Separating the Soldier from the War: The Effects of a Physical Activity and Discussion Based Program on Canadian Military Members with Combat-Related Stress

by

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Abstract

Recent global conflicts have increased North American military involvement, leading to higher rates of combat-related stress amongst soldiers. Although physical activity is directly correlated with improvements in mental health, the relationship between physical activity and combat-related stress has not been investigated. Using a mixed methodology approach, in this study, local military and ex-military personnel from Winnipeg, Canada, participated in a six week physical activity program in order to examine the influence of physical activity on combat-related stress. It was found that Canadian military members regularly deal with post-combat stressors, value camaraderie, and consider post-deployment support inadequate. The findings may lead to the integration of physical activity into the healing options of war related emotional stress. Future recommendations from this study are proposed.

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Dedication

In October of 2010, I travelled to Kleve, Germany to pay my respects to my great uncle, James Edward Quinn. James, or Jimmy, as my grandmother called him, was an air gunner with the Royal Air Force during World War II. He was a Warrant Officer, Class II, and was a part of 106 Squadron. Jimmy and his squadron were shot down over Essen, Germany on January 13, 1943. He was 20 years old. Jimmy was given a final resting place in the Reichswalde Forest Cemetery along with 7,653 other Commonwealth military personnel, 700 being Canadian airmen. I dedicate this thesis to Jimmy; though we never met, we share an incredible bond. I also dedicate this thesis to my late grandmother, who taught me the value of understanding where you come from and that we must cherish our family memories so that we may share them with future generations.

I also dedicate this thesis to all of our servicemen and women, past and present. Thank you for your sacrifices, as they will not be forgotten.

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Chapter One - Introduction

A cold, winter wind blows in from the north, chilling him to his very core. Thankfully, the long hours of panhandling on city streets has earned him enough money to purchase a modest dinner. As he settles into his makeshift bed, composed of material he has scavenged over the course of the past few months, he anticipates the inevitable nightmares of battles gone by. This is an unfortunate truth for many of our veterans today. Hardened by potentially debilitating bouts of military service, our military men and women can experience social, psychological, emotional, and political isolation. The combat-related trauma experienced by some military personnel is often a forgotten consequence of military service and has officially been termed Post-Traumatic Stress Disorder (PTSD) by medical professionals. Although my participants were not labelled with PTSD officially, they all reported post-traumatic stress. Post-traumatic stress is marked by a long and tumultuous road to recovery that leaves a lasting impact on those affected. In this introductory chapter, I will chronicle the documented history of combat related trauma in the military and discuss definitions of military mental health conditions and related concepts of disability. I will also self-reflexively outline how this work is relevant to my own life, and overview the purpose of a program of work related to physical activity for Canadian military personnel.

The History of Combat-Related Trauma: Napoleonic Wars and Early 1900s

In order to fully comprehend the current medical definition of post-traumatic stress, it is vital to examine the historical aspect of military service, as well as the potential trauma associated with combat. Trauma has been discussed in a military context dating as far back as the 15th century. For the purpose of this Masters' thesis, combat-related trauma will be examined from the Napoleonic reign onwards. I will be focusing on this temporal period due to the

additional focus on the social and political implications of disability and mental health that became much more apparent following the Napoleonic wars. In addition, the term 'post-traumatic stress' or 'combat-related stress' will be used in many instances as opposed to 'post-traumatic stress disorder,' as I feel the word 'disorder' results in a negative view of this condition. Further, since I did not have access to the medical records of my participants, I am unsure if they were 'officially' diagnosed with post-traumatic stress by a psychiatrist or psychologist.

The Napoleonic Wars during the late 1700's in Europe witnessed what is thought to be the first true case of combat-related trauma[1]. At this time, medical professionals worked with soldiers who had come into close contact with projectiles and explosions. The men exhibited bizarre behaviours, including twitching and partial paralysis following exposure to battle. Because the soldiers often appeared to have no physical wounds associated with their participation in battle, these peculiar cases were later termed 'wind contusions[1]'. It has been suggested that in this era, the word 'windy' often indicated a lack of courage[1]. Therefore, a medical diagnosis of wind contusions indicated that the solider displayed behaviours that were considered less than ideal on the battlefield. Wind contusions, later termed cerebro-spinal shock, attempted to better describe the symptoms associated with this particular type of combat-related trauma[1].

In the 1880's in Western society, trauma patients received a blanket diagnosis called 'Railway Spine.' At this time, Western societies observed a great influx in railway building and transportation; this coincided with major railway accidents and injuries. Railway Spine was a term used to describe a variety of trauma-related symptoms including back pain, motor issues, and insomnia[1]. In 1876, Dr. Mendez DaCosta worked with soldiers who had been exposed to

battle and concluded that Railway Spine did not accurately diagnose all trauma patients. DaCosta found that soldiers sometimes displayed a total mental breakdown following combat exposure, often accompanied by cardiac arousal[2]. Due to comorbidity between mental and cardiac symptoms, DaCosta termed this particular combat-related trauma as 'Soldier's Heart[2].' It is apparent that the 1800's witnessed many different definitions, perspectives, and opinions on trauma and its effects on patients. It was this controversy and disagreement amongst medical professionals that led to issues surrounding successful treatment options for these individuals[2].

During the early 1900's, an individual by the name of Lieutenant (Lt.) Colonel A.G. Kay, performed an exploratory analysis on the rates of mental disease over the course of 1886 through to 1908[2]. Kay discovered that there was a direct relationship between instances of Railway Spine and exposure to war. Thus, the number of positive diagnoses of Railway Spine directly coincided with military battles that were occurring at the time. Unsurprisingly, Kay also discovered that the number of incidences of Railway Spine was directly related to the length of the war itself, with longer periods of civil unrest amounting to higher incidences of combat-related trauma[2]. Additionally, depressive and delusional disorders were cited as the most prevalent issues amongst patients, promoting a strong argument to increase psychological aid in the military as the world prepared for World War I[2].

The History of Combat Related Trauma: The World Wars and the Vietnam War

In World War I (WWI), the world witnessed some of the most horrific military action in Euro-Western human history. With the utilization of trench warfare and poisonous gas, both the Allied and Axis forces suffered great casualties and experienced extremely traumatic events. Death and despair ran rampant for four long years, and it is of no surprise that the deplorable conditions and events of WWI directly increased psychological disorders amongst military

personnel. In fact, it was estimated that by the winter of 1914, military hospitals had admitted approximately 80,000 cases of combat-related psychological disorders[2]. What resulted is yet another definition of combat-related trauma and further attempts to properly diagnose and treat such cases. Charles S. Meyers defined WWI trauma as 'Shell Shock,' and stated that soldiers who came in close contact with explosions suffered from the probable eruption of blood vessels in the brain[2]. Interestingly, Meyers found that particular soldiers who displayed certain symptoms characteristic of Shell Shock – such as twitching, blindness, and muteness – were often admitted to hospital; however, they had come into no direct contact with any form of explosives. Similar to the case of soldiers from the Napoleonic Wars, Meyers believed that traumatic experiences could be separated into direct and indirect contact with projectiles[1]. The term 'Shell Concussion' was coined to describe soldiers who exhibited classic psychological symptoms of Shell Shock, with additional physiological issues[2]. Shell Shock, like the term Wind Contusions in the 1700's, carried with it, an associated set of societal stigmas. A diagnosis of Shell Shock simply indicated that the soldier was unable to face the woes of battle, and became fearful and debilitated on the battlefield. To superiors, this was a soldier that you did not want to have in your platoon.

Fortunately, due to pioneers in the field such as Meyers, soldiers' facing psychological trauma did not suffer in silence. Meyers was instrumental to organizing the Royal Victorian Military Hospital in England, and he worked tirelessly with soldiers diagnosed with Shell Shock. Meyers felt that this would allow him to better understand the psychological aspect of trauma, as well as develop viable treatment options for these men[1]. Initial treatments were rudimentary and consisted of massage to aid body twitches, and plenty of bed rest to relax an anxious mind[1]. It is

because of Meyers' work that military psychology blossomed, and many countries felt better able to protect the psychological well-being of their armies.

While the world prepared for another wide-spread military conflict during World War II (WWII), many countries demanded potential recruits to undergo full physical and psychological testing prior to deployment to understand if potential recruits exhibited any indications of instability. This was conducted to prevent those who would be unable to accept and deal with the psychological hardships of combat from ever making it to the front lines[1,2]. Despite screening measures, the use of pop-up hospitals and psychiatrist availability, the number of psychological issues in military soldiers remained high[1]. WWII was one of the longest and deadliest conflicts in military history, lasting from 1939-1945. Treatment for psychological issues over this time period broadened to include extremely controversial methods.

Coma-induced therapy and prefrontal leucotomies were deemed acceptable treatment options for soldiers during WWII with extreme cases of combat-related trauma[1]. Though these were certainly the most extreme treatment options, it should be noted that these medical practices were often completed without the soldier's permission. Additionally, pop-up hospitals were often located in rural locations due to their requirement to be close to the front lines. It has been argued that these sometimes isolated locations were the main cause for the increase in medication use for military patients[1]. Without the ability to easily transport patients and practitioners, on-site doctors required an easy 'fix' for patients who suffered from less-drastic cases of combat-related trauma in order to move them out of the hospital and back to work. However, certain hospital locations allowed the use of more exploratory and alternative approaches to healing. For example, a hospital base in El Qantara, Egypt, made use of physical activity as a form of natural healing for combat-related trauma in military patients[1]. Though the results of this program are

not available, the fact that physical activity was considered as an approach to treating combat trauma in the 1940's is quite interesting. Overall, success rates for trauma treatment were low; the majority of patients returned to the front lines only to relapse and require further medical attention. Alternatively, they were sent home and deemed 'unworthy' of military service[1]. The greatest push for military psychology and soldier rights erupted after the Vietnam War in the 1960's.

The Vietnam War, still labelled as one of the most 'unnecessary' conflicts in military history, did not involve Canadian military personnel. However, many other countries were involved in this conflict which lasted over the course of nearly 20 years. The United States viewed their participation as necessary in order to prevent a communist takeover of South Vietnam. This war witnessed the massacre of millions of Vietnamese civilians. Following the war, many soldiers returned to their home countries battered by the often unfathomable conditions they faced on a daily basis. Due to the conditions and experiences faced by military personnel during the Vietnam War, society witnessed a push from both veterans and medical professionals to develop a psychologically-driven explanation for the combat-related trauma and associated symptomology experienced by so many[2]. Thus, although military combat is a present phenomenon in contemporary society, the history of combat related trauma is rich, complex, and well-documented.

A Medical Definition of Post-Traumatic Stress

The term Post-Traumatic Stress Disorder was officially inducted into the Diagnostic Statistics Manual, III in 1980. Thus, it is currently understood as a psychiatric disorder by medical professionals. The DSM is an analytic tool used by medical and psychological health

professionals to diagnose mental health conditions. Post-traumatic stress was initially described as:

> A psychological condition experienced by a person who had faced a traumatic event, which caused a catastrophic stressor outside the range of usual human experience[2].

This early DSM definition and diagnostic criteria, though much more advanced than previous years, still lacked a complete understanding of how and why a person deems a particular event as traumatic. In addition, this early definition still consisted of certain stigmas associated with societally-perceived weakness. Today, we have developed a more in-depth definition of post-traumatic stress, allowing for greater discussions surrounding alternate and viable healing options for patients to utilize.

Post-traumatic stress disorder is characterized by exposure to real or threatened physical harm or death[3]. Although direct trauma is most often cited in PTSD diagnoses, post-traumatic stress may also stem from having witnessed a traumatic event occur to another being. Following a traumatic event, the individual will experience the reoccurrence of the event through various mediums, including flashbacks and recurrent memories[3]. Individuals often engage in avoidance and substance abuse behaviours in order to cope with the painful psychological and physical effects of post-traumatic stress, which can ultimately lead to a variety of negative personal and social results. Post-traumatic stress is an extremely complicated mental health issue, and, like many health issues, has a wide range of population variance with respect to symptomology and origin.

For certain researchers, the aspect of time is of particular importance in combat-related stress management and eventual healing. Once trauma occurs, an individual becomes ‘stuck’ in that moment, and relives the traumatic experience over and over again, due to the mind requiring a ‘working through’ of the event[4]. It has been suggested that this ‘working through’ is what can

trigger flashbacks of the event. The individual will 're-enter' the trauma through memory in order to process the event, and eventually 'work through' the event so that he/she can then move past this traumatic experience[4]. It is important to note that that individuals experience trauma in various ways. The mental, physical, and emotional response of one person will not necessarily match that of another. Thus, combat-related stress and associated traumatic experiences are extremely complex. Traumatic experiences, then, can be described as non-serial, non-linear progressions. Depending on the individual, traumatic memories may move from conscious to unconscious thought with ease. As Larabee (1995) states:

> Thus consciousness carries for each moment of life a complexity, and each such complexity becomes embedded both into a serially ordered inner time, which carries the "logic" of before/after ordering, and into a non-serial quasi-ordering through the operations of the two togethers of temporalization[4].

Combat-Related Stress Today

Since the events of September 11, 2001, the world has, yet again, witnessed an increase in widespread military action, as well as an increase in post-traumatic stress diagnoses amongst military personnel. Recent studies have indicated that approximately 300,000 of the 1.64 million soldiers who took part in Operation Enduring Freedom and Operation Iraqi Freedom, suffered from PTSD or major depression, amounting to an approximate prevalence rate of 23%[2]. With the reality of roadside bombs and guerilla warfare in enemy territories, military personnel face traumatic events regularly. The current statistical approximations regarding post-traumatic stress diagnoses showcase the fact that this mental health issue is a very real concern for our military populations. Combat-related trauma has been discussed in great detail for centuries. While diagnostic tools and healing options have varied over the years, sometimes to the extreme, social stigma associated with mental health has remained intact.

Military personnel are at risk of developing mental health issues following deployment. However, the potential for physical harm and disability is another relevant risk associated with military service.

What is Disability?

Disability is a relevant concept to my thesis because the population that I worked with during my project may have experienced physical and/or mental disability. People with disabilities make up approximately 15% of the world's population and are considered the world's largest minority group[5]. The general definition of disability, as defined by the World Health Organization, states that a disability is "any restriction or lack of ability to perform an activity in the manner or within the range considered normal for a human being[6]." Within this blanket definition, we can begin to understand the existing and deeply rooted social and political stigmas surrounding disability in Western society.

Social Implications of Disability

Disability is often misunderstood and is commonly considered 'abnormal' within a society that can place high value on bodily perfection. Disability can be seen as a challenge to the social ideals surrounding what makes acceptable and productive members of any society[7,8]. The Social Model of Disability – elaborated on in Chapter Three - identifies society's preference for able-bodiness. Indeed, we can identify an overarching assumption that disabled people are incapable of performing similarly to their able-bodied counterparts, whether physically, emotionally, or mentally.

> The social model of disability gives us the words to describe our inequality…Because the social model separates out disabling barriers and impairments, it enables us to focus on exactly what it is which denies us our human and civil rights and what action needs to be taken[6]**.**

In some aspects, people with disabilities are thought to be 'useless' and 'unproductive' members of society[5] due to a belief that they cannot perform a variety of tasks in the same manner as able-bodied individuals. Certain disabilities are regarded as a 'challenge' to the normal function of society. In turn, some disabilities create a 'sick' population and are therefore undesirable[6]. These assumptions simply highlight over-arching societal feelings of pity and disgust that are often associated with various forms of both physical and mental disability[7,8]. Additionally, the social stigmas associated with various disabilities reach far into the world of military mental health as well.

The concept of disability is highly relevant to military populations. A disturbing trend has been identified within military populations returning from recent conflicts overseas. A study conducted in 2010 found that only half of the soldiers who were returning from Operation Iraqi Freedom followed through with a referral to a professional following a 'Post-Deployment Health Assessment' screening process[9]. Not surprisingly, social stigma and personal embarrassment were noted as the most common reasons as to why the soldiers within this study opted to refuse medical care[9]. Due to the fact that the Medical Model of Disability is so deeply rooted in today's society, these men and women are refusing to seek out the medical care that they so desperately require in order to work-through their previously experienced traumas. The historical treatment of disability in Western society deserves attention because it is for these reasons that certain social stigmas surrounding mental health still exist today. Military personnel deal with the possibility of both mental health issues, as well as the risk for work-related physical disability. In order to understand the lived experiences of my participants, it is necessary to fully understand the social stigma associated with both mental and physical disability in today's Western society.

This deep understanding of military veteran hardships has come from my own experiences with friends and family members who have served for the Canadian military.

Self-Reflexivity: What brought me here?

Having personal ties to the military, I have witnessed what military missions can mean for the well-being of those directly involved, as well as those left behind. I have learned from a young age that war is a dangerous weapon whose roots dig deeply into the psyche of those involved. The pain associated with losing loved ones, both in a physical sense and a mental sense, leaves a lasting impact that can be felt across familial generations.

Throughout my educational career, I have studied various topics in psychology and have worked with people with various disabilities. I have been witness to the extreme social and political injustice faced by my fellow man, and I have learned more from these populations than any textbook could have ever taught me. Additionally, I have been witness to the overabundance of medicinal treatments forced upon patients who could benefit from alternative forms of healing. In a world where we witness a less than favourable approach to healing mental health issues, I feel that considering more natural alternatives is vital in order to prevent an over-abundance of pharmaceutical use. As stated, dating as far back as the 1940's, physicians have opted to treat combat-related trauma with pharmaceuticals[1]. As previous studies have shown, military trauma is still heavily biased in favour of a pharmaceutical approach[10]. What results, then, is a medical model view within our military population which may fail to promote alternative and natural approaches to healing.

Of further personal concern, it is often assumed that people with various disabilities require physical activity in order to 'fix' their issues, and therefore, do not typically engage in physical activity for pleasure or personal interest. Society has repeatedly dictated that people

with disabilities need to change and adapt in order to comply with societal norms and these issues are engrained into our population from an early age.

As indicated within the historical treatment of combat-related trauma, it has become apparent to me that our military personnel and veterans have suffered abhorrent treatment, even after the selfless sacrifices they have made for our country. From forced institutionalization, to social and political injustice, our veterans simply do not receive the healing options that they require and deserve. It was my hope that through this study, medical professionals will begin to consider alternative approaches to healing mental health issues, as well as help to break down existing social and medical stigmas associated with disability.

Purpose of the Program of Work

This study examined military mental health in a Canadian context. By examining the effects of physical activity among a local veteran population, the results can certainly be applied to the general Canadian military population.

The main purpose of this study was to examine the psychological effects of adapted physical activity on combat-related trauma. Physical activity is known to improve a variety of mental health disorders, though little work has been done on combat-related stress in particular. Due to the results of previous research on related issues such as anxiety and depression, I anticipated that I would witness a decrease in combat-related stress issues in my participants at the outset of this study. Additionally, I anticipated that this study would expose a variety of physical and social benefits associated with physical activity within the target population. The main focus for this study was to engage military personnel in socially-driven physical activity sessions and related discussions in order to expose them to various methods of healing for combat-related stress and related mental health issues, as well as promote a greater sense of

community within the population. It was anticipated that by having a social outlet, the participants would experience great reductions in stress and anxiety related to experienced traumatic events. As with most any physical activity regime, I anticipated that the participants would also improve physically over the course of the study. Therefore, this study addressed the following objectives:

1. To understand the effects of a six-week adapted physical activity program on military mental health among five-15 Canadian Forces personnel
2. To determine the usefulness of socially-driven group discussions on various health-related topics on military mental health
3. To develop potential pilot programs for future research considerations in healing military mental health issues

In summary, in this chapter, I chronicled the historical institution of war and the development of combat-related stress as a contentious and hotly debated term. I discussed why disability is a critical concept to this work. I outlined the rationale for physical activity and the purpose of the proposed thesis. In what is to follow, the reader will receive a comprehensive review of literature surrounding physical activity and its impact on mental health. This review will help to provide the framework for this proposed research. Specifically, it will examine various forms of physical activity and the documented impacts it has had on various mental health issues.

Chapter Two - Review of Literature

Physical Activity and General Psychological Well-Being

Exercise is known to influence one's mental state in various ways. Mood, stress levels, and self-esteem levels are all impacted by physical activity. Mood is an interesting topic because it can be both positive and negative. Positive moods occur when an individual is alert, has increased energy levels, and is generally enthusiastic[12]. Negative mood states involve higher levels of distress such as anger or sadness[12]. Mood can be positively affected following a stint of physical activity in as little as 24-minutes, as based on a study investigating the effects of rock climbing[12]. Mood is generally most affected immediately following a bout of exercise, and this alteration in mood can last for at least 30-minutes following exercise before returning to baseline levels[12]. It could be argued that 'mood' is a very subjective topic; what one individual may describe as a negative mood, another may not. Though this may be true, studies consistently report reductions in negative mood states following physical activity.

Stress levels are also known to improve following the integration of physical activity into one's lifestyle. It seems as though stress is a very common topic in Western society today. With so much pressure to excel and perform at high levels, it is no wonder that many individuals may identify with having high stress lives. Researchers argue that exercise may help to regulate certain responses associated with increased stress levels. For example, exercise can help to reduce anxiety levels, as well as affect how an individual reacts to each stressor. Numerically, stress levels are difficult to understand. For this reason, certain researchers suggest that the statement "exercise reduces stress" may be an overly simplistic assumption. Qualitative work in this field would be supremely helpful in identifying the possible reductions in stress as

experienced by the participants[13]. Though, it should be noted that existing studies do tend to promote physical activity as a way to lower stress levels, as well as potential stressors[13].

