What Mental Skills Do Military Members Use Through Rehabilitation?

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Abstract

The purpose of this master's thesis was to explore what psychological skills were used by complexly physically injured military members who had self-reported successfully recovered. Data collection included the OMSAT-3 questionnaire, a semi-structed interview, and a second semi-structured interview with participants who volunteered. One manuscript was written. Using both deductive and inductive thematic analysis, the manuscript explored what psychological skills were used by complexly physically injured (N= 8, M_{age}= 36) military members. The findings revealed sixteen skills were used, four skills commonly used amongst all participants (i.e., goal setting, confidence, commitment, and motivation). Collectively, the findings from this master's thesis contributes to the literature by providing a novel exploration into what mental skills may be used throughout rehabilitation from grave injury.

Introduction

Soldiers' injuries can result in lost time from work and training and decreased military readiness. The implications of soldiers' injuries in terms of patient morbidity, military attrition rates, and training costs for the military are significant (Kauffman et al., 2000). It is important to provide military personnel with a complete rehabilitation program in order to reduce attrition rates, help soldiers return to duty quickly, and lower injury recurrence. Importantly, injuries are both physical and emotional in nature (Ievleva & Orlick, 1991). Tracey (2002) indicated that "Unfortunately, the focus in rehabilitation often remains solely on the physical, which can ignore the psychological experience of being injured and the numerous thoughts, feelings, and behaviours associated with an injury" (p. 279). Thus, there is a need for rehabilitation programmers to consider both mind and body when developing a treatment plan for physical injuries. In the sport context, studies show that the use of psychological conditioning can decrease the time spent sidelined and enables athletes to return to the field more quickly compared to athletes who have not used psychological conditioning techniques (e.g. Cressman & Dawson, 2011). The psychological skills that have been identified as the most useful in enhancing the healing process in the sport context are goal setting, imagery, positive self-talk, and relaxation (Benaka et al., 2007; Ievleva & Orlick, 1991). Sport participation and military training are very similar in the contexts of performance regarding high stress environments, the need for arousal and distraction control, teamwork, leadership, etc. (DeWiggins et al., 2010). Athletic and military communities share common requirements in performance enhancement and skills training for performance in their respective occupations (DeWiggins et al., 2010). Performance psychology research has provided a rich source of knowledge regarding the efficacy and significance of mental skills training and based on the similarities between sport and

military contexts, mental skills could be considered equally applicable in a military environment (DeWiggins et al., 2010).

The OMSAT-3 was used to identify mental skills that were used by the participants. The integrated model of response to sport injury (IMRSI) was used to inform the interview questionnaire. Moreover, both the OMSAT-3 and IMRSI influenced the data analysis.

The purpose of this master's thesis was to explore what psychological skills were used by complexly physically injured military members who reported having successfully recovered. For the purposes of this research, successfully recovered was defined as returned to duty or transitioned to a meaningful civilian life.

Conceptual Framework

Maxwell (2013) referred to Miles and Huberman (1994) when defining a conceptual framework as a visual or written product that "explains, either graphically or in a narrative form, the main things to be studied, the key factors, concepts, or variables-and the presumed relationships among them" (p. 39). In accordance with Maxwell's model for qualitative research, the conceptual framework of this thesis will consist of: (a) theoretical framework (b) a literature review about mental skills, injury, and military, and (c) intellectual, practical, and personal goals.

Theoretical Framework

The integrated model of response to sport injury (IMRSI; Wiese-Bjornstal et al., 1998) was used as the theoretical framework for the purposes of exploring the personal and situational factors that affect military members throughout rehabilitation (refer to Appendix A). In addition, the Ottawa Mental Skills Assessment Tool-3 (OMSAT-3; Durand-Bush et al., 2001) was used during data collection as a framework to explore the mental skills used throughout rehabilitation.

Pre-injury psychological factors that have an effect on sport injury occurrence include

personality, life stresses, and coping resources (Andersen & Williams, 1988; Wiese-Bjornstal et al., 1998). Once an injury has occurred, the consequences that can ensue are cognitive, emotional, and behavioural responses (Wiese-Bjornstal et al., 1995; Wiese-Bjornstal et al., 1998). The IMRSI addresses the psychological and sociological factors that contribute to the rehabilitation process of sports injuries (Wiese-Bjornstal et al., 1998). In the Canadian Armed Forces (CAF), the three activities that CAF members are most commonly participating in when sustaining an injury are physical training, sports, and military training (Theriault et al., 2016). Therefore, the IMRSI can be reasonably extended to the military population in this study, namely, due to the nature of injuries most commonly sustained by CAF members.

From a sport injury standpoint, the IMRSI "posits that pre-injury and post-injury factors influence psychological response; that psychological response can and does change over time in a dynamic way; and that recovery, both physical and psychological, is a process outcome" of rehabilitation (Wiese-Bjornstal et al., 1998, p. 48). Pre-injury psychological factors that have been deemed to relate to sport injury occurrence include personality, life stresses, and coping resources (Andersen & Williams, 1988; Wiese-Bjornstal et al., 1998). The stress and injury model developed by Andersen & Williams (1988) informed the development of the pre-injury factors of the IMRSI. Post-injury factors, such as personal, situational, and emotional factors to name a few, were proposed by Brewer (1994) as a part of the cognitive appraisal model. The IMRSI synthesized the stress and injury model (Andersen & Williams, 1988) and the cognitive appraisal model of psychological adjustment to athletic injury (Brewer, 1994). Wiese-Bjornstal et al. (1995) contributed the addition of personality as a personal factor and assumed that psychological factors play a reciprocating role with intermediate and end goal outcomes (Wiese-Bjornstal et al., 1995; Santi & Pietratoni, 2013). The synthesis of the stress and injury model

(Andersen & Williams, 1988) and the cognitive appraisal model (Brewer, 1994) into the comprehensive IMRSI model provides an understanding of the psychological responses to sport injury and rehabilitation, which can arguably be applied to the CAF context.

Pre-Injury Factors

The stress and injury model, developed by Andersen and Williams (1988), proposed that psychological variables, such as personality type, history of stressors, and coping resources, may influence the injury outcome through manifesting as stress, and thus result in a stress response. The stress and injury model was influenced by the basic stress process model and the grief response model (Andersen & Williams, 1988).

The central core of the pre-injury model states that, "the stress response, is a bi-directional relationship between the person's cognitive appraisals of a potentially stressful external situation and the physiological and attentional aspects of stress" and may therefore result in injury (Williams & Andersen, 1998, p. 6). The cognitive appraisals, physiological, and attentional responses to stress are dynamic and constantly modify and re-modify each other.

