forensic considerations. The Journal of Cognitive Rehabilitation, *16* (4), 10-23.

Mosimann, U.P., Muri, R.M., Felblinger, J., & Radanov, B.P. (2000). Saccadic eye movement disturbances in whiplash patients with persistent complaints. Brain, *123* (4), 828-835.

Munglani, R. (2000). Neurobiological mechanisms underlying chronic whiplash associated pain: The peripheral maintenance of central sensitization. Journal of Musculoskeletal Pain, *8* (1/2), 169-178.

Neely, M.A., & Iberg, D. (1989). Exploring high school counseling trends through critical incidents. The School Counselor, *36*, 179-185.

Obelieniene, D., Schrader, H., Bovim, G., Miseviciene, I., & Sand, T. (1999). Pain after whiplash: A prospective controlled inception cohort study. Journal of Neurology, Neurosurgery and Psychiatry, *66* (3), 279-283.

Partheni, M., Constantoyannis, C., Ferrari, R., Nikiforidis, G., Voulgaris, S., & Papadakis, N. (2000). A prospective cohort study of the outcome of acute whiplash injury in Greece. Clinical and Experimental Rheumatology, *18* (1), 67-70.

Pearce, J.M.S. (1999). A critical appraisal of the chronic whiplash syndrome. Journal of Neurology, Neurosurgery, & Psychiatry, *66*, 273-276.

Phillips, M.E., Bruchi, S., & Harden R.N. (1997). Work-related post-traumatic stress disorder: Use of exposure therapy in work-simulation activities. The American Journal of Occupational Therapy, *51* (8), 696-699.

- Proulx, G. (1991). The decision-making process involved in divorce: A critical incident study. Unpublished doctoral dissertation, University of British Columbia, B.C.
- Radanov, B.P. (2000). Epidemiology of whiplash. Annals of the Rheumatic Diseases, 59 (5), 395.
- Radanov, B.P., Begre, Sturzenegger, M., Augustiny, K.F.. (1996). Course of psychological variables in whiplash injury: a two-year follow up with age, gender and education pair-matched patients. Pain, 63, (3), 429-434.
- Radanov, B.P., Bicik, I., Dvorak, J., Antinnes, J., von Schultess, G.K., & Buck, A., (1999). Relation between neuropsychological and neuroimaging findings in patients with late whiplash syndrome. Journal of Neurology, Neurosurgery and Psychiatry, 66, 485-489.
- Radanov, B.P., DiStefano, G., Schnidrig, A., & Sturzenegger, M. (1994). Common whiplash: psychosomatic or somatopsychic? Journal of Neurology, Neurosurgery, & Psychiatry, 57, 486-490.
- Radanov, B.P., Sturzenegger, M., & DiStefano, G. (1995). Long-Term outcome after whiplash injury: A two years follow-up considering features of accident mechanism, somatic, radiological, and psychosocial findings. Medicine, 74, 281-297.
- Radanov, B.P., & Sturzenegger, M. (1996). Predicting recovery from common whiplash. European Neurology, 36, 48-51.
- Rimon, D. (1979). Nurses' perception of their psychological role in treating rehabilitation patients: a study employing the critical incident technique. Journal of Advanced Nursing, 4, 403-413.
- Roessler, R.T. (1988). A conceptual basis for return to work interventions. Rehabilitation Counseling Bulletin, 32 (2), 98-107.
- Rosenfeld, M., Gunnarsson, R., & Borenstein, P. (2000). Early intervention in whiplash-associated disorders. Spine, 25 (14), 1782-1787.
- Ross, R.R. & Altmaier, E.M. (1990). Job analysis of psychology internships in counseling center settings. Journal of Counseling Psychology, 37 (4), 459-464.
- Ruth, S., & Kegerreis, S. (1992). Facilitating cervical flexion using a Feldenkrais method: awareness through movement. Journal of Orthopaedic & Sports Physical Therapy, 16 (1), 25-29.
- Ryan, G.A. (2000). Etiology and outcomes of whiplash: Review and update. Journal of Musculoskeletal Pain, 8 (1/2), 3-14.

