

University of Alberta

**The Association of Perception of Fault with Other Factors
in Neck and Back Pain**

by

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Dedication

This thesis would not have been completed without the extraordinary patience of Dr. Crites Battié and my committee, the help of Lynda Wilson and Greg McIntosh from the research department at CBI Health, the support of Shari Hughson from CBI Health, and the patience of my family. Thank you Evan and René.

Abstract

Blame is a psychosocial construct that medical professionals suspect may influence recovery in cases of spinal pain, yet the prevalence, associations, and effects are not widely reported. This study described the prevalence of blame in a sample of 176 patients seeking physical therapy who reported neck and/or back pain of six weeks or less duration (found to be about 40%) and investigated the association between blame and pain, psychosocial, and situational variables. We found seven significant crude associations with blame: MVA onset, compensation, contact with a lawyer, sleep disturbance, depression, presence of neck pain, and age < 31 years. Eight variables were entered into a multivariable regression model; three remained in the final model: MVA onset, receiving or anticipating compensation for pain, and sleep disturbance. Unfortunately, there was a relatively small sample recruited; fortunately, some confidence was restored with respect to representativeness when comparing the sample to the total eligible candidates' characteristics.

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Introduction

Low back pain is a major cause of disability amongst working age adults, with annual direct costs of low back pain alone exceeding \$10 billion in Canada and \$35 billion (USD) in the United States; indirect costs are higher. 61, 51 Indeed, disability from back pain, particularly low back pain, is acknowledged as a problem by nearly all developed nations due to the escalation of costs to individuals, families, employers, private insurers, governments and societies. 5, 48, 83, 122 In addition, diagnoses of neck pain and whiplash-associated disorders are becoming a notable cause of disability in Canada and other countries. 16, 12, 35, 59, 121 Canadian insurance industry cost estimates for direct medical care of whiplash-associated injury alone is approaching \$1 billion annually. 13 Neck pain is recognized as second only to low back pain as the most common musculoskeletal disorder in primary care. 35, 122, 59, 12, 13, 46 Similar patterns of high societal costs and significant disability are found for both neck and low back pain sufferers. 46, 131, 135

Low back pain is a common experience, with between 60 and 80% of people in developed nations reporting an activity-limiting episode at one time in their lives, and 30% reporting pain in the previous year. 5, 75, 122 Disability attributed to low back pain is the most common reason given for work loss and physician visits (after the common viral illnesses). 61 About 74% of persons off work due to low back pain return to usual function at work after one month, about 83 % in two months. 5 Only a small per cent go on to longer term disability, as judged through work loss, but those who are off work at three months are likely to be absent at six months. The likelihood of returning to work diminishes with time, so that those who are still off work at two years with back-related disability have a less than one per cent chance of ever returning to work. 28, 54, 75

Biomechanical, physical and psychosocial factors at onset have been shown to be related to disability outcomes in low back pain patients. 5, 6, 18, 21 The multifactorial nature of disability related to back problems makes its medical management complex, with several possible avenues for intervention in efforts to mitigate disability. Considering that most acute episodes of back pain and related disability resolve spontaneously, early intervention to prevent disability may be unnecessary in most cases. However, if known disability risk factors can be easily identified at an early enough stage, using simple tools or questions used in primary care, disability prevention efforts could focus on those cases that would benefit from the intervention.

Neck pain presents issues similar to those described in low back pain above. Incidence rates described in the literature range from 14.6% to 33%. 21, 35 Biomechanical, physical and psychosocial factors have been identified that influence disability associated with neck pain. 21, 23, 24, 31, 32, 33, 43, 44, 62, 65, 80, 105, 106, 120 For example, in a study of recovery following whiplash in a tort (litigious) system which converted to a no-fault system, time to recovery was shorter in the no-fault system, longer in those who were depressed and those who were not at fault. Identifying risk factors early in this group would again allow for appropriate intervention efforts to be focused on those who would benefit.

Treatment and investigations for acute neck and back pain are billion-dollar industries in Canada. There is mounting public concern that medical and rehabilitation costs are not justified, and do not promote a positive outcome. 2, 7, 66, 83, 85 Early identification of the cases who demonstrate characteristics which have been shown to be predictive of a longer recovery, higher cost, or disability, would permit focused intervention aimed at mitigating the risk. 62, 102, 112

There has been research performed to identify risk factors for prolonged disability, and some strong cases for certain variables are emerging, such as passive coping, 16, 53, 60, 64, 80, 86, 90, 97 depression, 24, 29, 30, 52, 53, 55, 95 and litigation. 8, 9, 81, 96, 98, 107, 128 Perception of fault has been implicated as a possible risk factor, as well, but requires more conclusive work. Further studies are also needed to clarify perceptions of fault present at or near onset, and their associations with other factors, in order to more clearly understand the influences and interplay of these factors on neck and back pain.¹¹⁵

This study was proposed to determine the prevalence of perceptions of fault in the six weeks following the onset of back and/or neck symptoms. This factor was then examined within the larger context of other factors by determining its association with other factors of interest. It was anticipated that such knowledge may clarify the concept of fault and its correlates in patients with neck and back pain of six weeks or less duration.

Perception of fault is often referred to as blame. Its study was particularly timely in the current Alberta socio-political environment – the system of compensation for victims of motor vehicle accidents where blame is legally assigned, which is under scrutiny.

Literature Review

There has been much research done examining associations of physical, 83 biomechanical 6 and psychosocial factors 18, 22 with low back and neck pain, and disability. 5, 7, 8, 9, 20, 21, 23, 24, 28, 33, 37, 38, 40, 44, 47, 53, 54, 55, 57, 58, 62, 65, 71, 79, 81, 88, 92, 94, 94, 98, 105, 106, 109, 110, 115, 116, 117, 118, 120, 122, 128 Very promising is the body of research that focuses on psychosocial and attitudinal factors. For example, a person's job satisfaction and coworker relationships were

more predictive than physical factors in low back pain reporting in the workplace in the landmark Boeing study. 6

Several other studies have examined psychosocial predictors of disability in low back and neck pain. Results from low back, neck, and other pain studies have demonstrated that various factors are considered predictive to varying degrees. For example, passive coping styles, 16, 53, 60, 64, 80, 86, 90 personality disorders, 90 depression, 24, 29, 30, 52, 53, 55, 95 fear-avoidance beliefs, 95, 134 catastrophizing, 74, 72, 91, 99 compensation, 18, 20, 28, 37, 79, 87, 95, 122 litigation, 8, 9, 81, 96, 98, 107, 128 job satisfaction, 6, 18 and low internal locus of control 78, 134 are but a few of the psychosocial factors that have been considered predictive in more than one study. Studies have also shown that older age, female gender, having dependents, not working full time, riding/driving in a truck or bus, being a passenger in a vehicle, suffering a side or frontal collision, neck pain on palpation, pain or numbness radiating to the arms, headache, and litigation were each associated with varying degrees of delayed recovery in whiplash-associated disorder (neck pain). 59, 65, 106

A few medical history factors have been identified in more than one study, namely, the presence of leg pain (in back pain cases), history of previous disability episodes, and multiple surgeries. 5, 18, 28, 79

Perception of fault

It does seem to be clinically reasonable that perception of fault as it relates to experiencing pain, with perhaps a concomitant sense of entitlement and/or victimization, could be an important factor in neck and back pain. Perception of fault is logically related to compensation and litigation; both have been shown to be related to disability from spinal pain. 37, 57, 88, 110

However, perception of fault may also exist outside of involvement in compensation and litigation.

In 1987, Bigos and Battié described perception of fault as a potential risk factor for disability, and Frymoyer and Cats-Baril described blame as an important factor to consider in a predictive model for low back pain disability.^{7, 50a} It wasn't until 1991 that perception of blame was measured and reported on with respect to pain.²⁸

Frymoyer and Cats-Baril et al included “perception of fault” as a risk factor for low back pain disability when developing and testing a predictive risk model for LBP disability, developed by a panel of experts.²⁸ The model consisted of eight categories of weighted factors (e.g., occupational, psychosocial, injury, diagnostic, demographic) of which “perception of fault” in the “injury” category was assigned a mid-range weight (4.7 in a range from 3.0 to 7.8) based on expert consensus. The injury category was assigned 18.5 points out of the total 100. A 33-question predictive model based on the original work of Frymoyer and Cats-Baril was developed (the Vermont Rehabilitation Engineering Center Predictive Model). From the 33 original questions, perception of fault was one of 11 found to meet the inclusion criteria for the predictive model. This 11-factor model was tested on 232 workers' compensation subjects presenting to physicians in Vermont and Texas with acute low back pain in 1993-1994. Ten factors were found to correctly predict 91% of those who returned to work and 71% of those who were disabled in Vermont, six months after completing the original questionnaire. According to the authors the overall accuracy rate was 89%. The Texas sample percentages were 64%, 94% and 89% respectively. Perception of fault was one of three injury factors in the final model ($p < 0.001$), along with compensation and lawyer contact. This suggests that perception of fault contains additional, independent predictive information beyond that available from

knowledge of compensation status and lawyer involvement. The model explained 88% of the variance, however, individual factors' contributions, which also entered the model, were not reported – attribution of fault was ranked as seventh most important out of ten. The specific question used was not described. There was no subsequent research available related to this model.

In 1996 DeGood and Kiernan focused on the question of perception of fault in a cross-sectional study design in a chronic pain centre. ³⁸ The question “Who do you think is at fault for your pain?” was posed as part of an intake questionnaire. Answer options were: “self, work, other (doctors, other drivers), and no one.” 38% of the subjects reported blaming “work” or “other,” 6% reported blaming themselves and 55% reported no blame. 17% of the subjects reported blaming work/employer, but this was only about half of those whose pain onset was work-related, as revealed through self-report. Although there were no significant differences in pain ratings or activity interference at the time of the assessment between those that reported fault and those that did not, perception of fault was correlated with significantly lower expectations for pain reduction and activity tolerance following treatment ($p=0.001$, $p=0.0005$ respectively), particularly when the perception of fault was directed at the employer, compared to those with no fault reported. Those that reported fault also reported significantly more negative responses to previous treatment ($p=0.003$, OR 1.71, CI 1.2-2.46), again strongest in the “employer” group ($p=0.02$, OR 1.95, CI 1.10-3.45). Psychological distress was measured using the Symptom Checklist - 90 Revised. There were significant elevations in all subscales of this measure (somatization, obsessive-compulsive, depression, anxiety, hostility, phobic anxiety, paranoid ideation, psychoticism, and the Global Severity Index) in those reporting fault ($p<0.02$), with the exception of Interpersonal-Sensitivity, compared to those who did not report fault. Significantly worse scores on

the phobic, paranoid, psychotocism, and obsessive-compulsive subscales ($p < 0.05$), somatization, anxiety, and GSI subscales ($p < 0.01$), and the depression subscale ($p < 0.001$) were reported in subjects citing an “employer” at fault than “other.” This study included any diagnosis of chronic pain (back pain, extremity pain, headache, visceral pain, and generalized somatization), whereas the Vermont Model studies and the McIntosh study, below, were specific to low back pain.

