

IDENTIFYING RETURN TO WORK PREDICTORS AMONG INDIVIDUALS
OBTAINING PSYCHOLOGICAL SERVICES

By

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Abstract

Mental health problems have incapacitating effects on an individual's capacity to hold and maintain employment. Over half a million Canadians are absent from work due to mental health problems every day, which costs Canadian companies an estimated 14% of their net annual profit. Individuals who miss work for mental health reasons often experience longer periods of absence, and return to work at a much lower rate than individuals absent for other reasons (e.g., physical injury). Regrettably, empirically based return to work interventions focused on mental health problems are lacking, likely the product of a lack of consensus surrounding salient predictors of return to work. The current study sought to add to current literature aimed at identifying factors that influence the likelihood of successful re-entry into the workforce.

A review of patient files from a private psychological practice yielded the sample. Clients were selected based on their satisfaction of one central criterion: having experienced a workplace absence and suffered from a mood or anxiety disorder as classified by the *DSM-IV-TR*. Recruitment letters and consent forms were mailed to 74 eligible participants, for a response rate of 68% (n=50). The sample was predominantly female (n=38 or 76%). Of the 50 participants, 27 successfully reintegrated to the workforce (RTW=54%), following a mean absence of 13 months (SD=7.37). Emerging from the results are higher risk categories (e.g., physically injured workers, low educational requirements, disability providers) of reduced likelihood of successful return to work. The role of symptom severity and availability of social support is also discussed along with best practice implications for stakeholder/practitioners.

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Chapter 1:
REVIEW OF LITERATURE

1.1 Introduction

Our ability to work is central to the human experience. It has been argued that work allows our basic human needs to be satisfied, and is critical in our development as individuals (Wilcock, 1993). Regardless of occupation, work can provide a sense of belonging, commitment, purpose and satisfaction as well as structure for the day (Fryers, 2006). One's ability to engage in work and their occupation serves as a source of identity and mediates several other benefits (e.g., autonomy) (Fryers, 2006; Gini, 1998). An individual's work identity refers to an occupation-based self-concept that is made up of several factors; including organizational and relating to the nature of the work (Walsh & Gordon, 2008). One's physical and mental health are crucial determinants of our capacity to possess and maintain employment. Departures from a state of well-being often interfere with an individual's ability to work and its results have been given many names (e.g., presenteeism, absenteeism). The current review intends to shed light on the phenomenon of employee absenteeism, particularly those involving mental health issues. In turn, the objective is to contribute to the current understanding of factors that may either facilitate or inhibit a successful return to work following a period of absence.

1.2 Absenteeism

Most simply defined as a failure to report for scheduled work, absenteeism has been operationalized in a number of studies and is of growing concern to organizations (Johns, 2002). Despite its simple definition, absenteeism remains a "complex set of behaviours masquerading as a unitary phenomenon" (Johns, 2002, p. 438). Statistics Canada (2010) employs the term absenteeism when referring to "absences that are avoidable, habitual and unscheduled and is a source of irritation to employers and co-workers" (p.9). Some

absences from work are generally accepted and even deemed beneficial to both employer and employee, such as scheduled vacations and statutory holidays (Akyeampong, 2004). It would appear that unplanned absences, though sometimes unavoidable due to illness or family-related issues, are becoming increasingly burdensome to organizations (Kocakulah, Kelly, Mitchell & Ruggieri, 2009). Also difficult is the capacity to differentiate between 'avoidable' and 'unavoidable' absences, with the two often blurred beyond the point of distinction (Akyeampong, 2004).

Reported employee absenteeism has increased over recent years (Akyeampong, 2004). Data has confirmed that since 1999, a rising trend exists for both the incidence and number of days lost for personal reasons (Statistics Canada, 2010). It has been noted that in Canada, several factors have contributed to this trend: an aging workforce, a growing number of women in the workforce (most notably those with young children), high worker stress, and finally, sick- and family-related leave benefit programs that have expanded in a more generous direction (Statistics Canada, 2010). When extrapolating rates of absenteeism over an entire year, work time lost for personal reasons rose 1.8 days over the last decade, from 8.1 days/worker in 1999 to 9.8 days/worker in 2009 (Statistics Canada, 2010). Locally, the City of Greater Sudbury ranked 2nd among census metropolitan areas in Canada for consecutive years, with its workers recording an average of 12.4 days in 2009 and 13.6 days in 2008 of lost time (Statistics Canada, 2009; 2010). This is in marked contrast to five years prior when the City of Greater Sudbury had ranked lowest out of all metropolitan areas for days lost per worker in 2003 with an average of 6.3 days (Akyeampong, 2004; Statistics Canada, 2004). However, most

recently, data released indicated that Greater Sudbury's average in 2010 has dipped once again to an average of 8.6 days per worker (Statistics Canada, 2011).

On a national level, 81.3% of absences stem from illness or disability, while the remaining 18.7% are due to personal or familial responsibilities (Statistics Canada, 2011). Indications are that absenteeism makes up 15-20% of either direct or indirect payroll costs (Kocakulah et al., 2009). Using this indicator, it is estimated the annual cost of employee absenteeism exceeds \$16 billion in salary expenses across Canada (Kocakulah et al., 2009).

1.3 Mental Health

It is imperative to have knowledge of mental health prevalence rates and common treatment modalities in the general population prior to elaborating on the subset of the population absent from the workplace due to mental health issues. The World Health Organization (2001) has stated that mental health is “a state of well-being in which the individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community” (p.1). For its part, the Government of Canada (2006), defined mental health as the “capacity of each and all of us to feel, think, and act in ways that enhance our ability to enjoy life and deal with the challenges we face” (p.2). In a similar vein, mental health has also been defined as a state in which mental functioning is successful, productivity is achieved, relationships are fulfilling and change is being met with the ability to adapt and overcome (Gabriel & Liimatainen, 2000).

Departures from a state of positive mental well-being have been given many terms, frequently used interchangeably: mental health problem, mental illness, psychopathology, and mental disorder. Mental illness can be described as any illness that affects an individual's emotions, thoughts or behaviour that is out of line with the cultural beliefs and personality; and also produces a negative effect on their lives and of those around them (WHO, 2005). Generally, the terms illness or disorder imply a condition that is recognized medically as causing significant distress or dysfunction (Government of Canada, 2006). With symptoms ranging in severity, mental illness can take many forms, most common among them mood and anxiety disorders, but also include psychotic or thought disorders, personality disorders, eating disorders, and addictions (Government of Canada, 2006). More commonly, the term 'mental health problem' is used broadly to identify any departure from a state of mental and psychological well-being. The scope of the current project is limited to discussing the two most frequently occurring causes of mental illness; mood and anxiety disorders (Health Canada, 2002).

1.3.1 Depression

Depression is a common mood disorder, often diagnosed according to criteria from the American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders (4th ed., text rev.; 2000). At least five of nine criteria must be met for a diagnosis of Major Depressive Disorder to be conferred (4th ed., text rev.; DSM-IV-TR, American Psychiatric Association, 2000): depressed mood most of the day, nearly every day, anhedonia, weight loss (without dieting), disturbances in sleep patterns, a loss of energy, feelings of worthlessness, diminished ability to concentrate and recurrent

thoughts of death (4th ed., text rev.; DSM-IV-TR, American Psychiatric Association, 2000).

Mental illness is also diagnosed internationally, especially in European nations, using the 10th revision of the International Classification of Diseases, 2010 edition (ICD-10) diagnostic tool published by the World Health Organization (2010). A depressive episode is marked by an individual experiencing lowered mood, diminished energy and compromises in one's capacity for enjoyment, concentration, and interest in previously enjoyed activities (WHO, 2010). Most often individuals suffering from a depressive episode are fatigued, having had their sleep disturbed. Feelings of worthlessness, lowered self-esteem and compromised self-confidence are also characteristics of a depressive episode according to the ICD-10 (WHO, 2010). Recurrent and Major Depressive Disorders (MDD) are defined as "a disorder characterized by repeated episodes of depression as described for depressive episode, without any independent episodes of mood elevation and increased energy" (WHO, 2010).

Canadian research has found that the lifetime incidence rate of major depression is between 7.9% and 8.6% of adults over the age of 18 years (Canadian Psychiatric Association, 2001). Globally, lifetime prevalence of individuals experiencing an episode of MDD using the DSM criteria has been shown to be between 15-20% (Kessler et al., 2005).

1.3.2 Anxiety Disorders

Another common departure from a state of mental and psychological well-being is anxiety disorders. Current nomenclatures include the following: Generalized Anxiety Disorder (GAD), Specific Phobias, Post Traumatic Stress Disorder (PTSD), Panic Disorder with or without Agoraphobia, and Social Anxiety Disorder. Sufferers of GAD experience excessive worry and are often plagued by a sense of restlessness, fatigue, poor concentration, irritability, muscle tension, and sleep disturbances (4th ed., text rev.; DSM-IV-TR, American Psychiatric Association, 2000). The ICD-10 states that Generalized Anxiety sufferers will be plagued by “complaints of persistent nervousness, trembling, muscular tensions, sweating, light headedness, palpitations, dizziness, and epigastric discomfort (WHO, 2010). Frequently, the anxiety, worry and associated physical symptoms (e.g., shaking, trembling, and chest pain) are substantial enough to cause significant impairments across occupational, personal, and social domains. Collectively, it was estimated that approximately 12.2% of Canadians are personally affected by an anxiety disorder during a one-year period (Offord et al., 1996). Results from the Canadian Community Health Survey on Mental Health and Well Being, Cycle 1.2 (2002) indicated that 4.6% of Canadians reported suffering from an anxiety disorder over the 12-month period preceding the survey. Another study completed over a similar time period found that social phobias are one of the more common anxiety disorders with a 12-month prevalence rate of 6.7% in Canada, and roughly 7% in the United States (Kessler, Chiu, Demler & Walters, 2005; Stein & Kean, 2000). The 12-month prevalence rate of panic disorder was 1.6% compared to lifetime prevalence rate of 3.7% (Government of Canada, 2006). Agoraphobia prevalence rates over 12-month and lifetime periods were 0.7% and

1.5% respectively (Government of Canada, 2006). Anxiety prevalence rates are significantly higher than in Australia, a similarly developed nation, by a margin of 1.9% (Tempier et al., 2009).

1.4 Prevalence of Mental Illness

Perhaps the most exhaustive assessment of the prevalence of mental illness in Canada was undertaken by Statistics Canada in their 2002 Mental Health and Well-being Survey. It was estimated that during a 12-month period, 1 out of every 10 Canadians over the age of 15 years, or roughly 2.7 million people, reported symptoms consistent with a mood or anxiety disorder, or an addiction to either alcohol or illicit drugs (Statistics Canada, 2002). Two years later, this estimate rose to 12% of Canadians between the age of 15 and 64 years (Dewa, Lesage, Goering & Caveen, 2004). It has been estimated that one in five Canadians will experience a mental illness in their lifetime, while the remaining four will have a friend, family member or colleague who will (Smetanin et al., 2011). The Mental Health Commission of Canada (MHCC, 2013) estimated that more than 6.7 million people in Canada are living with a mental health problem or illness. Smetanin and colleagues (2011) in their work for the MHCC estimated that 1 in 2 individuals in Canada will have or had experienced a mental illness by the age of 40. These estimates are not an international anomaly. The National Institute of Mental Health (2007) in the United States estimated that roughly one in four Americans suffer from a diagnosable mental disorder in any given year. In a study of five industrialized nations (United States of America, Great Britain, Germany, Finland, and Poland), it was estimated that, at any given point in time, approximately 20% of the adult population was affected by a mental

health problem (Gabriel & Liimatainen, 2000). Considering the global outlook of mental illness the World Health Organization (2009) estimated that 20% of the world's children and adolescents suffer from a mental disorder or problem.