Finally, documentation regarding increases in self-esteem following exercise are well known. Self-esteem strongly influences perceptions of success. Defined as a 'personal judgment of worthiness,' self-esteem is imperative in personal relationships and personal success[13]. Research shows that following a physical activity regime results in increased self-esteem[13]. Self-esteem is highly related to issues surrounding anxiety, which is common in individuals dealing with post-traumatic stress. Therefore, improvements in self-esteem via physical activity may result in lowered anxiety and post-traumatic stress levels as well. Additionally, improvements in self-esteem through physical activity may be linked to improvements in physical ability and appearance. Because physical activity is related to lower body fat percentages and increased muscle mass, it is possible that increases in self-esteem are directly related to the individual 'feeling good' about their physical appearance. Regardless, research does consistently show that physical activity is associated with increased self-esteem levels and adds support to the suggestion that physical activity benefits overall mental well-being. Therefore, it is evident that physical activity enhances both physical and psychological health in healthy populations, including enhanced psychological well-being and reduced stress.

Physical Activity and Mental Health Conditions: Depression and Anxiety

In addition to enhancing well-being in general populations, physical activity reduces psychological morbidity in people with defined general mental health conditions. In 2006, depression affected approximately 48 of every 1000 Canadians[13]. It has been projected that, "…depression will be second only to cardiovascular disease as the world's leading cause of death and disability by the year 2020[13]." Clinical depression is characterized by a prevalent

depressed mood and associated loss of interest in things an individual used to enjoy, which typically lasts for a minimum of at least two-weeks[13]. Research has consistently documented physical activity's positive effect on depression. A review performed in the late 1990's showed that out of 50 experiments conducted around the world, over 80% documented significant reductions in depression within their participants following exercise[12]. A separate study showed how incorporating physical activity into participant's daily lives decreased participants' odds of developing depression over eight years[14]. This longitudinal study followed Japanese men aged 71 to 93 over the course of eight years in order to document walking levels and associated depressive symptoms. Results from this study indicated that participants who walked at intermediate to high intensity levels greatly decreased their odds of developing depressive symptoms. Additionally, the study showed that physical activity can decrease one's odds of developing cardiovascular issues and functional impairments[14]. This longitudinal study documents a very important fact: exercise is a contributor to lower instances of depression development. In effect, exercise is known to lower one's baseline depression levels, essentially acting as a preventative measure[12]. In summary, exercise may be an excellent option for depressive symptoms, and is considered as effective as other traditional methods of treatment, such as psycho-pharmaceuticals or therapy-based programs[13].

Anxiety is considered to be another prevalent mood disorder in society today. Anxiety is defined as having heightened physiological arousal combined with feelings of persistent apprehension[13]. Thus, someone will anxiety literally lives with a feeling of "impending doom". Periodic anxiety is quite normal and experienced by most individuals. However, persistent anxiety can begin to interfere with an individual's every day activities, and, at this state, it is common for professionals to intervene. Current treatments often include cognitive-behavioural

therapies and/or the use of medication. While these options have proven to be quite effective, physical activity has also garnered reason for discussion. It should be noted that both state and trait anxiety contribute to an individual's likeliness of developing long-term anxiety issues. State anxiety is situation specific and subjective, while trait anxiety is part of an individual's personality[12]. Trait anxiety is engrained in an individual's personality in a way that it can affect behaviours on a long-term basis[13]. A systematic review of literature found that over 80% of existing studies in which exercise was the form of intervention, anxiety was consistently reduced[13]. Leith (1998) also describes a project completed in which 60 separate studies were examined[12]. 75% of the studies indicated a decrease in participant's anxiety levels following the incorporation of physical activity into participant's daily regimes[12]. Certain studies state that the length of time in which a patient experiences a sense of relief from their anxiety-related issues is actually longer following exercise than with certain traditional methods[12]. It also appears as though exercise can actually help individuals become more resistant to certain life stressors through various possibilities. The Thermogenesis Hypothesis, as well as the Distraction Hypothesis, may help to explain possible reasons as to why exercise benefits stress and anxiety levels. These two particular hypotheses will be discussed in greater detail in the following section.

Physical Activity and Other Mental Health Conditions

Various other severe psychological disorders are also proven to benefit from physical activity. For example, schizophrenia has been linked to instances of premature deaths due to cardiovascular, pulmonary, and infectious diseases[15]. The addition of physical activity into one's lifestyle in this case, may lower the risk of these health issues, improving both physical and mental health. Additionally, people with bipolar disorder are two times more likely to die than

those without mental health conditions[15]. Individuals dealing with the constant manic and depressive episodes associated with bipolar disorder greatly benefit from the mediating effects of physical activity on anxiety levels. Interestingly, studies show that individuals with a severe mental illness diagnosis tend to engage in less physical activity and therefore develop the physical impairments discussed earlier, such as diabetes and cardiovascular issues[16]. Additionally, a study conducted on rape victims dealing with post-traumatic stress showed that participants had severe alterations to brain composition. Increases in grey matter density may indicate — as proven in dementia and Alzheimer's cases — that physical activity will greatly benefit the neuro-pathological make-up of post-traumatic stress patients. Patients with Alzheimer's disease face lowered levels of grey matter density, as do those who deal with post-traumatic stress and combat-related stress[17].

Therefore, the existing literature has consistently demonstrated that physical activity results in reduced psychological morbidity for people with general mental health conditions, such as anxiety, depression and bipolar disorder. The mechanisms behind the positive results of physical activity, as highlighted in the works of Dr. Larry Leith, will now be discussed in detail.

Mechanisms through Which Exercise Impacts Mental Health

Dr. Larry Leith's seminal scholarship in exercise psychology sheds light on why physical activity may result in reduced psychological morbidity for those with mental health conditions. Physical activity encourages healthier mental well-being through the following hypotheses: increased endorphins, increased monoamines, increased internal temperatures, the use of distraction, and eliciting social support[13]. The Endorphin Hypothesis states that through physical activity, there is an increase in endorphin levels. Endorphins mimic the chemical structure of morphine, which is a pain killer/analgesic. Endorphin release results in a regulation of emotions,

and alters one's feelings of pain[13]. What results, then, is a euphoric feeling associated with the physical activity. This can lead to the individual engaging in more physical activity to feel this euphoria in the future. A study followed the physical training habits of seven women and tested their endorphin levels. Following a six-day a week training regimen, the participants' endorphin levels rose from 57% to an average of 145% over the course of two months[12]. Endorphins are released directly into the blood steam and can help account for a general overall feeling of well-being. However, a more widely accepted theory consists of a different internal mechanism.

The Monoamine Hypothesis is somewhat similar to that of The Endorphin Hypothesis. Dopamine, serotonin, and norepinephrine are well known to be associated with depressive states. Typically, reduced levels of these particular monoamines can result in increased depression levels[12]. Exercise has been shown to increase transmission levels of these monoamines, resulting in 'normal' balances within the brain[12]. In fact, with regular exercise, an individual's monoamine levels can increase, upwards of 200%-600%[12]. Monoamines can affect emotion, arousal, and cognition[12]. What can result is an individual who feels less anxious, but more alert. As stated previously, this feeling can become addictive to some, resulting in more consistency with respect to physical activity levels. These two biochemical explanations, though statistically sound, are not the only viable mechanisms that help to explain why exercise is beneficial in treating mental health issues.

The Thermogenic Hypothesis is a well-known — and somewhat controversial — explanation for how exercise benefits the mind and overall mood states. Thermogenesis involves the 'heating up' of the body[12]. This practice has existed since 800 B.C. when Scandinavians took regular sauna baths for the associated feeling of overall well-being[13]. Some research that was conducted in the late 1960's supported this hypothesis, showing that a warming of the body led

to reduced muscle tension[13]. What results is not only a decrease in muscle tension, but also an overall feeling of relaxation[12]. While some researchers find this to be a beneficial physical practice, however, they question how a warming of the body leads to mental health improvements. However, studies have demonstrated that exercise can mimic the effects of illness, where the body increases in temperature due to fever. This increases pyrogens and white blood cells, which results in an overall relaxation effect[13]. This increase in pyrogens from the warming of the body can also be linked to lower instances of cold and flu in regular exercisers, perhaps further linked to a lower instance for stress associated illnesses. Another hypothesized mechanism lies in the field of psychology.

The Distraction Hypothesis states that when individuals engage in physical activity, the mind essentially 'turns off' the stresses of daily life[12]. For example, exercisers may turn to a distraction method, such as focusing on their long-term goals. In effect, this distracts them from any pre-existing feelings of depression or anxiety[12]. In fact, many endurance athletes have reported that it is nearly impossible to train for extended lengths of time and experience bouts of depression[12]. What can result is lower anxiety and improvements in mental health associated with exercise. The two final mechanisms through which exercise is thought to impact mental health include the "mastery hypothesis" and social support hypothesis. By providing people with "evidence" of success, physical activity may contribute toward mastery experiences that are critical to forging a sense of self-esteem and self-efficacy[12]. Conversely, through reducing social isolation – which is particularly redolent in mental health populations – physical activity can facilitate enhanced social support and more robust social networks[12].

While the above mechanisms that explain the exercise-mental health relationship are well established in the field, new research has examined other health behaviours as they relate to combat-related stress in particular.

Combat-Related Stress and Health-Related Behaviour

Research has indicated that individuals who deal with post-traumatic stress have higher instances of disturbed sleep patterns[18,19] and instances may be as high as 90%[19]. Physical activity has been shown to improve post-traumatic stress symptoms, as well as sleep quality in military personnel[18]. Treating sleep issues within the military population may lead to improved quality of life and overall well-being[19]. Additionally, post-traumatic stress has been linked to poor overall health behaviours. For example, individuals with post-traumatic stress may be more likely to be inactive and smoke[20]. Interestingly, individuals with post-traumatic stress may be less motivated to engage in exercise behaviours and may turn to 'self-medicating' behaviours, such as smoking, to help with a variety of post-traumatic stress-related symptoms[20]. In addition, some new researchers in the field of post-traumatic stress have adopted a more novel approach to this topic.

Novel Emerging Data on Exercise and Mental Health Mechanisms – Neuropathology and the use of Ecstasy

The field of Neuropathology has offered further insight into potential reasons for improvements in mental health following exercise. Neurogenesis and synaptogenesis, which are directly affected by physical activity, contribute to further health improvements that can be linked to positive mental health[17]. Physical fitness is associated with increased cognitive functioning. Additionally, physical activity is associated with a lower likelihood of cognitive decline in adults who have a positive diagnosis of dementia, specifically with memory, attention, and processing speed[17]. Dementia levels are also reduced in individuals who engage in regular

bouts of physical activity by up to 28%[17]. Physical activity has proved to delay a variety of diseases, such as Alzheimer's disease and Parkinson's disease. For example, Parkinson's disease and multiple sclerosis greatly affect the movability of joints and muscles; physical activity is known to improve such symptoms[17]. Additional novel treatment options, however, may prove to be controversial.

3, 4-Methylenedioxymethamphetarnine (MDMA), or ecstasy, has recently made headlines as a new, viable option for post-traumatic stress. It should be noted that MDMA was first used within military ranks in the 1950's, though much of this early research was said to be concealed from public knowledge[21]. Prior to becoming illegal, MDMA was used to treat various psychological disorders and was most often used in issues relating to child abuse and war stress. One study indicates that the use of varying doses of MDMA can be linked to improved outcomes on the Severity of Symptoms Scale for PTSD. Five of the participants who experienced the highest rates of post-traumatic stress associated symptoms actually benefitted the most by their participation in this study[21]. Additionally, none of the participants in the study showed any increase in post-traumatic stress symptoms at the time of follow-up[21]. However, the use of MDMA is a controversial one. MDMA is a prohibited 'street drug.' Current studies have indicated that the use of MDMA can lead to reductions in serotonin signaling[22]. As discussed previously, serotonin is important in the maintenance of mood states and prevention of depression. Neuropathology experts' state that memory can increase following physical activity. However, chronic MDMA use leads to significant declines in memory. MDMA has also been linked to increased susceptibility in the brain to toxins and viruses[22]. What becomes extremely worrisome for those dealing with post-traumatic stress is the risk for increased psychiatric distress, specifically depression. Additionally, MDMA can often stimulate the release of

memories, some of which may be extremely difficult for people with post-traumatic stress to deal with and may provoke feelings of anxiety[22]. In effect, the use of this drug can be difficult to understand and the results will vary from individual to individual. It has also been stated that individuals with a predisposition to anxiety or depression may experience neurochemical imbalances following usage[22]. It has been suggested that young soldiers may be at particular risk for many of these issues, and for this reason, research suggests that the use of MDMA as a potential treatment option for post-traumatic stress would seem to be futile.

Combat-Related Stress and Physical Activity

In order to retrieve literature on post-traumatic stress and physical activity specifically, an extensive search strategy was performed. Participant characteristics and demographic information have been documented. Please refer Table One for very specific information on how the search strategy was performed.

It is evident that physical activity reduces psychological morbidity in military mental health populations. Since the events of September 11th, 2001, researchers have spent significant time working with recently returning veterans. One such study worked with American veterans from Operation Iraqi Freedom and Operation Enduring Freedom to study self-perceived quality of life and mood states in relation to adapted sport and physical activity programs[23]. Some of the activities the participants engaged in included: kayaking, fly-fishing, and snowboarding. Participants were asked to complete both the World Health Organization Quality of Life-Abbreviated Scale (WHOQOL-BREF) and the Profile of Mood States-Brief Scale (POMS) both pre and post physical activity intervention. Though results indicated no significant changes in QOL pre- and post-test, results did show a significant reduction in depression, reducing from M (13.79) pre-intervention to M (7.74) post-intervention, $p<0.001$[23].

A study conducted by Perlman et al. (2010) included American veterans in order to study mental wellness via the practice of Tai Chi or Chi Gung, and therapy group sessions[24]. This particular program lasted for 15-weeks and the group met for 75 minutes. Health topics such as exercise, nutrition, and sleep habits were discussed. Additionally, the Health Survey-Short Form was administered on three separate occasions: baseline, midway through the program, and finally, post-treatment. An exit survey was also completed, which allowed the participants to discuss in more detail their personal results from the study. Though the mental health component on the Health Survey did not have significance, participants cited emotional health as being the most highly claimed change within the exit survey[24]. Many participants also cited motivation and positive functioning as personal results from their attendance[24].

Chioquetta and Styles (2007) examined the results of the Beck Depression Inventory (BDI), Automatic Thoughts Questionnaire (ATQ-30), and the Dysfunctional Attitude Scale (DAS-A) for feelings of hopelessness and suicide ideation in military recruits from the Norwegian Army[25]. Participants were asked to complete both questionnaires following their army training, and then again following a nine-month stint of national service. Additionally, a nine-question assessment was administered pre-test to gauge participant's engagement in sport. Participants were then separated into two groups, active or passive, based on their perceived level of sport participation. Pre-service, no significant results were identified between the active and passive participants. However, post-service, showed significant differences on the ATQ-30, as well as in suicidal ideation, between active and passive participants[25]. It could be argued, then, that sport provides a protective factor with respect to military service and potentially related issues surrounding mental health.

In 1998, researchers worked with retired military veterans attending the Annual National Disabled Veterans' Winter Sports Clinic in Colorado, USA, to discover the potential benefits of adapted sport on mental, emotional, and physical well-being[26]. Participants completed the Tennessee Self-Concept Scale (TSCS) and the Leisure Satisfaction Measure (LSM) on three separate occasions; one month prior to the clinic, the last day of the clinic, and again approximately one month after the clinic. Participants showed increased self-concept, which they maintained one month after the clinic. Interestingly, participants showed significant change in psychological functioning from the outset of the study to the last day of the clinic[26]. However, this change was not as significant at the follow-up, one month after the clinic. It should be noted that positive psychological benefits associated with physical activity more readily occur while an individual maintains the fitness regime. It is possible that some participants did not continue to keep physical active, resulting in lower scores.

Sporner et al. (2009) studied a variety of aspects as related to veteran participation in both the National Veterans Wheelchair Games (NVWG) and the Winter Sports Clinic (WSC), both held in the United States of America[27]. Issues such as overall quality of life and self-esteem were measured using a cross-sectional research design. Results indicated that some of the key areas participants cited as having been positively affected by participation in sport were social and physical, stating that they felt increased social interaction, as well as increased physicality following participation. Additionally, the researchers stated that participants spoke with them anecdotally throughout the study, expressing their gratitude for the positive changes the program had on their lives[27]. Veterans repeatedly discussed increased confidence, motivation, and camaraderie.

A cross-sectional study performed in 2012 asked participants to cite their level of weekly physical activity[28]. Much like the previously discussed study, these researchers separated their veteran participants into 'active' and 'non-active' groups in order to determine physical activity's effects on mental health. Iraq and Afghanistan veterans completed both the PTSD Checklist – Military Version and the Patient Health Questionnaire. Results showed that participants who engaged in 150 minutes or more of physical activity on a weekly basis had higher confidence levels and lower rates of depression[28]. Though not statistically significant, post-traumatic stress levels were also higher for the 'non-active' group.

The final study was of a qualitative research design. Otter and Currie (2004) studied the effects of a 40-week exercise and focus group program on Australian veterans with various mental health issues[29]. Many participants cited isolation following service as a personal issue. Without having enrolled in the study, it was probable that they would have continued to isolate themselves from the outside world. Following the program, participants discussed a plethora of positive changes in their lives including increased motivation, increased social support, and giving them a purpose again. For example, one participant stated that … "I feel very strongly that this [exercise program] has dramatically changed my outlook on life and the way I live[29]."

While my academic background focuses on psychology, it was also vital to examine physical activity in the military from a sociological perspective.

Physical Activity and Sociology

The sociology of sport and exercise has recently begun to gain momentum. As researchers forge ahead with their understanding of the body, we have also witnessed an expansion into the various 'types' of sociological bodies as discussed by Duncan (2007): the

imagined body, the consumer body, the transgressive body, the disciplined body, the practiced body, and the discursive body[30].

We understand our body as separate from others'[30]. Therefore, I experience my body in my own way. Social implications affect how I see and understand my body. For example, individuals with physical disabilities are affected by the social constructs placed on disability. Consider an individual returning from military deployment and having lost a limb. This individual now understands his body as part of a society that treats disability with a sense of misunderstanding and fear. His imagined body is quite different than yours or mine.

In a consumer-driven society, individuals are increasingly judged based on the types of items that they purchase[30]. For example, people who are physically active tend to purchase items related to physical activity and physical health, and could therefore be assessed strictly on those purchases. An individual who is considered overweight may be judged more harshly. As Duncan (2007) describes, when an individual who is overweight is purchasing groceries, there is the added stress of being judged by other consumers who are assessing this overweight individual's food choices[30].

The transgressive body is any body the deviates from the norm[30]. A disabled body is highlighted here because, as was already discussed, it defies what is expected. The human body is expected to behave in certain ways, and when a body does not behave in ways that are expected, it is considered transgressive. An example would be an individual who is considered overweight who appears comfortable with their body. According to Duncan (2007), society instills the belief that being overweight is inherently wrong and therefore people who are overweight bring this kind of reaction from normal bodies on themselves[30].

The disciplined body is the opposite of the transgressive body[30]. The disciplined body is "…subjected to disciplinary regimes such as exercising or dieting[30]." The medical construction of disability argues that a disciplined body can be a 'good' thing. When an individual is injured and faces disability in some form, that body is often subject to medical intervention to normalize the body (physiotherapy, for example). As Duncan (2007) states, the transgressive body and the disciplined body are taught to refrain from or adhere to certain behaviours[30].

An athlete is an excellent example of the practiced body. The athlete must practice certain movements until they are natural[30].

> The discursive body may be the most difficult to understand. According to Duncan (2007), when a body is discussed using language, it becomes a discursive body, Without discourse, there is no athlete, there is no sport, and there is no physical activity. Our understandings of these things are embedded in our own words, not separate from them[30].

For example, a disabled athlete is often discussed in a manner of overcoming personal and physical setbacks, while a non-disabled athlete is celebrated for inborn greatness.

The understanding of how societal views play a role in how we view our own bodies, as well as others', is an important aspect of physical activity and disability. The psychological and sociological views regarding physical activity and disability helped me to unpack how physical activity may benefit and affect individuals dealing with post-traumatic stress.

Summary of the Review

A systematic review of literature indicated three central findings. First, physical activity is associated with enhanced psychological well-being in healthy populations. Secondly, physical activity can effectively be used in the healing approaches of those with general mental health conditions, such as depression and anxiety. The mechanisms for the exercise-mental health nexus were discussed. While literature on military mental health and exercise is scant, the results of

both quantitative and qualitative studies show that activity is associated with a reduction in psychological morbidity. Specifically, quantitative military mental health and physical activity literature demonstrates a small but significant effect size, indicating that physical activity has a substantive positive impact on mental health. Qualitative military mental health and physical activity studies demonstrate that physical activity improves mental health among military personnel through enhanced motivation, regaining control over one's life, as well as by forging important social bonds and social relationships. Thus, there is much evidence attesting to the benefits of physical activity for those with general and war related mental health conditions.