McIntosh et al included perception of fault when attempting to develop a self-administered checklist of behavioural characteristics that correlated with abnormal illness behaviour in low back pain sufferers, in 2000. 79 Perception of fault was defined as “blaming others” for the pain (“Is someone else primarily to blame for your pain?”). Abnormal illness behaviour was defined as “psychologic distress... communicated in bodily terms...” with no adequate organic explanation for the behaviour, and measured using Waddell’s behavioural responses to examination. 122 These behavioural measures were shown to be reliable, correlated with each other, and are associated with other clinical measures of illness behaviour and stress. The behavioural tests used were: superficial tenderness, non-anatomic tenderness, axial loading, simulated rotation, distraction straight leg raising, regional weakness, regional sensory changes, and “overreaction” to examination – overt pain behaviours. A 32-item self-administered questionnaire was completed by 237 consecutive subjects complaining of low back pain, of any duration, who presented to 15 rehabilitation centres across Canada. In multivariable analysis, blaming others was shown to be one of five strong predictors of abnormal illness behaviours, along with litigation, compensation, sleep disturbance and negative home/work/social interactions in people complaining of low back pain of any duration. The likelihood of abnormal illness behaviours was less than 40% in those with fewer than

three of these predictors; the likelihood was greater than 96% when four or more predictors were present.

A study of the validity of self-report of previous medical history of persons reporting to a spine clinic following an MVA was published in 2007. ^{21a} Self-reported medical and psychosocial history provided at the time of the consultation was compared to actual medical records. In those who were pursuing compensation claims and retaining an attorney, 80% had significant past history of axial pain or serious co-morbidities not disclosed at the spine clinic evaluation; in those who reported the MVA was “no one’s fault” or “one’s own fault” this effect was seen but was smaller in all dimensions compared to those who blamed another.

There was a literature review by Burton that suggested perception of fault could be an important factor in people with pain, however, no further measurement was found. ¹⁸

Thus, there are three studies that measured and reported blame as a significant factor associated with pain and/or recovery. One study found blame to be a significant predictor in a predictive model of delayed recovery from low back pain, ²⁸ another found blame to be a significant predictor of abnormal illness behaviour in low back pain of any duration, ⁷⁹ the third found blame to be a significant factor with respect to prolonged pain of any nature. ³⁸ Attributing fault to others was related to lack of self-disclosure regarding previous medical history when consulting a clinic post-MVA. ^{21a}

Specific Goals

The primary purpose of this study was to examine the prevalence of perceptions of fault, or blame, within the first six weeks of onset of neck and/or back pain, and to determine factors that are associated with perception of fault.

It was hypothesized that those subjects who reported that another person or group is at fault for the onset of pain, would present with concomitant risk factors for prolonged recovery, and that at least four other variables would correlate with the primary variable. That is, those who blamed another person or group for the onset of a low back or neck pain episode would also be more likely to have higher perceptions of disability, and be more likely to be depressed and have passive coping styles, than those who did not blame. This would be a step towards confirming whether or not perception of fault is a potentially meaningful prognostic factor, through its association with other variables predictive of disability.

Methods

Study Design

This was a cross sectional study of perceptions of fault in neck and back pain patients seeking physical therapy assessment and/or treatment within six weeks of onset of pain. Information was collected regarding perception of fault and other potentially associated variables at the first clinic visit.

Sampling

A convenience sequential sample of subjects was sought from patients attending The Canadian Back Institute (CBI) Physiotherapy and Rehabilitation Clinics in Alberta for assessment and/or treatment for neck

and/or back pain. Initially, it was intended that all patients meeting the following inclusion criteria would be invited to participate in the study, from all Alberta CBI clinics:

- Age 18 to 70 years inclusive
- Non-specific neck and/or low back pain (excluding pain associated with specific conditions such as pregnancy, ankylosing spondylitis or other autoimmune disorders, surgery, cancer, infection, fracture, cauda equina syndrome, upper motor neuron lesion)
- Fewer than six weeks duration
- With or without radiating pain
- No history of spinal surgery
- Able to read and write English well enough to complete the questionnaires independently (i.e., do not require a translator or interpreter)

Nine clinics were originally invited to participate in the study, however, only four locations ultimately participated. The four locations were: Lethbridge, Red Deer Clinic 1 and Red Deer Clinic 2, and Edmonton Westmount.

Representativeness of this sample to the larger population of patients attending CBI clinics was determined by comparing the study group to eligible candidates in the four above-named clinics, on traits and study measures collected standardly by CBI. These included age, gender, pain site, presence of blame, litigation, compensation, sleep disturbance, and disposition at discharge. An analysis of findings by location was also included to determine if there were significant differences between clinics' samples.

Sample Size

It was originally anticipated that up to 500 potential candidates would be recruited over a six-month period, based on historical data of clients with similar characteristics, and that 18 independent variables could be included in the analysis. As mentioned, that level of recruitment did not occur as only four clinics participated, thus reducing the sample size.

Data Collection

Data were collected at the time of the initial visit to the clinic, in order to elicit information on perception of fault, demographics, pain history, and other potentially associated variables, through questionnaires distributed by the usual front desk staff. Once eligibility was determined, each invited subject received an information sheet and was invited to participate by the clinic staff who routinely have clientele complete admission paperwork. Those who agreed to participate and provided written informed consent, then completed a series of questionnaires, some of which were standardly collected at CBI clinics.

Those questionnaires which are usually completed at the first visit to CBI clinics in Alberta, and that were used in the present pilot study were: the CBI-Questionnaire (CBI-Q), Oswestry Disability Questionnaire (ODQ) and/or the Neck Pain Disability Questionnaire (NPDQ), and CBI Lifestyle Questionnaire (LQ). Within these tools are routine CBI questions on perception of fault, litigation, mode of onset of pain, compensation, pain history, and demographics. One form (LQ) was modified to elicit more detail regarding who may be to blame for the subject's pain, and to include the 11-point Numerical Pain Rating Scale (NPRS). Two additional questionnaires completed for the purposes of the study were the Vanderbilt Pain Management Inventory (VPMI, also referred to as the

PMI) and the Centre for Epidemiological Study – Depression Questionnaire (CES-D). (Appendix D) The LQ and the CBI-Q were created by CBI and are standardly collected; psychometric properties have not been reported other than in the McIntosh study cited above, for the LQ. Psychometric properties for the other measures are described below.

These measures were administered to describe the sample and to determine the prevalence of the primary variable, perceptions of fault, and examine associations with other variables of interest. A portion of the standard care information collected on all patients attending CBI clinics was also used to determine the characteristics of the people who attended the locations used in this analysis.

Primary Variable (Dependent Variable)

Perception of Fault (“Blame”)

The primary variable was perception of fault, a categorical variable, with subjects either reporting that someone or something else is primarily to blame for their current neck or low back pain or that no one else is at fault. These data were acquired through the CBI Lifestyle Questionnaire (LQ) question: “Is someone else primarily to blame for your situation? Yes/No. If so, is it: another driver, employer, coworker or other _____?” (Appendix C) The Yes/No answer was entered for every subject, and those that answered “Yes” had the next part of the question entered as well (one of four choices).

This question was chosen because it is similar to both the DeGood and Kiernan study and the McIntosh study; it is also one question in the standard baseline data collected at CBI clinics in Alberta for program evaluation purposes. The McIntosh study asked, “Is someone else primarily to blame for this situation?” with “yes/no” as the options for

answering. DeGood and Kiernan asked “Who do you think is at fault for your pain?” Patients were then grouped according to the responses “employer”, “other”, or “no one” with “doctors” and “other drivers” being subcategories of “other”.

Other Variables Considered (Independent Variables)

Several potentially associated variables were considered. Described below are all the factors considered for association as well as the method of acquiring the data; whether or not it was standard intake information gathered at CBI or modified or added for this study; how that variable was defined for analysis; and the original hypothesis regarding its association with the primary variable and rationale. A detailed description of the questionnaires that were chosen as the methods of collecting information on the variables is also included.

Litigation - LQ (standard): “Have you contacted a lawyer about this injury?” Yes/No. Because we were studying patients with symptoms of a maximum of six weeks post-onset, we specifically only asked about contact with a lawyer, as opposed to any further detail such as actual action being initiated, which tends to occur later in the recovery process. It was hypothesized that there would be a strong correlation between this factor and blame, particularly in “fault” systems such as auto injury in Alberta, as described earlier.

Compensation – LQ (standard): “Are you receiving or anticipate receiving any financial compensation for your pain?” Yes/No. This question was intended to include disability insurance, sick leave pay, workers’ compensation wage replacement benefits, insurance on mortgages or loans, and potential pending financial settlements or litigation, confirmed or potential, as reported by the

subject, however this was not specified on this questionnaire. It was hypothesized that there would be a correlation between the presence of blame and compensation, as described earlier, although not as strongly for workplace blame and compensation as other systems (e.g. auto) in Alberta due to the “no-fault” component to Worker’s Compensation in Alberta.

Depression – The Centre for Epidemiological Study – Depression Questionnaire (CES-D) was included to measure depression, a continuous variable. Depression has been correlated with delayed recovery and poorer outcomes in low back and neck pain. Studies suggest that depression is both a predictor and outcome of neck and back pain problems. ^{19, 24, 33, 36, 41, 52, 67} The CES-D has been used in similar studies and is easy to complete, taking about three to four minutes; it is rated at a Grade 4 reading level. ⁹² The CES-D, although not to be used for individual diagnosis, has good sensitivity (90% in the original study in 1977; 81.8% compared to another depression measure at 68.2% in another study of pain and depression), relatively good specificity (72.7%), and excellent re-test reliability. ^{92, 93} It was found to not be significantly affected by age, gender, functional impairment, or physical disease. ⁹¹ It was hypothesized that depression would correlate moderately with blame, due to the common element of “helplessness” in both variables.

Pain Management/Coping Strategies – the Vanderbilt Pain Management Inventory (VPMI) was administered in order to quantify the influences of specific pain management methods used by subjects. ¹³⁰ The VPMI was developed to measure coping strategies in chronic pain patients. The correlation with passive coping and chronic pain has been established. ^{86, 87} This inventory

was used in this study despite its initial development for use in a chronic population, due to its ease of application and a dearth of measurements of coping for a more acute population. Specifically, the VPMI was used to measure the use of active or passive coping styles in dealing with subjects' pain. Scores for each of the two internal scales were entered into the database, i.e., a score for Passive Coping and another for Active Coping; each are continuous variables. It was hypothesized that passive coping correlates strongly with the presence of blame, due to the shared characteristic of external factors exerting a strong influence (either blaming the external factor or depending on external factors for relief), in contrast to factors perceived to be under one's own control.

Pain referred beyond the spine – LQ (standard): “Has the pain spread to areas beyond the spine?” Yes/No. This was used rather than the traditional “pain below the knee/elbow” since there is evidence that, when the location of the “worst” pain is given as being in the limb (when given a choice between spinal or limb pain with very specific questioning), it may represent more serious pathology which may require further investigations and/or surgery, or have slower recovery times, than merely the presence of any pain below the knee or elbow. 109, 111-113 It was hypothesized there would be no correlation between blame and referral of pain beyond the spine.

Disability – The Oswestry Disability Questionnaire and the Neck Pain Disability Questionnaire were chosen as the measures of perception of disability. These are both in use routinely at CBI clinics in Alberta. They have both been shown to be valid and reliable measures of perception of disability. The ODQ and NPDQ

have been shown to be easily completed. 85, 120-129 Intraclass correlation coefficients calculated to measure reliability in both were shown to be greater than .80. 123-125, 127) The actual scores were entered into the database with a possible range from zero to 100 for each. It was hypothesized that there would be a moderate correlation between perceived disability and blame, due to the association between perceived disability and litigation, and the suspected correlation between blame and litigation.