The impact of mental illness is widespread, impacting people in a variety of ways across all levels of education, socio-economic conditions, occupations and cultures. Some differences have been documented and are worthy of mention. For instance, it was found that while women were 1.5 times more likely than men to meet the criteria for mood or anxiety disorders, men were 2.6 times more likely than women to meet the criteria for substance abuse (Statistics Canada, 2002). Some have proposed that these differences emerge as a result of biological, cultural or social variables (WHO, 2001; Kornstein & Clayton, 2002). Findings from the 2002 Mental Health and Well-being Survey (Statistics Canada, 2002) identified that the prevalence of mental illness increases with age. The prevalence of a mood or anxiety disorder or substance dependence was highest among young adults aged 15 to 24 years, with 18.6% meeting criteria (Statistics Canada, 2002). Differences also emerged between additional subgroups of the Canadian population; some with lower rates (e.g., immigrants), and others higher (e.g., inmates in correctional facilities).

1.4.1 Comorbidity and Mental Illness

Comorbidity in the realm of mental illness is not uncommon. Increasingly, it has been found that individuals suffering from a physical ailment or mental disorder are placed at an increased risk of also suffering from another mental disorder. It has been estimated that greater than 50% of adults suffering from either an anxiety or depressive disorder

also suffer with a second depressive or anxiety disorder (Hirschfeld, 2001). Depression and anxiety disorders occurring simultaneously are associated with prolonged recovery periods and an increased risk of relapse (Hirschfeld, 2001). Comorbidity rates of mental illness have also been shown to increase with age (Calleo & Stanley, 2008). In a review of existing literature, problematic abuse of nicotine, alcohol and illegal substances was strongly linked with major mental illness, often clouding and impeding meaningful patient improvement (Dani & Harris, 2005; Siegfried, 1998).

More recently, investigations have been completed on the presence of multiple physical and mental conditions, or multimorbidity (Mercer, Gunn, Bower, Wyke & Guthrie, 2012). Individuals suffering from various mental health problems, including depression, are at an increased risk of developing long-term physical conditions (Barnett et al., 2012; Naylor et al., 2012). Additionally, individuals with long-term physical conditions find themselves at an increased risk of developing mental health problems (Mercer et al., 2012). This bidirectional relationship between physical and mental illness appears to be linear; as one rate increases, so too does the other, often times confounded by socioeconomic deprivation (Gunn et al., 2012).

1.5 Treatment of Mental Illness

The treatment of mental illness varies considerably according to the training and qualifications of the professionals involved. The medical approach involves family medicine and psychiatry with the primary treatment modality in Canada being psychopharmacology. To a lesser extent psychotherapy or supportive counselling may also be offered by these professionals.

Several classes of medications exist according to the presenting condition:

antidepressants for clinical depression and anxiety (e.g. SSRIs, SNRIs); anxiolytics for anxiety (e.g. benzodiazepines); mood stabilizers for mania (e.g. lithium, lamotrigine), antipsychotics for psychotic disorders (e.g. haloperidol, quetiapine, risperidone, olanzapine) and stimulants for challenges with attention and focus (e.g., methylphenidate, atomoxetine, amphetamine). The current project is primarily concerned with individuals who have sought psychological services as treatment for their mental illness, though a large portion were also prescribed some form of psychopharmacological intervention.

1.5.1 Cognitive Behavioural Therapy (CBT)

Therapeutic approaches and treatment modalities vary in the treatment of mood and anxiety disorders (e.g. humanistic, psychodynamic). At present the gold standard for mood and anxiety disorders is Cognitive Behavioural Therapy (CBT) offered by a suitably trained and professionally regulated health practitioner; typically psychologists. There is compelling scientific evidence that identifies CBT as the treatment of choice for a variety of issues such as depression, anxiety disorders including generalized anxiety disorder, panic disorder with or without agoraphobia, social phobia, and posttraumatic stress disorder (Butler, Chapman, Forman & Beck, 2006). CBT requires active participation from both the practitioner and the client and targets the thoughts and the behaviours that initiate and maintain mental health problems, problematic behaviours and psychological illness. CBT is designed as a relatively brief intervention that offers a structured and time-limited approach. It emphasizes symptom reduction and a return to previous activities, such as a return to work. CBT also focuses on skill development and

in doing so, demonstrates effectiveness for relapse prevention (Beck, 1995; Butler et al., 2006).

1.5.2 Physical Activity & Exercise

Physical activity is broadly defined as any movement of the body, leisure or non-leisure, which results in energy being expended at a rate that rises above that of rest (Caspersen, Powell & Christenson, 1985; Warburton, Nicol & Bredin, 2006). Examples of physical activity include walking, gardening or performing household chores. A specific subset of physical activity is exercise, which is generally comprised of activities undertaken with the direct purpose of improving health and/or the ability to participate in leisure time activities (Donaghy, 2007). Examples of exercise can range from a brisk walk to jogging or lifting weights, and can also include participation in organized activities such as soccer or squash.

1.5.3 Health Benefits of Physical Activity & Exercise

Several reviews of empirical efforts support a positive relationship between exercise and physical well-being (Thomson, 1994; Penedo & Dahn, 2005; Warburton et al., 2006).

Warburton and colleagues (2006) conducted a review of the evidence for health benefits of physical activity. They concluded that physical inactivity is the single highest modifiable risk factor for a number of diseases including cardiovascular disease, diabetes mellitus, cancer (colon and breast), obesity, hypertension, and bone and joint diseases (osteoporosis and osteoarthritis). More recently, benefits of exercise have been extended to include the whole individual, which includes physical, mental, and emotional components (Paluska & Schwenk, 2000; Donaghy, 2007; Dunn & Jewell, 2010).

Unfortunately, it was estimated that only 48% of Canadian adults were considered to be

moderately active (equivalent to at least 30 minutes of moderate-to-vigorous activity daily) in 2007-2008, a figure that has remained unchanged over the half-decade that preceded it (Canadian Fitness & Lifestyle Research Institute, 2009).

1.5.4 Exercise and Mental Health

Exercise is an essential component of any successful programme designed for improving physical health and, in addition, it is also capable of significant improvements in one's mental health. With research spanning over a century (Franz & Hamilton, 1905), much has been written about the effects of exercise in attenuating and preventing mental illness (Paluska, 2000). Reductions in a number of adverse mental states, namely depression, stress, panic attacks, and anxiety are attributed to engaging in exercise (Goodwin, 2003; Landers, 2009; Windaele et al., 2007; Warburton et al., 2006). Improvements and enhancements in sleep, self-esteem, mood, physical self-perception, self-efficacy and cognitive functioning were also experienced when participating in regular physical exercise (Daley, 2002; Fox, 1999; Fox, 2000; Landers, 2009). Physical activity has also been shown to not only protect against the development of mental illness but to also delay the effects of dementia and cognitive functioning that are often associated with aging, while maintaining successful brain functioning (Physical Activity Guidelines Advisory Report, 2008; Deslandes et al., 2009). Higher levels of physical activity has also been shown to be associated with high health-related quality of life among individuals with mental illness, even after controlling for sociodemographic characteristics (Schmitz, Kruse & Kugler, 2004). Additional research has also supported the positive relationship between physical activity and mental health for both men and women at varying levels of anaerobic and aerobic intensities (Asztalos, De Bourdeaudhuij & Cardon, 2009; Hamer,

Stamatakis & Steptoe, 2009). Recently, handbooks, workbooks and manuals have been written on the relationship between exercise and mental health and practical application of the research has been offered (see Leith, 2010; Otto & Smits, 2011).

1.5.5 Exercise and Prevention of Mental Illness

One of the primary foci of research on the exercise and physical activity relationship with mental health is centred on the preventative features of both exercise and physical activity. Data from the National Comorbidity Survey found that regular physical activity was associated with significantly lower prevalence rates of major depression and anxiety disorders (Goodwin, 2003). An examination of over 40,000 residents of Norway determined that individuals who participate in regular leisure-time activities of any intensity are less likely to exhibit depressive symptomatology (Harvey, Hotopf, Overland & Mykletun, 2010).

A review of longitudinal research on the association between physical activity and the risk of depression included results from 11 prospective studies (Donaghy, 2007). Each of the studies demonstrated the protective effects of physical activity on the onset of depressive symptomatology. The population base across these studies was especially diverse, and comprised of individuals of all ages from different countries and backgrounds. Modes of physical activity across the studies included walking, active leisure time, low-intensity resistance training, strenuous aerobic exercise and involvement in organized sport. One of the strengths of the studies was their sample size, which ranged from 174 to over 10,000. With follow-up periods ranging from 1 to 27 years, each of the prospective studies revealed a positive protective effect for all types of physical activity

on the reduced risk of depression (Donaghy, 2007). Donaghy's findings (2007) affirmed the previous work of several authors who conducted thorough narrative reviews and meta-analyses on the psychological improvements associated with exercise (Craft & Landers, 1988; Biddle, 1995; Long & Van Stavel, 1995; Petruzzello, Landers, Hatfield, Kubitz & Salazar, 1991).

Particularly relevant to the current study is work undertaken by Bernaards and colleagues (2006) who sought to illuminate the influence of strenuous leisure time physical activity in preventing psychological complaints in a working population. With data from over 1,700 workers and 34 companies, results suggest that strenuous leisure time physical activity can influence the presence of future psychological complaints, poor general health and long-term absenteeism (Bernaards et al., 2006). The most significant protective gains of physical activity were seen among employees working in sedentary jobs compared to those working more active jobs.

1.5.6 Exercise and Treatment of Mental Illness

Research has been conducted on the feasibility of using exercise as a treatment modality for a variety of mental illnesses. It has been demonstrated that individuals suffering from a mental illness are less physically active than the general population, with 25.7% of mentally ill patients reporting no physical activity episodes over the month prior to measure compared to 17.5% in the general population (Daumit et al., 2005). This remains particularly troublesome as exercise has been shown to have effects that are comparable to antidepressant medication when treating mild to moderate levels of major depressive disorder (Blumenthal et al., 2007). In the previous study, 45% of patients

under a supervised exercise condition and 40% of patients completing home-based exercise achieved remission following four months of treatment (Blumenthal et al., 2007). In this case, remission was defined as no longer meeting the diagnostic criteria for MDD. More recently, exercise was shown to perform comparably to antidepressant medication for mild to moderate depression and demonstrated as efficacious when used as an adjunct treatment to medication (Carek, Laibstain, & Carek, 2011). Another study sought to assess the use of physical activity as an adjunctive treatment to pharmacological treatment for those with a diagnosis of MDD, and their outcomes on quality of life (Carta et al., 2008). Notable were improvements in physical quality of life for those engaging in physical activity in addition to continuing pharmacological treatment (Carta et al., 2008). Research has also evaluated the efficacy and dose response of exercise treatment for depression and concluded that aerobic exercise completed at the recommended public health level is an effective treatment for MDD of mild to moderate severity (Dunn, Trivedi, Kampert, Clark & Chambliss, 2005). Recently, research has begun to investigate the cost-effectiveness of comprehensive physical activity interventions as treatment for depression. Research in the United Kingdom conducted by Chalder and colleagues (2012) discovered that although effective, the physical activity intervention group was more costly than the care as usual group. Continued research into the optimal type, intensity, duration and frequency of physical activity, as well as level of support through the intervention for maximal therapeutic impact is still required.