- Sandstrom, J., & Esbjornsson, E. (1986). Return to work after rehabilitation. Scandinavian Journal of Rehabilitation Medicine, *18*, 29-33.
- Sang, C.N. (2000). NMDA-Receptor antagonists in neuropathic pain: Experimental methods to clinical trials. Journal of Pain and Symptom Management, *19* (Suppl. 1), 21-25.
- Satoh, S., Naito, S., Konishi, T., Yoshikawa, M., Morita, N., Okada, T., Kageyama, T., & Matsuzaki, I. (1997). An examination of reasons for prolonged treatment in Japanese patients with whiplash injuries. Journal of Musculoskeletal Pain, *5* (2), 71-84.
- Schlossberg, N.K., Waters, E.B., & Goodman, J. (1995). Counseling adults in transition (2nd ed.). New York: Springer.
- Schmand, B., Lindeboom, J., Schagen, S., Heijt, R., Koene, T., & Hamburger, H.L. (1998). Cognitive complaints in patients after whiplash injury: The impact of malingering. Journal of Neurology, Neurosurgery and Psychiatry, *64*, 339-343.
- Schmelzer, R.V., Schmelzer, C.D., Figler, R.A., & Brozo, W.G. (1987). Using the critical incident technique to determine reasons for success and failure of university students. Journal of College Student Personnel, *5*, 261-266.
- Shalev, A.Y., Bonne, O., & Eth, S. (1996). Treatment of posttraumatic stress disorder: A review. Psychosomatic Medicine, *58*, 165-182.
- Sheehan, J. Maguire, A., & Vella, L. (1994). The whiplash enigma: undetected psychological factors? A pilot study. Irish Journal of Psychological Medicine, *11* (4), 170-172.
- Smed, A. (1997). Cognitive function and distress after common whiplash injury. Acta Neurologica Scandanavica, *95*, 73-80.
- Soderlund, A., & Lindberg, P. (1999). Long-term functional and psychological problems in whiplash associated disorders. International Journal of Rehabilitation Research, *22* (2), 77-84.
- Soderlund, A., Olerud, C., & Lindberg, P. (2000). Acute whiplash-associated disorders (WAD): the effects of early mobilization and prognostic factors in long-term symptomatology. Clinical Rehabilitation, *14* (5), 457-467.
- Spitzer, W.O., Skovron, M.L., Salmi, L.R., Cassidy, J.D., Duranceau, J., Suissa, S., & Zeiss, E. (1995). Scientific monograph of the Quebec task force on whiplash-associated disorders. Spine, *20* (8S).
- Stovner, L.J. (1996). The nosologic status of the whiplash syndrome: A critical review based on a methodological approach. Spine, *21* (23), 2735-2746.

Sullivan, M.J.L., Stanish, W., Waite, H., Sullivan, M., & Tripp, D.A. (1998). Catastrophizing, pain, and disability in patients with soft-tissue injuries. Pain, *77* (3), 253-260.

Swartzman, L.C., Teasell, R.W., Shapiro, A.P., & McDermid, A.J. (1996) The effect of litigation status on adjustment to whiplash injury. Spine, *21* (1), 53-58.

Tarrier, N., Pilgrim, H., Sommerfield, C., Faragher, B., Reynolds, M., Graham, E., & Barrowclough, C. (1999). A randomized trial of cognitive therapy and imaginal exposure in the treatment of chronic posttraumatic stress disorder. Journal of Consulting and Clinical Psychology, *67* (1), 13-18.

Turk, D.C., Rudy, T.E., & Sorkin, B.A. (1993). Neglected topics in chronic pain treatment outcome studies: determination of success. Pain, *53*, 3-16.

Ursano, R.J., Fullerton, C.S., Epstein, R.S., Crowley, B., Kao, T.C., Vance, K., Craig, K.J., Dougall, A.L., & Baum, A. (1999). Acute and chronic posttraumatic stress disorder in motor vehicle accident victims. American Journal of Psychiatry, *156* (4), 589-595.

Vendrig, A.A., van Akkerveeken, P.F., & McWhorter, K.R. (2000). Results of a multimodal treatment program for patients with chronic symptoms after a whiplash injury of the neck. Spine, *25* (2), 238-244.

Versteegen, G.J., Kingma, J., Meijler, W.J., & ten Duis, H.J. (2000). Neck sprain after motor vehicle accidents in drivers and passengers. European Spine Journal, *9* (6), 547-552.

Wallis, B.J., & Bogduk, N. (1996). Faking a profile: Can naïve subjects simulate whiplash responses? Pain, *66* (2-3), 223-227.

Wallis, B.J., Lord, S.M., & Bogduk, N. (1997). Resolution of psychological distress of whiplash patients following treatment by radiofrequency neurotomy: a randomised, double blind, placebo-controlled trial. Pain, *73*, 15-22.

Weiss, R. S. (1994). Learning from strangers. New York: The Free Press.

Woodward, M.N., Cook, J.C.H., Gargan, M.F., & Bannister, G.C. (1996). Chiropractic treatment of chronic whiplash injuries. Injury, *27*, 643-645.

Woolsey, L.K. (1986). The critical incident technique: An innovative qualitative method of research. Canadian Journal of Counselling, *20* (4), 242-254.

APPENDIX B

INTERVIEW QUESTIONS

- “Think back over the time since you have been injured. What helped your physical, psychological, social, spiritual recovery from whiplash injury so far? What hindered?”
- “What led up to the incident? Please tell me what was happening at the time.”
- “What happened and what was your experience of the incident?”
- “What happened after the incident? What was the outcome?”
- “How do you know it was helpful / not helpful?”
- “What would have helped in your recovery that didn’t happen?”
- “How would you have known that these helped?”
- “What do you need to do now to further facilitate your recovery?”