Research Gaps

It should be noted that the studies include strictly, or primarily, male participants. It is anticipated that this occurred due to the fact that males still heavily outweigh females in military enlistment. In January 2014, women accounted for 14.8% of the Canadian Armed Forces, Regular Force, and Primary Reserve[31]. Additionally, the majority of male participants were of Caucasian background, and this is also indicative of current military enlistment. "Visual minorities" only accounted for approximately 4.2% of the Canadian Armed Forces in 2014[32]. In this study, I attempted to recruit participants of a mixed demographic background

These various limitations need to be explored further. Because males are considered the 'primary' enlisters, much sociological work has explored the topic of masculinity and war. As Braswell and Kushner (2010) argue, gender and masculinity are central topics in the military[33]. In fact, it has been argued by Herbert (1998) that the military ranks are designed by way of gender – as opposed to age, race, or other factors[34]. 'Masculinity,' then, becomes the most important trait a recruit can have. Where this becomes worrisome is when we see a lack of willingness to cite emotional and psychological injury due to a perceived fear of being labelled

as ‘weak.’ For example, a study conducted by Greden et al. in 2010, showed that only half of the soldiers who were returning from Operation Iraqi Freedom who had been referred to a professional following the Post Deployment Health Assessment screening process subsequently followed through with a mental health visit. Not surprisingly, social stigma and personal embarrassment were noted as the most common reasons that the soldiers within this study opted to refuse medical care[9]. Additionally, fear of identifying a negative mental health issue while still employed with the military is a very real concern for many personnel due to certain notions surrounding the perceived requirement of both physical and mental superiority within military populations. The concern is simply that personnel do not want to be labelled as ‘weak’ for having identified with a mental health issue. A ‘denial of trauma’ ensues, which can cause a series of negative effects, not only for the specific individuals involved, but on much grander scales. Braswell and Kushner (2010) have labelled this the ‘masculine fatalism,’ where our soldiers make the impossible decision between quietly dealing with mental health issues, or identifying them and dealing with society’s stigmas surrounding masculinity[33].

The stigma surrounding masculinity and the military is century’s years old. Dating back to the 1800’s, it is evident in the following literary work – “Aux braves de la Grande Armee” – that masculinity was a requirement for the French army[35]

For being jealous of his reputation

For thoroughly doing justice to the taverns

For dancing to the sound of the cannon

For getting their hands on the girls

And then leaving them for their muskets

There is only the French.

This literary work showcases how French military were expected to be brave men who 'danced' to the sound of cannon fire and abandoned women in order to pick-up their guns and join the battle. Interestingly, during the Napoleonic regime, soldiers were often promised sex as a reward for their military service in hopes to, '…persuade its troops to internalize its concept of manhood and fight for France[35]'. Hughes (2012) goes on to highlight that the concept of 'manhood' in early British military was defined by aggression, heterosexual potency, and alcohol consumption[35]. With these few examples, we begin to identify masculinity and an internal military association between weakness and mental health. These kinds of ideals exist in the military to this day.

Masculinity in today's society is often characterized by aggressive behaviours, courage, and heterosexuality. Because masculinity is still considered to be a sought-after trait in today's society, it could be argued that the types of traits listed above are even more sought-after in military recruits (i.e., courage). When faced with trauma, military personnel are expected to display said courage. Therefore, showing signs of trauma can be seen as a loss of control, or a loss of masculinity[36]. The concept of masculinity also weighs heavily on gender issues within the military.

As mentioned, female recruits are heavily outweighed by male recruits in the Canadian military[31]. What many studies on military mental health have failed to discuss is gender differences in mental health issues. For example, various studies have shown that women are at a greater risk for developing anxiety-related disorders than men[37]. According to Kessler et al. (2005), post-traumatic stress may also affect women more than men[38]. Lovering, Proctor, and Keaton (2012) worked with all branches of the United States Military and found that within the Air Force and Navy, women were diagnosed with post-traumatic stress more often than males

within the same units[37]. Women appear to be more at-risk for acquiring post-traumatic stress than men. Further, sexual assault also needs to be considered. According to Kessler et al (2005), Post-traumatic stress development is highly associated with sexual assault and occurs 13 times more frequently in women than in men[38]. In addition, the reaction to traumatic experiences differs between genders. Other studies indicate that female veterans are also more likely to experience non-military related trauma, including lifetime sexual assault (38-64%), childhood sexual abuse (27-49%), adult sexual abuse (24-49%), adult physical assault (46-51%), childhood physical abuse (35%), and domestic violence (18-19%)[39]. Therefore, it is important to consider that upwards of 93% of female veterans have experienced some form of lifetime trauma and therefore may be more prone to combat-related trauma as well[40].

Males are less likely to report issues such as anxiety or depression, but are more likely to turn to substance abuse to cope with their post-traumatic stress symptoms[41]. Interestingly, what this means is that women may not necessarily be 'more-apt' to be diagnosed with post-traumatic stress, they just may better 'fit' the DSM definition for post-traumatic stress. The little existing research does show that military mental health issues may affect women in greater numbers, and so, studies incorporating both men and women are vital in order to fully understand the impact of combat on military mental health overall, not just within the male population.

Further, it appears as though much of the existing literature on post-traumatic stress and physical activity interventions focuses on strictly quantitative work, employing the use of psychometric tools to gauge changes in mental well-being. Few studies have examined the qualitative aspect of engaging in a physical activity intervention, failing to document behavioural changes as witnessed through observation or discussion.

In this study, I attempted to address current limitations in the existing literature base. To address the uncritical scholarship on gender in the military, I attempted to adopt a social constructivist lens toward understanding gender in the military. Methodologically, I aimed to collect data both quantitatively and qualitatively. Psychometric tools will be utilized to document numerical changes in well-being and observed and verbal data will be collected during recorded group discussions with the participants. Additionally, many studies do not focus solely on post-traumatic stress or combat-related stress, but rather on overall quality of life and well-being. In this study, I directly documented changes in post-traumatic stress symptomology in the participants, as well as overall quality of life.

Summary

This review of literature exposed the reader to existing literature on the use of physical activity interventions in combat-related trauma treatment and healing approaches. In this review, I walked the reader through existing literature on physical activity and various mental health topics, such as physical activity and psychological well-being, physical activity and mental health, and physical activity and military mental health. Within this, novel emerging data in the field of combat-related stress and well-being was also discussed.

For the purpose of this proposal, a review was conducted on the impact of physical activity for people with mental health conditions broadly defined, including depression and anxiety. This was due to the high comorbidity rates of both depression and anxiety with post-traumatic stress and the emerging nature of the post-traumatic stress-exercise link. It was anticipated that beneficial psychological results from physical activity on depression and anxiety can be generalized for the combat-related stress population. Because this area of research is still in its infancy, the search strategy for this review needed to be expanded in order to include a

variety of mental health issues and possible healing techniques. Therefore, this review examined the broad literature on mental health and physical activity. Following this chapter, I will overview the methodology that I used in this study.

Table One - Search and Exclusion Process

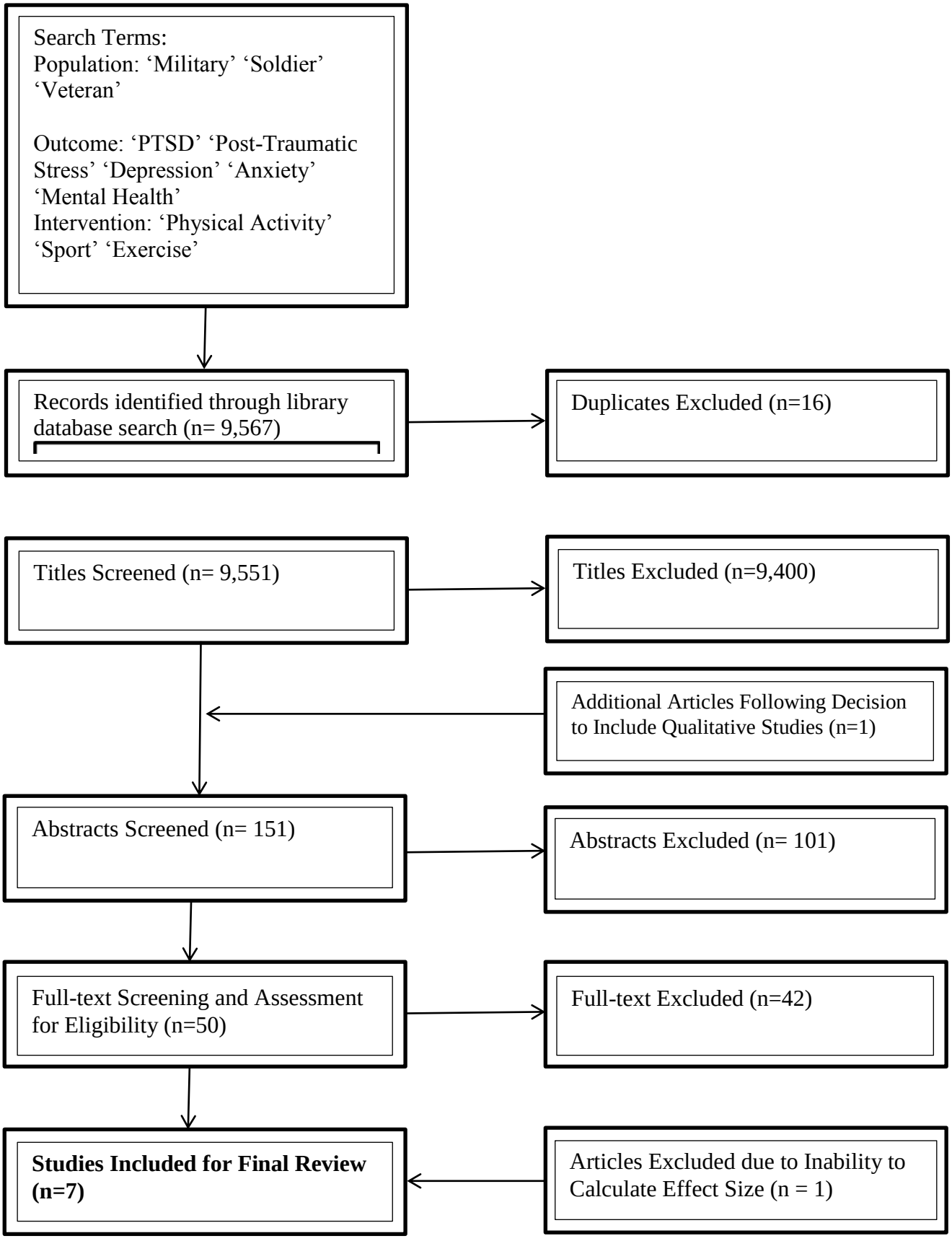

Table Two – Summary of Review

Study	Design	Methods	Findings
Perlman et. al	83 veteran participants engaged in a 15-week, 75 min therapy group which exposed participants to a healthier lifestyle. Participants were diagnosed with a variety of mental health issues; depression (66%), anxiety (42%), and PTSD (23%).	Each session began with Tai Chi, followed by a discussion on various health behaviours. Both the Health Short Survey and General Wellness Scale were completed pre and post-test.	Mental Health Measures: M(SD) Baseline: 48.3 (18.4) Follow-Up : 55.1 (20.5) Cohens d: 0.35, small effect
Chioqueta and Stiles	ONLY STUDY 1 INVESTIGATED: 102 male military recruits were separated into 'active' and 'passive' groups based on self-reported activity measures.	Pre and post-military service testing was completed using the BDI, the DAS-A, the ATQ-30, and a nine item questionnaire in which two questions assessed engagement in sport.	BDI: M(SD) Active Group: 6.08 (6.96) Passive Group: 8.97 (8.73) Cohens d: 0.36, small effect
Lundberg et. al	18 veterans engaged in 5-day adapted sport and recreation programs. Participants identified as being diagnosed with PTSD (50%) and depression (28%).	Sport and recreation programs involved fly-fishing, skiing, etc. Participants also utilized personal journals and engaged in group discussion on health behaviours. Pre and post-test psychometrics involved the WHOQOL, POMS-B, and PCS questionnaires.	POMS Depression Scale: M(SD) Baseline: 13.79 (5.554) Post Intervention: 7.74 (3.364) Cohens d: 1.31, very large effect
Hoerster et. al	266 male veterans from Iraq and Afghanistan conflicts were separated into 'active' and 'passive' groups based on self-reported activity measures.	The International Physical Activity Questionnaire and PTSD Checklist-Military Version were both completed at one point.	PTSD Scale: M(SD) <150min: 42.1 (19.6) >150min: 38.5 (17.7) Cohens d: 0.19, small effect
Sporner et. al	132 veterans were recruited from both the Winter Sports Clinic and the National Veterans Wheelchair Games to investigate perceived quality of life in disabled veterans leading an active lifestyle.	Participants answered multiple questionnaires based on disability, sport type they played, as well as completed the WHOQOL-BREF and the Rosenberg Self-Esteem assessment.	QOL Total: M(SD) Participants: 63.6 (9.1) Control: 60.4 (11.2) Cohens d: 0.31, small effect
Cordova et. al	44 veterans from the National Disabled Veterans' Winter Sports Clinic filled out questionnaires to determine effectiveness of clinic.	Participants completed both the Tennessee Self-Concept Scale and the Leisure Satisfaction Measure Scale on three occasions.	LSM, Psychological Component M(SD) Baseline: 3.79 (0.46) Completion: 4.03 (0.52) Cohens d: -0.48, negative effect
Otter and Curie	14 veterans, five of which had a positive diagnosis of PTSD participated in a 40wk aerobic exercise program.	Program consisted of aerobic activity as well as group and individual discussions on health behaviours and hurdles.	Overall increased QOL in all participants. Main themes: increased social support, increased motivation.

Chapter Three – Methodology and Methods

In this chapter, I will overview the methodological approach, research design, and methodological tools that I used in this study. I will also outline the analytical plan that I adopted. For ease of reading, these areas of the thesis are divided into sub-sections.

Methodology

In this study, I adopted a mixed methods methodological approach. This included the case study qualitative research tradition and pre-and post-test research. Each of these separate research traditions is discussed below, in turn.

A) The Case Study

Case studies allow researchers to deeply investigate dynamic phenomena and can help to develop theory, or provide further evidence in support of existing theories[42]. By nature, they are an ideographic, detailed and in-depth exploration of one life (or a few lives) in context. Case studies involve in-depth data collection and analysis on individual or multiple cases over a period of time. Case studies also typically involve multiple levels of analysis, encouraging stronger academic trustworthiness[43]. The evidence collected can be strictly qualitative, strictly quantitative, or a combination of both[42]. Results from quantitative work can help show relationships that may not have been readily apparent to the researcher; benefit existing relationships witnessed within the qualitative data, or perhaps prevent a researcher from 'seeing' relationships that do not exist within the qualitative data[43]. In fact, as Stake (1995) discusses, "…the quantitative side of me looked for the emergence of meaning from the repetition of phenomena, the qualitative side of me looked for the emergence in the single instance[43]."

In this study, I tried to recruit five-15 Canadian military personnel over the course of a six-week intervention. I tried to utilize a mixed-methods approach, incorporating focus groups,

end-of-intervention interviews, and two psychometric tools to allow for an in-depth examination of how physical activity affects military mental health. It was thought that a case study approach would allow me, a military 'outsider,' to gain a deeper understanding of the lived experiences of this target population. I thought that this approach would encourage the deconstruction of existing social constructions related to military mental health and societal perceptions toward disability. It was also my hope that this approach would give voice to the participants.

The case study approach has both positivist and interpretivist epistemological roots[44]. I attempted to take an interpretivist approach to this research. I believe that there are multiple realities, and that individuals experience reality in very different, socially-constructed ways. I acknowledge that there is no one "true" military experience, but, rather, that truth is a product of time, culture, history, and place. I understand that the knowledge that was "created" is a co-produced interpretive venture between the participants and me. I feel that existing issues surrounding mental health and disability are understood through the meanings and interpretations applied to them via socially-driven agendas. Therefore, I sought to take an interpretivist approach to my research.

It is important to note that the case study approach also includes limitations. Because I worked with a small population in this study, it is possible that the results may not be generalizable across other populations, or within the Canadian military population. However, many case study researchers suggest that general principles from this kind of work may have relevance to more general phenomena. As with most qualitative work, issues surrounding reliability and validity need to be addressed.

B) Pre- and Post-Test Design

A pre- and post-test design allows a researcher to measure dependent variable(s) across time. For example, participants were given two separate psychometric tools to complete at the outset of the study, and again at the end of the study, to allow for measurement of changes in their mental health across the intervention. In a pre- and post-test design, the participants serve as their own control[45]. There are issues with this type of experimental design, namely that the assumption is made that any changes over the course of the intervention are directly a result of the intervention itself[45]. Through a variety of mediums, including focus groups and interviews, the qualitative data helped to substantiate the observed quantitative effects of the intervention.

In this study, I utilized both the self-determination theory and the social model of disability as my theoretical lenses. Each of these separate research traditions is discussed below, in turn.

i) Theoretical Lens – Self-Determination Theory

This study utilized the Self-Determination Theory (SDT), created by Deci and Ryan (1985), as the theoretical lens. SDT is a theory of human motivation that suggests that three human needs must be met in order for humans to reach their optimal development; autonomy, competence, and relatedness[46].

Autonomy: Autonomy involves having a sense of freedom over one's choices. People who are autonomous are free of external coercion and force. Being coerced is thought to be extremely damaging to psychological functioning. This facet of SDT rings particularly true for this specific population. Considering the often dictatorship-style of organization of the military, it is entirely plausible that military personnel often feel as though they have limited choices in their actions. Due to a possible addition of mental or physical disability following military

service, these individuals may encounter further autonomous-related losses due to social beliefs regarding disability and mental health. For example, an individual with a mental health issue may feel pressures from medical personnel to conform to traditional healing methods for instances of combat-related stress or anxiety, including incarceration or medication. The individual may feel as though his or her preferences for healing methods are unimportant if those choices do not adhere to existing societal and medical norms.

Competence: Competence focuses on an individual having success in his or her personal abilities. For participants who have been physically or mentally harmed, they may witness a reduction in their levels of varying ability. Without proper education and support, these individuals may encounter a feeling of lost competence. For example, an individual requiring the use of assistive aids may feel as though he or she depends more on others in order to navigate a society that is not built with physical disability in mind. Feeling incompetent – or not able to successfully execute tasks – is thought to damage psychological well-being.

Relatedness: Social relatedness is important for many reasons, including feeling a sense of inclusion within one's social community, which can help to encourage a variety of mental health benefits. For example, research has shown that mental health issues can often lead to instances of social ostracism[47]. This study also indicated that individuals with combat-related stress symptoms who experience a sense of social ostracism following a positive diagnosis tend to feel mentally 'worse off' than prior to their feelings of ostracism[47]. Therefore, a positive mental health diagnosis may be linked to greater feelings of inadequate social relations.

In essence, SDT is an applicable theory to this target population. This population can experience lower instances of autonomy, competence, and relatedness. As discussed in the review of literature section, existing literature has shown that physical activity leads to increased

levels of autonomy, competence, and social relatedness amongst participants with mental health issues. Little work has been conducted on physical activity and the SDT with respect to military populations, so this will be novel research within this field.

ii) Theoretical Lens – The Social Construction of Mental Health and Disability

I also used the social model of disability as a theoretical lens in this study. Historically speaking, people with physical, mental, and emotional disabilities have consistently faced abhorrent treatment from the able-bodied population. The term 'eugenics,' was developed by geneticist Gregory Mendel in the late 1800's. Eugenics aimed to effectively remove potential, and existing, genetic threats to the human race through practices such as institutionalization and sterilization, both of which were practiced in Canada up until the 1970's[48,49]. Institutionalization is still a very real threat for those who society deems as mentally 'unstable,' and, within the very confines of the province of Manitoba, local institutions such as the Selkirk Mental Health Centre are still intact. This particular hospital, which was opened in 1886, has a dark history with respect to the treatment of its patients. Forcible detainment, as well as electric shock therapy, was often used[50] in order to gain control over unruly or slow-healing patients. Additionally, the hospital was built approximately 30 minutes north of the city of Winnipeg in order to effectively remove mentally ill patients from the able-bodied population. According to the hospital's current website, any individual having been identified with a mental disorder can be admitted to this institution by the instruction of their physician or a community health worker, so long as the patient is over the age of 18[50]. Linking back to military personnel and their tendency to avoid meeting with medical professionals regarding their mental health, it becomes apparent that the risk of incarceration is still a very real threat and therefore a genuine reason as to why individuals may choose to mask their personal issues. Though other drastic measures, such as

sterilization, are no longer practiced in Canadian society, we have witnessed a preference for promoting a medical view toward needing to 'fix' various forms of disability.

Medical Model View of Disability

According to the dominant medical model, disability is thought to result from deviations to normal human development. Medical models of disability tend to focus on the negative aspects of disability, such as health issues. Medical notions of disability also promote the need to 'fix' disability in order to comply with social norms. The medical model view of disability states that:

> Disability is seen as a consequence of defective or disordered individual pathology. This results from genetic disorder, accident, or disease…There is a requirement for expert diagnosis, intervention, and treatment with a view to cure, rehabilitation, or normalization[51].

Various forms of healing are often utilized, though there appears to be a preference in today's medical world for the use of pharmaceuticals. A study conducted in 2010 found that the preferential initial form of treatment in military mental health cases was that of psychotropic medication[10]. This can be linked to previous research conducted during WWI and WWII which stated that medicinal approaches were somewhat easier to engage in due to the fact that it involved little to no effort from the physicians[1]. In the case of a field doctor, the physician is able to easily prescribe a medicinal form of treatment and send the patient on his way back to the front line.