Sleep Disturbance – LQ (standard): “Are you having trouble sleeping due to your pain?” Yes/No. This was one of the five strongest predictors of abnormal illness behaviours (including blame) in the McIntosh study; sleep disturbance is widely recognized as a feature of chronic pain. It was hypothesized that there would be a moderate correlation between sleep disturbance and blame, and sleep disturbance, blame and depression, due to the potential for “rumination” in people who are predisposed to depression, and the potential for sleep disturbance in depression.

Gender – LQ (standard): Self-reported, Male/Female. No correlation was hypothesized.

Age – LQ (standard): Self-report in years. No correlation with blame was hypothesized.

Work Status – SAQ (standard): The therapist records if the subjects report working (or participating in usual ADL for homemakers, students, or retirees) at the time of the initial assessment. It is recorded as “Yes” if normal work duties and hours, or normal ADL are being done, “Partial” if some of the usual duties/activities are being done, and “No” if the subject is off

work or, if not in the work force, reports doing none of the usual activities of daily living. It was hypothesized that blame is associated with being off work due to pain, in part due to a potential sense of entitlement associated with being a victim in at-fault systems and in part due to the natural course of events post work- and auto-injury requiring medical, therapeutic, legal and compensation-related steps be taken.

Numeric Pain Rating – LQ: The traditional 11-point numeric pain rating scale for current pain was added to the LQ form for the study, where zero represents no pain and 10 equals the worst pain imaginable. 106-108 A moderate correlation between blame and higher pain rating was hypothesized due to the contribution of worry and situational stressors, known to influence pain reporting, which are associated with external factors related to blame.

Location of Care - There was a possibility of selection bias related to differential referrals to participating CBI clinics. In order to explore this possibility, the name of the clinic attended was recorded. Of the four clinics participating, one had a reputation for being only “active” (i.e., no passive modalities were used and rarely manual therapy as adjuncts to McKenzie-based self-applied treatment strategies, at Edmonton Westmount) whereas the others’ reputations were more mainstream – a combination of traditional electronic and other passive modalities were known to be used along with active treatment strategies. It was hypothesized there would be no correlation between blame and location of care.

Resting during the day due to the pain: never, more than, or fewer than three hours – This question is asked by CBI in the CBI-Q. It

was hypothesized that there would be no correlation between resting during the day and blame.

Essential to find the cause of the pain – Concrete patho-anatomical explanations for all mechanical back and neck pain cases do not currently exist. However, some people with spinal pain seek concrete answers. A view held amongst some clinicians is that those who seek concrete answers are also likely to seek multiple caregivers and are also likely to experience prolonged recovery. It was hypothesized that there would be a modest correlation between blame and the patient feeling it was essential to find the cause of the pain.

Attended more than two medical consults for the pain – Care-seeking (i.e., the patient seeks out multiple medical opinions or caregivers) is associated with delayed recovery. In circumstances where one is under the direction of a “Case Manager” due to third party medical coverage (insurance, workers’ compensation) or involved in litigation, one can be directed to medical consultations that may not have ordinarily happened, although this is typically later than six weeks post-onset. It was hypothesized that care-seeking (as represented by having had more than two medical consults) would have a modest association with blame.

Mode of onset of the pain – Each subject was asked how his/her pain started, and was given these options: Motor Vehicle Accident (MVA onset*), Work, Home, Sport, Other. It was hypothesized

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* Apologies to those who favor changing the nomenclature from “accident” to “collision” or “crash.”¹ The word “accident” is used here as the word continues to be prevalent in popular culture and was in use on the CBI forms. Motor vehicle incidents are predictable, and they can be prevented, and need not be considered “accidents” despite usage of that word.

that MVA and work would have strong correlations with blame due to the social construct regarding compensation for victims of MVA and work injury.

Data Handling

The data collected, with the exception of the CES-D and the VPMI, were part of the day-to-day patient care information collection and outcomes management practice at CBI clinics in Alberta. The data are entered into each clinic's information management system at the time of intake, with the original paper copy kept in the patient's chart. The ODQ and NPDQ are kept in the patient's chart. The questionnaires that were specific to the study, and were not associated with routine patient care were kept with the study specific information in a locked study file cabinet.

The information entered into the information management system for the Alberta population was extracted by research personnel at the corporate research and IT department who do this routinely, maintaining confidentiality, for comparison with the subject sample. Otherwise, all subjects' data were entered into the study data base by the researcher and assistant, taken from paper copies of the forms described. Once the data were entered and unique identifiers assigned, the subjects' names were deleted.

Data Analysis

Descriptive statistics were calculated to characterize the subjects using mean and standard deviation for continuous variables, and percent for dichotomous variables. Then, univariate logistic regression was carried out with the variable of interest, blame, and the other variables to

□

determine significant associations. Blame was analyzed for significance and strength of association with the other variables using cross-tabulation and univariate logistic regression, calculating odds ratios (OR) and 95% confidence intervals. ANOVA was used to calculate the difference of the means for continuous variables, between those that reported blame and those that did not; the alpha level of $p=.05$ was accepted as significant. Those that were considered significant ($p<.10$) were then entered into a multivariable model in order to determine the relationships between those variables.

Results

Subject Characteristics (Table 1)

Of the 232 patients who were invited for study participation, a total of 176 subjects (76%) were recruited from the four clinics in Alberta: Lethbridge (N=32), Red Deer 1 (N=56), Red Deer 2 (N=19), and Edmonton (N=69). 56 potential subjects declined to participate. 53.4% of subjects were female; the mean age was 37; and 23% were smokers at the time.

The majority of subjects reported back pain only (68%), whereas 19% reported neck pain only and 13% reported both. 14% of subjects reported there was no specific cause for their pain, 34% attributed the onset to a motor vehicle incident, 30% to a workplace incident, and 13% to an incident at home, during sports, or other activity.

A minority of all subjects reported expecting or receiving compensation for their pain (35.6%), and fewer reported contacting a lawyer as a result of the pain (10.3%).

The average pain rating (numerical pain rating scale) was 5.28 out of ten. The majority reported that their pain had spread beyond the spine (67.4%), and that it was essential to find the physical cause of their pain (76.5%). 42.6% reported they had attended more than two medical consults due to the pain – this question did not differentiate between different consultants, just the number of consultations prior to attending CBI.

Various indications of disrupted daily life were reported by the majority of subjects, including: sleep disturbance (78 %), disturbance at home, work or with friends (75%), inability to perform usual work (76.7%) and resting during the day due to pain (67%). 14.8% were off work completely.

Similar mean perceptions of disability were reported in those suffering back pain (36% Oswestry Disability score) and those suffering neck pain (35% Neck Pain Disability score). The majority (64%) of the subjects' CES-D scores were consistent with those who are considered depressed (cutoff score >15/60).

Table 1 – Subject Characteristics – All variables considered are included in this table.

Total N = 176

	Responses	N (%)	Mean (SD)	Range
Demographics				
Female	176	94 (53.4%)		
Age	156		37.46 (12.924)	18 – 78
Smoker– current	176	41 (23.3%)		
Smoker– former	176	19 (10.8%)		
Pain Characteristics				
Site of pain	176			
Back (only)	176	119 (67.6%)		
Neck (only)	176	34 (19.3%)		
Neck and back	176	23 (13.1%)		
Constant pain	174	112 (63.6%)		
Pain spread	175	118 (67.0%)		
Numerical pain rating scale (0-10)	152		5.28 (2.190)	0 – 9
Onset Characteristics				
Cause – unknown	158	24 (13.6%)		
Cause – motor vehicle incident	158	59 (33.5%)		
Cause – work incident	158	52 (29.5%)		
Cause – home, play, other	158	23 (13.1%)		
No blame	176	108 (61.4%)		
Blame – total yes	176	68 (38.6%)		
Blame – another driver	176	50 (28.4%)		
Blame – employer	176	10 (6%)		
Blame – co-worker	176	4 (2%)		
Blame –other	176	4 (2%)		
Lawyer	174	18 (10.2%)		
Compensation	170	63 (35.8%)		
Psychosocial Measures				
Depressed (>15 on CESD)	173	111(64.0%)		
ODQ (Percent)	118		35.58 (19.493)	0 – 82
NPDQ (Percent)	51		37.47 (18.195)	6 – 76
VPMI – Passive Scale	171		17.34 (4.895)	7 – 29
VPMI – Active Scale	170		14.83 (3.707)	1 – 29
CES-D	173		18.14 (11.483)	0 - 48
Effects				
Sleep disturbance	173	135 (76.7%)		
Trouble Home, work, with friends	172	129 (73.3%)		
More than 2 med. Consults	171	79 (52.3%)		
Rest during the day < three hours	176	72 (40.9%)		
Rest during the day > three hours	176	46 (26.1%)		
Prev treatment no help	168	86 (48.9%)		
Essential find cause of pain	166	127 (72.2%)		
Work Status				
Total working	176	122 (69.3%)		
Full and usual work	176	13 (7.4%)		
Trouble working – restricted	176	65 (36.9%)		
Trouble working – severe restr.	176	44 (25.0%)		
Off work	176	26 (14.8%)		

Representativeness of Participants

The 176 study subjects represented only 7% of all eligible patients (N=2399) seen in the four participating clinics during the study recruitment period May 24, 2005 – July 27, 2006. 56 eligible patients declined to participate. The majority of eligible patients were simply not approached to participate, largely due to staffing issues. Given the numbers of potential subjects and the actual numbers recruited, there can be no assumption of generalizability. However, an analysis of variables collected routinely by CBI on all who were eligible allows for some evaluation of the representativeness of participants. (Table 2) Significant differences in subject characteristics and frequencies between all who were eligible and subjects are noted in the table. Logistic regression and multivariable modeling performed on the variables that were routinely entered into the CBI database over the study period revealed results similar to the study subjects' results, with some variation (Addendum 3). It is worthy to note again that none of the psychosocial measures (ODQ, NPDQ, CES-D, VPMQ) are routinely entered into the CBI database and thus the value in recruiting subjects for the study sample. Unfortunately, representativeness comparisons cannot be made regarding those measures; due to the similarities in the other factors, however, one may infer that there could be some generalizability in the results of the psychosocial measures.

A comparison between locations was done. There were a few significant differences between clinics found, however, there were no differences that required controlling in the general analysis.