Post-Injury Phase

The post-injury phase of the IMRSI model is an extension of the pre-injury factors where the injury is considered the main stressor (Arvinen-Barrow, 2009). The bi-directional arrows (refer to Appendix A) in the core of the model represent the dynamic nature of the rehabilitation process (Arvinen-Barrow, 2009; Wiese-Bjornstal et al., 1998). When moving upwards, the arrows represent the rehabilitation process, where cognitive appraisals affect emotions, which in turn, influence behaviour. The model recognizes that influences in the opposite direction are also possible and that changes in between any of the responses during rehabilitation can occur. The direction of an individual's rehabilitation should be viewed as a three-dimensional spiral,

heading upward towards full recovery and in a downward direction away from full recovery (Arvinen-Barrow, 2009; Wiese-Bjornstal et al., 1998). According to the IMRSI, the cognitive appraisal process is influenced by a range of personal and situational factors (Wiese-Bjornstal et al., 1998). The cognitions will in turn have an effect on the athletes' behavioural and emotional responses.

The IMRSI model was appropriate for this thesis and population because it helped the researcher to explore and consider the various elements/factors/influences of the rehabilitation process: the unique nature of the soldiers' injuries; the soldiers' previous experiences; the varied coping resources to which the soldiers have access; and the situational factors that contribute to the soldiers' response and engagement in the rehabilitation process. In addition to the IMRSI model, the Ottawa Mental Skills Assessment Tool-3 (OMSAT-3) (Durand-Bush et al., 2001) was used during data collection as a framework to explore the mental skills used throughout rehabilitation.

OMSAT-3

The tool used to identify what mental skills were used throughout rehabilitation was the OMSAT-3 (Durand-Bush et al., 2001). According to Durand-Bush and colleagues (2001), "the OMSAT was developed to address the lack of valid and reliable multidimensional psychological tests" (p. 2). Further development of this test resulted in the OMSAT-3. Through extensive literature reviews, 12 mental skills, grouped under three broad conceptual categories relevant to sport performance were identified (Durand-Bush et al., 2001). The three broader conceptual categories include (a) foundational skills, (b) psychosomatic skills, and (c) cognitive skills (Durand-Bush et al., 2001).

Foundational skills are perceived to be fundamental for consistent performance. They are

considered the building blocks for the development of other mental skills (Bota, 1993; Durand-Bush et al., 2001; Orlick, 1992; 1996). These skills include (a) goal setting: the process where individuals establish objectives that provide them with direction and motivation to achieve an outcome, (b) self-confidence: the belief in one's own ability and goals, and (c) commitment: one's dedication toward achieving the desired outcome (Durand-Bush et al., 2001).

Psychosomatic skills (Durand-Bush et al., 2001) bring "variations in physiological arousal as well as mental and physical intensity and can be used for their regulation" (p. 5). These skills include stress reactions, fear control, relaxation, and activation. Stress reactions are the body's responses to different demands placed upon it (Durand-Bush et al., 2001; Selye, 1974). Fear control is one's ability to cope with situations that cause fear or apprehension (Durand-Bush et al., 2001; Rotella & Lerner, 1993). Relaxation enables an individual to decrease physiological arousal and anxiety, as well as control attention (Durand-Bush et al., 2001; Williams & Harris, 1998). Finally, activation "refers to the process by which an individual heightens their physiological and mental states in situations where they need to increase their energy, motivation, or focus" (Durand-Bush et al., 2001, p. 5).

Cognitive skills "are those that are dependent on cognitive processes and activities that include sensation, perception, learning, memory, thinking, and reasoning" (Durand-Bush et al., 2001, p. 5). These skills include focusing, refocusing, imagery, mental practice, and competition planning. Focus is the "ability to direct and maintain one's attention on task-relevant cues" (Durand-Bush et al., 2001, p. 5). Refocusing is the ability to regain effective focus in the presence of distractions (Durand-Bush et al., 2001; Orlick, 1992). Imagery is the use of images and sensations to visually create different situations (Durand-Bush et al., 2001; Murphy & Jowdy, 1992). Mental practice "is the process by which athletes mentally rehearse physical

skills, plays, or segments of a performance without overt movement of the limbs and body" (Durand-Bush et al., 2001, p. 6). Finally, competition planning involves reflecting upon and developing plans to direct thoughts, emotions, and actions prior to, during, and after competition (Durand-Bush et al., 2001). The OMSAT-3 multi-skills structure was appropriate for guiding the current study and answering the primary research question, and more specifically, to identify what specific skills were used by injured military members throughout rehabilitation.

Literature Review

In an effort to understand the current body of knowledge and where the proposed research inquiry fits within the literature, the literature review will focus on mental skills and sport injuries, mental skills and severe injury, the parallels between sport and the military, the problems associated with injuries in the military, mental skill use in the military, current mental skill programs used in the Canadian Armed Forces, and mental skill use with injured military members.

Mental Skills and Sports Injuries

Research has indicated that mental skills are not only important but also essential during the rehabilitation of injured athletes (Hamson-Utley et al., 2008). The mental skills that are most often used in sport and during the rehabilitation of sport injuries are goal setting, imagery, positive self-talk, and relaxation (Arvinen-Barrow et al., 2015; Ievleva & Orlick, 1991; Madrigal, 2015). The following discusses key mental skills from the OMSAT-3, as well as additional mental skills, that have been shown to assist in rehabilitation.

Researchers have found that goal setting helped injured athletes by facilitating a faster return, motivating their effort and persistence, providing a sense of accomplishment, and increasing adherence to rehabilitation protocols (Wayda et al., 1998). Further, Wayda and

colleagues (1998) stated that goal setting, when used in a rehabilitation context, gave athletes a feeling of being back in control, increased their self-confidence, and decreased their anxiety by focusing on what needed to be done. There are three types of goals that can be applied to goal setting: outcome, performance, and process goals (Weinberg, 2010). Outcome goals focus on the end result, which is not in control of the goal setter. Performance goals refer to an individual's performance independent of the other competitors or team. Individuals have control over their performance goals because their performance is not dependent on others (Weinberg, 2010). Lastly, process goals are concerned with how an individual performs a certain skill. These goals tend to be executed during practice or training (Weinberg, 2010) or in the rehabilitation setting.

To further the definition of relaxation from the OMSAT-3, relaxation is a temporary and deliberate withdrawal from daily activity aiming to moderate the sympathetic nervous system's functions, which is stimulated when under stress (Walker & Heaney, 2013). Relaxation has been used to reduce stress, anxiety, pain management (Walker & Heaney, 2013) and help injured athletes regulate arousal levels to achieve optimal performance (Reese et al., 2012). Relaxation techniques such as breathing, progressive muscle relaxation, reframing, and meditation can be useful with emotional regulation (Madrigal, 2015). Relaxation has often been used in conjunction with one or more of the aforementioned mental skills, and has helped reduce negative psychological consequences, improve the athlete's coping skills, and reduce reinjury anxiety (Madrigal, 2015). Three principles that are common to all methods of relaxation are: (a) lowering of muscle tone, (b) focusing on the present and on body sensations, and (c) relaxing breathing (Pineschi & Di Pietro, 2013).