Relevant also are results from recent meta-analyses, which have attempted to summarize the research on exercise as treatment modality for mental illness (Mead et al., 2009;

Rethorst, Wipfli & Landers, 2009). While the number of trials and inclusion criteria varied between analyses, evidence is that there is a large effect of exercise on lowering depression scores over those who are receiving a control treatment. While the studies included in the aforementioned analyses were numerous (23 and 58 respectively), the authors expressed several concerns over issues of methodology (e.g., randomization). When including studies with more methodologically robust trials the effect size appears to drop off to a moderate effect only (Mead et al., 2009). Overall, results from the Cochrane Collaboration Review (Mead et al., 2009) indicated that while exercise did improve the symptoms of depression, the extent of its efficacy remains somewhat ambiguous, without clear indication as to the most effective type. Additional causes for concern in the interpretation come from a number of underpowered sample sizes, especially when comparing the results to those of other accepted evidence-based treatments such as pharmacotherapy (Dunn & Jewell, 2010). Donaghy (2007) also reviewed 16 clinical trials and three meta-analyses to evaluate the effectiveness of exercise as a treatment or as an adjunctive treatment for individuals with mild to moderate depression. He concluded that there was a large effect size in favour of exercise reducing depressive symptoms compared with a no treatment group. A limitation noted by Donaghy (2007) was the lack of thorough follow-up following the intervention, with the majority of follow-up periods identified as six months or less. An additional quantitative and qualitative review yielded large effect sizes for the advantage of exercise over control conditions and strongly encourages clinicians to consider the integral role that adjunctive exercise interventions may play (Stathopoulou, Powers, Berry, Smits & Otto, 2006).

Moderate effect sizes have been reported for the use of exercise training to reduce a number of anxiety-related symptoms in patients with a variety of chronic diseases (Herring, O'Connor & Dishman, 2010). In this review, it was found that shorter duration treatments lasting no longer than 12 weeks with sessions of at least 30 minutes resulted in the largest improvements in anxiety (Herring et al., 2010). Individuals completing aerobic exercise sessions reported significantly less anxiety sensitivity than those who did not exercise (Broman-Fulks & Storey, 2008). Elsewhere, it was concluded that although evaluated to a lesser extent than depression, exercise could be effective and cost-efficient in treating a number of anxiety disorders (Carek, Laibstain & Carek, 2011). Current research concedes; however, that although effective, exercise has yet to convincingly reduce anxiety as a standalone intervention especially when compared with the use of medication (Carek, Laibstain & Carek, 2011). Elsewhere, it had previously been demonstrated that a combination of cognitive group therapy and exercise was more effective at reducing symptoms of anxiety than either treatment in isolation (McEntree & Halgin, 1999). It should be noted that in the previous study, that effects were not maintained two months following the intervention.

Physical activity has also been shown to improve the perceived physical quality of life, especially the depressive aspects that are not responsive to drug treatment (Carta et al., 2008). In addition to the evidence, recent commissions and mental health advocates have been emphasizing the need for an integrated approach within the mental health care setting (Hays, 1999; Callaghan, 2004; Kirby, 2008; Dunn & Jewell, 2010, see also the Kirby report "Out of the Shadows", 2006). Unfortunately, exercise is "seldom

recognized by mainstream mental health services as an effective intervention in the care and treatment of mental health problems” (Callaghan, 2004, p.476).

1.6 Absenteeism and Mental Illness

The effects of mental illness permeate most aspects of an individual’s life: disrupting the ability to realize one’s potential, as well as contribute fully to family, community and employment. While mental illness is currently a leading cause of work disability, depression alone is predicted to be the second leading cause (heart disease is first) of work disability worldwide by 2020 (WHO, 2007). Industrialized nations, such as Canada are not exempt, as mental illness remains one of the leading causes of workplace disability (Srouijian, 2003; Government of Canada, 2006; Centre for Addictions & Mental Health, 2009). Every day, it is estimated that 500,000 Canadians are absent from work due to their experience of a mental health problem (CAMH, 2009). More recently, it was estimated that at any given time mental health problems and illnesses are experienced by 21.4% of the working population across Canada (Smetanin et al., 2011). Cumulatively, it was estimated in 1998 that nearly 2.678 million Canadians accounted for over 154,000 person years of time absent from work for reasons associated with either depression or distress (Stephens & Joubert, 2001). It was estimated that approximately 8.4% of the working population in the Province of Ontario had a diagnosable mental disorder, with mood (0.7%), anxiety (2.6%) and substance abuse disorders (1.2%) listed as the chief causes (Dewa & Lin, 2000; Dewa et al., 2004). Co-morbid mental illnesses (0.8%) and co-morbid physical and mental disorders (3.1%) round out the top five mentioned conditions (Dewa & Lin, 2000).

When compared to other causes of workplace absenteeism, mental illness has been proven particularly incapacitating and marked by long periods of disability (Gabriel & Liimatainen, 2000). In a recent study comparing the incidence and costs of both physical and mental health related disabilities, it was demonstrated that while the overall average days missed per episode for physical health was 33.8 days, disability episodes for mental health lasted significantly longer at an average of 67.0 days (Dewa, Chau & Dermer, 2010). The average duration of hospital stays for people with mental illness are double those of individuals hospitalized for physical injury or ailments at 16.7 days; or totalling an average of 7.7 million days/year (MDSC, 2007; MDSC, 2009). The reality of prolonged hospital stays and protracted periods on disability is concerning, as they negatively impact the probability of subsequently returning to work (St. Arnaud, Bourbonnais, Saint-Jean, & Rheume, 2007). These protracted episodes are often also associated with a weakened financial position that can pose numerous challenges to an individual. The persistent characteristics of mental illness also increase perceived and actual social isolation (Henderson, Glozier & Holland Elliot, 2005; Dekkers-Sanchez, Hoving, Sluiter & Frings-Dresen, 2008). Also detrimental is the high risk of relapse that extended episodes of mental illness often carries (Conti & Burton, 1994; Druss, Schlesinger & Allen, 2001). Druss and his colleagues (2001) discovered in their study of over 6,200 employees from three large corporations that the likelihood of an individual missing work two years following a depressive episode was 2.17 times higher than those who had not experienced depression. Conti & Burton (1994) in their study of the medical and disability costs of a large American banking institution (which later merged with JP Morgan Chase) discovered that both the length of disability and risk relapse was greater

for those suffering with depression as compared to those with other medical conditions. It was found that individuals suffering from a mental health problem had a 34% relapse rate for a second short-term disability claim in the 12-month period following their initial absence (Conti & Burton, 1994). Depression alone carried a 26% 12-month relapse rate, equal with Diabetes Mellitus and nearly three times greater than high blood pressure (11%), low back pain (10%), and heart disease (8%) (Conti & Burton, 1994).

Unfortunately, the reality for those who are attempting to successfully reintegrate into the workplace is that they may face uncertainty, disdain, opposition or stigma from those in their social network. Recently, a survey regarding the views of Canadians on mental health and mental health care was conducted by the Canadian Medical Association (2008) and discovered that nearly half of Canadians (46%) believed that individuals employ the term mental illness simply as an excuse for their bad behaviour (CMA, 2008). More importantly, only half of Canadians would tell their friends or co-workers that they have a family member suffering from a mental illness compared to higher levels of openness with other diagnoses like cancer or diabetes (50% compared to 72% or 68% respectively; CMA, 2008). The fear associated with disclosing mental illness appears justified as 56% of individuals with mental illness report experiencing stigma from their own family, 52% from friends and 30% from within their workplace (MDSC, 2007).

1.6.1 Costs of Mental Illness Absenteeism

Absenteeism from the workplace due to mental illness is not without significant cost and economic burden. Estimates in both the scientific and economic literature range significantly, varying according to inclusion criteria. According to 1998 estimates

calculated the total economic burden of mental illness in Canada is roughly \$14.4 billion, placing mental health problems among the most costly in Canada (Stephens & Joubert, 2001). In 2003, the total burden of mental illness on the Canadian economy was estimated as exceeding \$51 billion (Lim, Jacobs, Ohinmaa, Schopflocher & Dewa, 2008). Most recently, the Mental Health Commission of Canada (MHCC) pioneered a study on the economic impact of mental illness and clearly articulated their conservative estimate of \$42.3 billion in direct costs and \$6.3 billion in indirect costs to the Canadian economy (Smetanin et al., 2011). Collectively, these figures represent 2.8% of Canada's gross domestic product in 2011 (MHCC, 2013). These costs are proportionate to those in other developed nations, including the United States, where annual loss of earnings due to mental illness is estimated to exceed \$190 billion (Insel, 2008). The direct cost to Canadian companies has been found to account for 14% of their annual net profit, or roughly \$16 billion annually (Srouijan, 2003).

In describing these costs in greater detail, it was estimated that while only 30% of all disability claims were accounted for by mental illness, they represented 70% of the total cost (Srouijan, 2003; Government of Canada, 2006). The average disability cost of a single episode, due either to mental health or behavioural problems has been estimated to be \$18,000 (Dewa, Chau, & Dermer, 2010). This is in stark contrast to the average cost of all disability episodes (including mental illness), which was roughly half the amount at \$9,027 per episode (Dewa, Chau, & Dermer, 2010). Vinet (2004) attributed the rise in group insurance premiums to the extent and depth of this phenomenon, namely absence from work due to mental health problems. Perhaps creating the greatest cause for

concern is the estimate that only one-third of those who require mental health services actually seek and receive it (Statistics Canada, 2003).

1.6.2 Absenteeism and Comorbidity

As previously mentioned, individuals suffering from a mental disorder are at an increased risk of suffering from a second diagnosable mental disorder. Indeed it is worth reiteration that it has been estimated that half of all individuals suffering from a mood disorder also have a comorbid anxiety disorder (Kessler et al., 1996; Scott, McGee, Oakley-Browne, & Wells, 2006). It has also been firmly established in the literature that mood disorders often occur in conjunction, or comorbidly with chronic physical conditions such as back pain, obesity, arthritis, hypertension, diabetes, and heart disease and migraine headaches (Buist-Bouwman et al., 2005; Ortega, Feldman, Canino, Steinman & Algeria, 2006; Simon et al., 2006; Wells, Golding & Burman, 1989). Also, a reciprocal or bidirectional relationship exists between the presence of a physical ailment and increased risk of developing a mental disorder (Buist-Bouwman et al., 2005; Mercer et al., 2012). Results from 18 general population surveys across 17 countries found that while depression and anxiety disorders were equally associated with physical conditions, comorbid depression and anxiety disorders were more strongly associated with a number of physical conditions (Scott et al., 2007). Research has also demonstrated that individuals suffering from both physical and mental disorders endure longer absences from the workplace than those experiencing a single disorder (Buist-Bouwman et al., 2005). Limited research has been carried out to date on evaluating the direct costs to the workplaces of comorbid mental and physical conditions though an early review has found increases in direct costs

for those suffering from chronic back pain and a mental disorder (Baumeister, Knect & Hutter, 2012).

1.7 Mental Illness and the Return to Work (RTW) Process

Not surprisingly, work-related mental health problems are one of the leading causes of absence from work, and the trend is rising (Conti & Burton, 1994; Gabriel &

Liimatainen, 2000; Nystuen, Hagen, & Herrin, 2001; Vezina & Bourbonnais, 2001).

However, the majority of research on rehabilitation in the field of occupational health is focused on workers who fall victim to workplace injury (St. Arnaud et al., 2007). The

research under the domain of mental health rehabilitation has largely centred on

employability issues for those with a serious mental illness such as schizophrenia (St.

Arnaud et al., 2007). Recently, research has attempted to identify factors that might

predict mental health problems and withdrawal from work in order to better identify

solutions for successful prevention and retention following reintegration (St. Arnaud,

Saint-Jean & Damasse, 2006; St. Arnaud et al., 2007; D'Amato & Zijlstra, 2010).