We also tend to uphold medicalized views toward physical activity for people with disabilities. People with disabilities are often expected to remain physically active in order to receive important therapeutic benefits. There is an increase in what is being termed 'play therapy,' where children with disabilities are engaged in play-like situations with adult

practitioners to increase their social and physical skills. In these situations, it becomes apparent that disabled children are missing out on valuable social and physical interactions with peers and engage in activity for rehabilitative purposes only[52]. This simply adds to childhood perceptions of disability and physical activity as being separate entities, as well as disability's lack of space in physical activity. Within the medical model of disability, we realize that there is a belief in needing to 'fix' the individual and their disability[52] prior to engaging with able populations. Even in the field of research, there is a trend toward a medical model view. One study examined the effects of wheelchair related sports on respiratory muscle strength on individuals with various levels of spinal cord injuries. The study, though hoping to promote the benefits of physical activity on spinal cord injuries, re-emphasizes the medical model of needing to 'fix' or 'improve' any forms of disability. The study states that spinal cord injury, '…is highly incapacitating, causing significant social and personal impact, not only because of the limitations imposed, but also because of the host of complications throughout life[53]. The negative language associated with a spinal cord injury tells the reader that a physical disability leads an individual to have a less than ideal life and the best remedy is to 'fix' the disability.

In sharp contrast, the social model of disability emphasizes how socially constructed views shape our understanding of the world. Beginning in the 1960's, people with disabilities began to argue that the problem was not with one's 'unable body,' but rather stemmed from political and social constructions of what disability is[54]. Disability is best described as social discrimination due to the immense negative attitudes and a severe lack of available resources that are required by this population. Discrimination has been described as:

> Rooted in institutional, personal, and interpersonal processes of exclusion and oppression and (is) viewed as endemic to most societies irrespective of levels of economic and cultural development[54].

Here, the cause of disability is not located in the person, but, rather, the disabling social, cultural and environmental barriers that prevent inclusion.

> The social model of disability gives us the words to describe our inequality…Because the social model separates out disabling barriers and impairments, it enables us to focus on exactly what it is which denies us our human and civil rights and what action needs to be taken[6].

Military personnel suffer from the weight of these disabling social constructions, rooted in fear and misunderstanding. The severe over-simplifying of mental health is evident within media portrayals of cases of military mental health. For example, a soldier, who was currently being tested for combat-related stress, opened fire at the military base in Fort Hood on April 2, 2014. The media immediately began to make remarks on the mental health status of the individual, simplifying his acts to his feelings of depression and anxiety[55]. Mental health is generally not well-understood by the general public. Therefore, negative and assuming portrayals in the media cause increased fear and distrust of individuals who may identify as having mental health struggles. As Kim et al. (2011) state, this oversimplifying causes the generalized belief that anyone with a mental health diagnosis is considered to be a danger to society[56].

With social verbiage such as ‘crazy’ or ‘insane’ commonly used to describe anything that deviates from the norm, our society further encourages negative feelings associated with poor mental health. It can be argued that it is these particular social stigmas that contribute to a low level of military personnel engaging in support-seeking behaviours[56]. Additionally, if an individual does identify with a mental health issue, such as combat-related stress, additional social stigma may arise due to the location in which an individual attends his or her healing sessions. Parr, Philo, and Burns (2004) highlight that designated locations that cater to mental health issues can be construed as another method by which society ‘distances’ mental health

issues from other health concerns. Further, these forms of social constructions surrounding mental health indicate to military personnel who are struggling with combat-related stress that they are 'rejected' from the very society that they swore to protect, which can lead to feelings of social ostracism[57].

Further, due to negative social assumptions, which are typically perpetuated by 'able-bodied' participants, people with disabilities are often faced with daily hassles in maneuvering spaces. This difficulty can arise in a physical sense due to the architectural design of spaces, as well as in emotional and mental ways through a disabled person's interactions with others[7]. When certain inadequacies in accommodation are not addressed, what is created is a society based on 'ableism,' and thus, becomes a society in which disability cannot easily navigate[58]. It could be argued that what occurs is simply a vicious cycle. Society views disability as 'unable,' due to an inability to easily navigate a society that, in itself, promotes recurrent and troublesome interactions for people with disabilities. This assumed helplessness of people with disabilities can lead to various assumptions about disability. Since military personnel likely face the disabling effects of mainstream social life, the social model of disability is a relevant theoretical framework to use. Cumulatively, the self-determination theory and the social model of disability added theoretical depth to the work.

Research Design

By adopting the mixed methods approach discussed above, this study examined the effect of a physical activity intervention on various aspects of mental health among military personnel at the University of Manitoba in Winnipeg, Canada.

Purpose

The overall goal and purpose of the proposed study was to design, implement and examine the effect of a physical activity program for military personnel in Winnipeg, in a community-based setting. The research was of mixed methods approach and examined the effects of a physical activity program on military mental well-being. Therefore, this mixed methods study included a psychological-behavioural intervention to comprehend the benefits of physical activity in a community setting within a military population. The study took place in the city of Winnipeg, Manitoba, and engaged local military personnel in a six week physical activity and discussion-based program, where, as a group, we focused on various aspects related to overall physical and mental health.

Objectives

More specifically, this study aimed to examine issues surrounding mental well-being in the Canadian military population. Specifically, this study a) examined issues surrounding participants' self-perceived quality of life and posttraumatic stress levels, both pre- and post-intervention. Additionally, b) this study explored participants' feelings, experiences and perceptions surrounding existing social and political constructs regarding mental health and disability. In essence, this study aimed to understand the experience of physical activity for Canadian military personnel dealing with combat-related traumas.

Ethics and Consent

Ethical approval for this study was obtained from the University of Manitoba's Research Ethics Board. Prior to the intervention, interested participants were provided with detailed information about the study. Participants then signed an informed and written consent form. Participants were informed that they were free to withdraw from the study at any time without

consequences. All efforts were made to protect the anonymity and privacy of the participants. According to policy, all data was coded and encrypted.

Recruitment

Following ethics approval, recruitment for this study began. Purposeful sampling — which is a common approach in qualitative research — was used to recruit participants. Recruitment occurred with the help of the University of Manitoba Military Support Office. The Military Support Office works with military personnel who wish to complete courses and degrees with the University of Manitoba. Recruitment took place using an e-mail based approach, where potential participants were contacted via e-mail regarding this study. The e-mail (see Appendix One) highlighted the expectations from participants should they choose to participate in this study. The e-mail also included the researcher's contact information in case the potential participants had any questions or concerns prior to agreeing to the study. The e-mail was approved by the Military Support Office and the University of Manitoba's Research Ethics Board prior to sending it. The Military Support Office indicated a pool of approximately 390 potential participants who resided in the city of Winnipeg.

Following consent, participants were required to complete necessary paperwork, including an informed consent form (see Appendix Two) and the PAR-Q+ (a physical activity readiness questionnaire). This process began on April 8, 2015 following a much longer than anticipated ethics application delay.

Participants

Participants were recruited through the help of the Military Support Office located on the University of Manitoba campus. I had hoped to recruit between five and 15 participants. Given some risk of drop out, I tried to recruit slightly above this number of participants and expected an

attrition rate of approximately 15%. Participants were encouraged to join the study regardless of gender identity, ability, race, ethnicity, or religious affiliation. Participants were over the age of 18 years, and this was done strictly for ethical purposes. Participants also had to be active or retired members of the Canadian Military and having engaged in some form of in-field experience. Existing research and literature in the field of military psychology is heavily dominated by Caucasian male participants. Military populations are witnessing an increase in female recruits, as well as recruits from various ethnic and religious backgrounds. This study aimed to be inclusive of all potential participants in the hopes of studying a broader population. This may have also ensured that the results are more easily generalizable to the ever-changing military population in Canada.

Facilitation

Personnel: In addition to me, the organization and implementation of this program involved the help of a certified personal trainer with the University of Manitoba Active Living Centre. This individual is licensed by the Canadian Society for Exercise Physiology and has extensive training in physical activity and exercise science. Through in-depth discussions pre-intervention, the researcher and the trainer developed an adapted fitness plan which focused on moderate to intense physical activity. The trainer worked with the participants as a group, one hour a week, for six weeks. The total cost of the study was approximately $665. See Figure One.

The primary researcher was on hand during all sessions to ensure that the participants were comfortable during each session and that minimal psychological distress occurs. Dr. Fiona Moola was available during each session by phone to provide any psychological support required by the participants during this intervention. Dr. Moola also served as a catalyst to further intensive psychological supports in Winnipeg through the Health Sciences Centre, should the

need be identified. Dr. Moola's presence and experience in the field of psychology ensured that psychological distress remained at a minimum.

Location: This study occurred at the New Active Living Centre at the University of Manitoba. The Active Living Centre boasted the following amenities:

- A 200 metre track
- New cardio and weight equipment
- A 12 metre climbing wall
- Three multi-purpose rooms for various activities such as yoga and dance
- Plenty of natural light

In addition to these features, the new Active Living Centre has been constructed with inclusivity in mind. There are specific areas within the centre that have equipment that is adaptable for various physical disabilities. For the reasons listed here, the new Active Living Centre was the ideal location for this intervention.

Prior to three of the exercise sessions, participants met in a quiet discussion room where the group engaged in a 30-minute discussion on health-related topics. The new Active Living Centre provided the opportunity to use an on-site room for privacy. This is discussed in greater detail in the following chapter.

Since it was expected that participants would have varying levels of disability, I considered accessibility issues in this study. Due to the often dangerous missions that Canadian military embark upon, injury is a real threat for our personnel. In some cases, participants may have suffered instances of limb loss or paralysis, or various other physical injuries, while serving their country. For this reason, it was vital that the study be conducted in a location that was easily

accessible by all populations. I feel that the new Active Living Centre provided the highest level of accessibility.

Overall Cost: For a complete cost breakdown, please see Figure One. The cost of the program was graciously covered by Dr. Moola's research start-up funds.

Program Development and Creation

The following information encompasses the activities that the participants engaged in during this psychological-behavioural intervention. For a simplified breakdown of each session and associated goals, please see Figure Two.

Week One: The Importance of Nutrition

Participants gathered together for the first time during week one, session one. Prior to our initial meeting, all participants completed both the Short Screening Scale for PTSD as well as the WHOQOL-BREF scale. The Short Screening Scale for PTSD consists of seven items which were deemed most effective in predicting a positive post-traumatic stress diagnosis. The scale is designed specifically for trauma survivors. The WHOQOL-BREF questionnaire is an abbreviated version of the WHOQOL Scale. The abbreviated version helps to measure physical and psychological health, as well as participants' assessment of their personal goals and standards. Permission for use of the Short Screening Scale for PTSD was not required as the form is available for public use and is not copyrighted. Permission for use of the WHOQOL-BREF was received. I administered both tools.

Upon completion of initial discussion, participants met with the study's trainer. During this meeting, the trainer discussed the physical activity session and showed participants the safe way to perform all exercises. As mentioned, the trainer remained on-site to help the group through the sessions, and was available to help adapt exercises based on ability levels. Following

the safety discussion and training session, the participants began their first 60-minute physical activity session. The length of activity session was chosen based on the Canadian Physical Activity Guidelines which state that adults aged 18-64 years should engage in a minimum of 150 minutes of moderate to vigorous aerobic exercise per week[60]. The guidelines also state that it is beneficial to engage in weight and resistance training at least twice a week[60]. The physical activity intervention included both aerobic and strength-training activities.

Each physical activity session was preceded by a 30-minute focus group session, which was recorded for future transcription and coding in order to examine relevant themes that may arise. Discussions were semi-structured and focused on various topics as they relate to overall physical and mental well-being. Initial discussions took on broad, physical health-related topics in order for the researcher to build a sense of rapport with the participants. Week one's discussion took the following format:

- We will begin today's discussion by reminding all participants that this is a safe and honest space. We encourage open communication. However, if you prefer not to speak, know that there are no repercussions. Please also remember that these conversations, as well as this program, are to remain confidential.
- Today, we will discuss the topics of nutrition and sleep. Would anyone like to discuss what the word 'nutrition' means to them?
- Why do you believe having a good diet is important to your overall health?
- How do you feel when you don't eat in a healthy manner?
- Would anyone like to discuss how they feel following a good night's sleep versus a restless night's sleep?
- What are some ways you promote a good night's sleep?

- How do you think sleep affects your overall health?
- What are the things that prevent you from having a good sleep?
- In your opinion, is exercise and sleep connected?
- Questions/Comments?
- Thank you for your participation today. As a reminder, all conversation we had here today is confidential and we would like to encourage this safe and honest environment by requesting that you do not discuss aspects of this study with others. Thank you!

Following the focus group discussion, participants took part in the physical activity session.

Week Two: No Discussion

Week two began with re-introductions to the researcher and the trainer. Following this, participants began their 60-minute physical activity intervention in the same format as the previous week. The trainer was on-hand in case of questions and concerns, as well as to provide help where needed. Following the physical activity session, participants were free to leave the facility.

Week Three: The Importance of Social Support

Week three began with a 30-minute discussion. Week three's discussion took the following format:

- We will begin today's discussion by reminding all participants that this is a safe and honest space. We encourage open communication. However, if you prefer not to speak, know that there are no repercussions. Please also remember that these conversations, as well as this program, are to remain confidential.

- Today, we will discuss the importance of having social support. Would anyone like to describe their social support system and how it makes them feel? Examples include family members and friendships.
- What are some ways that your current support systems affect your overall quality of life?
- Do you feel as though social support is important in how you feel mentally and physically?
- Questions/Comments?
- Thank you for your participation today. As a reminder, all conversation we had here today is confidential and we would like to encourage this safe and honest environment by requesting that you do not discuss aspects of this study with others. Thank you!

Following the group discussion, the participants began their 60-minute physical activity intervention in the same format as the previous week. The trainer was on-hand in case of questions and concerns and provided help where needed.

Following the physical activity portion, participants were permitted to leave the facility.

Week Four: No Discussion

Week four began with re-introductions to the researcher and the trainer. Following this, participants began their 60-minute physical activity intervention in the same format as the previous week. The trainer was on-hand in case of questions and concerns, as well as to provide help where needed. Following the physical activity session, participants were free to leave the facility.

Week Five: No Discussion

Week five began with re-introductions to the researcher and the trainer. Following this, participants began their 60-minute physical activity intervention in the same format as the

previous week. The trainer was on-hand in case of questions and concerns, as well as to provide help where needed. Following the physical activity session, participants were free to leave the facility.

Week Six: The Importance of Maintaining Positive Mental Health States

Week six began with a 30-minute discussion. Week six's discussion took the following format:

- We will begin today's discussion by reminding all participants that this is a safe and honest space. We encourage open communication. However, if you prefer not to speak, know that there are no repercussions. Please also remember that these conversations, as well as this program, are to remain confidential.
- Today, we will discuss the importance of mental health. Would anyone like to discuss what the term 'mental health' means to them?
- What are some ways that mental health can impact other areas of your life?
- Can you describe some psychological stressors or the things that cause you to experience mental stress?
- How do you think physical health and mental health interact with one another? Does maintaining an active lifestyle impact your mental health?
- Questions/Comments?
- Thank you for your participation today. As a reminder, all conversation we had here today is confidential and we would like to encourage this safe and honest environment by requesting that you do not discuss aspects of this study with others. Thank you!

Following this, participants began their 60-minute physical activity intervention in the same format as the previous week. The trainer was on-hand in case of questions and concerns, as well as to provide help where needed.

Following the physical activity portion, participants will be permitted to leave the facility.

Week Seven (De-briefing): The Importance of this Program and Staying Connected

Week seven consisted of an ethically-required debriefing for the participants. Prior to week seven, the participants once again completed both the Short Screening Scale for PTSD, as well as the WHOQOL-BREF scale.

Participants then engaged in a 60-minute discussion. Week seven's discussion took the following format:

- We will begin today's discussion by reminding all participants that this is a safe and honest space. We encourage open communication. However, if you prefer not to speak, know that there are no repercussions. Please also remember that these conversations, as well as this program, are to remain confidential.
- Today, we will discuss this program. We are now on the final week of this physical activity program and I would like your honest opinion on the program. How do you feel it benefitted you (if at all)?
- Do you think the program impacted other areas of your life?
- How did the program impact you physically, emotionally, socially and psychologically?
- How do you feel about the fact that the program is ending?
- Has this program helped you consider maintaining an active lifestyle (if you were inactive prior to this program)?
- How could we improve this program in the future?

- Would you like to stay in touch, socially?
- Questions/Comments?
- Thank you for your participation today. As a reminder, all conversation we had here today is confidential and we would like to encourage this safe and honest environment by requesting that you do not discuss aspects of this study with others. Thank you!

Following the focus group discussion, participants were permitted to ask any outstanding questions they may have. Participants were also debriefed by the researcher.

Reimbursement: Participants received $25.00 per session. This is common in many behavioural studies. Participants knew about the reimbursement prior to agreeing to participate in the study. Participants received the reimbursement upon completion of each session, for a total of $175.00 for their role in the study. The participants knew that if they dropped out, they would be reimbursed until that time.

Methods to Decrease Drop-Out: Adherence rates for physical activity interventions vary based on a variety of issues, including population, length of the study, and type of physical activity intervention completed. The researcher tried to reduce drop-out rates through a variety of methods:

1. Incentives were provided to the participants in the amount of $25.00 per week.
2. Verbal reinforcement was given by the primary researcher at the outset of each session, as well as at the end of each session, in order to encourage participants to maintain their participation within the study.
3. It is well-documented that social support is valuable in physical activity intervention. By facilitating a socially-driven intervention, it was hoped that adherence rates will be high.

4. I phoned participants during the week to encourage their ongoing participation. This is a common method in behavioural research to reduce attrition.

It was anticipated that by using this tailored approach to the intervention, participants would feel supported and encouraged to continue participating in the study and drop-out rates will be low.

Methodological Tools

Qualitative Case Study: Focus Groups and Individual Interviews

Focus groups involve a trained researcher who organizes an interview guide in order to encourage participation in a group discussion on the selected topic[61]. Focus groups can involve a variety of other methods as well, including individual interviews and participant observation. Both of these methods occurred within my study. A focus group allowed me, as a military 'outsider,' direct contact with military personnel. It was anticipated that by engaging the participants within a focus group for the initial discussions within the study, as opposed to initial individual interviews, the participants would build rapport with one another, as well as with me. By having participants engage in group discussions throughout the study, it was anticipated that they would also build a sense of camaraderie with individuals who may have similar professional backgrounds. Because the military is an often guarded population, I hoped that by taking a roundabout approach, I could encourage open and honest conversation during the post-intervention individual interviews.

It is important to note here that while I have a vested interest in military populations, and did plan on working closely with my participants, I am considered a military 'outsider.' By this, I mean that I have no direct involvement with the Canadian Military through enlistment or via work or volunteer experiences. Therefore, it is possible that the participants felt the sense of an insider versus outsider dynamic during our group discussions. Through sharing some of my own

personal story, I hoped to break down this insider-outsider barrier. It was important to me to maintain a sense of professionalism with my participants so as to keep from becoming too emotionally invested. However, incorporating some discussion on my background allowed the participants to fully comprehend my sincere appreciation for military personnel and break down any insider versus outsider dynamic that exists.

Focus group discussions occurred during week's one, three, and six, prior to the group exercise sessions. They were approximately 30 minutes in length and audiotaped and transcribed verbatim.

A final group discussion took place at the end of the study and was approximately one hour in length. By the end of the study, it was expected that the participants would be more comfortable with me, having established a sense of rapport. An interview guide was developed by me and Dr. Moola. All discussions were audiotaped. Both the focus groups and the interviews took place in the same location.

Quantitative: Psychometric Tools

The Short Screening Scale for PTSD, as well as the World Health Organization Quality of Life questionnaire (WHOQOL-BREF), provided the quantitative basis for the study. Both were administered pre- and post-physical activity intervention in order to assess changes in psychological functioning. The Short Screening Scale for PTSD consists of seven items which were most effectively able to predict a positive post-traumatic stress diagnosis. The scale is designed specifically for trauma survivors. The WHOQOL-BREF questionnaire is an abbreviated version of the WHOQOL Scale. The abbreviated version helps to measure physical and psychological health, as well as helps to assess participants' personal assessments of their personal goals and standards. Permission for use of the Short Screening Scale for PTSD is not

required as the form is available for public use and is not copyrighted. Permission for use of the WHOQOL-BREF was received.

Written questionnaires may be considered 'ablest' due to the assumption that the participants can see, read, write, and comprehend the English language. These are valid limitations of the two questionnaires I have decided to include in this research project. This limitation could be leveraged against most questionnaires. In an attempt to ensure the questionnaires were not limiting, prior to having the participants complete the forms, I communicated with them in order to ensure proper consent is given. At this time, I asked the participants if they required any help in completing the questionnaires. In addition, it should be noted that this study was limited to English-speaking individuals as I am not multi-lingual and have no means of providing potential translators. As being an English-speaker is mandatory in the Canadian military, this did not affect my enrolment rates. By speaking with my participants prior to their enlistment in the program, I tried to limit the ableism that participants might have experienced through the questionnaires.