The constructs of commitment and motivation offer different concepts regarding sources and reasons for participation in sport. For the purpose of the current study, the mental skills of

commitment and motivation have been integrated, however, the following is a discussion on the nuances that distinguish the two constructs. According to Scanlan et al. (2016), commitment is the "psychological state to persist in a sport over time" (p. 234). In the Sport Commitment Model-2 (SCM-2) Scanlan et al. (2016) identified seven sources of commitment that predicted two types of commitment. The seven sources of commitment include: (a) sport enjoyment which represents "the positive affective response to a sport experience that reflects generalized feelings of joy" (p. 235), (b) valuable opportunities which are the "important opportunities that are only present through continued involvement in a sport" (p. 235), (c) other priorities are the attractive and/or pressing alternatives that conflict with continued sport participation" (p. 235), (d) personal investments (including loss of and quantity of) include resources and amount of those resources "that cannot be recovered if participant is discontinued" (p. 235), (e) social constraints refer to the "social expectations or norms that create perceptions of obligation to remain in a sport" (p.235), (f) social support (including emotional, informational, and instrumental) includes the encouragement and provision of empathy, guidance, and material information received from significant others, and (g) a desire to excel (toward mastery and social achievement) represents the want to improve, achieve mastery, and establish superiority over others in a sport. These sources lead to two types of commitment, enthusiastic commitment referring to the psychological construct of desire to persist over time in a sport. The second type is constrained commitment representing the construct of "perception of obligation to persist in a sport over time" (Scanlan et al., 2016), p. 235. Research has shown that high levels of positive commitment factors explain sport commitment and enhance motivation to participate (Zahariadis et al., 2006).

When examining factors for motivation to participate in sport, it is important to consider intrinsic and extrinsic forces and the different levels of motivation. Motivation can be defined as

the use of internal and external forces that contribute to the initiation, direction, intensity and persistence of behaviour (Vallerand, 2007). Intrinsic motivation comes from the enjoyment and satisfaction felt with participation in an activity (Podlog & Eklund, 2005). It has been posited that intrinsic motivation includes motivation to know, to accomplish tasks, and to experience stimulation (Vallerand, 2007). Extrinsic motivation refers to participation in an activity as a means to an end (Vallerand, 2007). According to Deci and Ryan (1985) there are four types of extrinsic motivation which include external regulation, introjected regulation, identified regulation, and integrated regulation.

The levels of motivation to consider when understanding one's reason for participation are: (a) global motivation, referring to a generalized motivation to engage with the environment; (b) contextual motivation, focusing typically on education, interpersonal relationships, and recreation; and (c) situational motivation, focusing on the motivation one experiences when engaging in a specific activity at any given time (Vallerand, 2007).

Self-awareness is the ability to identify thoughts, emotions, and patterns of thinking and behaviour, including those that are counterproductive, and being more aware that certain situations trigger emotions that are difficult to control (Griffith & West, 2013). Self-awareness also facilitates the ability to recognize that certain behaviours are productive in some situations but counterproductive in others (Griffith & West, 2013). This is a staple skill in optimal performance because of its role in skill development, skill execution, arousal regulation, and emotional control (Ravizza & Fifer, 2014), making it applicable in a rehabilitative setting.

Mental toughness reflects one's psychological capacity to work towards meeting an objective in response to challenging circumstances (Gucciardi et al., 2020). Levy et al. (2006), reported that more mentally tough injured athletes perceived their injury to be less threatening to

their careers and had greater adherence to their rehabilitation program than their lesser mentally tough counterparts.

Self-talk can be described as a "multidimensional phenomenon concerned with athletes' verbalizations that are addressed to themselves" (Hardy et al., 2005). Self-verbalizations can serve a number of purposes including regulating cognitions, interpreting emotions, enhancing effort, and providing encouragement (Weinberg et al., 2012). The practice of self-talk has influenced positive adherence to rehabilitation programs (Hornbrook, 2012), produced faster healing times (Walker & Hudson, 2013), and improved performance of an injured limb in a rehabilitation program (Beneka et al., 2013). Self-talk has been shown to help improve strength and balance throughout rehabilitation (Beneka et al., 2013; Theodorakis et al., 1998).

In order to further define competition planning in the context of rehabilitation, mental preparation routine or more simply, routine, will be further discussed. According to Gould & Udry (1994), routine is "systematic, ritualized patterns of physical actions and pre-planned sequences of thoughts and arousal related cues" (p. 483). These routines can involve cognitive and behavioural components that intentionally help with concentration and arousal regulation (Cotterill, 2010; Foster et al., 2006).

An injury does not exclusively affect the physical health of an individual, but it can also have a psychological impact (Santi & Pietrantoni, 2013). Every change in the physiological state is accompanied by a respective change in the mental-emotional state, conscious or unconscious; conversely, every change in the mental-emotional state, conscious or unconscious, is accompanied by a respective change in the physiological state (Hong et al., 2012). While traditional rehabilitation programs are designed to ensure an athlete's full return to pre-injury levels of physical fitness, a growing body of research highlights the importance of also

addressing psychological responses within the rehabilitation context (Clement et al., 2013).

There has been increasing attention given to the development and implementation of psychological interventions to expedite and assist with successful sports injury rehabilitation, both physically and psychologically (Reese et al., 2012). Rock & Jones (2002) reported that interventions throughout rehabilitation delivered by way of counselling sessions positively affected injured athletes' well-being, especially during setbacks. Table 3 outlines different interventions that have been successfully used by athletes and military members.

Table 3.

Successful interventions in rehabilitative setting

Authors	Interventions	Population	Outcomes
Evans & Hardy, 2002	Goal-setting intervention and social support intervention	Athletes	Increased self-efficacy, higher levels of perceived social support
Cupal & Brewer, 2001	Relaxation & Imagery	Athletes	Increased confidence and general enjoyment in life; increased ability to accept situation and injury related emotions; decreased re-injury anxiety; decreased perceived pain
Rock & Jones, 2002	Microcounselling	Athletes	Increased psychological coping; decreased negative psychological consequences; decreased mood disturbances; fewer negative feelings and emotions toward injury following intervention
Mankad & Gordon, 2010	Written disclosure/expression	Athletes	Increased psychological coping; decreased mood disturbances; decreased feelings of being cheated and devastated; decreased difficulty accepting injury; less avoidance behaviour

Mahoney & Hanrahan, 2011	Acceptance and commitment theory	Athletes	Significantly better mood; increased feelings of pleasure, social orientation, and security; feelings of being prepared to return to competition
Combs et al., 2018	Mindfulness through yoga	Military	Improved ability to manage stress; increased mood; improved pain management; increased self-awareness

The use of mental skills throughout the rehabilitation of athletes has shown improved satisfaction with the rehabilitation program, facilitated a faster return to sport, motivated athletes, assisted in their adherence to the rehabilitation program, and had a positive effect on athletes' self-efficacy of recovery. Goal setting, imagery, self-talk, and relaxation have been the most commonly used mental skills in a rehabilitation setting (Arvinen-Barrow et al., 2015; Ievleva & Orlick, 1991; Madrigal, 2015). Such results support the exploration of mental skills use by injured military members.