1.7.1 Influential Factors in the Return to Work Process

Using a qualitative approach, St. Arnaud and colleagues (2006) sought to identify a

number of factors that influence the return to work process. Among the most prominent

that ensure an employee returns and remains in the workplace are support from

colleagues and superiors, improvement in the conditions that contributed to the work

interruptions, a progressive return to work, and better cohesion between absence

management practices and support measures (St. Arnaud et al., 2006). One study noted

that both older individuals and those with less education are less likely to return to work

as compared to younger and more educated employees (Fox, Barba & Liu, 2005). In a

study involving public sector employees, St. Arnaud and colleagues (2007) demonstrated that improved working conditions accompanying return to work is a major determinant of health recovery as well as job retention. With a sample of 1,850 workers from Quebec, St. Arnaud and colleagues (2007) found the overall return to work rate for those off work due to mental health reasons was 68.9%.

1.7.2 Predictors of Successful Work Reintegration

The results of St. Arnaud and colleagues' (2007) study also yielded an occupational reintegration profile and presents characteristics that are associated with successful return to work. They found that women were found to be significantly more likely to return to work than men. This was contrary to prior research, which indicated gender was not a significant predictor of return to work (Butler, Johnson & Baldwin, 1995; Cornelius, van der Klink, Groothoff & Brouwer, 2011; Galizzi & Bodem, 2003). Younger individuals (under 44) were more likely to return to work than those over 44, and especially those over 55 (St. Arnaud et al., 2007). Other family characteristics including having children, or living with a spouse were associated with higher rates of returning to work.

Technicians and support staff returned to work at a higher rate than managers and other professionals. Attributions on the cause of absence are of importance; those who identify their work as being a cause of their absence are less likely to return to work. In a longitudinal study conducted by Nielsen and colleagues (2011) in Denmark, it was found that return to work rates were significantly greater for those absent for the first time due to mental health problems. They conclude that both the number and duration of episodes are inversely related with probability of successfully returning to work. Additional research has supported the findings that severity and duration of mental problems are

likely to negatively impact one's potential to return to work (Brouwers, Terluin, Tiemens & Verhaak, 2009). Researchers have estimated that only 50% of those who are off work for 6 months or more ever return to work (Blank, Peters, Pickvance, Wilford & MacDonald, 2008). More likely to return to work are those who have had their psychological concerns resolved compared to those whose mental health problem had not been resolved. It has also been confirmed many times that patients' own predictions and expectations on duration of absence and their potential to return to work were also positively associated with higher return to work rates (Fleten, Johnsen & Forde, 2004; Nieuwenhuijsen, Verbeek, de Boer, Blonk, & van Dijk, 2006; Brouwers et al., 2009). Strong cognitive functioning and competencies as well as familial relationships have been found to predict successful return to work (Tsang, Lam, Bacon & Leung, 2000). Strongly predicting successful return to work is the involvement of a labour union in representing the interests of the absent employee (Galizzi & Bodem, 2003).

Negatively impacting a return to work was the length of time before the first consultation with a general practitioner (GP), especially among those who wait at least three weeks for their initial appointment (Brouwers et al., 2009). The delay between the patient's intention to seek medical attention and the ability of the physician to provide care is of particular concern. Research has consistently demonstrated that the longer an employee is absent from the workplace the more difficult a re-entry will be (Blank et al., 2008; Briand, Durand, St. Arnaud & Corbière, 2007). This fact remains especially troublesome when considering the statistics on national wait-times in Canada. A national survey in 2008 revealed that the average wait times from seeing a GP to first consultation with a

specialist (psychologist, counsellor, psychiatrist, etc.) was 7.9 weeks (Esmail, Hazel & Walker, 2008). After first seeing a specialist, the average wait time to onset of treatment is another 10.7 weeks (Esmail et al., 2008). It appears that excessive time patients spend waiting in Canada for treatment and assistance is not conducive to restoration of health or successful reintegration to the workforce.

In summary, mental health problems account for an increasing number of workplace absenteeism (Conti & Burton, 1994; Gabriel & Liimatainen, 2000; Nystuen, Hagen, & Herrin, 2001; Vezina & Bourbonnais, 2001). Research has begun to shed insight into the characteristics of the individual who is more likely to return to work: some personal (e.g., younger, higher education, married); some work related (e.g., availability of accommodations, supportive environment); some illness related (e.g., severity of symptoms and perceptions of illness); and others yet occupation-specific (e.g., support staff). Knowledge of these factors is crucial for the successful development of an intervention program that would be tailored to an individual absent from work due to mental illness. Unfortunately, consensus within the research on influential return to work factors remains elusive. As Cornelius and colleagues (2011) in their systematic review of mental health absenteeism and mental health: “there is still great need for research on modifiable prognostic factors of continuing disability and return to work among benefit claimants with mental health problems” (p. 259). In the interim, organizations and those in disability management continue to craft and implement return to work intervention programs for individuals absent from work.

1.8 Return to Work Intervention Programs

Returning to work is a commonly used indicator of rehabilitative success (Johansson, Dahl, Jannert, Melin & Andersson, 1998). Extremely critical to the process of successful reintegration to the workplace is the presence of a specifically designed return to work intervention program. While return to work interventions are commonly offered to those with musculoskeletal injuries, they are rarely available to those experiencing a workplace absence for mental health reasons (Goldner et al., 2004). The previous statement is perhaps better understood when considering that very little research has been focused on the design and evaluation of return to work intervention programs for workers with mental health problems (Briand et al., 2007). Furthermore, while organizations have made great strides in the prevention of mental health problems, few describe reintegration programs in place that would consider the worker, their environment, and all stakeholders involved (Putnam & McKibbin, 2004; Briand et al., 2007).

In Ontario, absences from the workplace are often managed by either a disability management firm or the Workplace Safety Insurance Board (WSIB). The WSIB is an employer-funded agency, legislated by the Ontario government to administer the Workplace Safety and Insurance Act (WSIB, 2013). Employers contribute a premium for each employee in return for no-fault liability workplace insurance that protects them from future lawsuits. Employees covered under this system receive in return compensation and benefits for accepted claims (WSIB, 2013). Employees injured either physically or psychologically while on the job will usually receive support and reintegration services from the WSIB subsequent to their injury.

In an attempt to systematically review psychological return to work interventions, Corbière and Shen (2006) were able to identify 14 relevant studies. The most common psychological intervention was cognitive behavioural therapy (CBT), which was employed in 9 of the 14 studies, with generally favourable results. Other psychological interventions included psychosocial interventions, coping strategies, problem-solving strategies, stress management, behavioural modification, goal setting and communication skills. Of the 14 studies, only two were designated as focusing solely on work-related mental health problems, while the remaining 12 were classified as focusing on work-related physical injuries, mainly musculoskeletal injuries (Corbière & Shen, 2006).

The two studies that evaluated a return to work intervention designed specifically for a mental health problem were both published in 2003 out of the Netherlands (Nieuwenhuijsen, Verbeek, Siemerink & Tummer-Nijssen, 2003; van der Klink, Blonk, Schene & van Dijk, 2003). In both studies, the intervention evaluated the effectiveness of an intervention program on reducing absenteeism among individuals who were absent from the workplace due to an adjustment disorder. An adjustment disorder occurs when an individual is unable to cope with particular stressors in their lives. The DSM-IV-TR classifies six types of adjustment disorders according to their presenting symptoms (depressed mood, anxiety, mixed depression and anxiety, disturbance of conduct, mixed disturbance of emotions and conduct, or unspecified) and their severity (acute or chronic) (4th ed., text rev.; DSM-IV-TR, American Psychiatric Association, 2000). Nieuwenhuijsen and colleagues (2003) in a retrospective cohort file review (n=100),

found that optimal levels of continuity of care significantly lowered the time to off work and resuming full-time work. They also discovered that intervention targeted toward the organization facilitated an initial return to work by short-term disabled workers.

In the second study, van der Klink and colleagues (2003) utilized a cluster randomised controlled design wherein 192 patients were assigned to either an intervention group or a 'care as usual' group following first request of short-term benefits. They found that after three months, a greater number of patients in their invention group had returned to work, and also displayed a more rapid return to complete return to previous work (67 vs. 94 days) as compared to the control group. The intervention was focused on the development of coping skills through a graded or tiered delivery model based on a cognitive-behavioural approach as delivered through their occupational physician. It is also worth noting that the mean duration of the workplace absence was also significantly lower (49 days) as compared to the care as usual group (70 days). The authors also note that intervention group also demonstrated a lower relapse rate.

Noticeably absent from all intervention programs was the inclusion of exercise or physical activity as either an augmentative or adjunctive treatment. This is especially disappointing considering the evidence supporting its inclusion as a treatment modality (Callaghan, 2004; Stathopoulou et al., 2006; Dunn & Jewell, 2010).

Recent attempts to model mental health return to work intervention programs after those designed for workers with musculoskeletal disorders have been made (Briand et al.,

2007). Several components are thought to be worthy of transferring, specifically those that would address psychological factors, work environmental factors and factors related to the involvement of the various stakeholders in the rehabilitation process. While it is acknowledged that work environmental factors carry a certain amount of influence in the return to work process for both workers with physical and mental ailments (Baril, Clarke, Friesen, Stock & Cole, 2003; Corbière & Shen, 2006; St. Arnaud et al., 2006), they are beyond the scope of the current research project. It is of particular concern; however, that absent from the suggestions put forward by Briand and colleagues (2007) is the use of exercise in treating the psychological problems of those off work for mental health reasons. While a number of stakeholders are suggested to become active players in the return to work process, there remains no mention of an exercise specialist or physical trainer. It is unexpected that this would have been overlooked because of the prominent role that physiotherapists/exercise specialists play in the recovery and return to work process of individuals who are off work for physical injuries.

1.9 Current Objectives

It is evident that a consensus on the predictors of a successful return to work has yet to be achieved. It should come as no surprise then that return to work interventions designed for individuals off work due to mental illness are both uninformed and severely lacking. In the absence of clarity and an understanding of which correlates positively impact the return to work process, the development of an effective return to work intervention program remains unlikely. Moreover, the current work would propose that influential factors on an individual's mental health have yet to be explored within the context of return to work (i.e., exercise). As such, prior to pursuing the development of a

comprehensive intervention program designed for individuals off work due to mental illness, the present study seeks to add to the current research by identifying some of the factors that may influence the likelihood of successful re-entry into the workforce. The present study also seeks to identify which variables, be they individual characteristics or external factors, inhibit a successful return to work. Doing so could allow for the early recognition of certain 'risk factors' that may deter re-entry. Additionally, the mediating role of exercise in the return to work process will be explored and documented.

1.10 Hypotheses

Following a review of the existing literature several hypotheses were generated. First, it was hypothesized that certain demographic variables (specifically gender [male], marital status [married], children [one or more] and education level [college or higher]) would be positively associated with a successful return to work and a shorter workplace absence. Second, it was hypothesized that individuals with comorbid physical injury and mental illness will return to work at a lower rate and experience longer periods of absence. It was also hypothesized that symptom severity would be associated with return to work rate and time to return to work. Third, it is expected that contextual variables will be associated with differences in return to work rates and duration of absence (e.g., the involvement of a disability management company). Finally, it was hypothesized that individuals who engaged in regular physical activity and exercise while absent from work will experience a return to work at a higher rate than those who remain sedentary.

Chapter 2:
METHODOLOGY

2.1 Study Design

A retrospective review of patient files was conducted in order to gain insight into the factors that influence successful return to work for individuals absent from the workforce due to a mental health problem. After obtaining approval from Laurentian University's Research Ethics Board, a private psychological practice in Northern Ontario was approached for participation in the current study. Following mutual agreement, staff at the practice selected eligible patient files based on knowledge of the case.