Table 2 - Comparison of subjects' characteristics to all who were eligible

	Eligible N/Total Responses Total N = 2399	Subjects N/Total Responses Total N = 176	Percentage	
			Total Eligible	Subjects
Demographics				
Female	1195/2398	94/176	49.8%	53.4%
Age (mean, (SD))	2229/2229	156	40.32 (14.31)	37.46 (12.92)
Pain Characteristics				
Site of pain				
Back (only)	1381/2239	119/176	57.6%	67.6%
Neck (only)	634/2399	34/176	26.4%	19.3%
Neck and back	383/2399	23/176	16.0%	13.1%
Constant pain	676/1005	112/174	67.3%	63.6%
Pain spread	680/993	118/175	66.0%	67.0%
Onset Characteristics				
Cause – unknown	415/2390	24/158	17.3%	13.6%
Cause – MVA	647/2390	59/158	27.0%	33.5%
Cause – work	941/2390	52/158	39.2%	29.5%
Cause – other	355/2390	23/158	14.8%	13.1%
No blame	521/1002	108/176	52.0%	61.4%
Blame	481/1002	68/176	48.0%	38.6%
Lawyer	187/1009	18/174	18.5%	10.2%
Compensation	420/950	63/170	44.2%	35.8%
Effects				
Sleep disturbance	805/1010	135/173	79.7%	76.7%
Trouble home, work, friends	767/995	129/129	77.1%	73.3%
More than 2 consults	528/1006	79/171	52.5%	52.3%
Rest < three hours	1191/2339	72/176	49.7%	40.9%
Rest > three hours	644/2359	46/176	26.9%	26.1%
Prev treatment no help	584/957	86/168	61.0%	48.9%
Essential find cause	780/966	127/166	80.7%	72.2%
Work Status				
Off work	1155/2086	26/176	44.3%	14.8%

Prevalence of Perception of Fault

Out of the 176 subjects, 68 or 38.6% reported that another person or group was at fault for the onset of back and/or neck pain. Of the 68 subjects who reported blame, 50 attributed the blame to another driver(s) (73.5%), far ahead of the next most common, the employer (10/68 or 14.7%). 4 of the 68 who reported blame (5.8%) attributed it to a co-worker, and another 4 reported “other.”

Crude Associations

Seven statistically significant associations were found (Table 3). The strongest significant relationship was found between blame and the mode of onset of pain, namely, motor vehicle accidents ($p < 0.001$, OR 24.62, 95% CI 10.48-57.86). The next strongest relationships were with part of body (neck), sleep disturbance, expecting or receiving compensation, having contacted a lawyer, depression, age and the Oswestry Disability Questionnaire score. Table 4 demonstrates all the crude associations across variables.

Table 3 – Factors significantly associated with blame

Strength of Association with Blame	p-value	Odds Ratio	95.0% Confidence Interval
Cause – MVA	<0.001	24.62	(10.48-57.86)
Part of body (neck only)	<0.001	9.23	(3.78-22.51)
Sleep disturbance	0.002	4.40	(1.73-11.20)
Compensation	<0.001	3.90	(2.02-7.532)
Lawyer	0.014	3.67	(1.31-10.32)
Depressed (>15)	0.044	1.99	(1.02-3.93)
Depressed (continuous)	0.001	1.05	(1.02-1.08)
Age (prior to grouping into tertiles)	0.042	0.97	(0.95-0.99)
Constant Pain	0.058	1.90	(0.98-3.69)
Oswestry Disability Questionnaire	0.053	1.02	(1.00-1.04)
Old Wound	0.947		
Location of Clinic	0.421		
Pain Spread	0.110		
Essential med source	0.724		
More than 2 med. Consults	0.776		
Gender (female)	0.253		
Smoker	0.952		
Trouble Home, Work, with Friends	0.203		
Prev treatment no help	0.364		

Table 4: Crude Associations – All Variables

	Blame	Part of Body (Neck)	MVA only	Work only	Compens'n
Part of Body (Neck)	p=0.000 OR=9.2	X			
Cause MVA only	p=0.000 OR=24.62	p=0.000 OR=11.59	X		
Cause Work only	P=0.183	p=0.013 OR=0.289	X	X	
Compensation	p=0.000 OR=3.90	P=0.089	p=0.001 OR=2.95	p=.047 OR=1.98	X
Sleep Disturbance	p=0.001 OR=4.40	p=0.043 OR=3.44	p=0.005 OR=3.88	0.547	p=.013 OR=2.30
Lawyer	p=0.010 OR=3.67	P=0.245	p=0.000 OR=7.2	0.052	0.538
Depressed (>15 on CESD)	p=0.043 OR=1.99	p=0.022 OR=2.96	p=0.040 OR=2.12	0.724	0.626
Off Work	P=0.947	P=0.262	P=0.763	0.345	p=.044 OR=2.57
Location of Clinic	P=0.421	P=0.434	p=0.044 v=.046*	p=.000 l=.265	0.921
Constant Pain	P=0.056 OR=1.90	P=0.596	P=0.118	0.432	0.315
Pain Spread	P=0.110	P=0.919	P=0.311	0.407	0.192
Essential find source	P=0.724	P=0.781	P=0.440	p=.039 OR=2.53	0.801
More than 2 med. Consults	P=0.776	P=0.663	P=0.180	0.392	0.954
Gender (female)	P=0.253	P=0.079	p=0.048 OR=1.92	p=.000 OR=2.67	0.205
Smoker	P=0.952	P=0.709	P=0.079	p=.000 OR=2.96	p=.040 OR=2.16
Trouble Home, Work, with Friends	P=0.203	P=0.112	P=0.116	0.599	p=.046 OR=2.17
Prev treatment no help	P=0.364	P=0.203	P=0.489	0.296	0.311

Continued...

Table 4 (Continued)

	Sleep Dist	Lawyer	Depressed	Off Work	Locat'n	Constant Pain
Lawyer	P=0.558	X				
Depressed (>15 on CESD)	p=0.000 OR=4.39	P=0.882	X			
Off Work	p=0.021 OR=7.88	P=0.233	P=0.137	X		
Location of Clinic	P=0.102	P=0.364	P=0.295	P=0.064	X	
Constant Pain	p=0.000 OR=6.94	p=0.021 OR=5.05	p=0.000 OR=4.10	p=0.030 OR=3.77	P=0.601	X
Pain Spread	p=.032 OR=2.21	P=0.634	p=0.002 OR=2.81	P=0.402	P=0.595	p=0.024 OR=2.10
Essential find source	P=0.064	P=0.193	p=0.024 OR=2.32	P=0.082	P=0.105	P=0.560
More than 2 med. Consults	p=0.013 OR=2.65	p=0.060 OR=2.78	p=0.041 OR=1.97	p=0.012 OR=3.30	p=0.009 I=.092	p=.010 OR=2.33
Gender (female)	p=0.018 OR=2.42	P=0.082	P=0.136	P=0.607	P=0.382	P=0.230
Smoker	P=0.290	P=0.309	P=0.331	p=0.033 OR=2.70	P=0.137	0.161
Trouble Home, Work, with Friends	p=0.000 OR=5.05	P=0.137	p=0.001 OR=3.37	p=0.038 OR=4.3	P=0.274	p=0.025 OR=2.20
Prev treatment no help	P=0.464	P=0.076	P=0.656	P=0.913	P=0.328	P=0.089

Table 4 (End)

	Pain Spread	Essential find cause	> 2 Med Consults	Gender (female)	Smoker	Trouble H,W,F
Essential find cause	p=0.013 OR=2.50	X				
More than 2 med. Consults	p=0.017 OR=2.22	p=0.015 OR=2.52	X			
Gender (female)	P=0.165	P=0.408	p=0.035 OR=1.93	X		
Smoker	P=0.059	P=0.785	P=0.608	p=0.026 OR=.438	X	
Trouble Home, Work, Friends	P=0.161	P=0.206	p=0.008 OR=2.67	p=0.036 OR=2.08	P=0.213	X
Prev treatment no help	P=0.190	P=0.513			P=0.419	P=0.562

Blame and MVA Onset, Body Part, Compensation, and Having Contacted a Lawyer

The first and second strongest associations with blame were the cause of the pain (“MVA onset”) and the part of body in pain (neck) (Table 3). Part of body (neck) was itself independently and more strongly associated with the MVA onset factor ($p < .0001$, OR 11.59, RR 3.80) than it was with blame (Table 4).

Receiving or expecting compensation increased the likelihood of blame nearly fourfold (Table 3). Strong relationships between blame, mode of onset, and compensation were demonstrated as per Table 4. However, there were differences between the strengths of association between mode of onset and compensation: Having pain as a result of an MVA was associated with the subjects being nearly 25 times more likely to report blame, whereas receiving or expecting compensation was associated with the subjects being only 3.9 times as likely to report blame.

Blame was associated with having contacted a lawyer (Table 3). The MVA onset cohort was more strongly related to presence of a lawyer (Table 4) than the subjects as a whole, as one might expect. The work onset cohort did not show a significant association with the presence of a lawyer. But, of those who did blame, by far most did *not* seek a lawyer (19%).

Blame and Sleep

The third strongest association with blame was sleep disturbance (OR 4.40), which was also strongly associated with depression, as well as

constant pain, pain ratings, disability ratings, being off work, MVA onset, passive coping, compensation, female gender, more than two medical consults, and pain spreading beyond the spine (Table 4).

Blame and Age

The association between age and blame was first visualized on a scatterplot. It was apparent that there was not a linear association with age and blame, but that a relationship existed. The age results were then grouped into tertiles, in order to ensure cell sizes were even. It was determined that the age group 31 – 43 was 57 percent as likely to blame than the 30 and under age group, and that the age group over 43 was 54 percent as likely to blame than the 30 and under group.

Multivariable Model

In order to further clarify influences associated with blame, a multivariable model was created. Initially, all the variables that were significant at $p < 0.10$ in the crude associations, were entered into the model. Depression was entered as a continuous variable in order to maximize accuracy; age was entered in tertiles. It was found that cell sizes for part of body were inadequate for the model, and so that variable was re-coded into a dichotomous variable, “back only” and “neck, and neck and back.” This variable remained significant in crude association calculations ($p < 0.001$, OR 5.25, CI 2.66-10.37).

Given that reporting neck pain was very highly correlated with MVA onset (Table 4) as most persons seeking treatment post-MVA report neck pain, “part of body” was removed from the model. MVA onset was chosen to stay in the model as it was most closely associated with the construct of fault, as in MVAs attributing fault is routinely done. The results are reflected in Table 5 below.

The choice of “MVA onset” over “part of body” was tested by re-creating the model using “part of body instead of MVA onset. The original model remained the strongest model.

Table 5– Multivariable Regression Model

Model p-value	Pseudo R-Square	Variables remaining in model	Variable p-value	Odds Ratio	Confidence Interval
<0.001	.557	MVA onset	<0.001	5.48	3.32-9.05
		Compensation	0.019	2.84	1.19-6.78
		Sleep disturbance	0.087	2.30	0.85-10.52

This model best reflected the associations between the most significant variables where blame was defined as the dependent variable and “part of body” was purposely excluded due to co-linearity with MVA onset.

Discussion

Someone else was reported to be at fault for the pain in 38.6% of the 176 subjects enrolled in this study. This prevalence is consistent with the findings of DeGood and Kiernan – just over one third of their subjects reported fault. The largest single entity that subjects blamed in DeGood and Kiernan’s study was the employer (18% of all subjects) whereas in this study, only 6% of all subjects blamed the employer. In DeGood and Kiernan, “other” was blamed by 23%, whereas 32.4% blamed “other” in this study (including 28.4% who blamed another driver). DeGood and Kiernan did not provide specific numbers with respect to the “other” category, although did state it included “other drivers, medical professionals, other”. In the McIntosh study, the prevalence of blame was not reported; unfortunately neither did the Frymoyer study. Carragee

reported that , on only MVA onset cases, 63% blamed another. If only MVA onset cases were considered, in this study 85% blamed another.