Severe Injury and Mental Skills Use in Rehabilitation

Research has shown that mind body therapies, such as guided imagery, can enhance one's ability to ameliorate the symptoms of pain, stress, anxiety, depression, and fatigue (Moura et al., 2012). These symptoms are often found in those who have sustained a severe injury, such as an amputation and spinal cord injury (Houlihan et al., 2016; Moura et al., 2012). In addition, research has shown that goal setting is an important regulator and motivator of human performance, specifically with those who have suffered a traumatic brain injury (TBI; Gauggel et al., 2002).

Over the last two decades, much research has been conducted on the use of mental practice through motor imagery for optimal retraining of motor function in people with physical

disabilities (Malouin & Richards, 2010). Progressive muscle relaxation and mental practice has been used to reduce phantom limb pain and sensation with amputees (Brunelli et al., 2015). According to Crosbie et al. (2004), there have also been positive outcomes with the use of mental imagery and upper limb rehabilitation and functional training. Mental practice and specifically motor imagery have demonstrated beneficial effects when used in conjunction with physical practice in those suffering severe and long-term injuries.

Goal setting is another effective tool used in rehabilitation for those suffering from severe injuries, especially those suffering from a TBI. Research has shown that feedback and specific challenging goals has led to significant improvements in performance (Gauggel et al., 2002). Gauggel and colleagues found that setting goals led to increased performance in reaction time in a simple motor task in patients who have suffered a brain injury. They also found that the level of difficulty of the goals affected performance positively. The level of difficulty is a predominant factor in performance. Non-challenging and vague goals will not have the same effects in performance as those goals that are more difficult and specific for those who have suffered a brain injury. The use of mental skills, such as relaxation, imagery or mental practice, and goal setting, have shown to be beneficial with the rehabilitation of severe injuries like amputation and traumatic brain injury but currently there is a gap in the literature on mental skills intervention and rehabilitation from severe injury. The current study will explore the mental skills use of those who have sustained a complex physical injury to advance the research regarding mental skill use and severe injury.

Sport and Military Parallels

For years, sport participation, considered to be parallel to military training, has been used for preparing soldiers for military operations (DeWiggins et al., 2010). Performers in both

environments are required to perform in high stress situations. Distractions, anxiety, and fear are challenges faced everyday by athletes and soldiers, during athletic training or while conducting military operations (DeWiggins et al., 2010). Issues surrounding pre-performance preparation and training, decision-making, attitudes, stress regulation, teamwork, leadership, situational awareness, and other constructs studied in sport psychology are found in both sport and military settings (Janelle & Hatfield, 2008). Athletic and military communities share a common interest in performance enhancement and the related topics of skill acquisition, attention control, stress-performance relationship, resiliency, and emotional regulation (DeWiggins et al., 2010). Years of performance psychology research has led to an abundance of knowledge regarding the efficacy and importance of mental skills training and based on the similarities between athletes and soldiers, mental skills training may be equally applicable to military contexts (DeWiggins et al., 2010). The difficulties, stress, and preparatory needs in a military context are comparable to the stress and needs of athletes. Therefore, mental skills used in military contexts may be comparable to those found in sport. However, it must be noted that the magnitude of stressors in military situations are significantly greater than those found in a sporting context (DeWiggins et al., 2010). In particular, soldiers are required to develop and maintain a high level of performance across a variety of tasks and skills and are able to perform them under extreme conditions (Goodwin, 2008). Unlike athletes, soldiers need to be concerned about their opponents shooting at them, as well as the psychological implications of losing their life or taking the life of another human being (Goodwin, 2008). According to Goodwin (2008), military operations can often be "characterized by extremes in arousal and stress (i.e., utter boredom vs. extreme physical and affective stress)" (p. S150). Consequently, it is important for soldiers to maintain optimal levels of arousal or stress throughout long periods of performance. The

similarities between the sport and military contexts provide an opportunity for research in one field to be applicable to the other; however, the psychological implications and demands of a soldier are both significant and unique and, therefore, require specific investigation. This study will focus on mental skills use in a military population to extend the research of sport psychology concepts in a military context.

Problems Associated with Injuries in Military

Musculoskeletal injuries are a major problem in military populations (Kauffman et al., 2000). Such injuries have been on the rise within the military due to the higher demands of their occupation and have become one of the major causes of medical evacuation and battle attrition in recent conflicts (Houghton et al., 2016). In the CAF, injuries are the leading threat to the "Soldier First principle, which demands that all CAF personnel are physically fit, employable, and deployable" (Theriault et al., 2016, p. 53). These injuries negatively affect military readiness, medical costs, and the overall health, productivity, and operational readiness of military populations, while generating substantial economic burden (Booth-Kewley et al., 2009; Jones, et al., 2010; Nindl, et al., 2013; Theriault et al., 2016;). In response to the increasing incidents of injury in military members, the United States Armed Forces (USAF) has made attempts to improve injury rehabilitation programs (Booth-Kewley et al., 2009). In fact, the USAF has instituted multidisciplinary teams into specialized rehabilitation clinics (Booth-Kewley et al., 2009).

Growing evidence within the military context supports the importance of psychosocial factors in injury recovery (Booth-Kewley et al., 2014). Booth-Kewley and colleagues reported there are a number of psychosocial factors that affect recovery from musculoskeletal injuries among United States Marines. The authors also found that recovery expectations, pain severity,

and fear-avoidance beliefs about work predicted injury recovery. Further, recovery expectations were more powerful than any of the other cognitive factors in predicting recovery. Marines who had high recovery expectations at baseline were over five times as likely to be recovered at follow-up than Marines who had low expectations (Booth-Kewley et al., 2014). According to the IMRSI model, these can be considered both personal and situational factors. Other factors to consider for injury recovery include history of injury, environmental and social factors, and individual differences. The mental skills that military members used were not addressed in this study; however, it was recommended that an intervention program be tested. For the present study, the researcher will explore mental skills that are used by successfully recovered military personnel throughout the rehabilitation process.

Mental Skills Use in The Military

Cognitive skills or mental skills training is useful in a variety of occupation contexts and is particularly salient in high-risk occupations like the military (Adler et al., 2015). McGraw and colleagues (2012) stated that "soldiers experience constant occupational physical and psychological demands, ranging from extended work hours and intense training schedules to extended overseas deployments in stressful combat situations (p. 77). The application of psychological theories, principles, and methods to the military setting can make a great contribution to the optimization of performance and efficiency of Armed Forces, both at individual and collective levels (Martinez-Sanchez, 2014).