2.2 Selection Criteria

Patients were selected for inclusion in the current study based on the following criteria. First, candidates for inclusion needed to have sought psychological services for treatment. Second, patients must have been gainfully employed prior to experiencing a workplace absence. Third, the patients must have experienced a workplace absence, though the initial cause of the workplace absence did not have to be linked to a mental health problem (minimum absence= 3 months). The final criteria for selection was that the individual must have been diagnosed by a medical professional or psychologist with either a mood or anxiety disorder as specified in the DSM-IV-TR (4th ed., text rev.; American Psychiatric Association, 2000) for which they had been receiving psychological services as a part of their treatment.

2.2.1 Recruitment Process

Administrative staff at the practice mailed a recruitment letter and consent form (Appendix A and B) to eligible candidates. The recruitment letter identified the aims of the study and requested consent for researcher access to confidential file information. Variables of interest were outlined for candidates and confidentiality was ensured.

Participation was completely voluntary and candidates were informed that their decision would not affect any current or future treatment at the private practice in question.

Addressed and postage paid envelopes for potential participants to return their consent forms were included in the recruitment package.

2.3 Data Collection

Where consent was obtained, staff at the private practice advised the researcher of the outcome and provided access to the file. The researcher then read through the file to gain familiarity with the case. The data extraction process began and was guided by a checklist which was created based on variables previously identified and described in Chapter 1 in addition to consultation with the Clinical Psychologist at the practice in question.

2.3.1 Independent Variables

Demographic variables that were of interest based on prior research included age, gender, marital status, number of children, number of dependants, occupation type, education, and the availability of a family doctor. The presence of a supportive or adjunctive treatment modality was recorded. Examples of such include psychopharmacologic interventions, availability and support of a disability management program or specialist, and disability benefit coverage provided by an insurance company. Clinical variables included diagnoses, cause of the workplace absence, and scores on a number of psychometric tests according to availability. As administration of psychometric tests varied from client to client, and given the focus of the current research on individuals suffering from a mood or anxiety disorder, raw scores from only two measures were included for analyses. The Beck Depression Inventory-Second Edition (BDI-II) was the

most commonly employed measure of depressive symptomatology (Pearson, 1996). The Beck Depression Inventory is comprised of 21 items that measure the severity of depressive symptoms over the two weeks that precede its administration (Pearson, 1996). Anxiety related symptoms were most often measured using the Beck Anxiety Inventory (BAI). Similar to the BDI-II, the BAI is comprised of 21 items measuring anxiety symptom severity and is a useful tool for informing diagnostic efforts (Pearson, 1993). Finally, information regarding exercise and leisure time activities both prior to seeking psychological services and during treatment were extracted from clinical files when present.

2.3.2 Dependent Variables

The two main dependent variables of interest were: 1) return to work status (dichotomous yes/no); and 2) duration of the absence (in months). A complete list of variables and their associated categories are shown in Table 1. Although additional variables were created through several subsequent recoding procedures, the variables listed below are exhaustive in terms of the information drawn directly from patient files as raw data. Any discrepancies or ambiguity for any of the variables were clarified either with staff of the practice with knowledge and involvement of the case or directly with the Clinical Psychologist.

Table 1. Variables of Interest

Variable	Description/Categories
Age	Participant age
Gender	What is the participant's gender? <ul style="list-style-type: none"> ▪ Male ▪ Female
Marital Status	Participant's marital status at time of absence: <ul style="list-style-type: none"> ▪ Married ▪ Single ▪ Divorced or Separated ▪ Common Law
Children	Does the participant have children? <ul style="list-style-type: none"> ▪ If YES: How many? ▪ If YES: Number of dependent children
Living Arrangements	Descriptions of the participant's living arrangements: <ul style="list-style-type: none"> ▪ Living alone ▪ Living with someone
Education	Highest level obtained by the participant: <ul style="list-style-type: none"> ▪ High school or less ▪ College Diploma ▪ University Degree or greater
Occupation	What was the participant's occupation prior to their workplace absence (by category)? <ul style="list-style-type: none"> ▪ Professional (e.g., teacher, engineer, architect) ▪ Skilled (e.g., electrician, carpenter, millwright) ▪ Labourer (e.g., construction worker, cashier)
Disability Management Company	Is there a disability management company assigned to the participant's file? <ul style="list-style-type: none"> ▪ If YES: Who is the disability management company? ▪ If YES: Has a disability specialist been assigned to the file?
Family Doctor	Does the participant have a family doctor? <ul style="list-style-type: none"> ▪ Yes ▪ No
Mood Disorder	Was the participant diagnosed with a mood disorder? <ul style="list-style-type: none"> ▪ Yes ▪ No
Anxiety Disorder	Was the participant diagnosed with an anxiety disorder? <ul style="list-style-type: none"> ▪ Yes ▪ No
Personality Disorder	Was the participant diagnosed with a personality disorder? <ul style="list-style-type: none"> ▪ Yes ▪ No

Table 1 Cont'd.	
Cause of Absence	What was the initial cause of the workplace absence? <ul style="list-style-type: none"> ▪ Physical Ailment/Injury ▪ Psychological Concerns
Treatment Modality	Treatment modalities employed: <ul style="list-style-type: none"> ▪ Cognitive Behavioural Therapy ▪ CBT + Psychopharmacologic Intervention
Physical Activity	Did the participant note engaging in regular physical activity during the intake interview? <ul style="list-style-type: none"> ▪ Yes ▪ No
Exercise During Treatment	Was exercise and physical activity suggested and encouraged as a part of therapeutic intervention? <ul style="list-style-type: none"> ▪ Yes ▪ No <p>If YES: Describe what exercise/physical activity was given and documented.</p>
Psychometric Tests	List all psychometric tests administered to participant
Beck Depression Inventory-2 nd Edition	Raw score and associated category: <ul style="list-style-type: none"> ▪ Minimal (0-9) ▪ Mild (10-18) ▪ Moderate (19-29) ▪ Severe (30-63)
Beck Anxiety Inventory	Raw score and associated category: <ul style="list-style-type: none"> ▪ Minimal (0-7) ▪ Mild (8-15) ▪ Moderate (16-25) ▪ Severe (26-63)
Return to Work	Did the participant return to work (minimum time allotted to return to work=12 months) <ul style="list-style-type: none"> ▪ Yes ▪ No
Length of Absence	How long was the participant off work (in months)

2.4 Data Analysis

Data was compiled, organized and analyzed using IBM SPSS 21.0 for Mac. Descriptive statistics were used to better understand data trends and to analyze sample distributions.

Pearson's correlations and independent samples t-tests were performed comparing individuals successfully returning to work to those who had not. Chi-square tests were employed to analyze sample distributions. Discriminant function analysis was used to

identify variables related to a successful return to work. In an effort to identify which factors were most strongly associated with a successful return to work, multiple stepwise regression procedures (i.e., Cox, Logistic, Linear) were performed.

Chapter 3:

RESULTS

3.1 Descriptive Statistics

Seventy-four recruitment letters and consent forms were mailed to eligible candidates in August, 2011. Fifty candidates consented to participate in the study (response rate of 67.6%), while 6 did not. The remaining 18 did not respond.

3.1.1 Demographic Information

Of the 50 participants, 27 successfully reintegrated to the workforce (RTW rate of 54%) following a mean absence of 12.96 months (SD=7.37). Participants were primarily female (N=38 or 76%). The mean age of all participants was 41.06 years (SD = 7.61), with the youngest participant being 28 years and the oldest 61 years of age. The majority of the participants were married (N=33 or 66%) compared to those who were divorced (N=9 or 18%), living common law (N=6 or 12%), or single (N=2 or 4%). It was found that 44% (N=22) of the participants had obtained at least one university degree. There was an equal split between the remaining participants with 28% (N=14) having completed a college program and 28% (N=14) possessing a high school education or less. By occupation, 46% (N=23) of participants were employed as a professional, 26% (N=13) as skilled workers and 28% (N=14) in what is considered general labour.

Complete demographic information is presented below in Table 2.

Table 2. Demographic Information by Return to Work Status

Variable	RTW	NO RTW	TOTAL
N (%)	27 (54.0)	23 (46.0)	50 (100.0)
Age (years)	<i>M</i> = 40.15 SD = 7.37	<i>M</i> = 42.13 SD = 7.91	<i>M</i> = 41.06 SD = 7.61
Gender (%)			
<i>Male</i>	5 (18.5)	7 (30.4)	12 (24.0)
<i>Female</i>	22 (81.5)	16 (69.6)	38 (76.0)

Table 2 Cont'd.

Marital Status (%)			
<i>Married</i>	17 (63.0)	16 (69.6)	33 (66.0)
<i>Single</i>	2 (7.4)	0 (0.0)	2 (4.0)
<i>Divorced</i>	6 (22%)	3 (13.0)	9 (18.0)
<i>Common Law</i>	2 (7.4)	4 (17.4)	6 (12.0)
Number of Dependent Children			
	$M = 1.30$	$M = 0.74$	$M = 1.04$
	$SD = 0.99$	$SD = 0.81$	$SD = 0.95$
Living Arrangements (%)			
<i>Alone</i>	8 (29.6)	3 (13.0)	11 (22.0)
<i>With Someone</i>	19 (70.4)	20 (87.0)	39 (78.0)
Education Level (%)			
<i>High School or less</i>	3 (11.1)	11 (47.8)	14 (28.0)
<i>College</i>	9 (32.3)	5 (21.7)	14 (28.0)
<i>University</i>	15 (55.6)	7 (30.4)	22 (44.0)
Occupation Type (%)			
<i>Professional</i>	14 (51.9)	9 (39.1)	23 (46.0)
<i>Skilled</i>	10 (37.0)	3 (13.0)	13 (26.0)
<i>Labourer</i>	3 (11.1)	11 (47.8)	14 (28.0)
Length of Absence			
<i>Minimum Absence</i>	4 months	12 months	
<i>Maximum Absence</i>	31 months	121 months	
Time off work (months)			
	$M = 12.96$	$M = 34.74$	
	$SD = 7.37$	$SD = 28.09$	

3.1.2 Clinical Information

The majority of the participants were diagnosed with a mood disorder (N=45; 90%), according to the DSM-IV-TR (4th ed., text rev., American Psychiatric Association, 2000). Of those with a mood disorder diagnosis, 32 participants had a comorbid anxiety disorder diagnosis. The remaining five participants (10%) were diagnosed with anxiety disorder without a mood disorder. Roughly half of the participants completed the Beck Depression Inventory- Second Edition (N=28; 56%) and the Beck Anxiety Inventory (N=29; 58%). For both the BDI-II and BAI, the majority of participants were situated in the 'Severe' category according to the test's cut-off scores. The mean score for participants who completed the BDI-II at intake was 32.93 (SD=10.05), or in the 'severe

depression' category. The mean BAI score at intake was 29.03 (SD=10.93), which also falls in the 'severe anxiety' category. Participants in the current study most often received both Cognitive Behavioural Therapy (CBT) and pharmacotherapy to treat their mood or anxiety disorders (N=32; 64%). The remaining 18 participants (36%) received only CBT from the Clinical Psychologist, apart from any medical intervention. Complete clinical information is presented in Table 3 below according to the participants RTW status.