This study examined perceptions of fault specifically in subjects who reported acute and subacute neck and/or back pain (< six weeks' duration). This is in contrast to the previously mentioned studies on blame and pain, one of which was based on a variety of chronic painful conditions on average two years post onset, ³⁸ one based on low back pain of any length of time, ⁷⁹ one on acute low back pain, ²⁶ and one on spinal pain up to six months post-MVA. ^{21a}

In this study, blame was found to be significantly associated in crude analyses with the cause of pain (MVA), part of body injured (neck), sleep disturbance, expecting compensation, contacting a lawyer, being depressed, younger age, and higher Oswestry scores, in subjects reporting back and neck pain in six weeks' or less duration. However, only MVA onset, compensation, and sleep disturbance remained significantly associated with perception of fault in the final multivariable model.

The results demonstrate that the hypotheses that blame or perception of fault would be associated with having contacted a lawyer, compensation, depression, sleep disturbance, higher ODQ scores, and mode of onset were partially correct – compensation, sleep disturbance, and MVA onset were associated with blame and were included in the multivariate model, whereas mode of onset at work was not associated with blame, and having contacted a lawyer and higher ODQ scores were associated but did not contribute to the multivariable model. There were several cases where the null hypothesis could not be rejected as there was no association demonstrated with blame: passive coping, NDPQ scores, work status, NPRS, pain spread beyond the spine, feeling it was essential to find the cause of the pain, care-seeking, and work onset, contrary to those

hypotheses. There was one factor that was associated with pain in contrast to the hypothesis that there would be no association – age – being under the age of 31 was associated with being 2.2 times as likely to blame as being over 43 years of age. However, age did not remain in the multivariable model.

MVA onset and compensation were the most significant factors in the final multivariable model. This is as one might expect in a socio-legal environment that allocates blame and financially rewards victims, as does Alberta motor vehicle legislation (albeit with restrictions on litigation awards in the last three years), similar to most jurisdictions in North America. The strength of association between suffering an MVA and reporting blame may be partially explained by two factors described in the literature: over 80% of Albertans believe themselves to be “excellent” drivers, i.e. above average, (135) and therefore less likely to believe an MVA is one’s own fault, and, it is those who are deemed legally “not at fault” (i.e., victims, most commonly of rear-end accidents) who seek and receive the most treatment following MVA. 136

Consideration was given to other potential co-linearities. There was potential for co-linearity between MVA onset and compensation due to the socio-legal environment that allows for compensation for pain and suffering for victims of MVA in Alberta. Co-linearity was also a potential problem between sleep and depression due to the known relationship between the two. However, a regression model that included MVA and compensation, and another including sleep and depression demonstrated that each had a significant association with blame. Thus all four were included in the model-building process.

A mode of onset typically thought of as being related to blame, self-reported work injury (“Work onset”), was not significantly associated with

blame in this study. This is in contrast to the DeGood and Kiernan study, which found that approximately half of those with work-related chronic pain problems reported blaming work/the employer. The contrast between their findings and these findings cannot be explained with the information from this study, but some possible explanations include: a) blame is not applicable -- just because an incident happened at work doesn't mean the workplace, employer or a co-worker is to blame; or, b) the no-fault aspect to workers' compensation in Alberta could play a role. The no-fault principle is well-ingrained in the social framework in Alberta and Canada – workers' rights to no-cost, timely, and appropriate care along with timely wage-replacement compensation for work injury is balanced with the restriction upon litigation – workers cannot sue employers for work injury, including pain or suffering – which is in contrast to legislation in parts of the United States. This may very well reduce the blame “mindset” in injured workers in this study as there are no additional concrete benefits to apportioning blame.

DeGood and Kiernan found correlations between blaming the employer and risk factors for prolonged disability such as elevated measures of distress, lower expectations for recovery, and depression. For example, the depression subscale on the SCL-90-R scale in their study was significantly ($p < 0.001$) different between fault and no-fault groups, with the employer-blame subgroup demonstrating the highest contrast with the no-fault group (> 60% clinically elevated scores in the employer group compared to 38% in those who blamed “other”, and < 30% in those who did not blame). The present study found that depression was also associated with the fault group ($p=0.001$, OR 1.05, CI 1.02-1.08), but, depression was not associated with those who were injured at work, or with those who blamed the employer. Depression was associated with the MVA group, however ($p=0.009$, OR 1.04, CI 1.01-1.06).

Although MVA onset and work onset were each associated with “expecting financial compensation,” the relationship was much stronger with the motor vehicle-onset cohort than the work-onset cohort (MVA $p=.001$, OR 2.95; Work $p=.047$, OR1.98) despite the fact that both systems provide compensation. As mentioned, motor vehicle legislation in Alberta allows for injured persons to receive a settlement or sue for pain and suffering in addition to wage replacement and treatment costs, as long as there is someone to blame. The Workers’ Compensation system pays wage replacement and treatment costs, but, does not allow litigation payments for pain and suffering and does not provide lump sum payouts. Interestingly, none (0%) of those injured at work reported being able to do full and usual duties at work; the majority of those reported work was “restricted” or “severely restricted” and 14.8% were off work totally. Each person injured on the job and who was not performing full hours at work (modified or regular duties), would in fact be receiving or eligible for compensation for wage loss. Despite the fact that all those who reported a work injury were likely entitled to, or receiving, some type of financial benefits through the Workers’ Compensation system, only 48% *reported* they expected or were receiving any kind of compensation. This could be partially explained by the method by which compensation information was collected: Each subject merely selected “yes” or “no” to the question, “Are you or do you expect to receive compensation for your injury?” In the no-fault Workers’ Compensation system, wage loss payments are timely and rarely contested to persons injured on the job. This may not appear to those injured workers as obvious “compensation for ...injury,” in contrast to those who may receive a lump sum payment at some point in the future, after suffering an MVA. These factors may have led to under-reporting compensation in the work injury group. It could also be the case that those workers who reported restricted work abilities were performing full hours, modified duties and were truly not receiving compensation at the time.

There were other significant crude associations noted that may be of interest to consider in future analysis, summarized in Table 4 and Addendum 1:

- *Being off work* was associated with sleep disturbance, compensation, more than two medical consults for the pain, constant pain, pain ratings, ODQ, NPDQ, depression, passive coping, and smoking;
- *Depression* was associated with blame, neck pain, sleep disturbance, constant pain, more than 2 medical consults for the pain, feeling it was essential to find the cause of the pain, pain spreading beyond the spine, pain ratings, higher scores on the ODQ and NPDS, passive coping, trouble with home, work or friends, pain ratings, and being off work; active coping was protective for depression;
- *MVA onset* was associated with blame, neck pain, compensation, lawyer, sleep disturbance, and depression;
- *Work onset* was associated with back pain, compensation, feeling it was essential to find the cause of the pain, higher pain ratings, and smoking;
- *Sleep disturbance* was associated with constant pain, higher scores on the ODQ and NPDQ, higher pain ratings, depression, passive coping, MVA onset, being off work, blame, neck pain, compensation, more than two medical consults, and pain spreading beyond the spine;
- *Neck pain* was associated with blame, compensation, sleep disturbance, depression and higher scores on the NPDQ;
- *Compensation* was associated with blame, MVA onset, higher scores on the ODQ, sleep disturbance, neck pain, higher pain ratings, smoking, and being off work.

Study Strengths and Limitations

There were advantages to the study design. The cross sectional nature of the study allowed for consideration of several variables – a wide-ranging array were chosen. Another advantage was the ability to compare the subjects' characteristics to a significant proportion of all those eligible over the recruitment period. This allowed for some examination of representativeness.

This design had an advantage over other studies of perception of fault in that inclusion criteria were more specific to sufferers of neck and low back pain of less than six weeks duration, and therefore is more generalizable to this specific population.

There were several limitations in this study, the primary one was the difficulty with recruitment and low participation rate. Initially, it was thought that there would be much more successful recruitment by the clinics in Alberta, resulting in a few hundred subjects completing all the measures, as well as a follow-up component to the study looking at the effect of blame on the recovery outcomes of subjects. That would have allowed us to evaluate the effect of blame on the recovery outcomes in neck and back pain. Low initial recruitment levels and low follow-up rates did not allow that to occur. Thus, there was a very small sample size used for this cross-sectional study.

Another limitation to this study design is inherent in any non-longitudinal research – one cannot reach conclusions about factors relating to outcomes. For example, some of our interest in blame comes from the suspicion that blame may have adverse effects on recovery outcomes. Yet, a cross-sectional study does not allow us to either support or refute this suspicion.

Despite the number of variables considered, it is possible that some important factors were overlooked.

Ethical Considerations

Ethical considerations included: appropriate informed consent, no consequences for refusal or withdrawal for any reason, confidentiality of information and data, and risks/benefits. The first three issues were addressed at intake with the informational letter and invitation to participate, offer of explanation and explanations as desired, and discussion and information regarding all points on the consent form. Each participant was asked if he/she would like information on the study findings at the conclusion of the study, however, there were none. There were no risks or benefits to the participants identified in this study.

Ethics approval was given by the University of Alberta Health Research Ethics Board May 13, 2005.

Summary

Blame is a psychosocial construct that medical professionals suspect may negatively influence recovery in cases of neck and back pain. In 1987 it was suggested that perceptions of fault may affect recovery from back pain⁶; in 1997, a social science study found four common themes regarding beliefs about chronic pain in chronic pain sufferers and health care providers – all of which had blame and responsibility at the core of the beliefs held. ^{39a} This suspicion or belief, that perceptions of fault may be important in musculoskeletal pain cases, seems to have some merit. There have been four previous studies that measured prevalence or associations with blame, or its relationship with recovery outcomes – two regarding low back pain (of any duration), one regarding a variety of

chronic pain conditions, and one regarding validity of self-disclosure statements post-MVA. Other studies have more obliquely referred to perception of fault, for example, the literature comparing tort (litigious) systems to non-tort (“no-fault”) funding systems, and have measured relationships and recovery in that manner.

This study was undertaken to describe the prevalence of blame in those who reported neck and/or back pain of six weeks or less duration, and to investigate the association between blame and pain, psychosocial, and situational variables. In this study, we found that the prevalence of blame in the volunteers and in the eligible population seeking treatment, was consistent with the prevalence in the DeGood study of chronic pain conditions, about 40% of the subjects. We found that blame was associated with depression, as did DeGood and Kiernan. We found that blame was more associated with MVA onset of pain (and its logical consequences in a tort system, compensation and litigation) than it was with self-reported work onset of pain, in contrast to DeGood and Kiernan’s findings where work onset was more highly associated with blame.

There were seven significant crude associations with blame found (at $p < 0.005$): MVA onset, compensation, contact with a lawyer, sleep disturbance, depression, presence of neck pain, and age < 31 . Neck pain was considered co-linear with having been in an MVA and so variables significant at $p=0.10$, except neck pain, were entered into a multivariable regression model. The final model included three significant factors: MVA onset, receiving or anticipating compensation for pain, and sleep disturbance. Unfortunately, there was a smaller sample recruited than planned; fortunately, there was some confidence restored with respect to representativeness when comparing the sample to the total eligible candidates’ characteristics.

This study provided introductory information on the prevalence of perception of fault in acute and subacute neck and low back pain in patients seeking physical therapy care. There appears to be interest and research taking place with respect to perception of fault as it pertains to psychosocial realms and in the musculoskeletal realm. Further research into the associations of blame and the effects of blame on recovery outcomes would be of interest. Only then can researchers determine if the suspicion held by clinicians that blame is associated with delayed recovery, could be supported or refuted. As factors regarding delayed recovery become known, this knowledge can then in turn be used to preempt disability, through development of appropriate treatments and social policy. Future research into the effects of perception of fault on the outcome of neck and back pain using longitudinal study designs would be the next logical step.