A number of studies have demonstrated the use of mental skills interventions and their effects on military members in a variety of trades and for a variety of needs including goal setting, arousal regulation, imagery, and self-talk (Mattie et al., 2020; Adler et al., 2015; Fitzwater et al., 2018; Taylor et al., 2011). There have been programs implemented that assist

military members to improve and maintain performance and training, programs for members experiencing difficulties in training, as well as programs for deployment preparation. The United States Army is a driving force for research in the domain of mental skills training and improved performance in a military setting. One study they conducted applied a 12 month-periodized mental skills training program within various environments, which included goal setting, attention control, energy management, and imagery (Blank et al., 2014). The outcomes were better mental agility and sustained focus on relevant cues during training, improved routine implementation, enhanced recovery, and improved team cohesion. McCrory, Cobley, and Marchant (2013) introduced a mental skills training (MST) program to enhance self-regulation behaviour, self-efficacy, and mental skills use in military pilot-trainees who had experienced learning difficulties in training. The outcomes demonstrated increases in self-efficacy, self-regulation, and decreases in anxiety and worry. Jensen et al., (2020) conducted a study using an MST to investigate the resulting effects on cognitive and operational performance through management of the stress response. The outcome was improved cognitive and operational performance on military tasks and the attenuation of the stress response (Jensen et al., 2020). While there is an increase in research being conducted on mental skills programming and military contexts with positive outcomes, it is still an underutilized facet of performance within a military setting (Mattie et al., 2020), especially with the Canadian Armed Forces, and specifically in the injury rehabilitation context.

Mental Skills Programs in Canadian Armed Forces

CAF members have access to a number of programs providing training in skills and tools to promote and improve health and well-being (DND, 2019). The Canadian Armed Forces Health Promotion department offers a number of courses for military members and their family

that provide information, skills, and tools necessary to promote and improve their health and well-being (DND, 2019). There are three courses that specifically increase awareness of and/or teach mental skills: Mental Fitness and Suicide Awareness, Managing Angry Moments, and Stress Take Charge. Mental Fitness and Suicide Awareness is a program that helps personnel (a) gain an awareness of suicide, (b) become familiar with the ACE (Ask, Care, Escort) intervention model, (c) improve their knowledge of mental fitness, and (d) learn mental fitness exercises (DND, 2018a). Managing Angry Moments is a prevention-oriented psycho-educational course that teaches participants to identify personal anger triggers and apply learned skills to manage the situation (DND, 2018b). Lastly, Stress Take Charge is a program offered to help military members understand the stress response and teach them to use different skills to decrease stress and build resilience (DND, 2018c).

A more comprehensive program that is offered to soldiers is the Road to Mental Readiness Program. The program is delivered by leaders and provides soldiers with information and practical strategies for dealing with stress and the provision of psychological support (DND, 2017). The goal of the program is to enhance personnel and unit effectiveness in modern military operations, whether in garrison or on deployment. The program presents the basics of physiology and the brain when under stress, and how it can affect performance. It discusses the mental health continuum model and teaches the big four mental techniques that can be used to mitigate the effects of stress: goal setting, mental rehearsal/visualization, self-talk, and arousal control (DND, 2017).

Recently, the Canadian Special Operations have implemented a Special Operations Mental Agility (SOMA) intervention to improve performance and training of special forces members in mental skills usage (e.g., mindfulness, mental imagery, and progressive muscle

relaxation; Mattie et al, 2020). To the researcher's knowledge, there are currently no mental skills intervention programs being used during rehabilitation of physical injuries for military members.

Mental Skills Use with Injured Military Members

There is limited research regarding mental skill use by injured military members throughout rehabilitation. There have been two studies that investigated chronic low back pain (CLBP). Coppack, Kristensen, and Karageorghis (2012) looked at the use of a goal setting intervention to increase adherence to low back pain rehabilitation. Goal setting was found to have significant effects on adherence as well as self-efficacy (Coppack et al., 2012). This study was conducted with soldiers enlisted in the United Kingdom Military who had been diagnosed with CLBP. There were three groups, one experimental group that participated in a goal setting program, another group that was a therapist-led exercise group, and a third that was a non-therapist exercise group. Goal setting was found to have significant effects on adherence with the goal-setting group. However, there was no significant difference between the goal-setting group and the therapist-led exercise group (Coppack et al., 2012). The goal-setting group was significantly higher in self-efficacy than either of the other two groups. This study demonstrated the positive effects of goal setting when used with injured military members.

Harman and colleagues (2014) investigated a physiotherapist-led behavioural change approach focusing on psychological counselling therapies with CAF personnel who were diagnosed with CLBP. The physiotherapist focused on building a therapeutic alliance with her patients and used motivational interviewing to help identify the gap in the patients' behaviour and their desired outcome. The patients demonstrated improved self-management regarding their rehabilitation, and they perceived improved self-efficacy (Harman et al., 2014) These two

inquiries provide important information on the benefits of implementing mental skills and counselling techniques to ease CLBP and improve self-management of treatment prescription. However, there is a significant need for further research in the field of mental skill use with injured military members to better understand their rehabilitation process and what mental skills may be used to assist them with successful rehabilitation. Identifying which skills injured military members use can inform the development of effective intervention programs and provide for a more complete and successful rehabilitation plan.

Therefore, the goal of this research is to contribute to the body of knowledge surrounding the use of sport psychology research in a military context, specifically the use of mental skills by injured military members. It is also a goal to inform the current body of knowledge on mental skills use by severe or complexly physically injured military members to provide preliminary findings to inform the development of mental skills interventions for rehabilitation, specifically in a military context.

Rationale and Purpose of the Study

The purpose of this master's thesis was to explore what psychological skills were used by complexly physically injured military members who reported having successfully recovered. For the purposes of this research, successfully recovered was defined as returned to duty or transitioned to a meaningful civilian life. As noted above, studies have demonstrated the benefits that goal setting, positive self-talk, imagery, and relaxation have had on athletes' recovery. However, further research is needed to explore the use of other mental skills throughout rehabilitation, specifically with those who suffer from severe injury. The implications that arise when military personnel are injured are costly and they directly affect operational readiness. Although there are similarities between the two contexts, there are differing factors between the

sport and military contexts, which warrant the examination of mental skills that are unique to the CAF. It is anticipated that the findings of this research will inform the CAF for future research into mental skills and the psychological processes of injured members and be useful to develop an intervention program that will introduce and potentially refine the skills that are used by military personnel. Findings such as these may enable them to return to pre-injury levels as much as possible, decrease cost due to extended medical care, and enhance military personnel performance and readiness.