Table 3. Clinical Variables by Return to Work Status

Variable	RTW	NO RTW	TOTAL
Diagnosis (%)			
<i>Mood Disorder Only</i>	4 (14.8)	9 (39.1)	13 (26.0)
<i>Anxiety Disorder Only</i>	4 (14.8)	1 (4.3)	5 (10.0)
<i>Mood & Anxiety Disorder</i>	19 (70.4)	13 (56.5)	32 (64.0)
BDI-II Categories (%)			
<i>Mild</i>	2 (14.3)	1 (7.1)	3 (10.7)
<i>Moderate</i>	5 (35.7)	4 (28.6)	9 (32.1)
<i>Severe</i>	7 (50%)	9 (64.3)	16 (57.1)
<i>Missing</i>	13	9	22
BDI-II Score at intake	<i>M</i> = 30.71 <i>SD</i> = 9.72	<i>M</i> = 35.14 <i>SD</i> = 10.24	<i>M</i> = 32.93 <i>SD</i> = 10.05
BAI Categories (%)			
<i>Mild</i>	1 (7.1)	3 (21.4)	4 (13.8)
<i>Moderate</i>	3 (21.4)	2 (14.3)	5 (17.2)
<i>Severe</i>	11 (78.5)	9 (64.3)	20 (69.0)
<i>Missing</i>	13	9	21
BAI Score at intake	<i>M</i> = 30.07 <i>SD</i> = 10.81	<i>M</i> = 27.93 <i>SD</i> = 11.35	<i>M</i> = 29.03 <i>SD</i> = 10.93
Treatment Modality (%)			
<i>CBT only</i>	11 (40.7)	7 (30.4)	18 (36.0)
<i>CBT + Medication</i>	16 (59.6)	16 (69.6)	32 (64.0)
Initial Cause of Absence (%)			
<i>Physical Injury</i>	2 (7.4)	11 (47.8)	13 (26.0)
<i>Psychological Concerns</i>	25 (92.6)	12 (52.2)	37 (74.0)

The majority of participants went off work due to psychological concerns (N=37; 74%) compared to those who initially were absent from work due to a physical injury or

complaint (N=13; 26%). Eleven of the 13 individuals were off work as a direct result of a workplace accident or injury. The remaining two were physically injured as a result of non-work related, motor vehicle accidents leading to an absence from the workplace.

The complete list of the physical ailments that initially caused the workplace absence can be found in Table 4. It is worth noting that while some participants suffered numerous injuries as a result of the workplace or motor vehicle accident, only the injury deemed most responsible (and persistent) for the workplace absence was coded. An example would be an individual suffering whiplash and head trauma during a motor vehicle accident may also have bruised a rib for which there was no lasting effect, whereas the effects of the head trauma persisted, resulting in an absence from the workplace. In all instances, the pain caused by the injury was documented as having become chronic in nature.

Table 4 Physical Injuries by Count

Injury	N (%)
Head/Neck Trauma Injury	6 (46.1)
Lower Back Strain	4 (30.8)
Shoulder Injury/Strain	2 (15.4)
Carpal Tunnel Syndrome	1 (7.7)
<i>Total</i>	<i>13 (100.0)</i>

3.1.3 Disability Management

The vast majority of participants had their workplace absence managed by a disability management company (N=44; 88%), while the remaining 6 participants did not (12%).

Seventy two percent (N=36) of participants received benefits from a private insurance

company, while the remaining 28% (N=14) were represented by the employer-funded Workplace Safety and Insurance Board of Ontario (Table 5).

Table 5. Disability Management Variables by Return to Work Status

Variable	RTW	NO RTW	TOTAL
Disability Management Specialist (%)			
<i>Yes</i>	24 (88.9)	20 (87.0)	44 (88.0)
<i>No</i>	3 (11.1)	3 (13.0)	6 (12.0)
Disability Management Firm (%)			
<i>WSIB</i>	3 (11.1)	11 (47.8)	14 (28.0)
<i>Other Private Insurance</i>	24 (88.9)	12 (52.2)	36 (72.0)

3.1.4 Physical Activity

The majority of participants described engaging in passive leisure activities as opposed to being physically active (N=41; 82%). Examples of passive responses include “reading”, or “watching TV”. Common responses that qualified as active leisure time were exercising regularly (e.g., running or walking) or participating in organized sport (e.g., playing basketball or hockey). All session notes were reviewed to determine whether exercise or physical activity was recorded and explicitly recommended by the clinical psychologist as a part of the therapeutic approach. Twenty-two of the 50 patients (44%) met this criterion while there was no documentation of recommendations for physical activity or exercise for the remaining 28 (56%) patients. These findings are represented below in Table 6.

Table 6. Physical Activity/Exercise Variables by Return to Work Status

Variable	RTW	NO RTW	TOTAL
Active Leisure Time at Intake (%)			
<i>Active</i>	5 (18.5)	4 (17.4)	9 (18.0)
<i>Inactive</i>	22 (81.5)	19 (82.6)	41 (82.0)
Exercise w/ Treatment			
<i>Yes, Documented</i>	12 (44.4)	10 (43.5)	22 (44.0)
<i>Not Mentioned/Documented</i>	15 (55.6)	13 (56.5)	28 (56.0)

3.2 Influencing Return to Work

3.2.1 Demographic Variables & RTW

Many demographic variables (e.g., gender, age, marital status) were unrelated to a return to work following an illness/injury related absence. Similar findings were obtained for living arrangements, treatment modality, access to a family doctor, and multiple mental health diagnoses. The number of dependent children predicted a successful RTW ($M=0.74$); $t(48) = 2.149$, $p=.037$). In short, participants who successfully returned to work had, on average, a greater number of dependent children living at home.

A chi-square test of independence examined the relationship between demographic variables. A participant's education level and his/he return to work status was significant, $\chi^2(2, N=50)=8.357$, $p<.05$. Participants who had completed high school education or less returned to work at a lower rate than those who had obtained a college or university education (Figure 1).

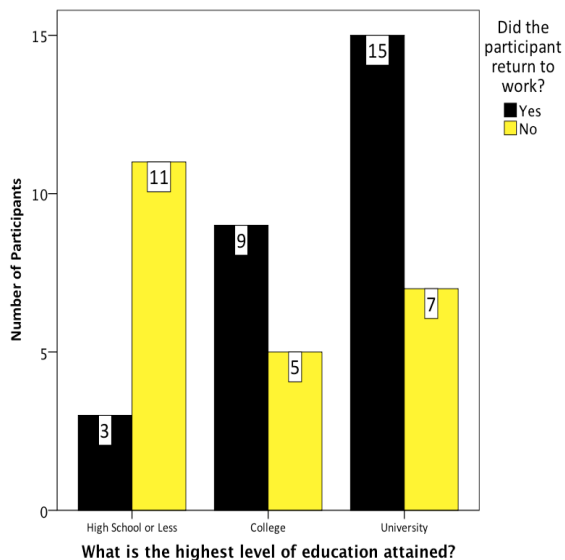


Figure 1. Return to Work Status by Highest Level of Education Attained

3.2.2 Clinical Variables & RTW

The relationship between initial cause of the workplace absence and return to work status was significant ($\chi^2 (1, N=50) = 10.546, p < 0.01$). Individuals who were absent as a result of a physical injury were far less likely to return to work as compared to those whose cause of absence was strictly psychological (Figure 2). Scores on the psychometric measure of anxiety symptom severity (BAI) were positively correlated with number of months off work ($r(30) = .397, p < 0.05$) for those returning to work. There was no association found for depressive symptom severity.

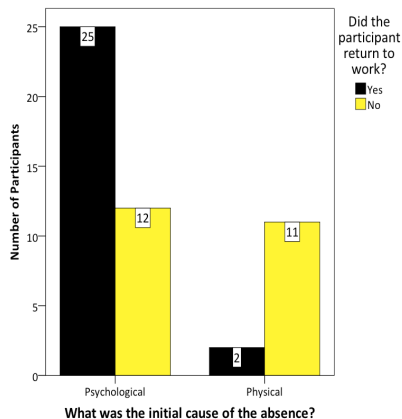


Figure 2. Return to Work Status by Cause of Workplace Absence

3.2.3 Disability Management & RTW

The relationship between the involvement of a disability management firm and a successful return to work was also explored ($\chi^2(1, N=50) = 8.305, p < 0.01$). Individuals whose case was managed by the Workplace Safety and Insurance Board (WSIB) were less likely than those whose case was managed by a private insurance company to return to work (Figure 3).

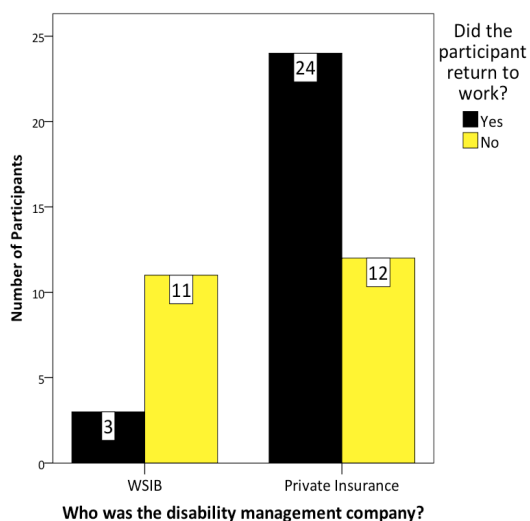


Figure 3: Return to Work Status by Disability Management Company

3.2.4 Exercise, Physical Activity & RTW

No significant associations were found between a participant's level of physical activity at intake for psychological services and return to work. Additionally, return to work status seemed unaffected by the clinical psychologist's recommendation to engage in regular exercise and physical activity during psychological treatment.

3.3 Predicting Return to Work

A discriminant function analysis was conducted in order to determine which variables should be included when seeking to predict return to work status. All 50 cases were utilized for the analysis. Variables inputted into the analysis included: Disability Management Company (WSIB); Cause of Absence (physical injury), Education (high school or less), Living Arrangements (with someone), Dependent Children (1 or more), and Exercise (Mentioned during treatment). The returned analysis was statistically significant (χ^2 (6, N=50) = 17.926, $p=.006$)

Table 7. Structure Matrix

Variable	Function 1 Loading
Cause of Injury (Physical Injury)	.739
Education (High School or Less)	.638
Disability Management Company (WSIB)	.638
Living Arrangements (with someone)	.291
Dependent Children (1 or more)	-.272
Exercise (Mentioned)	-.014

The structure (loading) matrix presenting the canonical structure, or the discriminant loading of the discriminant function is presented in Table 7. The results suggest that the best predictors for determining return to work status are cause of absence (physical

injury) and education level (high school or less) in addition to disability management company.

3.3.1 Logistic Regression Modeling

Logistic regression analyses were carried out to better understand the influence of several variables on a participant's return to work. The variables selected were those identified as being independently related to return to work status through chi-square tests, independent samples t-tests and discriminant function analyses. The variables included were cause of workplace absence (physical injury), disability management firm (WSIB), education level (high school or less), dependent children (at least one), and exercise (documented as part of treatment). There were no missing data for all 50 cases.

A test of the full model with all five predictors was statistically significant, $\chi^2(5) = 18.588$, $p = .002$, indicating that the predictors, as a set, was able to reliably distinguish between individuals returning to work compared to those who did not. However, the amount of variance explained was modest. The capacity to accurately classify participants was average, with 82% of successful RTW and 65% of unsuccessful RTW correctly predicted, for an overall success rate of 74%. Regression coefficients, standard error, Wald statistics, odds ratios, and 95% confidence intervals for the odds ratios for each of the five predictors are shown in Table 8. According to the Wald criterion, only one predictor was significant, with those having completed only a high school education or less being less likely to successfully return to work. The odds ratio shows that those

who have completed only a high school education are 7.655 times less likely to successfully return to work compared to those with either a college or university education.