ADDENDA:

Addendum 1: Descriptive statistics for continuous variables and blame

Addendum 3: Logistic and multivariable regression of all eligible

Addendum 1: Significant associations between continuous variables and blame

		LQ11 NPRS	ODQ % p=.050, F=3.922	NPDQ %	Ces-D p<.000, F=13.495	VPMI passive scale	VPMI active scale
BLAME							
No blame	Mean	5.157	33.795	35.667	15.905	17.096	14.689
	N	89	83	21	105	104	103
	Std. Deviation	2.147	18.486	13.904	10.250	4.906	3.755
Blame	Mean	5.556	41.371	39.448	22.242	17.924	15.015
	N	63	35	29	66	66	66
	Std. Deviation	2.205	20.122	20.810	12.063	4.688	3.519
Total	Mean	5.322	36.042	37.860	18.351	17.418	14.817
	N	152	118	50	171	170	169
	Std. Deviation	2.173	19.216	18.164	11.379	4.826	3.657

Addendum 2a: Logistic Regression –

Factors demonstrated to be significant with blame, of all who were eligible

Strength of Association with Blame	p- value	Odds Ratio	95.0% Confidence Interval
MVA onset	<0.001	28.56	19.17-42.55
Part of body (neck only)	<0.001	8.67	6.50-11.55
Sleep disturbance	<0.001	2.35	1.69-3.26
Compensation	<0.001	4.23	3.21-5.57
Lawyer	<0.001	26.63	14.24-49.79
Trouble at home, work, with friends	<0.001	3.42	2.46-4.74
> 2 medical consults	0.066	1.27	0.99-1.63
Age (prior to grouping into tertiles)	0.003	0.986	0.98-0.10
Essential to find source of pain	0.051	1.382	0.10-1.91
Gender (female)	<0.001	1.655	1.29-2.12

Addendum 2b: Multivariable Model - All who were eligible with data (859 cases out of 2398 total); excluding neck pain due to co-linearity, and removing > 2 consults (p=0.374, OR 0.86, CI 0.61-1.20), imperative/source (p=.237, OR 1.30, CI 0.84-2.03), age (categories) and sleep disturbance (p=0.231, OR 1.45, CI 0.79-2.68) as they did not contribute to the model.

Model p- value	Pseudo R- Square	Variables remaining in model	Variable p-value	Odds Ratio	Confidence Interval
<0.001	.76	MVA onset	<0.001	63.11	37.95-104.99
		Lawyer	<0.001	48.38	20.49-114.25
		Trouble h,w,f	<0.001	3.07	1.70-5.54
		Compensation	0.001	2.28	1.41-3.69
		Gender	0.020	1.77	1.09-2.88

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Appendices

- A Invitation to Participate, Informational Letter
- B Consent to Participate
- C CBI Intake Information – CBI-Q, Lifestyle-Q, Spinal Assessment
- D Non-CBI Study Intake Questionnaires –
CESD, OSQ, NPDQ, VPMI
- E Proposed Budget and Letters of Support

Appendix A

Research Project Information and Invitation to Participate

Back Pain Research Invitation

Factors Affecting Recovery and Function in People with Neck or Back Pain

Researchers: Primary – Holly Meyer, Master’s student in Physical Therapy, University of Alberta, and Associate Physical Therapist, CBI Health, Phone 780-423-2944

Co-Investigator/Supervisor – Dr. Michele Crites Battié, Professor and Canada Research Chair in Common Spinal Disorders, University of Alberta, Phone 492-5968

Background: The goal of this study is to learn more about factors affecting recovery from neck and/or back pain. If more is known about factors associated with good or poor outcomes, doctors, therapists and patients will be able to address problems more effectively.

This project: Information on your condition will be gathered at two times for use in the study. First, we will use the clinical information gathered through the questionnaires you complete during your first visit to CBI. This will serve as baseline information on your condition. Then, six months later we will contact you by mail or telephone to see how you are doing at that time. First, we will mail out forms to be filled out and sent back to us in prepaid envelopes. If we do not receive the mailed forms, a research surveyor will telephone to ask the questions on the forms, in case you would prefer to complete the survey by phone. We hope to identify some things that the people with long-term pain had in common that may someday help prevent long-term pain. If you are interested, you can request to receive an informational letter with an account of the study results, and you will also be invited to contact the researcher by telephone to discuss the study if you are interested in doing so.

What we are asking of you: We would like anyone who has had neck or low back pain for up to six weeks, to take part. By participating in the study, you are allowing us to access the information you provide that is gathered routinely at CBI during your first visit and kept on your medical record. That includes basic demographic information and medical history (age, gender, prior similar health problems) and characteristics about your current problem (circumstances of the injury, pain location, intensity and frequency, and how the pain is affecting your daily activities, from the CBI-Questionnaire, the Lifestyle Questionnaire, and the Spinal Assessment Interview). Additional information collected for the study at this time will take an extra 5 minutes of your time. This additional information does not become part of your medical record and is solely for the research project. You will also be contacted six months later either by mail or phone for information about how you are doing at that time. That survey will take approximately 15 minutes to complete.

Confidentiality: All of the study information is confidential (or private) and anonymous except when professional codes of ethics or legislation (or the law) requires reporting. Persons who participate in the study will be assigned a study number, and all names will be removed from information entered into the final study database. Only the research team will have access to the information. The information we gather to enter into the database will be kept for at least five years, in a locked file cabinet. Your name will never be used in any presentations or publications of the study results. The information gathered for this study may be looked at again in the future to help us answer other study questions. If so the ethics board will first review the study to ensure the information is used ethically.

Opting out: Whether or not you volunteer to take part in the study will in no way affect your treatment at CBI. In addition, you can drop out at any time, and withdrawal will not affect your care in any way. You also do not have to answer any questions you do not want to answer. You do not have

to explain any decision to take part, or not to take part, or drop out. There are no consequences to you for choosing to not participate or withdrawing at any time.

Benefits/Risks: This study will help health care professionals identify risk factors for long-term pain or disability from neck or low back pain. It may also help identify factors associated with a good recovery. . This knowledge will assist with developing more effective treatment strategies. There are no known risks to participation.

...continued

Questions?

Please contact Holly Meyer at 780-423-2944 (collect) if you have any questions regarding this study.

Should you wish to speak to someone who is not involved in the study about your rights as a study participant, you may contact Dr. Paul Hagler, Associate Dean of Graduate Studies and Research, Faculty of Rehabilitation Medicine, University of Alberta, at 780/492-9674.

Should you wish to speak to someone about your rights as a research participant in this study, you may contact from the Health Research Ethics Board at 780/492-0302, at the University of Alberta .

Please complete the attached consent form if you would like to take part, and do not complete it if you do not wish to. If you choose to assist with this research, please keep a copy of this handout for your information.

Thank you for your interest,

Holly Meyer, P.T.

Clinic Manager

Research Participant's Initials (I have read this and know I can ask questions.)

Appendix B

Consent to Participate

Project: Factors affecting recovery and function in people with neck or back pain.		
Part 1: Researcher Information		
Name of Primary Investigator: Holly Meyer Affiliation: CBI Health (Edmonton) Contact Information: Phone 780-423-2944		
Name of Co-Investigator/Supervisor: Dr. Michele Crites Battié Affiliation: University of Alberta, Canada Research Chair in Common Spinal Disorders Contact Information: Phone 780-492-5968		
Part 2: Consent of Subject		
	<u>Yes</u>	<u>No</u>
Do you understand that you have been asked to be in a research study?		
Have you read and received a copy of the attached information sheet?		
Do you understand the benefits and risks involved in taking part in this research study?		
Have you had an opportunity to ask questions and discuss the study?		
Do you understand that you are free to refuse to participate or withdraw from the study at any time? You do not have to give a reason and it will not affect your care.		
Has the issue of confidentiality been explained to you? Do you understand who will have access to your records, including personally identifiable health information?		
Part 3: Signatures		
This study was explained to me through the study information on the attached research invitation.		
<i>I agree to take part in this study.</i> Signature of Research Participant: _____ Printed Name: _____		
Witness (if available): _____ Printed Name: _____		
I believe that the person signing this form understands what is involved in the study and voluntarily agrees to participate. Researcher or designee: _____ Printed Name: _____		
* A copy of this consent form must be given to the subject.		

Appendix C

CBI Intake Information

- The CBI Questionnaire (CBI-Q)
- The CBI Lifestyle Questionnaire (LQ)
(NPRS added)
- Spinal Assessment

INFORMATION ON YOUR CURRENT EPISODE

Patient name:		Date:						
How did you hear about CBI? <input type="checkbox"/> Family Physician <input type="checkbox"/> Insurance co <input type="checkbox"/> Clinic affiliation <input type="checkbox"/> Radio / TV <input type="checkbox"/> Specialist <input type="checkbox"/> Employer <input type="checkbox"/> Walk-in <input type="checkbox"/> Yellow pages/newspaper/magazine <input type="checkbox"/> Rehab management contact <input type="checkbox"/> WCB / WSIB / CSST <input type="checkbox"/> Friends <input type="checkbox"/> Other _____								
What do you expect from your treatment at CBI? <input type="checkbox"/> No more pain <input type="checkbox"/> Increased strength <input type="checkbox"/> All of these <input type="checkbox"/> Functional improvement <input type="checkbox"/> Return to work <input type="checkbox"/> Other								
CBI Questionnaire <i>The following responses you provide will help your therapist gain a better understanding of your pain.</i>								
1. What caused your CURRENT episode of pain? <input type="checkbox"/> Work accident <input type="checkbox"/> Injury / accident at home <input type="checkbox"/> Motor vehicle accident <input type="checkbox"/> Sports injury <input type="checkbox"/> Unknown cause <input type="checkbox"/> Other	2. How did your pain start? <input type="checkbox"/> Suddenly <input type="checkbox"/> Gradually	3. How long have you been in pain? <input type="checkbox"/> Less than 3 weeks <input type="checkbox"/> 3 - 10 weeks <input type="checkbox"/> 11 weeks to 6 months <input type="checkbox"/> More than 6 months						
4. Have you contacted a lawyer about this injury? <input type="checkbox"/> No <input type="checkbox"/> Yes	5. Are you a smoker? <input type="checkbox"/> No <input type="checkbox"/> Former <input type="checkbox"/> Current	6. How well can you do your household chores? <input type="checkbox"/> Normally <input type="checkbox"/> Can do most <input type="checkbox"/> Can do a few <input type="checkbox"/> Cannot do any						
7. Has your pain interfered with your leisure/social activities? <input type="checkbox"/> No, has not interfered <input type="checkbox"/> Yes, has interfered <input type="checkbox"/> Yes, I am unable to participate	8. Do you rest during the day because of your pain? <input type="checkbox"/> Never <input type="checkbox"/> Less than 3 hours <input type="checkbox"/> More than 3 hours	9. How often do you visit your doctor for your pain? <input type="checkbox"/> Never <input type="checkbox"/> Occasionally <input type="checkbox"/> About once per month <input type="checkbox"/> More than once a month						
10. How often do you express concern to others about your pain? <input type="checkbox"/> Never <input type="checkbox"/> Occasionally <input type="checkbox"/> Frequently	11. How often do you use pain medication? <input type="checkbox"/> Never <input type="checkbox"/> Occasionally <input type="checkbox"/> 1 to 2 times per day <input type="checkbox"/> Several times per day	12. How often does your pain make you irritable? <input type="checkbox"/> Never <input type="checkbox"/> Occasionally <input type="checkbox"/> Frequently						
Please indicate how your pain currently affects these activities.								
	13. Walk	14. Sit	15. Stand	16. Lift	17. Dress	18. Sleep	19. Travel	20. Work
Not affect	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Restricted	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Severely restricted	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Impossible	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Thank you for your time to complete this form.								