Data Analysis

Qualitative Analysis

The qualitative analysis took on an open-coding approach, characteristic of the case study analytic tradition. All focus groups were recorded and transcribed verbatim and subject to separate qualitative analysis. I read through the written text in order to compile relevant themes that existed across the data set. Specifically, with Dr. Moola's assistance, I coded relevant units of meaning across group discussions. Frequently occurring meaning units were used to comprise provisional themes. Comparisons were also drawn between individual case findings and the broader focus group.

Quality: While notions of qualitative trustworthiness are a hotly debated topic, qualitative researchers are encouraged to be attentive to the quality of their emerging analysis. Utilizing Lincoln and Guba's (1985) work on academic trustworthiness, I focused on the following topics to enhance the quality of my analytical process: Credibility, Transferability, Dependability, and Confirmability[62].

Credibility: Credibility is considered the most important factor when establishing a sense of trustworthiness within research[62]. Credibility requires the use of triangulation, where researchers use a variety of methods for data collection. Using proven and appropriate research methods, as well as building a rapport with your population, are also linked to credible research. I triangulated my data using focus groups, research observations, research team meetings and written notes. Through this process, I hoped to build a strong rapport with my participants to encourage open and honest discussion. My research was also discussed in great detail with Dr. Moola, an expert in the field of Kinesiology and Sport Psychology, which allowed for constructive feedback and necessary adjustments.

Transferability: As with external validity in quantitative work, qualitative work needs to be applicable in other situations. A researcher must be able to discuss his or her work in a way that allows for comparisons to be made by other researchers and within other studies[62]. While my sample size was small, my hope is that the results from this study may be used as a stepping stone for further research in the field of physical activity and military mental health.

Dependability: This term in qualitative work also highlights the necessity of using a variety of methods. However, it is expected that the researcher be able to adequately describe the methods and methodology used, such that the study can be replicated by others[62]. In quantitative studies, this is the equivalent of promoting reliability within a study.

Confirmability: As with all research, it is important for the researcher to admit any pre-existing bias with respect to the research or population he or she hopes to study. As Shenton (2004) states, admitting to and attempting to control researcher bias is central to promoting trustworthiness in research[63]. I acknowledge that I have a vested interest in the military and a bias toward the use of activity to enhance mental health. These biases coloured how I envisioned the research.

Quantitative Analysis

As this study is of mixed-method design, the quantitative data also required analysis. The participants completed two separate questionnaires both pre- and post-intervention. All tools were hand coded and results were then double-checked by Dr. Moola. This cross-analysis limited error. Results were then calculated in order to assess any changes across the timeline of the study, indicating a possible link between levels of post-traumatic stress, overall quality of life, and instances of physical activity. Due to a small sample size, the use of computer software devices, such as SPSS, were not performed. Simple calculations were completed according to the hand-scoring directions indicated by each questionnaire.

Limitations of the Study

I acknowledge that the epistemological undercurrents of the quantitative and qualitative research used in this study may be considered by some to be at odds with one another. For instance, quantitative research often takes a positivist and post positivist approach that insists on a singular grand truth and universal experiences. A post-positivist typically creates a hypothesis and sets out to either disprove or fail to disprove the hypothesis. These researchers tend to work with set variables and perform a rigorous, methodological study. Qualitative research is often completed from an interpretivist approach. That is, these researchers believe in multiple truths —

that there are multiple realities experienced by different individuals. An interpretivist will typically approach a study with a broad research question and will collect and analyze data in order to examine possible phenomena. Although this approach to research is still often guided by a strict methodological approach, however, the "recipe" need not be as rigid as the scientific method. While being cognizant of the epistemological differences, I believe that my mixed methods approach enhanced my study of psychological health in the military. As mentioned, incorporating both a quantitative and a qualitative approach allowed for increased 'synergy' within the research itself. Therefore, it is suggested that using a mixed-method approach to research can help a researcher uncover a greater understanding of his or her data, despite differing epistemologies.

Further, another limitation to the existing study is the extreme difficulty that my supervisor and I faced in trying to access current military personnel. My one year search involved several, ultimately futile, conversations with both the United States and Canadian Forces. Ultimately, since I did not obtain access to the 'sponsor' that is required for military studies; I was forced to approach the study from a different direction. While this was frustrating at first, I recognize that there are complex reasons as to why the military may be extremely guarded about who can do research. Further, there are invariably political reasons that prevent open inquiry into a closed, total institution. This was an uncontrollable limitation that occurred despite of my very best efforts to lobby with both the United States and Canadian military.

Summary

In this chapter, I discussed the mixed methods methodological approach that I took in this research, including philosophical underpinning. I have outlined the theoretical lenses I used to frame the study, including both the self-determination theory and the social construction of

disability and mental health. My research design was outlined in great detail. The methodological tools I used were highlighted, and, finally, the analytic plan was discussed. The findings section will follow this chapter.

Figure One – Cost

Item	Description	Cost
Location Rental	The cost associated with a 6x-1hour rental fee	$0.00
Personal Trainer	The cost associated with an hourly fee	$230.00
Parking/Travel Reimbursement (if necessary)	The cost associated with reimbursing participants for their parking or travel expenses	$0.00
Participant Reimbursement	The cost associated with participant participation. Participants will receive $25 at the end of each session, for a total of $175/each – ($25 x seven sessions)	$375.00
Materials	Printing costs for PM tools, pens, tape recorder	$50.00
Total		$665.00

Figure Two - Session Breakdown

Session Number	Activities	Goals
Week 1, Session 1	-Participants will meet for the first time. -Participants will submit their completed PTSD Short Screening Scale, as well as the WHOQOL-BREF to capture baseline measurements -Following this, participants will engage in a 30-minute group discussion - Upon completion of the group discussion, participants, with the help of the trainer, will engage in a 60-minute program	-Capture baseline testing -Introduce participants to one another and to the investigators -Initial discussions will be used to encourage a sense of rapport amongst participants
Week 2, Session 2	-Participants, with the help of the trainer, will engage in a 60-minute program	-The continued goal this session is to build rapport amongst participants and within the participant-researcher dynamic
Week 3, Session 3	- Participants will engage in a 30-minute group discussion - Upon completion of the group discussion, participants, with the help of the trainer, will engage in a 60-minute program	-The continued goal this session is to build rapport amongst participants and within the participant-researcher dynamic
Week 4, Session 4	-Participants, with the help of the trainer, will engage in a 60-minute program	-The continued goal this session is to build rapport amongst participants and within the participant-researcher dynamic
Week 5, Session 5	-Participants, with the help of the trainer, will engage in a 60-minute program	-The continued goal this session is to build rapport amongst participants and within the participant-researcher dynamic
Week 6, Session 6	-Participants will meet for the final time. -Participants will be asked to submit both the PTSD Short Screening Scale, as well as the WHOQOL-BREF to capture post-intervention measurements - Following this, participants will engage in a 30-minute group discussion - Upon completion of the group discussion, participants, with the help of the trainer, will engage in a 60-minute program	-The continued goal this session is to build rapport amongst participants and within the participant-researcher dynamic

Chapter Four - Findings

In the previous chapter, I outlined the methodological approach that I utilized for my research study. In this chapter, I will discuss both the qualitative and quantitative findings from this thesis. In order to keep the findings free from confusion for the reader, I will first discuss the qualitative findings, highlighting important quotes from the participants, followed by a brief discussion of the quantitative findings.

Overview of the Program

As previously outlined, the program was six weeks in length and the participants met once a week. The final week (session seven) was used for post-intervention debriefing. Every Saturday morning during the program, we connected at the University of Manitoba's 'Active Living Centre' (ALC). During weeks one, three, and six, we met from 10:00 am-11:30 am and began our session with a 30 minute discussion pre-PA session. I will discuss each session in more detail later in this chapter. During weeks two, four, and five, we met from 10:30-11:30 am strictly for the 60 minute PA session. Originally, we had planned on discussing various health-related topics with the participants every week. This was changed for two reasons: 1). I did not want to inundate the participants with too many discussions and request too much of their time and 2). It was decided that six separate discussions would provide more material than could be adequately transcribed and analyzed within a Master's thesis.

With these adjustments, the group discussions — though fewer in number — provided the opportunity to really describe specific health-related topics. This approach also helped the participants to fully explore their health behaviours, their military deployments, and how all of these topics coincide with their overall mental well-being.

Week One: Prior to week one, the participants completed a consent form that was filed in a secure location. Each participant also completed both the World Health Organization Quality of Life Abbreviated Version (WHOQOL-BREF) and the Short Screening Scale for PTSD (SSS). The results were typed into an excel sheet and then filed in a secure location. The first session began with the group introducing themselves and explaining their military background. We followed with a discussion on nutrition and sleep, outlining how these are impacted by military service, specifically on deployments. This discussion was recorded and transcribed verbatim. Following our 30-minute discussion, the group took part in the first physical activity (PA) session. Each PA session was run by a CSEP-Certified Exercise Physiologist (Jimmy) who worked with the University of Manitoba. Jimmy created a program with three separate intensity levels and exercises that were adaptable based on the participants' physical abilities. A complete breakdown of the program is listed in Table 3. Jimmy had each participant complete the Physical Activity Readiness Questionnaire (PARQ+) in order to gauge if the participants had any mobility issues or other health-related issues that may require further exercise adaptation (cardiac, for example). Because the participants were in good physical health at the outset of the program, Jimmy started us at the highest intensity level. That being said, the first week was still an introduction; thus, we took time, as a group to work through the exercises correctly. We did not complete the session in its entirety as is laid out in Table three, as Jimmy preferred that we learn the safe and proper techniques. Therefore, during week one-session one, we completed the cardio portion twice and the strength training portion once. Following session one, I emailed each participant a few days prior to our second session to remind them of the date and time and to provide motivation for them to return to the program.

Week Two: Our second week consisted of strictly the PA session. Our group met at the ALC at 10:30 am on a Saturday morning and went through the entire PA session as described in Table Three. During the session, I monitored the verbal interactions between the participants and Jimmy. Following the session, I wrote down notes in a field book for later use. Following session two, I emailed each participant a few days prior to our third session to remind them of the date and time and to provide motivation for them to return to the program.

Week Three: Prior to week three, we had a third participant opt into the program. I met with this participant in order to have him complete the necessary paperwork outlined above. All paperwork was filed in a secure location. Participant three, along with the rest of our group, met at 10:00am at the ALC to discuss topics surrounding social support following deployments. This discussion was recorded and transcribed verbatim. After a 30 minute discussion, all three participants completed the PA session with Jimmy. Following session three, I emailed each participant a few days prior to our fourth session to remind them of the date and time and to provide motivation for them to return to the program. It was following this email that participant three notified me that he would no longer be able to participate in the PA sessions due to personal commitments.

Week Four: Our fourth week consisted of strictly the PA session. Our group met at the ALC at 10:30am and went through the entire PA session as described in table 3. During the session, I monitored the verbal interactions between the participants and Jimmy. Following the session, I wrote down notes in a field book for later use. Following session four, I emailed each participant a few days prior to our fifth session to remind them of the date and time and to provide motivation for them to return to the program.

Week Five: Our fifth week consisted of strictly the PA session. Our group met at the ALC at 10:30am and went through the entire PA session as laid out in Table 3. During the session, I monitored the verbal interactions between the participants and Jimmy. Following the session, I wrote down notes in a field book for later use. Following session five, I emailed each participant a few days prior to our sixth session to remind them of the date and time and to provide motivation for them to return to the program.

Week Six: In the final week of the program, I asked the participants to complete both the WHOQOL-BREF and Short Screening Scale for PTSD a second time. Results were typed into an excel form and filed in a secure area. Our group met at the ALC at 10:00am and had a 30 minute discussion on support systems in place to help returning military members dealing with combat-related stress symptoms. This discussion was recorded and transcribed verbatim. Following the discussion, the group went through the entire PA session as described in Table 3. During the session, I monitored the verbal interactions between the participants and Jimmy. Following the session, I wrote down notes in a field book for later use. Following session six, I emailed each participant a few days prior to our seventh and final session to remind them of the date and time and to provide motivation for them to reconnect post-program for a debriefing session.

Week Seven: As requested by the Faculty of Kinesiology department head and Dr. Fiona Moola, the group came together one final time for a debriefing session and to discuss the pros and cons of the program. We met at a local establishment and spoke for 60 minutes about their opinions on the program, its feasibility, and suggestions for adjustments for future programs. This discussion was recorded and transcribed verbatim.

Overview of the Findings

Qualitative

The group discussions offered a breadth of material regarding Canadian military personnel's opinions on a variety of health-related subjects and their impact on overall well-being. Additionally, observing the group during the physical activity sessions gave me some insight into the physical requirements of military personnel and how they react to PA. Topics that repeatedly came up in conversation included: stigma, military guardedness, a lack of understanding in the general public regarding combat-related stress and the military on a whole, and the need for programs such as this one. These issues will be discussed in much more detail further on in this chapter.

Quantitative

For the quantitative portion of this study, I had participants complete both the Short Screening Scale for PTSD and the WHOQOL-BREF scale. Participant one (James) answered negatively to each question on the SSS both pre- and post-intervention. James did show improvements in the Psychological health and Social relationships domains on the WHOQOL-BREF. James showed a slight decrease in the Physical Health domain and a decrease in the Environment domain (See table four). Participant two (Edward) answered two questions on the SSS in the affirmative pre-intervention, and answered all seven questions in the negative post-intervention. Edward increased in each domain on the WHOQOL-BREF from pre- to post-intervention (See table five.) Participant three (Quinn) completed the pre-intervention questionnaires but did not complete them post-intervention. Therefore, all that will be included are baseline measures for Quinn (See table six).

Participants

Over the course of the seven-week program, I was able to become quite familiar with my participants. Because there was a small group, this allowed for more candid conversation and I feel as though each participant was able to open up regarding their personal lives and struggles. In an attempt to protect the participants' identities, I have changed their names.

Participant one (James) is a Caucasian male in his early forties. James is married and has been a member of the Canadian military (RCAF) for over 20 years. James began his career as a tech-aid working as an anti-submarine hunter, and then changed over to a regular force officer - or air combat systems officer. James has spent the majority of his time between western and eastern Canada. He trained on the Aurora, with Maritime Patrol, and Long-Range Patrol Aircraft. He completed two tours in Afghanistan and one tour in Kuwait. When in Afghanistan for his first tour, James worked as a flight coordinator organizing supplies and flights for troops into and out of the country. James stated that his time in Afghanistan was relatively secure, but there were many precautions in place. James often discussed his deployments with a sense of appreciation for his life in Canada. When discussing Afghanistan, he mentioned touring the countryside and seeing building destroyed by war with bullet holes in the walls.

James' second tour in Afghanistan was spent in Kandahar airfield as a drone operator. This allowed James to get a view of everything that was happening in the country, and also monitoring insurgents planting roadside bombs.

When he toured Kuwait, it was in support of Canada's involvement against the Islamic State of Iraq (ISIS). ISIS is an extremist militant group currently fighting for control in various regions, primarily in Iraq and Syria. Again, he was involved in ensuring supplies were reaching troops, allocating airtime, and so on.

James is relatively active and spends his free time doing a variety of recreational activities. He is currently completing a graduate degree while maintaining a full-time work schedule. An open individual, James was not one to shy away from conversation and gave honest answers to even some of the more personal questions.

Participant two (Edward) is a Caucasian male in his mid-forties. Edward has been a member of the Canadian military (RCAF) for over 20 years. Edward also spent most of his career between western and eastern Canada. Like James, Edward has completed two tours in Afghanistan and one tour in Kuwait. During his time in Afghanistan, Edward spent time in the Kandahar airfield testing on unmanned aerial vehicles. Edward stated that while he was not in direct combat roles, Afghanistan was a 'risky' place to be stationed due to daily rocket attacks. Although the men were not in Afghanistan at the same time, they did serve together in Kuwait. In addition, Edward completed a tour in Europe as part of an anti-submarine aircraft. The two participants have known one another for many years, which I feel allowed for deeper conversation amongst our group. Edward was more guarded about his personal life, though still offered wonderful insight into the world of the Canadian military.

Participant three (Quinn) only took part in one of our sessions. During that session, he completed the baseline questionnaires and participated in one group discussion.

Quinn began his career as an infantry soldier and eventually transferred to the Air Force. He has been a member of the Canadian military for 18 years, ten of which were spent in the infantry. During his time with the infantry, Quinn was deployed multiple times to various locations. In 1999, Quinn was deployed to Kosovo. He stated this deployment was a 'policing' exercise. Quinn deployed to Bosnia in 2002. In 2006, he deployed to Afghanistan, where Quinn claims he finally 'did his job.' Quinn stated that he 'loved' this deployment because it was what

he had trained for, equating his task to a 'game.' For the past eight years, he has been a member of the Air Force.

Quinn experienced much more hands-on combat than the other two participants due to his background in the infantry. Because of this, his comments and views were often quite different from the other two participants. Quinn is very physically active. He is in his late-thirties and is married.

Each participant offered something unique to the program. Because I took a case study approach, I will discuss the results for each participant separately. I will then highlight the similarities and differences between the participants.

Qualitative Summary

The two main participants in this study were known to one another, which I feel allowed for deeper and more open and trusting conversations. Though we discussed a variety of topics, conversations routinely returned to the sincere lack of understanding of the military and combat-related stress in the general public, the Canadian military being a guarded population, experienced post-deployment issues, and the need for more programs such as this one for future military generations. I will now go through the results from each participant on a case-by-case approach. Within each case, I will point out the most common themes. Following the breakdown of each case, I will highlight the similarities and differences between the participants.

Common Themes — James: The Changing Nature of Stigma

James discussed a variety of issues that pertained to the Canadian military. In particular, the stigma that surrounds military mental health issues in the broader public is a particularly pressing matter for him. While some military look at mental health conditions as "weak", the

participant thought that stigma is lessening. Now, military are more likely to view mental illnesses as physical ones that require time to heal:

> Oh yeah. There was one individual who I know as well that needed some time away from the unit because he basically had a mental breakdown. I don't know exactly what transpired, but I know he had some issues. And so we worked with him and tried to get him some time, you know, take some time off and get him back into the unit and help him slowly reintegrate as well. And you know it was mixed, some of us did treat this like it's an illness and an injury. And just like if the member broke his leg and needed time to recover to come back to work, we looked at it the same way, like this individual is injured and needs time to heal and get back to work. But there were other individuals who looked down on this individual and said 'he's weak,' 'this person has mental problems.' So some of that stigma is still there and it can be tricky. I think it's getting better but it really depends on the individual.

Similarly, he goes on to say that there is still work that needs to be done in the area of military mental health. However, James feels that at least in the air force, upper ranks are beginning to recognize the need to address post-traumatic stress in a different way:

> …I agree with (Edward) that from what I've seen from our commanders and my commander and up the chain, that there is support and I know that our commanding officer recognizes and looks at PTSD and any mental illness as an injury, as something that needs to be treated not put down. With the philosophy of okay, let's get this person back to work, let's see what we can do to help them heal and recover, and like I said, it's an injury it's something that needs to be healed, yeah.
>
> The stigma has lessened, umm, people are more accepting of it, more understanding, but it's still there. It definitely is still there, of, yeah, 'toughen up and deal with it.' Like I said, I think I mentioned we had an individual in our unit who had some stress, had to take some time off and deal with a few things. And it was more mentally related, and while there was a number of us who fully supported it and treated it as an injury and you need time off to heal, then when you come back in we will slowly reintroduce you as if it were a physical injury, treated it like that, totally respected the individual for that, didn't look down on him, there were others who did. Did look it down negatively, said some inappropriate things about the whole situation that I think if the member had broken a leg wouldn't have come up. So yeah there's still some work that needs to be done in changing people's attitudes, it's still tough.

Theme: The Military as a Guarded Institution

James explained that the Canadian military is a guarded population, focusing on the difficulties he has faced within the organization. By this, James implied that the military often

engages in secrecy and covert behaviour. In this regard, they are a closed institution that prevents outside surveillance on its inner workings:

> I'm not too surprised. It can be sometimes with the military that they're open to things but also closed minded to things, and it's the weirdest organization.

James also highlighted an 'us versus them' attitude. This connects to the topic of military outsiders versus insiders that was touched on earlier. Specifically, James explains hos worlds and statements about the military are perceived by the general public:

> As well, I've found that between the military and civilians there can be an 'us vs. them' attitude that can permeate to things. To give an example, I was interviewed and he was an ex-military person and talking about how war has changed and talking with the UAV operations, the drones, and I was saying 'you know we go in and unfortunately sometimes we have to kill the target.' And he was like 'no, no, no, we can't say that, we have to say neutralize the target, use the term neutralize.' And when I joked with people afterwards or said this to people I said 'you know the public is gonna know what neutralize means and it's silly to change it around, the public's not that stupid.' And there's people who are like 'no they are. The public is stupid so they don't know what's going on so we need to use the term neutralize, so they won't know that means to kill.'

He goes on to highlight the difficulties the Canadian military faces with respect to the general public, perhaps helping to explain why we see such a guarded response from the military when confronted by questions about their operation:

> …But there are people who unfortunately do have a very skewed view of the public and sometimes that will permeate things and into discussions. But there are others who really understand that we need to work with the public and we need to keep those strong ties with the community going and they're not all out to look at a study that's going to bite us in the rear. And it's unfortunate because of like what's happened in the last couple of decades and talking with the Somalian inquiry first where the public and the media took a look at that one, PTSD the suicide rates, and now with the sexual misconducts.