Table 8 Logistic Regression Modeling

Variable	B	S.E.	Wald	Sig.	Exp (B)	95% C.I. for Exp	
						Lower	Upper
Cause of Workplace Absence: <i>Physical Injury</i>	2.050	1.185	2.993	.084	7.765	.761	79.196
Disability Management Firm: <i>WSIB</i>	.096	1.220	.006	.938	1.100	.101	12.031
Highest Level of Education Attained: <i>High School</i>	2.035	.904	5.073	.024	7.655	1.302	44.996
Dependent Children: <i>At least 1</i>	-1.201	.761	2.489	.115	.301	.068	1.338
Exercise During Treatment: <i>Yes</i>	.173	.710	.059	.808	1.189	.295	4.784
Constant	-2.628	1.178	4.976	.026	.072		

Model: $\chi^2(5) = 18.588, p = .002$

Backward stepwise logistic regression modeling was undertaken to better identify the most cogent predictor variables. With each successive block the variable contributing the least significantly to the overall model was removed. Regression coefficients, Wald statistics, odds ratios, and 95% confidence intervals for each of the predictors are shown in Table 9.

Table 9 Backward Stepwise Logistic Regression Modeling

		B	S.E.	Wald	Sig.	Exp(B)	95% C.I. for EXP(B)	
							Lower	Upper
Step 1	Physical Injury	2.402	1.278	3.531	.060	11.044	.902	135.22
	WSIB	-.329	1.343	.060	.807	.720	.052	10.004
	High School	1.949	.913	4.557	.033	7.019	1.173	42.008
	Exercise	.046	.735	.004	.950	1.047	.248	4.418
	Cohabiting	-.768	.940	.668	.414	.464	.074	2.927
	Dependent Child	-1.227	.770	2.536	.111	.293	.065	1.327
	Constant	-1.839	1.523	1.458	.227	.159		
Step 2	Physical Injury	2.407	1.274	3.566	.059	11.099	.913	134.93
	WSIB	-.330	1.339	.061	.806	.719	.052	9.926
	High School	1.939	.899	4.652	.031	6.952	1.194	40.493
	Cohabiting	-.781	.919	.723	.395	.458	.076	2.772
	Dependent Child	-1.227	.770	2.542	.111	.293	.065	1.325
	Constant	-1.798	1.378	1.703	.192	.166		
Step 3	Physical Injury	2.199	.955	5.305	.021	9.014	1.388	58.548
	High School	1.902	.887	4.592	.032	6.697	1.176	38.127
	Cohabiting	-.692	.839	.679	.410	.501	.097	2.594
	Dependent Child	-1.196	.758	2.489	.115	.303	.068	1.336
	Constant	-1.955	1.237	2.499	.114	.142		
Step 4	Physical Injury	2.120	.915	5.365	.021	8.328	1.385	50.062
	High School	2.017	.872	5.353	.021	7.514	1.361	41.483
	Dependent Child	-1.211	.751	2.602	.107	.298	.068	1.298
	Constant	-2.490	1.035	5.792	.016	.083		
Step 5	Physical Injury	2.138	.881	5.891	.015	8.486	1.509	47.710
	High School	1.642	.799	4.223	.040	5.166	1.079	24.730
	Constant	-2.692	.991	7.376	.007	.068		

The final model presented in Step 5 was statistically significant, $\chi^2(2) = 15.767$, $p < .001$, indicating that the final two predictors, as a set are capable of predicting successful return to work. Classification remained unchanged, with 82% of successful RTW and 65% of unsuccessful RTW correctly predicted, for an overall success rate of 74%. Interestingly, the two remaining variables in the final model are both statistically significant in their

prediction of return to work. Those with a physical injury as their initial reason for being off work and subsequently enduring a mood or anxiety disorder are roughly 8.486 times less likely to successfully return to work than those suffering from a mental disorder alone. Those who have completed high school education or less remain roughly 5.166 times less likely to RTW than those who have completed any post-secondary education or training.

Chapter 4:
DISCUSSION

4.1 Discussion

Understanding which factors most cogently influence a successful return to work for absent employees is fundamental for designing intervention and guiding health practitioners. Literature to date is weak in firmly identifying predictors that are most consistently associated with successful return to work. Thus, current project was undertaken with the explicit intent of better understanding the factors that contribute to workplace reintegration and in doing so, perhaps informing policy development and application. Based on extant research, it was hypothesized that the individuals who successfully returned to work would differ from those who did not on four domains: Demographic factors, clinical variables, contextual factors and engagement in exercise and physical activity behaviours. Based on efforts by St. Arnaud and colleagues (2007) and Cornelius and colleagues (2011) it was hypothesized that males, married people, those with children, and the higher educated would demonstrate greater return to work rates. Second, it was hypothesized that individuals with comorbid physical injury and mental illness and those with more severe mood and anxiety disorders will return to work at a lower rate and experience longer periods of absence. Third, it was anticipated that contextual variables would be associated with differences in return to work rates and duration of absence (e.g., the involvement of a disability management company). Finally, given the breadth of information on the benefits of engaging in regular physical activity it was expected that those who did would experience a return to work at a higher rate than those who remain sedentary.

4.1.1 Demographic Factors

Emerging from the data obtained in the current study are several factors that appear to influence the return to work process and that are congruent with several findings from previous research. It was found that those who returned to work differed on specific demographic variables. For instance, it was found in the current study that higher levels of education were associated with an increased likelihood of return to work (Cornelius et al., 2011; Fox, Barba & Liu, 2005). Of course, educational level often determines one's occupation (i.e., 'professional' vs. 'labourer'), which in turn influences several other factors, such as accessibility of benefits, and specifically in the context of the current study, access to psychological services. This is a central point as it has been consistently documented that time to treatment is a strong determinant of successful rehabilitation and a return to work (Blank et al., 2008; Briand et al., 2007; Brouwers et al., 2009). Education may also help in the understanding of health issues and subsequent decision-making and later advocacy for services (Cutler & Lleras-Muney, 2006). It may also assist workers when seeking and advocating for care though this link is less firmly established (Jorm et al., 1997).

Individuals with a greater number of dependent children were more likely to return to work and this finding is consistent with previous work completed by St. Arnaud and her colleagues (2007). This may simply reflect the realities of providing for dependent children, as wage loss insurance does not replace a worker's entire salary. A more intricate explanation lies in the social support a family unit and corresponding living

arrangements (i.e., not residing alone) provides and may favourably impact return to work for these individuals.

Return to work status was not affected by gender and age in this sample. This finding contrasts with the previous work of St. Arnaud and colleagues (2007). St. Arnaud and her colleagues (2007) presented results from research completed in the public health and social service sectors in the Province of Québec and found that women returned to work (71.5%) at higher rates than their male (61.4%) counterparts following an absence due to mental health problems. However, results from the current study were consistent with Butler and colleagues (1995), Galizzi and Boden (2003) and Cornelius and colleagues (2011) who reported no gender differences in return to work status. As such, it appears that more research is required in this area. It is likely still the case that women assume most of the duties associated with parenting and therefore the likelihood of a return to work may be mitigated by the occupation itself. Research has shown that women, specifically mothers continue to spend up to 10 hours more per week multitasking (e.g., balancing work and parenting responsibilities) as compared to men, with the majority of these hours relating to responsibilities from within the home (Offer & Schneider, 2011). The additional time spent balancing both activities is associated with increases in negative emotions and psychological distress among mothers (Offer & Schneider, 2011). Also, physically demanding jobs that extract considerable energy from working mothers may produce a disincentive for returning to work. The demands placed on working mothers might also contribute to the over-representation of women in mental health and return to work research. It may also help explain their over-representation among those

who seek mental health care. In any event, the roughly 3:1 ratio of women to men in the current study is consistent with several previous efforts (Nielson et al., 2010; St. Arnaud, Saint-Jean & Damasse, 2006; St. Arnaud et al., 2007). This ratio has been identified by other researchers who point out that women are more likely to seek assistance (e.g., counselling or outpatient mental health services) for their mental health concerns, specifically mood and anxiety disorders, than men (Dwight-Johnson, Sherbourne, Liao & Wells, 2000; Rhodes, Goering, To & Williams, 2002).

Return to work rates also appeared unrelated to age, contrary to previous literature that demonstrated diminished return to work rates for older individuals (Cornelius et al., 2011; St. Arnaud et al., 2007). The current study had a participant mean age of 41 years, which is roughly five years younger than the mean in both of the aforementioned studies also examining return to work factors. It should be noted that the current study is not alone in its finding, as Nielsen and her colleagues (2011) in a similarly aged sample (mean age=40 years) found no difference in return to work status according to age.

4.1.2 Clinical Factors

Previous literature is clear in its assertion that symptom severity strongly influences the likelihood of a return to work (Blank et al., 2008; Brouwers et al., 2009; Lagerveld et al., 2010). In the present study, anxiety symptom severity was positively associated with increased time to return to work. Anecdotally, patient files often document increased anxiety levels as the patient approached his or her anticipated return to work date. At times, this anticipatory anxiety precluded a timely return to work.

Interestingly, there was no association between depression symptom severity and the likelihood of a return to work. One explanation for this finding is that the majority of participants in the study presented with psychometrically determined ‘severe’ levels of depression and anxiety. This was not entirely unexpected, as the participants were selected on the basis of having received psychological services for symptom attenuation. The majority of previous studies included all participants off work due to mood or anxiety disorders, individuals who often only sought the assistance of a counsellor or family physician to assist in their recovery. In other words, as a result of both little variance and the positively skewed distribution of patient’s symptom severity scores it may not have been possible to demonstrate differences in return to work status according to depressive symptoms given the relatively small sample size. Quite simply, individuals with mild levels of depressive symptoms were not likely to have sought psychological services, and were therefore not represented in the current study. The sample represented in the current study is not representative of all individuals missing work due to mental health concerns, but rather a specific more severe subset of this population.

Previous research has demonstrated that an individual’s attribution for the cause of their workplace absence (e.g., personal vs. work-related) is a key determinant of eventual return to work (St. Arnaud et al., 2007). While the current study was unable to identify and affirm the previous statement across all cases, it was able to determine whether the impetus for the workplace absence was physical or mental in nature. Individuals who suffered from a physical injury resulting in a workplace absence and subsequently developed a mood or anxiety disorder were far less likely to return to work than

individuals who missed work solely on the basis of a mood or anxiety disorder. This finding highlights the need to closely monitor the mental health of workers following their experience of a physical injury sufficient to warrant an absence from the workplace. Though the majority of the physical injuries experienced by participants in the current study were acute in their onset, the pain and lingering effects of the injury often became chronic. Their subsequent development of mental health concerns is not surprising then given the strong association between chronic pain and depression (Dersh, Polatin & Gatchel, 2002; Gatchel, 2004; Miller & Cano, 2009; Williams, Jones, Shen, Robinson & Kroenke, 2004). For some, the physical effects of the initial injury had long subsided, but their mental health had since deteriorated, with the onset of depression or anxiety further inhibiting their ability to return to work.

4.1.3 Contextual Factors

Previous literature has highlighted the efficacy of Cognitive Behavioural Therapy (CBT) as part of a treatment modality for individuals off work due to mood and anxiety disorders (Corbière & Shen, 2006; Corbière, Negrini & Dewa, 2013). All participants in the current study were provided with CBT as a part of their treatment. Individuals who were also treated pharmacologically (e.g., with antidepressants) did not return to work more readily. This is not to suggest that medications did not benefit participants in other ways. In fact, research consistently points to the advantages of intervening with both psychological and pharmaceutical treatments simultaneously for those suffering from mood and anxiety disorders (Roshanaei-Moghaddam et al., 2011; Wiles et al., 2013).