CBI Summit Injury Management Form 9898 CBI-1027-2017

CBI Health Lifestyle Questionnaire (revised)

Is someone else primarily to blame for your situation? Yes No

If YES, who is to blame:

Another driver Employer Co-worker

Other _____

Are you having trouble at work; home; with friends (due to this injury)? Yes No

Are you receiving or do you anticipate receiving any financial compensation for your pain? Yes No

Have you contacted a lawyer about your problem? Yes No

Are you having trouble sleeping because of your pain? Yes No

Is the pain constant (never goes away)? Yes No

Has medication and/or previous treatment helped? Yes No

Have you had more than 2 medical consultations for this pain? Yes No

Is it essential that you find out the physical source of your pain? Yes No

Has your pain spread to other part of your body beyond your spine? Yes No

© CBI Health

Please circle the number that corresponds to your pain right now.

No pain = 0 1 2 3 4 5 6 7 8 9 10=the worst pain imaginable

SPINAL ASSESSMENT



HISTORY						
Name		Age	Type of Assessment		Assessment Date	
<input type="checkbox"/> New patient <input type="checkbox"/> Return patient		If return patient: <input type="checkbox"/> New injury <input type="checkbox"/> Same injury-recurrence <input type="checkbox"/> Same injury-same episode <input type="checkbox"/> Same injury-pt in accident		If same injury, prior to scheduled follow up call? <input type="checkbox"/> Yes <input type="checkbox"/> No		
		Transferred from other CBI? <input type="checkbox"/> Yes <input type="checkbox"/> No		Primary reason for visit <input type="checkbox"/> Rehab: injury/pain <input type="checkbox"/> Rehab: post-op <input type="checkbox"/> Functional Testing <input type="checkbox"/> Other: _____		
				Area assessed <input type="checkbox"/> Back only <input type="checkbox"/> Neck only <input type="checkbox"/> Back & neck		
Elements of this Episode						
Site of dominant pain <input type="checkbox"/> Back <input type="checkbox"/> Leg <input type="checkbox"/> Neck <input type="checkbox"/> Arm <input type="checkbox"/> Headache only Average pain rating /10 /10 /10 /10 /10 Pain location <input type="checkbox"/> Back <input type="checkbox"/> Buttock <input type="checkbox"/> Groin <input type="checkbox"/> Thigh <input type="checkbox"/> Calf <input type="checkbox"/> Foot <input type="checkbox"/> Neck <input type="checkbox"/> Trap ridge <input type="checkbox"/> Inter scap <input type="checkbox"/> Arm <input type="checkbox"/> Forearm <input type="checkbox"/> Hand <input type="checkbox"/> Headache				Description of symptoms:		
Back/leg pain <input type="checkbox"/> None at present <input type="checkbox"/> Constant <input type="checkbox"/> Intermittent If not constant, Longest time without pain <input type="checkbox"/> Minutes <input type="checkbox"/> Hour(s) <input type="checkbox"/> Day(s) <input type="checkbox"/> Week(s) Neck/arm/headache <input type="checkbox"/> None at present <input type="checkbox"/> Constant <input type="checkbox"/> Intermittent If not constant, Longest time without pain <input type="checkbox"/> Minutes <input type="checkbox"/> Hour(s) <input type="checkbox"/> Day(s) <input type="checkbox"/> Week(s) Pain before rising <input type="checkbox"/> Better <input type="checkbox"/> Worse <input type="checkbox"/> Same Pain at end of typical day <input type="checkbox"/> Better <input type="checkbox"/> Worse <input type="checkbox"/> Same Pain disturbing sleep? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Trouble falling asleep? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> No <input type="checkbox"/> Trouble staying asleep? <input type="checkbox"/> Yes <input type="checkbox"/> No				<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <input type="checkbox"/> Pain </div> <div style="text-align: center;"> <input type="checkbox"/> Paraesthesia </div> </div>		
Date this episode started <input type="checkbox"/> Or <input type="checkbox"/> Patient unable to recall Duration of this episode <input type="checkbox"/> Days <input type="checkbox"/> Weeks <input type="checkbox"/> Months <input type="checkbox"/> Year(s) Was there an event that caused this episode? <input type="checkbox"/> Yes <input type="checkbox"/> No If yes, How long after event did pain start? <input type="checkbox"/> <24hrs <input type="checkbox"/> 1-3 days <input type="checkbox"/> 4-7 days <input type="checkbox"/> >1 week Mechanism: _____				Progression of symptoms:		
Bladder function <input type="checkbox"/> Unchanged <input type="checkbox"/> Changed <input type="checkbox"/> CEC significant change		Bowel function <input type="checkbox"/> Unchanged <input type="checkbox"/> Changed <input type="checkbox"/> CEC significant change		Recent unexplained weight loss <input type="checkbox"/> Yes <input type="checkbox"/> No Valsalva <input type="checkbox"/> Positive <input type="checkbox"/> Negative Cough <input type="checkbox"/> NECK ONLY <input type="checkbox"/> DYA <input type="checkbox"/> DYP <input type="checkbox"/> DIP <input type="checkbox"/> DA		
Significant medical history (self) <input type="checkbox"/> None <input type="checkbox"/> CAD <input type="checkbox"/> Hypertension <input type="checkbox"/> RA <input type="checkbox"/> Diabetes <input type="checkbox"/> Malignancy <input type="checkbox"/> COPD <input type="checkbox"/> Other: _____ Family history of Diabetes <input type="checkbox"/> Yes <input type="checkbox"/> No						
Management of this Episode			Work History			
Previous Rx <input type="checkbox"/> None <input type="checkbox"/> Manipulation/ Mobilization <input type="checkbox"/> Modalities <input type="checkbox"/> Active exercise <input type="checkbox"/> Massage <input type="checkbox"/> Bed rest <input type="checkbox"/> Other: _____		Concurrent Rx <input type="checkbox"/> None <input type="checkbox"/> Myelo /CT /MRI <input type="checkbox"/> Bone scan <input type="checkbox"/> X-ray <input type="checkbox"/> Bloodwork <input type="checkbox"/> Electrical studies		Investigations <input type="checkbox"/> None <input type="checkbox"/> Myelo /CT /MRI <input type="checkbox"/> Bone scan <input type="checkbox"/> X-ray <input type="checkbox"/> Bloodwork <input type="checkbox"/> Electrical studies		
Performing Normal ADL? <input type="checkbox"/> All <input type="checkbox"/> Some <input type="checkbox"/> None <input type="checkbox"/> All <input type="checkbox"/> Some <input type="checkbox"/> None <input type="checkbox"/> All <input type="checkbox"/> Some <input type="checkbox"/> None Occupation: _____			<input type="checkbox"/> HOMEMAKER <input type="checkbox"/> STUDENT <input type="checkbox"/> RETIRED <input type="checkbox"/> IN WORKFORCE Type of Work <input type="checkbox"/> Sedentary <input type="checkbox"/> Light <input type="checkbox"/> Medium <input type="checkbox"/> Heavy <input type="checkbox"/> V. Heavy Job Available <input type="checkbox"/> Unknown <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Looking for Work? <input type="checkbox"/> Yes <input type="checkbox"/> No Currently Working? <input type="checkbox"/> Yes <input type="checkbox"/> No			
Pre-Ep Hours Off B/C of this Problem? <input type="checkbox"/> Yes <input type="checkbox"/> No Reduced Hours On Disability? <input type="checkbox"/> Yes <input type="checkbox"/> No Pre-Ep Duty Last Day Reg. Work: Modified Duty # Failed Attempts at RTW: _____			Notes: Therapist Signature: _____			

Spinal
mfrmp

SPINAL ASSESSMENT Page 2



Name _____																																																																											
LUMBAR																																																																											
Prior Back History Most recent back surgery <input type="checkbox"/> None <input type="checkbox"/> Fusion <input type="checkbox"/> Decompression <input type="checkbox"/> Combination Total number of back surgeries _____ Date of last surgery _____ Or <input type="checkbox"/> > 2 years ago Previous episodes <input type="checkbox"/> None <input type="checkbox"/> Back dominant <input type="checkbox"/> Leg dominant Time since first episode <input type="checkbox"/> < 1 yr. <input type="checkbox"/> 1 - 5 yrs. <input type="checkbox"/> > 5 yrs. In the past year, frequency <input type="checkbox"/> Increase <input type="checkbox"/> Decrease <input type="checkbox"/> Same <input type="checkbox"/> N/A In the past year, duration <input type="checkbox"/> Increase <input type="checkbox"/> Decrease <input type="checkbox"/> Same <input type="checkbox"/> N/A Similar to present episode? <input type="checkbox"/> Yes <input type="checkbox"/> No Previous time off work? <input type="checkbox"/> Yes <input type="checkbox"/> No How Long? _____ Previous treatments: _____	Effect on Pain <table border="1" style="width:100%; border-collapse: collapse; text-align: center;"> <tr> <td></td> <td>Better</td> <td>Worse</td> <td>Same</td> <td>Best</td> <td>Worst</td> </tr> <tr> <td>Flexion</td> <td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>Extension</td> <td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>Sitting</td> <td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>Rise from sit</td> <td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>Standing</td> <td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>Walking</td> <td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>Lying</td> <td></td><td></td><td></td><td></td><td></td> </tr> </table>		Better	Worse	Same	Best	Worst	Flexion						Extension						Sitting						Rise from sit						Standing						Walking						Lying																															
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Spinal
nir/nr



Name _____

CERVICAL

Prior Neck History	Effect on Pain																																																					
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At completion of testing, location of distal symptom: _____																																																						
Therapist Signature: _____																																																						

Appendix D

Non-CBI Intake Questionnaires

As part of standard care:

- Oswestry Disability Questionnaire (ODQ)
- Neck Pain Disability Questionnaire (NPDQ)

Specific to this study:

- The Center for Epidemiological Studies Depression Questionnaire (CES-D)
- The Vanderbilt Pain Management Inventory (VPMI)
- The Numerical Pain Rating Scale (NPRS) – this will be added to the Lifestyle Questionnaire

OSWESTRY PROFILE

Name: _____

Date: _____ (Month Day Year)

Age: _____

This questionnaire has been designed to give the therapist information as to how your back pain has affected your ability to manage in everyday life. Please answer every section, and mark in each section only the one box that applies to you. You may either tick or circle the box. We realize you may consider that two of the statements in any one section relate to you, but please just mark the box which most closely describes your problem.

Section 1 - Pain Intensity

- I can tolerate the pain I have without having to use pain killers.
- The pain is bad but I manage without taking pain killers
- Pain killers give complete relief from pain.
- Pain killers give moderate relief from pain.
- Pain killers give very little relief from pain.
- Pain killers have no effect on the pain & I do not use them.