James also touched on the need to work more closely with the general population in order to show that certain preconceived notions regarding the military may not be true or generalizable in all situations:

> That sometimes there's a fear that if we start revealing too much to the public they're gonna turn things around and say everybody in the military is like this, and not realizing

> that in some cases we need to talk more with the public to show that no this isn't the case, the military is not like that.

Theme: The Experience of Deployment

In this theme, the participant discussed the stress of deployment. James spoke of being on-base and requiring some sort of emotional outlet to vent his frustrations. He also called for more appropriate onsite psychological resources. Interestingly, James says he spoke with recruits from Australia. Indeed, there was no individual from James' on group that he could confide in about deployment stress:

> There's not that space where you can just have that one on one conversation with someone about 'this is what's going on right now.' Sometimes it's just that chance to vent. My second tour in Afghanistan, I met this guy from Australia, that was with the ambulance service there (quick responders) and we would get together from time to time to just b*tch about each other's coworkers. It was nothing that we had anything against our coworkers, we just we needed someone to talk to, to complain to. And this way was kind of safe because we didn't know each other's coworkers**.**

Theme: The Experience of Post-Deployment

James also highlighted a number of post-deployment issues. Post-deployment issues are things such as recurrent memories or flashbacks – typically the symptoms associated with post-traumatic stress that are not necessarily well understood with respect to triggers and duration. The participant discussed an interesting range of post-deployment issues, such as being reckless with money and drinking often:

> The other thing that's interesting too, when you get home, and they warn you about this and there's truth to it, they warn you about spending too much. You've been so cut off from everything. I don't know if you guys know about Baked Expectations, it's a great bakery, well the Oreo cookie cheesecake, the whole thing was like $50 and I ordered the whole thing, I was just craving it (laughs).
>
> It's food, but it's also toys, video games, whatever, because you don't have that. You miss your home comforts. So yeah, they do warn you that you'll go out and spend a lot of money on that stuff.

> I know when I came back from this tour there were a few times getting together with friends, definitely drinking too much, and waking up with a hangover, and (thinking) like I gotta stop doing that. Like it wasn't the kind of thing where you know drinking alone or
>
> Yeah, I wasn't drinking alone or anything like this, it was just great to see the friends and drinking a lot and it's kind of like ok let's stop doing that so. And it does happen, I probably did that on the other tours as well, getting back and you're just so glad and you have all this freedom again and just hanging out with your friends and sometimes you just go a little overboard. So definitely did it with time as well, so had to rein it in.

Additionally, post-deployment resources are lacking effectiveness and are inadequate for those returning to Canadian soil following deployment. James specifically mentioned that the medical doctors he worked with were excellent. However, personnel are often sent to social workers who cannot provide psychological support of an appropriate nature:

> …They do have follow-ups; the problem I find with that though is that the military relies heavily on social workers and medical doctors. The medical doctors I have no problems with, they're fine. They're just looking for more physical illnesses. Social workers, though, and I've heard stories about this and I do agree with this, aren't really equipped to handle the issues. They do try and they are good, but obviously being social workers they do look at issues from a broad societal viewpoint. And one case, one individual I spoke with who does have PTSD, not severe, but he does recognize that he has it, told me the social worker was saying do you want to talk about it and it was like well I need to speak to a professional and they were like no I'm here and when he started to talk about it, the social worker just couldn't handle it. Because to be quite honest, a social worker is not trained to deal one-on-one with PTSD. So it's not bad, but I find that deep down the full support isn't there. You have to reach out with the EAP, the employee assistance program, if you need further support. Or hopefully if you're lucky the social worker will realize it right away. So that's what you're relying on more.
>
> Yeah so what is it is the employee assistance program and they have 1-800 numbers you can call to arrange to speak with a social worker or a psychiatrist to tailor it a bit more and you can get up to eight sessions paid for, which is great. But it isn't military but they work with the military but again too its tricky because depending on your issues you may not want to talk to someone on the phone and they may not always send you to someone you need to go to. So like I said I used it where I went to see a psychologist and that was great, they were professionally trained and it was so much better but then to speak with the social worker and that situation I just found like no this person is definitely the wrong person for this case and situation so no.

During our debriefing session, James mentioned how, while this program could prove helpful, it is not a solution for post-traumatic stressors. This highlights the requirement for these individuals to have continual communication with a psychologist:

> You know one of those things, if somebody was going through the stresses yeah, I could say that this program would be a good addition. It's not a solution – but if someone is going through PTSD, I'd say ok this is something that, yeah, exercise will help. I do firmly believe there is some mental benefit, but I'd consider it a component. And for me, the PTSD, like this would be a smaller component compared to the psychological help that they would need. That would be the biggest thing, would be to get the psychological help. I would never say to do this program in isolation, not to do it by itself, like they would need something else.

What is often of much interest to researchers is how military personnel experience their post-traumatic symptoms. James did briefly discuss how certain events made him feel during, and after, deployment, specifically citing an emotional response of anger:

> And part of the other thing is this is what we signed up to do. It may sound cold or callous to some people, but we signed up to do this. This was war. And when you start realizing who you're engaging, like the guy we took out was with the insurgents, because he was planting IEDs meant to kill my comrades - meant to kill somebody's father, somebody's mother. And you heard the stories about what these guys did to families, to children. To me, there was no doubt we were on the right side of that. Some of the things I remembered seeing, like there was this checkpoint and there'd be a guy there with a rifle stopping cars and getting bribes, we knew that he was an insurgent, knew that this was somebody that we needed to take out, but there was a kid with him. And they would specifically have children with them because they knew that we would never, ever engage with them if they had a kid with them. And that just made you mad. This guy had no care for this kid; he was just using him as a shield. And so you saw these things and it made you mad, it really did.

James discussed a range of themes including stigma from the general public and within the military, the guardedness of the Canadian Military, the stress of military deployment, and finally, the post-deployment issues he faced. Edward discussed many of the same themes which I will highlight now.

Common Themes: Edward – The Experience of Stigma

Edward also discussed military mental health stigma. Specifically, he feels that while things are changing, issues surrounding stigma still exist in today's society. Interestingly, Edward also notices a difference between the Air Force and other branches in the military with respect to how they address issues such as post-traumatic stress:

> And I think there are differences between the Army the Air Force and the Navy. We had a lot of guys who were Army that came back, they finished their tour in the Army, they finished their tour in Afghanistan and they decided they wanted to do something else, and they came back and wanted to be Air Force. And we see that a lot in the NCM, the non-commissioned members, and a lot of those members, we aren't Army; we don't see the day to day lower level rank interactions. And from what I hear, it's a lot different, that perception of 'being tough' and 'being a man' and 'sticking it out,' and you just don't see that in the Air Force because we aren't boots on the ground, you know in the conflict, we are flying in the environment, and we aren't fully immersed in it 24/7. Even when we are deployed, we kind of recover out of that environment. So we don't really see it that much in the Air Force, and I think maybe we do a, and this is just me saying this (personal opinion, not associated with the Canadian Military) we do a better job, we do recognize it, we don't just push it off. And this is only in maybe the last ten years we really started talking about this, when guys were coming back and there was a lot of them and they did have something and it was PTSD, and we started putting programs together to actually start talking about this and recognizing it. I can tell you in the Air Force right now, nobody is going to, unless you have some bad supervisors and managers, but I don't think that exists anymore, guys will get help, guys will be listened to, and it will be recognized. We can't just say anymore 'ah just shut up and get on with it,' because that's not going to work because you're going to lose that guy and we need the people we have. So you've got to work with them you've got to support them and they will come back, they will bounce back, they just need the proper push towards the proper program. So I do think there's a difference between the Air Force and the Army from what I've seen in my career so far. But there has been a big change in the last ten years for sure, post-Afghanistan.
>
> Yeah, yeah, you'll think 'well I can handle this job, I can deal with the things happening at work here, how come that guy cant.' You don't know what's going on; you don't know anything that's going on (with that other person).

Edward touched on generational differences, noting how newer generations almost 'expect' emotional support to be provided to them. In contrast, support of an emotional nature for military recruits is a largely foreign concept for older generations of soldiers:

> It's slowly changing, right? With the new generation, the new way of thinking, uh the new members that come in kind of expect those services and at the top level of our senior

> leadership, we have some of those dinosaurs, right? The old way of thinking, they're not all 100% behind it. But we have retention problems, we have recruiting issues, these days we need every member that joins and we don't want them punching out two years after, and they will because the new generation of people coming in will leave any time they aren't receiving the support they want, or what they perceive they should be, what their career would be like in the military, they will leave like that. Uh and this is just another way to help them if they need help, and its slowly changing but we are getting there.

Something I found very interesting was a comment made by Edward during our debriefing session. Edward noted how simply de-linking the program from the term 'post-traumatic stress' could prove useful in future recruitment and program development:

> …And maybe you want to delink it from the PTSD term and maybe it will go there as a useful tool for that kind of naturally based on how you structure the program. Maybe you don't want to say this is a PTSD-related exercise because if there is the fear of people talking too much of PTSD and it supersedes the organization that.

Edward spoke of how family and friends do not fully understand what military personnel do for a living. I feel as though this can also be connected to the guardedness of the military, linking guardedness to the level of misunderstanding in the general public. However, this misunderstanding leads to increased stress because personnel cannot lean on those closest to them for full support:

> And they've got tons of stress. You don't want them going home and blowing up downtown Winnipeg. So leave the mess in another country. You can erase that off the table. But do the decompression somewhere else. So all of these guys as a group just partying it up and then slowly reintegrating to your families, which is tough. The longer you've been away; you've been away six months or nine months in a combat zone, holy crap. It's tough. You need that friend group because your family just does not understand. Like my parents, I've been in how long? 24 years? They still think I'm army because I have a green flight suit, they have no clue. Like, they just don't understand. They're from a small town in Saskatchewan, they still don't understand. Unless you have a military spouse like you do (Quinn), at least you can talk about some of that stuff at home. You don't want to talk too much, because then you're never out of work. I don't know personally, but I think it would be easier with a military spouse.

Theme: The Military as a Guarded Institution

Though Edward did not discuss guardedness in the military often, he did identify the internal fear of what military members may say to outsiders and how that affects the military itself:

> Well, they're (Canadian Military) scared of what the guys (members) are gonna say right?

Theme: The Experience of Stress

Edward made comments regarding coworkers who dealt with stress-related issues and stated that, even though the available resources did help, there is still a lack of available resources for returning members. Edward also feels as though the social workers many personnel work with post-deployment are simply not trained in post-traumatic stress and the proper approaches to healing this issue:

> Yeah, I've been a direct supervisor of a guy who went air force after, but he was army and he was in Afghanistan and he was in some serious conflicts and he did lose some of his buddies. And he had, and it was severely affecting his work and he was having personal issues, marital issues, professional and work issues. And we followed the flow of what we need to do and how we start dealing with possible PTSD. So he did go see a mental health professional at the hospital and he did go see social workers and eventually he progressed to, he couldn't work in the environment in his occupation where he was posted so we had to post him to a JPSU, a personal support unit. Where, that's where those kinds of cases go where they can keep them employed and they can go to their social work appointments and have time off and help them reintegrate back. And one he, it's kind of the opposite situation of what James said, because once he (other friend) went, he was having a lot of issues. He was very reluctant to go there, DUI (driving under the influence) he was charged there, was domestic issues because he and his wife were having issues. But once he started to go to the social worker, he really started coming around, he really changed his attitude, changed his outlook, he was a little more happy about coming to work and happy about staying in the military. Because before he was like 'I have to leave, I have to get out, I'm done.' He wasn't getting the support he needed, but once he started going to the social workers, he got the help he needed. But I also agree with what James says in that it's very much personnel driven. It's very much member driven. If they don't want to offer too much, the social worker can't really help them. And it's up to them, they have to want to go and keep doing it. No one is going to force them to go and sit down and really pull things out of them because you're right, they're (social workers) not really equipped, they're there to listen and they kind of guide you. I've never gone myself, but they kind of guide you in the direction you need to go

> for the answers you need. And can kind of point you in the right direction for other further support, so in this one case it really helped.

Again, Edward highlights the value of simply talking to comrades about ones' experiences as a way to handle combat related stress.

> What I find though, like you need closure and stuff. A lot of times when you're in theatre, you don't have closure because you can't talk about certain things. There's no time to sit down and have a beer and talk about things. Like, they're usually dry camps where you go, so coming back, if you can sit down with the guys you experienced stuff with and just shoot the sh*t and b*tch and complain about stuff, and just get stuff off your chest, even if nothing comes out of it, at least you talked about it and like someone else can go 'yeah, yeah, I know what you're talking about' and that's what we really have to do is just let guys talk and just put closure on stuff. That was the biggest help for me, I found, even though I didn't really have it (PTSD) bad or I didn't think I did.

Theme: The Experience of Post-Deployment

Edward, much like James, highlighted the fact that military members can overdo certain things when they return home. For instance, over-indulging in eating, drinking and spending money was an issue that he also faced post deployment:

> That's the thing right, you just overdose and overload because of the stress.

In addition, Edward brought up that difference between 'home' and 'away and how returning home can leave you a bit off-step:

> Because you are so in the moment, and so focused when you're deployed that you just shut absolutely everything else out. After you've been there about a month, you just kind of forget about your life back home, and you're focused on the job because you get into your routine. It's nine or ten hours' time difference, so it's tough to stay in contact back home.

> And we were. You just had enough time for six hours sleep and you're back at work, and it's go, go, go. And that's all you're doing. When I came home from Afghanistan, I wasn't there long, but when I got home I had a one year old who was still in diapers. So when I got back my wife said, go change (her) diaper. And I just sat there and just stared for like ten minutes going, 'what? What the hell do I do?' Like, I totally forgot how to look after this kid that was mine. So it's like you're just kind of messed up, like you said (Quinn), it just isn't 'real.' Even driving - that's why driving is really tough, too. Coming back from Afghanistan, you'd be on edge the whole time you're driving, depending on where you worked and what the threats were.

Edward also talked about how difficult family life can be when returning from deployment. For Edward, returning home to deal with his infant daughter was of great difficulty:

> Well, I went to Afghanistan twice. When I came back the first time, I didn't really know what to expect, so I was more stressed out. The second time wasn't so bad. I had a little bit (combat-related stress) when I came back. I didn't realize it at the time. Like, I came home and you know, my life, you know I wasn't there very long, but my life that I left seemed very foreign to me when I came back because I was so focused on the 18 hour a day job and you never had to worry about anything else in your personal life. Like, you're gone, so that life just doesn't exist anymore. So when I came back, I'm like 'wow, sh*t how do I change a diaper?' like I don't know how to do that.

Edward also noted that when he returned home and turned in his gear, he felt very exposed and unsafe:

> And when I first turned in all of my gear I felt very naked, like my helmet, my flack vest, and weapons, I felt very unsafe in well, everywhere. Just really exposed and just really messed up. But after a couple of weeks, that went away. And the second time, I didn't feel anything. We weren't really out of the wire so to speak, out in the villages, doing the patrols, seeing guys dying around us like some of the troops, so it was a bit different for us.

Common Themes: Quinn – The Experience of Deployment Stress

Quinn participated in one group discussion. During that discussion, the group talked of the importance of social support. Quinn routinely brought up personal and graphic stories of his engagements with enemy forces. He also briefly discussed some of the stressors faced by those deployed:

> A lot of the guys that didn't, like, once you get behind the wire again, like guys would be great outside the wire then get behind the wire for like three days, and I had troops with me and I'd have to counsel these guys because they'd be like 'if I go back out, I'm going to die.' And it's completely random. But the thing is, like, the guys who work behind the wire, like the mechanics and the support staff, some people say 'well, they shouldn't get the same pay, or they shouldn't get the same medal or whatever.' Those people never got the release. We got to pull the trigger, we got to actually take out the enemy, and we got that retribution, if that's what you want to call it. Because our friends were dying, and we were doing ramp ceremonies, and consoling spouses and family members and all that. The guys behind the wire never got to stick it back to the enemy while they were getting bombed in the camps.

Theme: The Experience of Post-Deployment

Quinn also highlighted post-deployment issues relating to both the need to de-stress and how difficult it can be to transition from deployment life to civilian life. The symptoms Quinn brought up were often what would be called more 'typical' post-traumatic stress responses, such as feeling as though he were in a haze upon returning home:

> Yeah, you have a lot of young infanteers that just came out of combat and they need to blow off some steam.
>
> I found with all of my deployments that the first week to ten days was, not like a dream, but hazy. You know, when you only get about three hours sleep and you're walking around and everything has that haze to it. That's kind of how I felt after all of my deployments. It was like, I'm not 100% sure that it's going to stay like this, because I've been away from it. So it's not like a dream, but it's like 'when am I going back'? And you kind of expect, like, this is nice, I'm kind of on a vacation, but I'm going to go back where I was.

As we can see from the embedded quotes, each participant discussed similar themes. It should be noted that each discussion revolved around very general topics (nutrition, sleep, stress) and the participants really led the conversations and gravitated to these more-specific topics. Though each participant gravitated to similar themes, differences amongst the participants were also evident.

Thematic Differences between the Cases

The Importance of Nutrition:

James talked very openly about his personal life, his own experiences while deployed, and how they affected him. Surprisingly, the importance of nutrition was regularly highlighted, citing it as his most difficult health-related task:

> For myself, nutrition is the trickiest thing. It's easy to grab a snack from a canteen. Deployed operations, it's a lot different.
>
> But the nutrition side yeah definitely could have discussed that a bit more like that's the biggest thing I find with any exercise program is you know you can go through an exercise as much as you want but if you're still eating a lot of junk food at the end of the

> day and dealing with that, it's going to offset the balance. Umm but I mean for myself like yeah it uh my point in my life unfortunately with starting up with that masters course like it just was so busy like literally id come home and try to get some of my archery in and then from like 7pm-10pm it was just study. So you know really trying to find the time to build in some good nutrition and all that is tough.

James mentioned how the food on-base is often questionable and typically lacks the nutrients that would be needed by this population in order to maintain a healthy lifestyle while deployed:

> Eating healthy is tricky. The messes offer some healthy foods, but depending on where you go. The one we were at, the vegetables were always boiled to the point that they're basically mush. I'm pretty sure all of the nutrients were boiled out of them.

Theme: Engaging in Approval Seeking Behaviour

Edward was much more guarded regarding his personal life, but often made comments 'off the record' about tailoring the responses to what I was looking for; he understood the importance of a Master's degree and he did not want to "waste my time." Upon hearing comments such as this, I would reinforce to Edward that an open and honest answer is what would be best. At the end of the intervention, he made the following comments:

> Well, we talked about that initially like, what is Shannon trying to do. Like, what is her aim because I asked you initially like we can give you what you need but James was saying like you don't want to tell us.
>
> I know where James is coming from and I understood what he was saying, but you can't have someone just free-wheeling and just giving you like a bunch of bogus stuff, like I didn't want to waste your time either, right.

Theme: The Glory of War:

Unfortunately, I did not have the ability to speak much with Quinn. The main difference with Quinn was that his background was initially infantry. This allowed for a different perspective on combat, combat roles, and how these can affect an individual's mental well-being. Quinn was often unapologetically forward in his discussion of war.

> We closed with and destroyed the enemy (and) that was our job. I was a live crew commander as a master corporal. I loved it. It was exactly what we trained for. It's not something that you ever want to do, but it's like doing soccer practice for nine years and

> never playing a game. We got to play a game. So it was a good game. Since then, I haven't been deployed. I've been asking for deployment, but I think our only deployment is Egypt.

More worrisome was Quinn's views on war as a game, equating basic training to soccer practice and engaging with the enemy as finally being able to play the game he had been 'training for' for so long. Quinn often laughed during his tales, really minimizing the reality that his stories often involved death:

> So if we were engaging people, sure you might see them from a sight, but it's almost like a video game. So number one, it was with a 25mm canon, when we hit them, they just disappeared, they didn't fall over, like, they were gone. And then you're so far away from like, the really tight action, so you aren't getting as much as the people who were pushing through. Like, we got ambushed. I was a lead call sign, so for me, normally you drive into an ambush, but you can't on a highway, we were on like one of the major highways, so I just told my driver to keep driving. We traversed the turret. My gunner grabbed his rifle, we had a 25mm canon, instead of dropping down because we were heads-up, so instead of traversing the turret, he pulled his C-7 out of the muscle rack and started engaging like a gangster. I had to smack him on the helmet and say 'use the gun' (laughs).
>
> We had to escort some Americans from Hellman down to the main road because the Americans didn't like, we had the LAVs, they hated going around in the HUMV's, and the Americans had their asses handed to them like all the time. So we escorted them down to the highway and we only had two LAV's and I think a G-wagon and we saw a look-out, like an OP, so we thought ok this has to be someone looking out for us. We come around the corner and there was basically an ambush set-up, like 30 dismounts, and we didn't have enough troops to like take them out and then clear the position, so we just bumped them and we just annihilated their ambush. All thermal with just LAVs and it was like watching the final game of the Stanley Cup Playoffs. We were cheering. And there were like pieces of people in the thermal, and we were cheering like it was the Stanley Cup finals. And it's not because this was something you would pray for or even think about doing, but it was like we are winning something. We had buddies who had been killed by IEDs and counter-insurgents, and all of a sudden we had people who had been fucking with us for this long and they're dying, and you're like 'yes.' You've been fucking with us for this long, and we're going to f*ck with you.