Thesis Goals

According to Hammersley (1992) and Maxwell (2013), goals inevitably shape the descriptions, interpretations, and theories one creates in his or her research. Goals are therefore important resources that one can utilize when planning, conducting, and justifying research (Maxwell, 2013). According to Maxwell, goals can be divided into three categories: intellectual, practical, and personal. Intellectual goals focus on understanding and gaining insight into a certain topic; practical goals focus on accomplishing something; and personal goals are those that motivate you to do something.

Intellectual Goals

My intellectual goals for this thesis were to contribute to the current body of literature on the use of mental skills for injury rehabilitation in the military, as well to inform current military policy and influence change in the rehabilitation process. Harman et al. (2014) noted that physiotherapists in the military should become aware of the potential psychological techniques to enhance the effectiveness of rehabilitation interventions and work collaboratively with a Mental Performance Consultant.

Practical Goals

The head officer of the CAF Department of Rehabilitative Medicine, along with the CAF Senior Social Worker and Mental Health Training Officer, have noted the importance of exploring the role of perception or mindset in recovery and rehabilitation. Accomplishing this would be helpful and could possibly lead to further inquiries on how the CAF can influence some of the less tangible factors that impact rehabilitation. According to Theriault et al. (2016), 44.4% of regular force members sustained an acute injury in 2014, most of which occurred during physical training, sports, and military training. My practical goals for the proposed thesis were to bring awareness to the mental skills used throughout rehabilitation, and to have the findings inform best practices and future research to further understand the role of mental skills in performance and injury rehabilitation.

Personal Goals

Learning is a lifelong individual process resulting in a continually changing person (Jarvis, 2006; Leduc et al., 2012). A personal goal of mine since my first bachelor's degree was to complete a master's in sport psychology. I have worked as an athletic therapist with a professional football team and volunteered as an exercise specialist in the hospital at the Kandahar Airfield, Afghanistan. I am also currently working with the CAF as a Reconditioning Manager as a part of Personnel Support Programs (PSP) Reconditioning department. I develop exercise programs for injured soldiers once they have completed their physiotherapy rehabilitation program. This master's has been supported by my chain of command (COC), as well as by the head of the rehabilitation and the Senior Social Work Officer. The experiences mentioned above and having witnessed the effects of mental preparation in a rehabilitation program has fueled my desire to pursue this master's thesis. I want to continue learning, and specifically, I would like to learn how to provide a robust and complete program that will enable

my clients to return to work, sport, and life successfully and confidently.

Research Question

The principal research question answered in this thesis is what mental skills were used by complexly physically injured military members throughout rehabilitation?

Epistemology

This inquiry, which explored the mental skills used by injured military members during rehabilitation from their injury, was informed by pragmatism. Pragmatism suggests that knowledge is based on experience and "does not view knowledge as reality. Rather, it is constructed with a purpose to better manage one's existence and to take part in the world (Kaushik & Walsh, 2019, p, 5). Pragmatism also argues that an individual's actions cannot be separated from past experiences and the beliefs that were born from those experiences (Kaushik & Walsh, 2019). It is drawn from many ideas, including using what works from diverse approaches, and values both objective and subjective knowledge (Creswell & Plano Clark, 2011). From a pragmatist's perspective, there is no single reality (Giacobbi et al., 2005). Discussions of theory and reality have been abandoned by pragmatists, and in lieu dialogues about where different types of knowledge are valued and used to help cope and thrive in a given environment (Rorty, 1990). Pragmatists focus on the methods that are most useful and evaluate the findings based on their social, practical, and moral consequences (Giacobbi et al., 2005). "Pragmatists typically use one or more methods deemed appropriate to the specific research question being asked while simultaneously considering the consequences of such inquiry (Giacobbi et al., 2005, p. 21). Employing a pragmatic epistemology enables the researcher and participants to create new knowledge together. The epistemology of this thesis informs the methodology and methods used (Carter & Little 2007).

Presentation of the Manuscript

The findings from the analysis of eight questionnaires and 12 interviews are presented in one manuscript. After the data collection period was completed, the aim was to explore what mental skills were used by complexly injured military members throughout rehabilitation. The manuscript presented is related to the mental skills identified to be used by injured military members. Following the presentation of the manuscript, there is a presentation and discussion of other mental skills findings, a general discussion of the findings and the implications of a mental performance consultant working with the Canadian Armed Forces environment in a rehabilitation context, reflections on the current research, and implications for future research.

Manuscript

Mental Skill Use by Military Members Recovering from Complex Injury

Abstract

Mental skills like goal setting, self-talk, imagery, and relaxation have been used by athletes to improve athletic performance and rehabilitation (Arvinen-Barrow et al., 2015). Mental skills are also being used by Armed Forces to help improve the performance of soldiers at home and while on deployment. However, there is very little research on mental skill use for the rehabilitation of physically injured military members. The purpose of this master's thesis was to explore what psychological skills were used by complexly physically injured military members who reported having successfully recovered. To this end, eight participants completed the OMSAT-3 questionnaire via Survey Monkey and participated in one semi-structure interview. Four participants volunteered for a second interview to probe for further data on their mental skills use and rehabilitation experience. The findings revealed a total of 16 mental skills used. The most commonly used mental skills, goal setting, confidence, commitment, and motivation, are reported upon. Recommendations for future research and practical implications are outlined including theories to be used.

Keywords: soldiers, rehabilitation, goal setting, confidence, motivation

Mental Skill Use by Military Members Recovering from Complex Injury

Forty-four percent of surveyed Canadian soldiers sustained a physical injury in a given year (Theriault, et al., 2016). Soldiers' injuries can result in lost time from work and training and decreased military readiness. It is important to provide military personnel with a complete rehabilitation program in order to reduce attrition rates, help soldiers return to duty quickly, and lower injury recurrence. While injuries are both physical and emotional in nature (Ievleva & Orlick, 1991), "the focus in rehabilitation often remains solely on the physical, which can ignore the psychological experience of being injured and the numerous thoughts, feelings, and behaviours associated with an injury" (Tracey, 2003, p. 279). Thus, there is a need for rehabilitation programmers to consider both mind and body when developing a treatment plan for physical injuries. Studies in the context of sport show that the use of psychological conditioning can decrease the time spent sidelined, enabling athletes to return to the field more quickly than athletes who have not used psychological conditioning techniques (Cressman & Dawson, 2011). The mental skills that have been identified as the most useful in enhancing the healing process are goal setting, imagery, and positive self-talk (Arvinen-Barrow et al., 2015; Ievleva & Orlick, 1991). There are several commonalities between the sport and military contexts, which support the value of examining the mental skills used by injured soldiers during their rehabilitation. This area of research is scarce, which motivated the current study. The purpose of this master's thesis was to explore what psychological skills were used by complexly physically injured military members who reported having successfully recovered. For the purposes of this research, successfully recovered was defined as returned to duty or transitioned to a meaningful civilian life. The findings of this study will inform best practices and future research for the use of mental skills in a rehabilitation program.