The current study also found that individuals who received case management services from private disability companies returned to work at a much higher rate than those managed by the WSIB. This finding should be tempered by the reality that private insurance companies most often managed workers who were absent exclusively for mood or anxiety symptoms. They infrequently managed cases with comorbid physical injuries. Until recently, the WSIB would only accept and fund mental health claims that were the direct result of a physical injury. Moreover, non-WSIB claimants were most often employed in non-labour type jobs that required higher levels of education and often provided more generous private health care benefits.

4.1.4 Exercise

Exercise has been shown to be an efficacious adjunctive treatment for both mood and anxiety disorders (Blumenthal et al., 2007; Carta et al., 2008; Donaghy, 2007; Mead et al., 2009). However, very little research has been conducted regarding the role of exercise in the return to work process for those suffering with mental health difficulties. Physical activity levels upon treatment initiation in the current study were low with roughly 20% of patients' self-reporting leisure activities that could be considered physically active. This finding is not unlike a prior study that described individuals suffering from mental illness as less physically active than the general population (Daumit et al., 2005). Despite the demonstrated exercise-mental health link, the recommendation for such within patient files and its subsequent documentation occurred less than half of the time. When it did occur, the information provided was often vague and without specific strategies or goals. The extent to which a patient had actually taken the advice of the psychologist regarding exercise was typically unknown.

4.2 Implications

Policy makers and organizational decision makers (e.g., Human Resource Managers) may wish to focus prevention and intervention strategies on those in higher risk categories (e.g., jobs requiring physical labour or low educational entry requirements). Those with physical injury carry an increased risk of psychological illness and greater periods of workplace absence. Individuals suffering from both physical and psychological concerns return to work at a much lower rate compared to those suffering only with psychological concerns. As such, continued effort geared towards early detection and monitoring of the mental health of physically injured workers is imperative.

Treatment providers should remain mindful of their client's anxiety level, since it appears strongly related to absence duration. In fact, previous research is clear that symptom severity is associated with longer durations of workplace absence. The anticipatory anxiety associated with a return to work also seems relevant and practitioners should remain mindful of this dynamic as the worker's reintegration date approaches. It is also recommended that treatment providers remain particularly vigilant regarding comorbid conditions since individuals presenting with mental health concerns following a physical injury return to work at a lower rate than those with only psychological concerns.

Given the established literature on the protective and therapeutic effects of exercise, clinicians and practitioners are encouraged to integrate its promotion as an adjunctive treatment modality. Should mental health professionals not feel competent in the domain

of exercise prescription, they are encouraged to build capacity in this regard, either through additional training or in conjunction with an exercise specialist. Several structured manuals for the implementation of exercise programs are widely available (see: Hays, 1999; Leith, 2010; Otto & Smits, 2011).

The current study reinforces an increasingly public discourse regarding the severity and impact of mental health problems for individuals off work. Despite the enormity and burden of mental illness on workplace absenteeism and presenteeism, less than 1% of its equivalent cost, or \$55.4 million, was spent its research, education and prevention (CAMH, 2000). Even with the overwhelming evidence of a significant economic burden being placed on the Canadian economy, insufficient attention is being offered regarding potential solutions. It should be noted that while mental illness comprises more than 15% of the burden of disease in Canada, only 7.2% of health care dollars are allotted for their treatment, prevention and control (Institute of Health Economics, 2010). This figure remains much lower than most developed countries including both the UK and Sweden (IHE, 2010). Regrettably, Canada was the final G8 country to develop and implement a national mental health strategy, with the framework developed in 2009 and finally released in 2012 (Kirby, 2008; MHCC, 2009; MHCC, 2012).

Further neglect to mental health care is evidenced by discrepancies in funding allocations by both the federal government in health promotion campaigns as well as research funding agencies. In October 2005, Canada's federal government made an investment of \$300 million over five years for health promotion and disease prevention. While even

conservative estimates state 10.4% of the Canadian population suffers from mental illness in a given year, only 1.5% of the funds were allocated to its prevention (MDSC, 2007). This is in remarkable contrast to the 30.0% and 19.8% of the funding that were designated towards both diabetes and cancer preventions, whose prevalence rates are much lower (4.8% and 2.5% respectively) (MDSC, 2007). Within their 2005-2006 budget totalling a reported \$808.9 million, the Canadian Institute of Health Research allocated only 6.67% towards mental health and addiction research (MDSC, 2007). It should be noted; however, that globally it is estimated that less than 1% of health-related research is devoted to mental health (Lesage, Dewa, Savoie, Quirion & Frank, 2004).

4.3 Limitations

The current study is limited by a number of factors, not the least of which is its sample of 50 patients. Not only does this impede several statistical analyses, it significantly limits the extrapolation of findings. There was limited consistency in the administration of psychometric tests, which would have enabled greater comparisons by symptom type and severity. Raw data from the two most oft administered tests (BAI & BDI-II) were extracted, though they were employed on only roughly half of the patients included in the study. Many of the remaining measures were employed on less than 10 participants (e.g., measures of personality, trauma, etc.).

Additionally, while there were 50 patients who offered their consent to participate, all files came from the one private psychological practice in Northern Ontario, making the results difficult to generalize given the varying nature of each practice and the clientele whom they serve. All of the participants in the current study had received psychological

services, which also provided a more severe picture of individuals off work due to mental health concerns than exists broadly. In reality, individuals miss work due to mental health concerns and return without ever seeking psychological services or obtaining assistance elsewhere (i.e., employee assistance programs, social workers, psychiatrists or family practitioners).

Limiting the breadth of information available was that the current review was limited to the content present in the patient's file. This limited the scope of variables that could have been covered, and offered little by way of explanation of what may have been happening "behind the scenes". Certainly these circumstances prevented the probing of attitudes and beliefs. Additionally, variables that have also been demonstrated to be influential in the return to work process were simply unavailable (e.g., organizational variables such as work accommodations and supervisor/co-worker attitudes). Also limiting the current study is that it required a snapshot to be taken at a specific point in time, and labelling certain participants as having not returned to work. In reality, return to work is not necessarily dichotomous or entirely static in nature. While some participants have been deemed no longer able to work and were in receipt of long-term disability benefits, others held to the belief and were striving towards eventual work resumption. As such, part of the initial search criteria included only individuals remaining off work for a period of one year, so as to have provided them with a minimal time to have possibly returned to work. Notwithstanding the above, the current study was able to look retrospectively at client files and glean several outcomes that are only observable after significant amounts of time had passed.

4.4 Future Directions

Future research may wish to explore some of the underlying reasons why education strongly influences a successful RTW. Health literacy, or the ability to gain access to, understand and use information in ways which promote and maintain health, is strongly linked to recovery outlook for a variety of physical illnesses (Jorm et al., 1997). Limited research to date suggests that health literacy facilitates recovery from injury and subsequently workplace re-entry. Exploration of the link between education level and mental health literacy within the context of workplace absenteeism is therefore recommended. It is also recommended that future efforts to design return to work intervention programs for physically injured workers contain elements of mental health promotion and maintenance.

Also warranted is further examination into the use of exercise and physical activity as adjunctive treatment of mood and anxiety disorders as such applies to workplace reintegration. A better understanding of its apparent underutilization seems justified. While exercise is frequently utilized as a part of the rehabilitation process for physical injuries, its efficacy for inclusion in return to work interventions for absent employees due to mental health concerns remains largely unexplored.

It appears that to present consensus is elusive regarding age as an influential factor in determining work resumption. As research to date appears to conflict, it may be of value to understand whether certain factors moderate the relationship. Anecdotally, it would

appear that older workers experience the greatest difficulty in returning to work, often unable to work up the motivation to return, especially in the absence of extraneous financial strain. Family structure, type of occupation and role within the organization may also play mediator and is worthy of further investigation.

4.5 Conclusion

The aim of the current study was to contribute to a greater understanding of the influential factors in the return to work process for individuals off work due to mood and anxiety disorders and seeking psychological services. In that regard, two characteristics emerged most saliently: education level and the initial cause of workplace absence (physical or psychological). Additional influential variables were not overlooked and these include having dependent children and the severity of anxiety-related symptoms.

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APPENDIX A: Recruitment Letter

885 Regent Street South
Suite 101
Sudbury, ON P3E5M4



DATE

Participant X
Participant Address

Dear Participant,

Dr. Michel Larivière, C.Psych. is an Associate Professor and Vice-Dean at Laurentian University who also holds academic appointments at the Northern Ontario School of Medicine campuses. I am a Masters student in Human Kinetics at Laurentian University whose dissertation will report on factors that facilitate or impede a successful return to work after suffering an illness or injury.

In order to examine the factors that influence the return to work process, we intend to examine the files of those who have been absent from the workforce for health reasons. If you agree to participate, please be assured that we will not include your name or any other identifiers in the database. Also, no individual results will be reported. I will record information such as gender, age, marital status, education, type of work, whether there was involvement of a disability management company, access to other health services, nature of the illness, length of absence, type of treatment received, and participation in exercise or physical activity.

I will not contact you during the research project. I will not know your name until you consent to the study (in fact, I have signed this letter prior to Dr. Larivière inserting your name on this letter). Participation in the research project is strictly voluntary and has no impact on your status as a current or ongoing patient at Dr. Larivière's clinic. You have the right to withdraw your consent from the study at any point without any consequence.

If you are interested in participating, please print your name on the line at the top of the attached consent form, sign the bottom, and return in the envelope provided. If you do not wish to participate, simply disregard this letter and I thank you for your time.

If you have any further questions or concerns, please feel free to contact Dr. Larivière, C.Psych. at (705) 674-9986.

Thanks for your time in this regard. Sincerely,

Caleb Leduc, M.H.K. Candidate, B.Ed., Hons B.A.

Dr. Michel Larivière, B.P.H.E, M.A., Ph.D., C.Psych

APPENDIX B: Consent Form



CONSENT FORM

Evaluating the predictors of a return to work among individuals who have obtained psychological services

I, _____, am interested in participating in a study of the predictors of a return to work among individuals who have suffered illness and/or injury. The research will be conducted by Caleb Leduc, a Masters' student in Human Kinetics at Laurentian University and Dr. Michel Larivière, Vice-Dean and Associate Professor at Laurentian University and the Northern Ontario School of Medicine at Laurentian University.

I have been informed that only Caleb Leduc and Dr. Michel Larivière, C.Psych. will have access to my closed patient file. **My participation is strictly voluntary** and I am free to withdraw from the study at any moment or refuse to have my file included without any repercussions. This will not affect any current or future services you may seek from Dr. Larivière, C.Psych. I have received assurance from the researcher that all data extracted will remain strictly confidential. My individual results will not be reported; they will be grouped with the information of several other files. All collected data (that will **not** contain your name, address, etc.) will be coded with a subject number and stored in a locked filing cabinet (in Dr. Larivière's office) or a password secured laptop (only Caleb Leduc and Dr. Larivière will have access to the data). After a period of 5 years, any paper documents collected as a result of the study will be shredded and electronic data deleted.

There are two copies of this consent form; one which the researcher keeps and one that you will keep.

If I have any questions or concerns about the study or about being a participant, I may contact the lead researcher, Dr. Michel Larivière, C.Psych. at (705) 673-9986. If I have any questions or concerns surrounding the ethical conduct of the study, I may also contact Jean Dragon at the Laurentian University Research Office at 705-675-1151 ext. 3213 or via email jdragon@laurentian.ca. If I would like to receive a copy of the study results I can contact Dr. Larivière, C.Psych. anytime after May 1, 2012.

I would like a summary of the results (If yes, please include your mailing address or email address)

Yes No

Participant's Signature: _____ Date: _____

Researcher's Signature: _____ Date: _____

THANK YOU FOR YOUR PARTICIPATION.