As mentioned, Quinn had requested further deployments as Air Force but had been unsuccessful in securing any. It was evident that Quinn wanted to return to the Middle East to continue the war on ISIS as he very obviously harboured real distaste for these individuals:

> They (ISIS) don't play by the rules. And that's why it's very frustrating that we aren't as engaged as we should be and that's largely because of public opinion. And we do not realize how, this threat is way more than the Taliban was because they have money coming in from everywhere. And I have a feeling that we are going to regret, not just our country, but many countries, will regret not getting as involved as they could have been with this conflict because they are much more supported than anything we dealt with in Afghanistan. And people are excited to help them.

Qualitative Summary

In this section, I have outlined the qualitative findings from our group discussions. As shown, there were a variety of topics discussed with respect to overall mental and physical well-being, but in many cases, conversations returned to a few key themes. Participants often discussed their personal experiences while deployed and how these instances have affected them. Participants also routinely returned to discussions on the need for better support post-deployment for military personnel and how the military can be a guarded population. While the participants also focused on independent topics, all three often engaged in conversation with one another regarding their experiences and the need for support. I will now be discussing the quantitative findings.

The Analysis Process – Quantitative

WHOQOL-BREF

All numerical values were calculated using hand-scoring instructions as discussed by the WHOQOL-BREF scale. Using an excel spread sheet, I organized each answer as it was written on the questionnaire. For example, question 1 asks: ‘How would you rate your quality of life?’ The responder then chooses a response varying from ‘Very Poor’ to ‘Very Good.’ Each response carries with it a numerical value. The numerical values were transcribed onto the excel sheet and double checked for accuracy. Once I transcribed the pre- and post-scores for James and Edward, as well as the pre-scores for Quinn, I then completed the reverse coding as discussed in the WHOQOL-BREF. Following this, I calculated the domain means. The domains are laid out as

follows: Domain One – Physical health (Q3, Q4, Q10, Q15, Q16, Q17, Q18), Domain Two – Psychological health (Q5, Q6, Q7, Q11, Q19, Q26), Domain Three – Social relationships (Q20, Q21, Q22), and Domain Four – Environment (Q8, Q9, Q12, Q13, Q14, Q23, Q24, Q25). Once each domain was added, the mean was calculated. As directed by the WHOQOL-BREF, each mean was then multiplied by four to obtain a transformed score between four and 20. These transformed scores were then compared with the WHOQOL-100 point scale, which is a more in-depth version of the WHOQOL-BREF. This calculation allows us to see approximately where the individual would sit on the WHOQOL-100 point scale. All scores were then compared pre- and post-intervention to see if the individuals experienced increases or decreases in their domains. It should be noted that question one (see above) and question two (How satisfied are you with your health?) do not fall into one of the domains. Rather, the questions stand alone and pre-and post-intervention numerical values were compared.

Short Screening Scale for PTSD

As with the WHOQOL-BREF, the responses for the Short Screening Scale for PTSD were transcribed into an excel sheet. A simple 'yes' or 'no' answer was all that was requested from the participants on this questionnaire. Pre- and post-intervention responses were deemed 'notable' when there was a change in response.

Quantitative Summary

James experienced an increase in the Psychological health and Social relationship domains. However, James experienced a decrease in the Physical health and Environment domains, as well as on question one and question two. James experienced no changes on the Short Screening Scale for PTSD. See Table Four.

Edward experienced an increase on all four domains in the WHOQOL-BREF while question one and question two remained the same. Edward experienced two notable changes on the Short Screening Scale for PTSD. Question two (Have you lost interest in activities that were once important or enjoyable?) and question three (Have you felt more distant or isolated from other people?) were answered positively on the pre-intervention questionnaire, but were answered negatively on the post-intervention questionnaire. See Table Five.

Quinn only completed the pre-intervention questionnaires. Therefore, this is considered a baseline value for both the WHOQOL-BREF and the Short Screening Scale for PTSD. These numbers will be compared to James and Edward in the following section. See Table Six.

Summary of Findings

In this chapter, I have discussed the qualitative and quantitative analysis approach, as well as a brief discussion of the findings. I will now discuss the results in great detail and link in pre-existing research in the field of military mental health and physical activity as part of the analysis and discussion section.

Table Three – Work Out

Warm Up (5mins) Lines x 2	Walk there and back High Knees Butt Kicks 5 Wall Push-Ups Sweeps Long Lunges and Hip Openers Long Lunges and Forward Lean 5 Wall Push-Ups		
Cardio (20mins) Done 4x's, each exercise done for 30sec	**Hard** Skipping Lunges Squat + Jump Prone Runner Skaters Side Hops Onto Riser Fire Feet Prone In and Outs	**Medium** High Knees Step Ups (High Riser) Bodyweight Squat Wall Sprints Lateral Step Ups Front Hops Onto Riser Fire Feet Upright In and Outs	**Easy** Marching Step Ups (Low Riser) Step Up From Chair Butt Kicks Shift Squats Squat Onto Toes Fire Feet Squat and Toe Taps
Strength (20-30 mins) Done 2x, each exercise done 15 times	**Hard** TRX Jump Squat TRX Underhand Row Half Plank and Tap TRX Single Leg Squat Full Push-Up Body Hollow TRX Thrusters V Shoulder Raise Full Plank	**Moderate** TRX Bodyweight Squat TRX Underhand Row Half Plank and Tap Single Leg Floor Tap Half Push-Up Toe Touches Ball Thruster V Shoulder Raise Half Plank	**Easy** Stand Up From Chair Seated Band Rows Wall Plank and Slide Single Left Lifts Push-Up Against Wall Basic Crunch Floor Thruster V Shoulder Raise Wall Plank

Table Four

James – WHOQOL-BREF, Pre- and Post-Intervention					
Domain	**Pre**	**Trans**	**Post**	**Trans**	**Increase/Decrease**
DOMAIN 1-Physical	18.28571	88	17.71429	88	Dec
DOMAIN 2 - Psychological	14	63	14.66667	63	Inc
DOMAIN 3 - Social Relationships	14.66667	63	16	75	Inc
DOMAIN 4 - Environment	18	88	17.5	81	Dec
Question 1 - Overall percept QOL	4		3		Dec
Question 2 - Overall percept health	4		3		Dec

James – SSS, Pre- and Post-Intervention

Question	**Y**	**N**
1		x
2		x
3		x
4		x
5		x
6		x
7		x

Question	**Y**	**N**
1		x
2		x
3		x
4		x
5		x
6		x
7		x

Table Five

Edward – WHOQOL-BREF, Pre- and Post-Intervention					
Domain	**Pre**	**Trans**	**Post**	**Trans**	**Increase/Decrease**
DOMAIN 1-Physical	18.28571	88	19.42857	94	Inc
DOMAIN 2 - Psychological	13.33333	56	17.33333	81	Inc
DOMAIN 3 - Social Relationships	10.66667	13	13.33333	56	Inc
DOMAIN 4 - Environment	17	81	19	94	Inc
Question 1 - Overall percept QOL	4		4		Same
Question 2 - Overall percept health	5		5		Same

Edward – SSS, Pre- and Post-Intervention

Question	**Y**	**N**
1		x
2	x	
3	x	
4		x
5		x
6		x
7		x

Question	**Y**	**N**
1		x
2		x
3		x
4		x
5		x
6		x
7		x

Table Six

Quinn – WHOQOL-BREF, Pre-Intervention		
Domain	**Pre**	**Trans**
DOMAIN 1-Physical	18.85714	88
DOMAIN 2 - Psychological	18.66667	88
DOMAIN 3 - Social Relationships	17.33333	81
DOMAIN 4 - Environment	19.5	94
Question 1 - Overall percept QOL	5	
Question 2 - Overall percept health	5	

Quinn – SSS, Pre-Intervention

Question	**Y**	**N**
1		x
2		x
3		x
4		x
5		x
6		x
7		x

Chapter Five - Analysis and Discussion

In this chapter, I intend to discuss my findings in the context of the evidence and will pose questions for future research in the field of physical activity and military mental health. In order to keep this chapter clear of confusion, I will first break down the analysis of the qualitative results, followed by the quantitative results. Within each section, I will highlight the finding, link it to past research, and follow each finding with a potential future direction or recommendation. First, I will begin with the qualitative findings.

Analysis and Discussion: Qualitative

Common Theme: The Experience of Stigma

Stigma was a theme that I expected to observe in the study, simply based on much previous research which discusses how entrenched stigma still is in the military today. As previously discussed, stigma surrounding military mental health is evident, and dates back to the 1800's. Stigma became even more prominent once society witnessed a push for military mental health on behalf of the veterans returning from the Vietnam War. What surprised me was how stigma was discussed amongst the participants.

Upon deployment from the military, the participants in my study discussed the great stigma which they faced. This relates to previous research. Stigma surrounding military mental health as discussed by Kim et al. (2011) highlighted that those dealing with mental health issues may feel so stigmatized that they refuse to seek professional help[56]. My participants briefly discussed how certain members still carry with them internal stigma regarding mental health issues. However, each participant also highlighted the fact that this stigma is lessening. For example, James often equated combat-related stress to a physical injury and something that requires healing and understanding. James states that, much like a broken leg, an individual with

combat-related stress requires a process of judgment-free recovery. Thus, my participants felt that stigma is lessening and likened mental health ailments to physical ones that require time to heal.

This novel finding goes against much of the existing literature I have been exposed to. This is especially interesting because the participants mentioned that this is very much an Air Force way of dealing with issues like combat-related stress. Therefore, it is possible that the stigma and associated studies we have been exposed to are focused on a specific branch of the military, or encapsulates all branches, perhaps skewing the results. It would be interesting to push forward with studies that work strictly with infantry, air force, and navy members, in order to gauge differences between the branches. Edward even went so far as to highlight this possibility, stating that, from what he has seen, there are major differences between the army and the air force in how they approach and deal with combat-related stress. This is an area that requires further investigation. In addition to investigating between group differences in the experience of stigma (i.e. infantry, etc.), it might also be important to investigate whether an increase in public discussions about mental health has contributed toward an overall reduction in the experience of stigma. As people become more accustomed to discussing mental health matters, it might be postulated that this has reduced military mental health stigma.

Common Theme: The Military as a Guarded Institution

Guardedness in the military was another topic that I came across in my background review for this study. The military is an organized establishment, one that requires a certain amount of secrecy in order to function properly. The concern becomes that this amount of secrecy and guardedness transfers into other areas, such as the quality of inter-military relations

and relations between the military and the community. Secrecy was a concern that the participants did raise.

James discussed how guarded the military is internally, stating that even when attempting to change the slightest protocol, he faced serious backlash. Additionally, James highlighted how this guardedness can affect social relations with local communities. As James mentioned, there is often an 'us versus. them' mentality when military members view the general public, encouraging the military as this sort of caged-off institution. Interestingly, Edward discussed a different concern from within the military regarding outsiders. During our post-intervention debriefing, the group spoke about the extreme difficulties I faced in my effort to recruit participants. This was when Edward spoke freely about the military's concerns regarding these types of studies and what they may uncover. Edward mentioned that researchers can often face a lack of returned communication out of fear of what military members may say during such research studies, therefore effectively shutting down the research study itself before it really gets started. This kind of guardedness, however, can lead to a vicious cycle and is definitely one that Dr. Moola and I faced in our efforts to research this community.

Consider this particular study, which is aimed toward breaking down stigmas related to mental health and disability. This study was geared towards examining stigmas rooted in the military and the general public regarding military mental health. If the military itself does not lend a hand in breaking down community-driven stigmas, how can they possibly expect the general public to understand and remove such stigmas surrounding the military as a guarded institution?

This guardedness links with past research conducted by Foucault which highlights how the military is essentially an institution based on systematic bureaucracy. Foucault believes that

the military takes recruits, breaks them down to their very core, and builds them up as military-driven machines that do and say as they were taught[64]. In this regard, the military – according to Foucault – is a total institution that promotes complete conformity. Unfortunately, as based on the data collected from the participants in this study, this belief may be relatively engrained into our society to this day, due to the fact that the Canadian military remains such a guarded institution.

Foucault has been challenged by many researchers. For example, Smith (2008) feels as though Foucault's approach is quite cut and dry[64]. When discussing military training, in particular, Foucault fails to examine the military subcultures that exist and shape inner-military relationships. Additionally, military training often emphasizes building up soldiers in order to improve oneself for the sake of improving oneself, not for the sake of creating the 'perfect' solider[64]. Foucault also overlooks the capacity of individuals to resist the power relations that bind them, as was so well illustrated by my participants who offered intelligent critiques of the military. Perhaps advocating for more programs where military members work within their local communities would help break any existing stereotypes surrounding military and military members. Additionally, democratizing power relations within the military might reduce power differentials and secrecy. With respect to how the general public views the military and how the military interacts with their local communities, much more research is required.

Common Theme: The Experience of Deployment Stress

Stressors are a common theme experienced by military personnel. Unfortunately, as highlighted by the participants in this program, there are not enough programs available on deployment bases or on at-home bases to manage such stressors. As James mentioned, he had worked with a social worker on a few occasions and felt as though the individual was not trained

well-enough to deal with the kinds of issues experienced by military members working through post-traumatic stress symptoms. Edward made note of the fact that there is no time for members to sit down and talk about everything they have gone through while deployed. As we can see through issues such as the Canadian Government closing regional support offices across the country, it is becoming increasingly difficult for people dealing with post-deployment stress to get the help that they require. Now, support offices are located in very specific regions in the country, essentially ostracizing military members from the very communities that they swore to protect. This coincides with work done by Parr, Philo, and Barr (2004) who found that individuals who attended clinics in specific locations felt as though they were forced outside of their communities[57].

Edward also often referred to how members are required to take the initiative to seek out help. This issue can be linked back towards the engrained stigma in the military and general public that many researchers have identified. Greden et al. (2010) worked with soldiers returning from recent conflicts who were dealing with post-traumatic stress symptoms and found that only half sought out professional help following their deployment. Stigma and embarrassment were the most common answers as to why the soldiers refused to seek medical care[9].

Again, we see a direct link between stigmas and how our military members experience stress. A lack of available treatment options mixed with a lack of education surrounding both post-traumatic stress and combat-related stress creates a cycle of misunderstanding and does not promote support-seeking behaviours. Health classes in grade school teach children about topics such as depression. I suggest expanding the mental health portion of our curriculum to include prevalent topics such as post-traumatic stress and combat-related stress to promote a greater understanding for individuals as they grow up. While this research study focuses on military

mental health in particular, post-traumatic stress is not necessarily a military issue. I argue that this is a far-reaching mental health issue that is not well understood and this can help lead to the stigmas and misunderstanding we witness in the general public.

Common Theme: The Experience of Post-Deployment

Though our group discussions rarely touched specifically on topics surrounding post-deployment stress, the participants regularly brought up their personal dealings with this issue. James routinely discussed spending too much money on items and food because he had been quartered off from his belongings for such a long time. A perceived sense of deprivation, then, led him to indulge excessively in food shopping after deployment. Edward often spoke of returning home to his family and not remembering basic things, such as changing his daughter's diaper. Quinn, who spent his deployments as infantry, highlighted more typical post-traumatic stress-related symptoms, such as feeling as though he were living in a 'haze' immediately upon returning home. All three men noted the difficulties associated with driving when returning to Canadian soil. It was evident, then, that my participants experienced a stark difference between "home" and away".

If we examine the DSM definition of post-traumatic stress, we see symptoms associated with recurrent memories. This is also highlighted by Larabee (1995) when discussing the individual who would look in his rear view mirror and visualize the barren desert[4].

Additional post-deployment topics coincided with issues such as overeating or overspending. James also discussed his drinking habits and how they increased following deployment. This supports results from a systematic review done by Debell et al. (2014) which highlighted that, although studies vary in their post-traumatic stress-alcohol comorbidity rates, we see an average prevalence of approximately 10%[67]. The DSM also highlights the possibility

of substance abuse disorders as a way for individuals to cope with their post-traumatic stress symptoms[2]. Edward also discussed this issue, actually using the words 'overdose' and 'overload' due to the stressors you faced while deployed.

Post-deployment issues have been heavily researched. Much of the data collected from this study has coincided with pre-existing research. However, there is still much research to be done on how individuals experience post-traumatic stress. As Larabee (1995) discusses, the concept of time can be incredibly influential for those with post-traumatic stress[4]. Diving into more in-depth discussions with those that have post-traumatic stress would allow for a better understanding of how post-deployment stressors trigger post-traumatic stress symptoms. Case studies or focus groups would be a great launching point for such discussions, allowing researchers to dive into this sensitive, yet confusing, topic.

As mentioned in the previous chapter, I did witness some individual themes among the participants. I will now discuss these in detail, link them to previous research, and highlight potential research questions to address these themes in the future.

Theme: The Importance of Nutrition

James routinely spoke of the importance of nutrition. For James, ensuring that he ate a proper diet proved to be his most difficult health-related task. While deployed, Canadian military personnel are forced to eat whatever is provided for them. Often, our military works with the local communities and so our Canadian military members eat food inspired by the local cuisine. Additionally, as my participants stated, vegetables are usually overcooked and much of the meat is fried. James also discussed the temptation of returning home and indulging in foods that he did not have access to while deployed.

Nutrition is regularly discussed in conjunction with mental health issues such as depression. Low mood states can be caused by vitamin and mineral deficiencies[66]. As mentioned previously, overspending and over-indulging can be linked to post-traumatic stress symptoms, as well as other psychological afflictions, such as eating disorders. It could be argued that indulging in rich-tasting foods gives a temporary feeling of euphoria for someone dealing with stress-related issues. Additionally, indulging in such rich foods, non-nutrient dense foods could contribute to issues with post-traumatic stress. This was a novel finding from my research that has not been discussed elsewhere and greatly contributes toward the research.

Because nutrition has not been widely studied with respect to the Canadian military and post-traumatic stress symptoms, this would be an excellent topic for future research consideration. Perhaps examining how nutrition affects post-traumatic stress symptoms would prove to be a useful study in the future. In addition, food and eating carry much symbolic value, and are often barometers of relations with family and friends. Being deprived of "home cooked" food might also be an experience that military encounter, and warrants further research. Based on existing research on how nutrition affects mood states, having military personnel work directly with nutritionists both on-base and on deployment could greatly decrease post-traumatic stress symptoms in personnel as well.

Theme: Catering to Superiors

Edward was the most guarded of the participants. Post-intervention, Edward made comments about wanting to 'give' me the answers I was looking for so that he 'didn't waste my time.' I found these comments to be very interesting. The military is known for enforcing apparent levels of authority in order to distance lower ranks from upper ranks. According to Foucault, the very act of basic training is geared towards breaking down recruits in order to

create an army of individuals with no opinions of their own[64]. Therefore, it is possible that Edward viewed me in a position of authority and sought to appease me throughout the program. Therefore, based on internalized power relations, Edward might have unwittingly given me the responses that he thought I desired.

In research, this is commonly referred to as the participant-researcher power imbalance. I attempted to remove this imbalance by speaking to the participants as an equal and in plain-language. Additionally, at the outset of each group discussion, I asked the participants for open and honest answers and that there were no right or wrong answers. However, it is still possible that due to my title as 'researcher,' Edward felt the need to ensure he was acting in a way that would be deemed appropriate for that situation.

This participant-researcher power imbalance has been researched. I question how the participant-researcher power imbalance has been shown in literature pertaining to military populations. I believe that the additional 'military' factor could play a large role in how the power imbalance plays out in research on military-related topics and is something that deserves further investigation. A behavioural study in this area could prove to be very useful.

Theme: The Glory of War

Quinn was an interesting case study. As we know, Quinn joined the military as infantry and all of his deployments were completed with the army. Quinn transferred to the Air Force following his last deployment and since then, has not faced action. This is something that actually seems to make Quinn a bit restless and he stated that he has requested deployment from his superiors. When speaking of his previous deployments, Quinn often equated confrontation to a game. On one occasion, Quinn stated how basic training is essentially like soccer practice, but when you actually engage with the enemy, that you are finally able to play the game. Of

additional interest, though Quinn claimed he did not suffer from any post-combat issues, he was one of the first of the participants to discuss classic post-traumatic stress-related symptoms such as driving difficulties and feeling as though he was in a haze. Quinn was especially interesting because he was the one participant who joined the program and stayed for only one group discussion and workout session. He then terminated all communication with the group. Further, it might be important to investigate whether viewing war as a game is conducive or, rather, maladaptive to health. In one sense, a "game like" vision of military action might facilitate coping and provide an easy model to contemplate war. However, viewing war as a game might also gravely minimize the costs and create a dream-like or false sense of reality. This clearly requires more research.

The participants did highlight the differences between air force and army. As mentioned previously, I feel as though this is an area that is under-developed and requires much more research. Because army personnel often engage in hand to hand combat with the 'enemy,' while air force members often view the 'enemy' from a distance, I would argue that post-traumatic stress symptoms could be higher in army populations. I also feel as though basic training faced by army and air force may differ as based on the participant's conversations. Additionally, the ways in which higher and lower-ranked personnel interact differs greatly between army and air force. As mentioned by the participants, the army enforces difference in ranks. In the army, lower level ranks do not question upper level ranks' decisions. In the air force, lower level ranks can speak to, and even correct, upper level ranks without discipline.