Integrated Model of Response to Sport Injury

The integrated model of response to sport injury (IMRSI; Wiese-Bjornstal et al., 1998) was used as a guide for the interview guide of the current study. The IMRSI speaks to the psychological and sociological factors that contribute to the sport injury rehabilitation process (Wiese-Bjornstal et al., 1998). It is a comprehensive model that incorporates pre-injury factors adopted from the stress and injury model (Andersen & Williams, 1988), which extends into a post-injury phase. The post injury phase incorporates the stress and injury model where the injury is considered a stressor and the athlete's cognitive appraisals throughout the rehabilitation process (Wiese-Bjornstal et al., 1998). The bi-directional arrows at the core of the model represent the dynamic nature of rehabilitation (Arvinen-Barrow, 2009; Wiese-Bjornstal et al., 1998).

Mental Skills and Sports Injuries

An injury does not exclusively affect the physical health of an individual, but it can also have a psychological impact (Santi & Pietrantoni, 2013). While traditional rehabilitation programs are designed to ensure an athlete's full return to pre-injury levels of physical fitness, a growing body of research highlights the importance of also addressing psychological responses within the rehabilitation context (Clement et al., 2013). Mental skills (MS) have been shown to be helpful for athletes both for performance and rehabilitation; specifically, imagery, goal setting, self-talk, and relaxation (Arvinen-Barrow et al., 2015; Ievleva & Orlick, 1991).

For consistency and clarity, mental skills will be defined. According to OMSAT-3 (Durand Bush et al., 2001) goal setting is the process where individuals establish objectives that provide them with direction and motivation to achieve an outcome. There are three types of goals: outcome, performance, and process goals (Weinberg, 2010). Self-confidence is the belief

in one's own ability and goals (Durand-Bush et al., 2001). Commitment is the dedication toward achieving a desired outcome. Scanlan et al. (2016) further defines commitment as "psychological state to persist in a sport over time" (p. 234). Motivation is defined as the use of internal and external sources that contribute to the initiation, direction, intensity, and persistence of behaviour (Vallerand, 2007). Stress reactions are the body's responses to different demands placed on it. (Durand-Bush et al., 2001) Fear control is one's ability to cope with situations that cause fear or apprehension (Durand-Bush et al., 2001). Relaxation enables an individual to decrease physiological arousal and anxiety, as well as control attention (Durand Bush et al., 2001). Activation is "the process by which an individual heightens their physiological and mental states in situations where they need to increase their energy, motivation, or focus" (Durand-Bush et al., 2001, p. 5). According to Durand-Bush et al. (2001), focus is the "ability to direct and maintain one's attention on task-relevant cues" (p. 5). Refocusing is the ability to regain effective focus in the presence of distractions. Imagery is the use of images and sensations to visually create different situations (Durand-Bush et al., 2001). Mental practice "is the process by which athletes mentally rehearse physical skills, plays, or segments of a performance without overt movement of the limbs and body" (Durand-Bush et al., p. 5). Competition planning is the reflection and development of plans to direct one's thoughts, emotions, and actions prior to, during, and after competition. Furthermore, self-awareness is the ability to identify thoughts, emotions, and patterns of thinking and behaviour, including those that are counterproductive; and being aware of certain situations that trigger emotions and are difficult to control (Griffith & West, 2013). Mental Toughness refers to one's psychological capacity to work towards meeting an objective in response to challenging situations (Gucciardi et al., 2020). Lastly, self-talk refers to self-verbalizations directed at themselves (Hardy et al., 2005). They have helped injured athletes cope

with feelings of negativity and isolation, eased the guilt felt over letting their team down, and helped facilitate reconciliation with their athletic identity (Madrigal & Gill, 2014). MS like goal setting and imagery facilitated a quicker return to play, contributed to increased adherence to their rehabilitation program, increased athletes' self-confidence, and decreased their anxiety (Cressman & Dawson, 2011; Madrigal & Gill, 2014). Furthermore, the use of MS throughout rehabilitation has shown improved satisfaction of the rehabilitation program, facilitated a faster return to sport, motivated athletes, assisted in adherence to a rehabilitation program, improved sensation and physical performance, and had a positive effect on athletes' self-efficacy regarding recovery (Te Wierke, 2012, Cressman & Dawson, 2011, Madrigal & Gill, 2014).

Sport and Military Parallels

For years, sport participation, has been seen as a parallel to military training and used for preparing soldiers for military operations (DeWiggins et al., 2010). Participants in both fields are required to perform in high stress situations; distractions, anxiety, and fear are challenges faced every day by athletes and soldiers when either conducting operations or during training (DeWiggins et al., 2010). Athletic and military communities also share a common interest in performance and MS such as skill acquisition, attention control, stress-performance relationship, resiliency, teamwork, and emotional regulation (DeWiggins et al., 2010). Years of performance psychology research in sport has led to an abundance of knowledge regarding the efficacy and importance of mental skills training (MST). Based on the similarities between athletes and soldiers, MST may be equally applicable to military contexts (DeWiggins et al., 2010).

Problems Associated with Injuries in Military

Musculoskeletal injuries are a major problem in military populations (Kauffman et al., 2000). Such injuries have been on the rise within the military due to the higher tempo of

operations (Houghton et al., 2016). In the Canadian Armed Forces (CAF), injuries are the leading threat to "soldier first" principle, "which demands that all CAF personnel are physically fit, employable, and deployable" (Theriault et al., 2016). These injuries negatively affect military readiness, increase medical costs, and impact the overall readiness of military populations (Booth-Kewley et al., 2014; Theriault et al., 2016).

Growing evidence within the military context supports the importance of psychosocial factors in injury recovery (Booth-Kewley et al., 2014). Booth-Kewley et al. (2014) have found that there are a number of psychosocial factors that affect recovery from musculoskeletal injuries among United States marines (i.e., recovery expectations and pain severity predicted injury recovery; Booth-Kewley et al., 2014). The MS that military members used were not addressed in this study; however, it was recommended that an intervention program be tested. For the present study, the MS that are used by successfully recovered military personnel throughout rehabilitation will be investigated.

Mental Skills Training in The Military

MST is useful in a variety of occupation contexts and is particularly relevant in high-risk occupations like the military (Adler et al., 2015). McGraw et al. (2012) stated that "soldiers experience constant occupational physical and psychological demands, ranging from extended work hours and intense training schedules to extended overseas deployments in stressful combat situations" (p. 77). The application of psychological theories and methods to a military setting can make a great contribution to optimization of performance and efficiency of Armed Forces, both at individual and group levels (Martinez-Sanchez, 2014).