Section 2 - Personal Care (washing, dressing, etc.)

- I can look after myself normally without causing extra pain.
- I can look after myself normally but it causes extra pain.
- It is painful to look after myself and I am slow and careful.
- I need some help but manage most of my personal care.
- I need help every day in most aspects of self care.
- I do not get dressed, wash with difficulty and stay in bed.

Section 3 - Lifting

- I can lift heavy weights without extra pain.
- I can lift heavy weights but it gives extra pain.
- Pain prevents me from lifting heavy weights off the floor, but I can manage if they are conveniently positioned, eg on a table.
- Pain prevents me from lifting heavy weights but I can manage light to medium weights if they are conveniently positioned.
- I can lift only very light weights.
- I cannot lift or carry anything at all.

Section 4 - Walking

- Pain does not prevent me walking any distance.
- Pain prevents me walking more than 1 mile.
- Pain prevents me walking more than 1/2 mile.
- Pain prevents me walking more than 1/4 mile.
- I can only walk using a stick or crutches.
- I am in bed most of the time and have to crawl to the toilet.

Section 5 - Sitting

- I can sit in any chair as long as I like.
- I can only sit in my favourite chair as long as I like.
- Pain prevents me sitting more than 1 hour.
- Pain prevents me from sitting more than 1/2 hour.
- Pain prevents me from sitting more than 10 mins.
- Pain prevents me from sitting at all.

Section 6 - Standing

- I can stand as long as I want without extra pain.
- I can stand as long as I want but it gives me extra pain.
- Pain prevents me from standing for more than 1 hour.
- Pain prevents me from standing for more than 30 mins.
- Pain prevents me from standing for more than 10 mins.
- Pain prevents me from standing at all.

Section 7 - Sleeping

- Pain does not prevent me from sleeping well.
- I can sleep well only by using tablets.
- Even when I take tablets I have less than six hours sleep.
- Even when I take tablets I have less than four hours sleep.
- Even when I take tablets I have less than two hours sleep.
- Pain prevents me from sleeping at all.

Section 8 - Sex Life

- My sex life is normal and causes no extra pain.
- My sex life is normal but causes some extra pain.
- My sex life is nearly normal but is very painful.
- My sex life is severely restricted by pain.
- My sex life is nearly absent because of pain.
- Pain prevents any sex life at all.

Section 9 - Social Life

- My social life is normal and gives me no extra pain.
- My social life is normal but increases the degree of pain.
- Pain has no significant effect on my social life apart from limiting my more energetic interests, eg dancing, etc.
- Pain has restricted my social life and I do not go out as often.
- Pain has restricted my social life to my home.
- I have no social life because of pain.

Section 10 - Travelling

- I can travel anywhere without extra pain.
- I can travel anywhere but it gives me extra pain.
- Pain is bad but I manage journeys over two hours.
- Pain restricts me to journeys of less than one hour.
- Pain restricts me to short necessary journeys under 30 minutes.
- Pain prevents me from travelling except to the doctor or hospital.

NECK PAIN AND DISABILITY INDEX (VERNON-MIOR)

Patient Name: _____ Date: _____

Please read instructions:

This questionnaire has been designed to provide us with information as to how your neck pain has affected your ability to manage in everyday life. Please answer every section and mark in each section only the ONE box which applies to you. We realize you may consider that two of the statements in any one section relate to you, but just mark the box which most closely describes your problem.

SECTION 1 - PAIN INTENSITY

- I have no pain at the moment.
- The pain is very mild at the moment.
- The pain is moderate at the moment.
- The pain is fairly severe at the moment.
- The pain is very severe at the moment.
- The pain is the worst imaginable at the moment.

SECTION 2 - PERSONAL CARE (Washing, Dressing, etc.)

- I can look after myself normally without causing extra pain.
- I can look after myself normally but it causes extra pain.
- It is painful to look after myself and I am slow and careful.
- I need some help, but manage most of my personal care.
- I need help everyday in most aspects of self care.
- I do not get dressed, I wash with difficulty and stay in bed.

SECTION 3 - LIFTING

- I can lift heavy weights without extra pain.
- I can lift heavy weights, but it gives extra pain.
- Pain prevents me from lifting heavy weights off the floor, but I can manage if they are conveniently positioned, for example on a table.
- Pain prevents me from lifting heavy weights off the floor but I can manage light to medium if they are conveniently positioned.
- I can lift very light weights.
- I cannot lift or carry anything at all.

SECTION 4 - READING

- I can read as much as I want to with no pain in my neck.
- I can read as much as I want to with slight pain in my neck.
- I can read as much as I want to with moderate pain in my neck.
- I can't read as much as I want to because of moderate pain in my neck.
- I can hardly read at all because of moderate pain in my neck.
- I cannot read at all.

SECTION 5 - HEADACHES

- I have no headaches at all.
- I have slight headaches which come infrequently.
- I have moderate headaches which come infrequently.
- I have moderate headaches which come frequently.
- I have severe headaches which come frequently.
- I have headaches almost all the time.

SECTION 6 - CONCENTRATION

- I can concentrate fully when I want to with no difficulty.
- I can concentrate fully when I want to with slight difficulty.
- I have a fair degree of difficulty in concentrating when I want to.
- I have a lot of difficulty in concentrating when I want to.
- I have a great deal of difficulty in concentrating when I want to.
- I cannot concentrate at all.

SECTION 7 - WORK

- I can do as much work as I want to.
- I can only do my usual work, but no more.
- I can do most of my usual work, but no more.
- I cannot do my usual work.
- I can hardly do any work at all.
- I cannot do any work at all.

SECTION 8 - DRIVING

- I can drive my car without any neck pain.
- I can drive my car as long as I want with slight pain in my neck.
- I can drive my car as long as I want with moderate pain in my neck.
- I can't drive my car as long as I want with moderate pain in my neck.
- I can hardly drive at all because of severe pain in my neck.
- I can't drive my car at all.

SECTION 9 - SLEEPING

- I have no trouble sleeping.
- My sleep is slightly disturbed (less than 1 hour sleepless).
- My sleep is mildly disturbed (1-2 hours sleepless).
- My sleep is moderately disturbed (2-3 hours sleepless).
- My sleep is greatly disturbed (3-5 hours sleepless).
- My sleep is completely disturbed (5-7 hours sleepless).

SECTION 10 - RECREATION

- I am able to engage in all my recreation activities with no neck pain at all.
- I am able to engage in all my recreation activities, with some pain in my neck.
- I am able to engage in most, but not all of my usual recreation activities because of pain in my neck.
- I am only able to engage in a few of my usual recreation activities because of pain in my neck.
- I can hardly do any recreation activities because of pain in my neck.
- I can't do any recreation activities at all.

PAIN MANAGEMENT INVENTORY (PMI)

We would like to know how frequently you have the following thoughts or engage in the following behaviours only when your pain is at a MODERATE level of intensity or greater. Please indicate how frequently you do the following when experiencing pain by checking the appropriate circle next to each statement.

- | | |
|---------|---------------------------------|
| Check 1 | Never do when in pain |
| Check 2 | Rarely do when in pain |
| Check 3 | Occasionally do when in pain |
| Check 4 | Frequently do when in pain |
| Check 5 | Very frequently do when in pain |

1. Engaging in physical exercise or physical therapy..... 1 2 3 4 5
2. Saying to yourself, "I wish my doctor would prescribe better pain medication for me"..... 1 2 3 4 5
3. Staying busy or active..... 1 2 3 4 5
4. Clearing your mind of bothersome thoughts or worries.... 1 2 3 4 5
5. Thinking, "This pain is wearing me down."..... 1 2 3 4 5
6. Talking to others about how much your pain hurts..... 1 2 3 4 5
7. Restricting or cancelling your social activities..... 1 2 3 4 5
8. Participating in leisure activities (such as hobbies, sewing, stamp collecting etc.)..... 1 2 3 4 5
9. Thinking, "I can't do anything to lessen this pain"..... 1 2 3 4 5
10. Distracting your attention from the pain (recognizing you have pain, but putting your mind on something else) 1 2 3 4 5
11. Focusing on where the pain is and how much it hurts..... 1 2 3 4 5

Center for Epidemiologic Studies Depression Scale (CES-D), NIMH

Below is a list of the ways you might have felt or behaved. Please tell me how often you have felt this way during the past week.

	<u>During the Past Week</u>			
	Rarely or none of the time (less than 1 day)	Some or a little of the time (1-2 days)	Occasionally or a moderate amount of time (3-4 days)	Most or all of the time (5-7 days)
1. I was bothered by things that usually don't bother me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. I did not feel like eating; my appetite was poor.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. I felt that I could not shake off the blues even with help from my family or friends.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. I felt I was just as good as other people.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. I had trouble keeping my mind on what I was doing.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. I felt depressed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. I felt that everything I did was an effort.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. I felt hopeful about the future.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. I thought my life had been a failure.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. I felt fearful.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. My sleep was restless.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. I was happy.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. I talked less than usual.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. I felt lonely.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. People were unfriendly.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. I enjoyed life.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. I had crying spells.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. I felt sad.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19. I felt that people dislike me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20. I could not get "going."	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SCORING: zero for answers in the first column, 1 for answers in the second column, 2 for answers in the third column, 3 for answers in the fourth column. The scoring of positive items is reversed. Possible range of scores is zero to 60, with the higher scores indicating the presence of more symptomatology.

Appendix E

**Proposed Budget
Letters of Support**

Proposed Research Budget

The effects of perception of fault on the outcomes in patients with neck or back pain (Original title)

Investigators: Michele Crites Battie, Professor and Canada Research Chair

Holly Meyer, Masters Student, M Sc in Physical Therapy

<u>Expense</u>	<u>Amount</u>	<u>Resource</u>
Locking file cabinet	\$350	CBI Edmonton
<hr/>		
Paper, printing, copying	~	CBI Alberta – Each clinic
	will	provide
<hr/>		
Mail	\$900	CBI Alberta
<p>(600 n + 50% repeat x 2 (send out and return postage) @ \$.50 = \$900.00 – Note – only partially used due to change in study parameters)</p>		
<hr/>		
Telephone surveys (research assistant)	\$2250	PT Foundation and CBI Alberta*
<p>[15/50 minutes x 10 attempts x 1 minute x 300 n] + [15 minutes (300n)] = \$2250 (NA due to change in study parameters)</p>		
<hr/>		
TOTAL ESTIMATED COST	\$3450.00	
Estimated ACTUAL COST	\$350 + <u>200n@\$1.25</u> = 600.00	



March 22, 2005

To whom it may concern,

Re: Perception of Fault on Functional Outcomes for Neck and Back Pain

This letter is in recognition and support of Holly Meyer and her research project titled "The effects of perception of fault on functional outcomes in patients with neck or back pain."

CBI Alberta and all clinics in the Alberta region are fully supportive of participating in the project in all areas of recruitment of subjects, use of our equipment, employee participation and in data collection and submission. The Alberta region gives both Holly Meyer and the CBI corporate office full access to our database and any information required for the study. CBI also offers to cover the cost of mailing follow up questionnaires.

I personally believe this is a timely research project in which the results of the project may further assist CBI's employees in triaging patients into the correct treatment service streams to more efficiently obtain a positive treatment outcome.

Sincerely,

Shari Hughson, RN, BScN, MBA
Alberta Director of Operations
Cell: 403-607-8431