This main difference between the two branches of the military deserves further investigation into how this can affect things such as how war is perceived and how personnel approach post-traumatic stress and seeking professional help. Existing research often focuses

solely on army recruits, leading to large volumes of personnel (up to 50%) not seeking professional help following deployment[56]. I argue that similar studies on post-traumatic stress prevalence and support-seeking behaviours are required on strictly air force populations and strictly navy populations in order to detect differences between branches. Addressing the 'glory of war' mentality in army recruits is also a topic that deserves another look. Are there differences between army, air force, and navy? How do their training and inter-military relationships affect post-traumatic stress and support-seeking behaviours?

Connecting Findings to Theoretical Lenses

Self-Determination Theory

The findings from my thesis can also be interpreted within the context of my three theoretical models. To reiterate, Self-Determination Theory (SDT) is a theory of human motivation created by Deci and Ryan (1985). This theory states that three needs must be met in order for an individual to feel motivated: autonomy, competence, and relatedness.

Autonomy means that individuals feel a sense of freedom in their choices. I felt that autonomy was applicable to military populations due to the often lack of freedom experienced by lower ranks. In addition, individuals experiencing mental and emotional turmoil following deployment may feel stigmatized or pressured from the general population, leading them to feel little freedom in their decisions. This topic was brought up by Edward. If we recall, Edward mentioned that he wanted to give me the answers I was looking for so he did not waste my time. Edward's sentiments might be indicative of learned power relations in the military and his desire to give those in positions of authority what they are looking for.

Competence involves having a sense of mastery over some aspect of one's life. Individuals dealing with physical or mental disability may experience a reduction in their level of

ability, perhaps leading to lowered competence. Physical activity increases one's feeling of competence. Following session one, the participants each mentioned how difficult the physical activity portion was. There were instances when we were quite literally losing our balance from lateral movements our CSEP had us perform. By week three, all participants had improved balance and our repetitions increased. By week six, the intensity of the exercises had increased as well. Over the course of our six weeks together, we had all gained a sense of mastery in a physical sense.

The concept of relatedness revolves around feeling a sense of inclusion in your local community. The World Health Organization Quality of Life Abbreviated Scale measured social relationships. Both participants experienced increases in this domain over the course of the intervention. Because I organized this intervention to focus on group discussions and physical activity sessions, I added that element that many other studies have documented: the value military personnel place on camaraderie.

The SDT is an applicable theory for this target population. The participants experienced an increase in their autonomy and decision-making throughout our six weeks together. A sense of competence was achieved through increased physical fitness. Finally, the camaraderie felt between the participants increased over the course of the intervention.

Social Model of Disability versus. the Medical Model of Disability

The social model of disability highlights that disability is actually created by a society that is not built for bodies that deviate in any way from the norm. The medical model highlights that bodies that do deviate from the norm require 'fixing' in order to comply with medical and social standards. I adopted the social model view when approaching this study because I agree that disabilities, whether physical or mental, are often determined by social and medical views.

Though these topics were not brought up during our group discussions, they were touched upon by the participants. For example, James and Edward mentioned how, though the stigma surrounding post-traumatic stress is lessening, there are still individuals in the military who stigmatize mental health conditions. This can be linked to the medical view that individuals with post-traumatic stress have a mental health issue, and therefore, deviate from the normal body. Socially, this highlights how some individuals do not know how to deal with such deviations, therefore exacerbating the issue for the individual dealing with post-traumatic stress.

On the other hand, James equated post-traumatic stress to a broken leg, stating that it is something that requires a process of judgment-free recovery. Generally, there is no social or medical stigma associated with a broken leg, so I argue that by James making this statement, certain military members are beginning to challenge the dated views that I exposed in the introductory chapter.

Other Theoretical Links

A few other interesting links became apparent when analyzing the data. In the review of literature, I spoke of Larabee (1995) who connects the concepts of time and post-traumatic stress. As we recall, Larabee argues that when dealing with combat stress, time is non-serial and non-linear, allowing individuals to jump into and out of recurrent memories with ease. I want to explain a potential link between Larabee's discussion of time and Duncan's (2007) discussion of the practiced body. The practiced body, according to Duncan, is one that completes the same actions over and over. While Duncan asserts that athletes are practiced bodies, I argue that military members also have practiced bodies. Individuals in the military are taught certain actions and responses and repeat these actions and responses until they are 'practiced.' For example, Larabee discusses a gentleman who returned from Afghanistan where he worked as a

driver. When home, he was driving his own vehicle and flashed back to driving in the barren desert. It is possible that this is due to having practiced these movements so often while deployed. Therefore, the link between the practiced body and Larabee's concept of time requires more investigation and could prove useful in combat-related stress healing options.

Duncan's works on the disciplined and transgressive body are also of great interest. I argue that the military prefers a disciplined body, one that is physically, mentally, and emotionally superior to others. A disciplined body is restrictive in its diet and approach to physical fitness. The military is also restrictive in these areas, in an attempt to build the perfect soldier. A transgressive body, then, is anything that deviates from the disciplined body. Consider a soldier dealing with physical or mental disability. How does transferring from a disciplined body to a transgressive body affect military members? This is another area that I feel requires much more investigation.

Analysis and Discussion: Quantitative

In this section, I will break down the results and analysis based on questionnaire type with subheadings to separate each participant.

Questionnaire: Short Screening Scale for PTSD (SSS)

On the SSS, James experienced no changes. As a reminder, the SSS consists of seven 'yes' or 'no' questions and I checked for changes in answers across the program. This means that James' answers remained the same pre- and post-intervention. This would indicate that James had no post-traumatic stress-related symptomology.

On the SSS, Edward experienced two notable changes. Pre-intervention, Edward answered 'yes' to the following questions:

2. Have you lost interest in activities that were once important or enjoyable?

3. Have you begun to feel more distant or isolated from other people?

Post-intervention, Edward answered every question in the negative. This indicates a positive result. Though I cannot say that the intervention was directly related to this improvement, it should be noted that over the course of the seven weeks, Edward went through a separation from his wife. Despite this stressful time, Edward still improved emotionally. Though two affirmative answers do not lean towards a positive post-traumatic stress diagnosis, it does indicate emotional conflict. Therefore, seeing this improvement on a psychosocial measure post-intervention was very exciting. Fully powered sample sizes are needed to detest whether this positive change after the intervention was statistically significant.

As mentioned earlier, Quinn only completed pre-intervention questionnaires. Quinn answered in the negative to each question listed, which would indicate no post-traumatic stress-related symptomology.

Questionnaire: World Health Organization Quality of Life-Abbreviated Scale (WHOQOL-BREF)

The pre- and post-intervention results for James on the WHOQOL-BREF were interesting. There was actually a decrease in four separate domains. Question one (quality of life) and question two (health satisfaction) were measured individually and James decreased on both. Additionally, James decreased on the Physical domain and the Environment domain. James did see increases on both the Psychological domain and the Social Relationship domain.

James repeatedly mentioned ‘off the record’ that he was facing increased stress due to a Master’s program he had recently begun. It is entirely possible that this played a role in James’ well-being over the course of the program. Additionally, we often assume that discussing health-related topics would improve the participant’s outlook on their own health. This may not be the

case. For example, discussing topics such as nutrition or exercise habits may force the participant's to focus on those areas of their life, therefore increasing their stress and lowering their quality of life.

James did experience increases on two domains. As was discussed in great detail in the review of literature, exercise and counseling can greatly benefit psychological well-being. Additionally, participating in these types of sessions as part of a group can increase one's social relatedness. James did experience increases in those two domains. Again, while I cannot link the program directly to these increases, it is possible that the program had a positive impact on his psychological and social well-being.

Edward proved to be my most exciting case study. Edward's WHOQOL-BREF results showed no change on question on or question two. However, Edward experienced increases on every domain (physical, psychological, social relationships, environment). Most notably, Edward's increases in both the psychological and social relationships domains were quite dramatic. As mentioned with James' results, exercise increases psychological well-being. When participating in group activities, we can also witness an increase in participant's social relations. These results coincide with the literature.

Unsurprisingly, participating in a physical activity program can lead to increased physical well-being, as was witnessed with Edward. Increasing one's activity level will lead to increased physical well-being. Edward was relatively active prior to beginning the program. Interestingly, Edward incorporated this routine into his usual weekly work-outs, meaning he completed this particular work-out three times each week. It should also be noted that during this time, Edward was going through a separation. At the outset of the program, he could have felt quite isolated in his troubles. Having the ability to get together with other likeminded individuals once a week

could have provided him with some of the social connectedness he had been lacking in his personal life.

Edward saw an increase in his environmental domain. Experiencing improvements in his physical, psychological, and social relationship domains could have affected how Edward felt about his environment as well. Increasing his social well-being via group discussions, in particular, could have vastly improved how Edward perceived his surroundings.

Because Quinn only completed the pre-intervention questionnaires, there is little in way of information. When we compare Quinn's results to James and Edward, we see an individual with high scores in each domain, especially in Psychological and Social, when compared with James and Edward. Due to such little information, it is difficult to make an educated assessment on Quinn.

Reflection on the Tools

There are certain positives and negatives associated with the questionnaires I used for this study. First and foremost, questionnaires may be considered disabling due to the inherent assumption that all participants completing them can see, read, write, and comprehend the English language. As mentioned, I engaged in communication with the participant's prior to the program in order to ensure that they would be able and willing to complete the written questionnaires. I also offered to help the participants complete the questionnaires if needed.

The Short Screening Scale for PTSD and the World Health Organization Quality of Life – Abbreviated Scale are both shortened versions of longer questionnaires. Each questionnaire is still a validated tool and it was decided to use the abbreviated versions so I did not inundate the participants with too much paperwork prior to the first session.

As with any questionnaire, the researcher must trust that the participants have answered honestly. While I encouraged the participants to answer honestly, it is possible that this was not the case. Additionally, it is possible that any improvements witnessed on the questionnaire results did not occur because of the intervention but was the result of life events that were not discussed as part of the questionnaires.

Questionnaire: Physical Activity Readiness Questionnaire (PARQ+)

Although the PARQ+ is not considered a 'validated' psychometric tool, it is a questionnaire that the participants were required to complete. The reason I chose to include a write-up on the PARQ+ is due to the fact that the participants raised concerns about the questionnaire in our post-intervention discussion. Both participants who attended the final discussion made note of how easy it would be for an individual to lie on this form. Edward stated that he could simply 'check a box' saying he felt healthy, when in reality, he could be dealing with a variety of issues. James mentioned that this could actually cause more harm than good and lead to potential injury or aggravating a pre-existing injury. I thought that these were valid concerns that deserved a discussion as part of this thesis.

Summary of the Analysis

In this chapter, I discussed both common and individual themes. I spoke of pre-existing research that supported the theme, and followed that with suggestions for future research.

Following a discussion of the themes, I then highlighted the quantitative pre- and post-intervention results. Once again, I tried to bring in pre-existing literature in order to substantiate the findings. Finally, I engaged in a discussion about the questionnaires, with a particular focus on limitations. I will now conclude this thesis.

Chapter Six - Conclusion

My great uncle, James Edward Quinn, fought alongside thousands of Canadian men and women during World War II. Though James never returned home, his legacy has remained an integral piece of our family's history. I often find myself wondering what he would have been like following his military service, had he survived the war. With everything he faced, would he have been a changed man? Would he have encountered his own internal battles with post-traumatic stress once he returned home? What would he have made of my thesis? War has consequences. For those of us who have been spared the horrors of military combat, these consequences are often forgotten or ignored.

This project gave me the opportunity to work closely with a few of our Canadian military personnel. It allowed me an inside glimpse to their personal hardships and victories pre- and post-combat. These men voluntarily opened up their lives to me, allowing me to understand their lived experiences and gain a better understanding on what it means to be a Canadian airman. The stories these men shared with me will stay with me forever and will continue to fuel my desire to change the face of military mental health treatment. Though some of the findings coincided with past research, I also discovered some novel findings that helped to expose where current research is lacking.

The theme of stigma highlighted that the air force may have a view that differs from other military branches. For example, each participant said that the nature of stigma is lessening, which goes against much of the pre-existing literature. The participants did note that this particular view of mental health was very much 'Air Force' based, which leads me to question whether there are major differences between branches with respect to post-traumatic stress. Studies based on post-traumatic stress experiences, admittance, support-seeking behaviors, and

reaction from fellow personnel from each branch of the Canadian military would be extremely interesting and beneficial. In addition, the general public's knowledge of post-traumatic stress is skewed in a negative direction. I feel as though increasing public awareness on this topic could help break down previously discussed societal misconceptions.

As was highlighted in the review of literature and in the quotes of my participants, the military operates under a certain level of secrecy and guardedness. Issues arise when these behaviours reach peak levels, affecting the inter-military relations between upper and lower ranks, as well as the relationships between the military and their local communities. Again, advocating for military mental health awareness, both within the military and in the community, could help break existing negative stereotypes that result from such secrecy and guardedness. In addition, examining how military recruits are trained could show great insight into why such inter-military issues exist. For example, the participants highlighted that older generations of officers tend to dismiss mental health claims, yet newer recruits are using potential future mental health issues and how they are treated as a platform for their decision to enroll. Perhaps there are generational differences to be explored, as well as differences amongst the branches of the military itself.

While deployment stress is relatively understood by medical professionals, how and why individuals experience post-deployment stress is easily confused. This intervention showcased why focus groups and interviews are beneficial in beginning to understand the lived experiences of military personnel dealing with post-traumatic stress. Through open and honest communication, medical professionals will be better able to piece together the post-deployment triggers faced by those experiencing post-traumatic stress symptoms and will only aid in healing

measures for this population. This showcases the methodological contributions from my thesis and the merits of conducting case study focus groups and interviews.

Nutrition, approval-seeking behaviours, and maladaptive views of war were each highlighted by my participants. With so many existing studies on how nutrition affects mental health, it seems reasonable that a study linking post-traumatic stress and nutrition be conducted. In the military, upper level ranks demand respect and adherence from lower ranks; unsurprisingly, this approval-seeking behaviour can affect other areas of one's life. This particular phenomenon could affect the relationship between a researcher and a participant from the military population and therefore should be recognized in future research as not only an additional observation, but as a potential limitation. Finally, viewing war as a game could be maladaptive to mental health. Again, I want to emphasize the requirement for future research looking into differences and similarities amongst military branches. Because much of the pre-existing research conducted on the military has been performed with army recruits, similar studies need to be performed on air force and navy personnel.

My Final Thoughts

Combat-related stress can be a debilitating mental health issue. In addition to stigma and misunderstanding, Canadian military personnel have also identified a sincere lack of available resources while away on, and returning from, military missions. With so many factors stacking up against them, our military men and women may feel isolated from the very populations that they swear to protect. Without the proper resources and support, military personnel dealing with combat-related stress symptoms will not recover, leading to many other potential consequences.

In October of 2010, I travelled to Europe. From Paris to Nijmegen, to Kleve, I spent hours making my way through foreign lands in order to pay my respects to a man I never met.

Although he was the impetus for me writing this book, my great uncle's impact on my life cannot be expressed through the lines of this thesis. I can only hope that through my connection to him, I can use this work to advocate the necessity to view post-traumatic stress from a different lens and create alternative methods of healing this often forgotten consequence of war.

While this particular study worked with a small number of participants, the results have shown the benefits that this style of intervention can have on military personnel dealing with post-combat stress. By encouraging novel approaches to healing, we can begin to unwrap the complexities of combat-related stress, allowing us to separate the soldier from the war.

Appendix One – Email Handout

Canadian soldiers: A physical activity and discussion based program for veterans

Volunteers are needed to take part in a study that will examine the effects of a physical activity and discussion-based program on military veterans who may be dealing with combat-related trauma.

This is a six week program which will meet on the University of Manitoba campus one time per week. Each week, we will participate in 60 minutes of non-intensive physical activity led by a Certified Exercise Physiologist. This study requires approximately seven hours of commitment. You will be paid for your time and there is no cost to you in order to join this program.

This investigation will aim to examine the potential benefits of a physical activity program on combat-related trauma in Canadian military personnel. The knowledge gained from this study is intended to benefit Service Members as they deal with post-deployment stress. Participants must have previously been deployed in an active or support role in a combat or peacekeeping mission. Though we will discuss combat-related stress, a PTSD diagnosis is not required to participate in this program. This study has been reviewed by, and received ethics clearance through, the Office of Research Ethics, University of Manitoba.

If you are interested in participating in this study, please contact Shannon Penfound or Dr. Fiona Moola for more information. The deadline to sign up for this study is April 20, 2015. The study is set to begin on April 25, 2015.

Shannon Penfound
MA Candidate, University of Manitoba

Dr. Fiona Moola
University of Manitoba, Faculty of Kinesiology and Recreation Management

Appendix Two - Guidelines for Informed Consent

Research Project Title: Canadian soldiers: A physical activity and discussion based program for veterans

Principal Investigator and contact information:
Shannon L. Penfound
M.A. Candidate, Faculty of Kinesiology and Recreation Management, University of Manitoba

Research Supervisor and contact information:
Dr. Fiona J. Moola
Assistant Professor, Faculty of Kinesiology and Recreation Management, University of Manitoba
Scientist, Manitoba Institute for Child Health

This consent form, a copy of which will be left with you for your records and reference, is only part of the process of informed consent. It should give you the basic idea of what the research is about and what your participation will involve. If you would like more detail about something mentioned here, or information not included here, you should feel free to ask. Please take the time to read this carefully and to understand any accompanying information.

The purpose of this Master's Thesis is to understand the effects of physical activity on combat-related trauma. In agreeing to participate in this research, you will engage in a 6-week, 1x a week physical activity and group discussion program. Our group will meet for a 60 minute physical activity session each week. During week one and week six, we will begin with a 30 minute group discussion, followed by a 60 minute physical activity session. The physical activity involved is considered mild to moderate in intensity and will be completely adaptable based on your ability level. The group discussions will focus on overall well-being and physical health, will be recorded with a digital recorder, and transcribed by the primary researcher for future use. Verbal comments made during the group discussions will be directly quoted in academic writings. The researcher will take all precautions possible in order to protect the identities of all participants, but this may not be guaranteed. All participants will be asked to keep group

conversations confidential. You will also be asked to complete short questionnaires at two separate times over the course of the study. Both questionnaires will ask you questions regarding your current health and mental well-being. The questionnaires will take no longer than 30 minutes to complete and will be completed at the beginning of the study, and once more at the end of the study. We may seek your input on the program through an interview once the program has been completed.

The program will engage you in physical activity, which is understood to have many positive effects on physical and mental health. Because group discussions within this study may discuss sensitive topics, it is possible that you may encounter feelings of anxiety. You are free to end your participation at any time. If you choose to do so, all data associated with your participation will be destroyed. Participants will be asked to agree to keep all information regarding the study and its participants confidential. Any paper data will remain in a locked filing cabinet behind a locked door at the University of Manitoba. Electronic data (such as recordings from the group discussions) will remain on one singular, encrypted USB, which will also be stored in a locked filing cabinet behind a locked door at the University of Manitoba. Only Shannon Penfound and Dr. Moola will have access to consent forms, questionnaires, and recorded focus group discussions. As in accordance with University of Manitoba requirements, all paper documents will be shredded seven years after the completion of the study (est. 10/2022). Additionally, electronic data will be fully erased seven years after the completion of the study (est. 10/2022). Thus, all efforts will be made to ensure confidentiality during the study.

Data from this program will be utilized in hopes to increase social support for military personnel, especially as it pertains to physical and mental health. All data will be stored in a

secure location and will be used to advocate for military personnel rights in academic journal articles. Within the articles, all participants' confidentiality will be protected. This data will be kept for seven years in accordance with the University of Manitoba mandate.

You will be compensated with twenty five dollars for each completed session in the program. Payment will occur at the end of each session. There will be a total of 6 sessions. Should you decide to end your participation prior to 6 weeks, you will still receive $25 per completed session.

Following the program, a debriefing session will be offered to all participants in order to answer any outstanding questions or concerns. Please note that questions or concerns can be brought to the attention of the primary researcher or to Dr. Moola at any time throughout the study. Additionally, participants receive a copy of the results from this study if requested.

All material from this program may be used within various academic publications including, but not limited to, academic thesis work and journal articles. It is anticipated that the results from this study may be used within the Canadian or United States Military academic and policy records.

Results from the program are expected to be available no later than 8-weeks following your completion of the program. Various methods will be available (e-mail, mail) and you will be able to choose your preferred form of communication.

Your signature on this form indicates that you have understood to your satisfaction the information regarding participation in the research project and agree to participate as a subject. In no way does this waive your legal rights nor release the researchers, sponsors, or involved institutions from their legal and professional responsibilities. You are free to withdraw from the study at any time, and /or refrain from answering any questions you prefer to omit, without

prejudice or consequence. Withdrawal may be indicated to Shannon Penfound or Dr. Moola through verbal or written word, and all of your existing data will be destroyed and will not be used in future academic work. Your continued participation should be as informed as your initial consent, so you should feel free to ask for clarification or new information throughout your participation.

The University of Manitoba may look at your research records to see that the research is being done in a safe and proper way.

This research has been approved by the Education and Nursing Research Ethics Board (ENREB) at the University of Manitoba. If you have any concerns or complaints about this project you may contact any of the above-named persons or the Human Ethics Coordinator (HEC), Margaret Bowman via email. A copy of this consent form has been given to you to keep for your records and reference.

Participant's Signature _____Date _____
If you would like a copy of the summary of this study, please indicate how you would prefer to receive the results:
By email (please print email address):
_____
By regular mail (please print full mailing address):
_____

Researcher and/or Delegate's Signature __ _____Date _____

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