The United States Army has a training program called the Comprehensive Soldier Fitness-Performance and Enhancement Resilience Program (CSF-PREP; Hammermeister et al.,

2011). The aim of this program is to improve soldier's health and performance across the entire force by training and implementation of mental skills foundations (e.g., confidence, goal setting, attention control; Hammermeister et al., 2011). CAF members have access to a number of programs providing training in mental skills and how to apply them. Courses range from focusing on increasing awareness of and implementation of mental fitness exercises and suicide awareness (DND, 2018a; DND 2018b). A more comprehensive program offered to soldiers is the "Road to Mental Readiness" program, covering information and practical strategies for dealing with stress and the provision of psychological support at a personal and unit level (DND, 2017). Recently, the Canadian Special Operations have implemented a Special Operations Mental Agility (SOMA) intervention for improved performance, training special forces members in mental skills usage (e.g., mindfulness, mental imagery, and progressive muscle relaxation; Mattie et al, 2020).

Mental Skills Use with Injured Military Members

Research related to MS use by injured military members throughout rehabilitation is limited. However, there are two studies that investigated chronic low back pain (CLBP) and the effects of goal setting, and CLBP and the effects of a physiotherapist-led behavioural change program. In the first case, Coppack et al. (2012) looked at a goal setting intervention to increase adherence to low back pain rehabilitation. Goal setting was found to have significant effects on adherence and higher levels of self-efficacy.

The second study investigated a physiotherapist-led behavioural change approach with Canadian Armed Forces personnel who were diagnosed with CLBP (Harman et al., 2014). Recommendations for physiotherapy practice guidelines for CLBP included patient counseling and education to address psychosocial barriers to rehabilitation (e.g., adopting exercise

programs). While these studies have helped clarify the benefit of mental skills in a rehabilitation context, there is still a significant need for research in the field of MS use with injured military members to better understand the rehabilitation process of the injured member, as well to provide a more complete rehabilitation program. To help address this gap, the present study was undertaken to investigate the mental skills that were used by military members who successfully recovered from complex physical injuries, throughout a rehabilitation program.

Methodology

The pragmatist paradigm was used in this research as an umbrella paradigm, integrating two approaches into one larger understanding (Creswell & Plano Clark, 2011). A basic interpretative qualitative methodology was preceded by a questionnaire (the OMSAT 3; Durand Bush et al., 2001). The purpose of a basic interpretative methodology is "to understand how people make sense of their lives and their experiences" (Merriam, 2002, p. 38). According to Merriam (2002), data collection is conducted through interviews, observation, or document analysis. Data analysis involves uncovering recurring patterns, known as categories, factors, variables, or themes that are developed. Findings comprise a combination of the recurring patterns supported by the data. Merriam (2002) described the overall interpretation of the data as "the researcher's understanding, mediated by his or her particular disciplinary perspective, of the participants' understanding of the phenomenon of interest" (p. 38). This methodology enabled the first author through this exploratory study, to understand and interpret the mental skills used by injured military members throughout the rehabilitation process.

Methods

Participants

Eight male participants (5 currently serving, 3 retired) were involved in this study. They

ranged between 30 and 50 years of age (*M=36*) and had 5 to 25 years of service (*M=15)*. Please see Table 1 for further demographic information. The inclusion criteria were: Participants needed to be between the ages of 18-65, English speaking, have been in the regular force or maintained a Class B or Class C contract at the time of injury and throughout rehabilitation, had undergone physiotherapy and/or other rehabilitative treatment, recovered within the last 10 years (Mock et al., 1999), had successfully returned to duty or transitioned to a meaningful and successful civilian life, and lastly sustained a complex injury. A complex injury is defined as requiring multiple health care providers in multiple settings (e.g., amputation, multi-fracture trauma; Coleman, 2003). Participants having any medical employment limitations related to a mental health injury were excluded.

Table 1

Participant demographic information

Participant	Age	Active or Transitioned	Trade	Time in military	Injury
1	34	Active	Engineer	12	Through knee amputation
2	30	Transitioned	Engineer	5	CRPS and TBI
3	34	Active	Not reported	17	Lower extremity multi-trauma
4	30	Active	Aircraft Mechanic	13	Multi-trauma
5	34	Active	Special Forces	18	Lower extremity shrapnel injuries and multiple TBIs
6	50	Transitioned	Naval Warfare Officer	25	Hip dislocation and acetabular fracture

7	36	Active	Infantry	19	Through knee amputation
8	39	Transitioned	Infantry	12	Multi head trauma and upper limb shrapnel injuries

Legend: Complex Regional Pain syndrome (CRPS), Traumatic Brain Injury (TBI). Multi-trauma refers to multiple fractures throughout the body; multi-head trauma refers to fractures and soft tissue damage.

Recruitment and Ethics

Upon ethical approval (university and CAF) to conduct the study, a combination of purposive and convenience sampling was used (Higgenbottom, 2004) to recruit military members. Members were recruited from across the country in collaboration with Reconditioning Managers from Canadian Forces Morale and Welfare Services (CFMWS), the Ottawa Rehabilitation Centre, and friends and colleagues of the first author through Facebook posts and shares. Potential participants contacted the first author directly via phone or email. If they met the inclusion criteria, they were emailed an information sheet regarding the study for review.

Prior to involvement in the data collection process, participants were informed of the study purpose in addition to their rights to confidentiality, anonymity, and freedom to withdraw from the study at any time. The participants were sent the consent forms: one each for the questionnaire and the first interview, and if they agreed to participate in a second, follow up probing interview, they were sent a third one. The purpose of the first interview was to explore the participants' use of their respective top five mental skills identified through the OMSAT-3 as well for participants to reflect on their rehabilitation experiences. The second interview was intended to elicit more detailed and follow up information with four voluntary participants. Questions for the second interview were probing questions informed by the participants'

respective first interview.

Data Collection

Demographics

Age, gender, active or non-active status, occupation, number of years in the military, and injury diagnosis were obtained from the participants in the interview. Except to describe the study sample, these data were not used within the study analyses.

Questionnaire

The Ottawa Mental Skills Assessment Tool-3 (OMSAT-3) developed by Durand-Bush, Salmela, and Green-Demers (2001) was used to identify mental skills (goal setting, confidence, commitment, stress reactions, fear control, relaxation, activation, focus, refocus, imagery, mental practice, and competition planning AKA routine) that were used by the participants. The OMSAT-3 was selected because it assesses mental skills that are used and taught in courses offered to the Canadian Armed Forces. However, the OMSAT-3 items were modified to be less sport oriented and more relevant to a rehabilitation process (e.g., I set daily rehabilitation goals). The revisions were approved by one of the founders of the OMSAT-3 questionnaire for validity. The questionnaire, completed through Survey Monkey, was used to identify the top five mental skills used by each participant during their rehabilitation and subsequently used to inform each participant's interview guide.

Interviews

A semi-structured interview was conducted after the results from the questionnaire were determined to explore the participants' experience through rehabilitation. Using the results from the OMSAT-3 responses, the interview guide was informed by the top five MS identified by each participant, and the personal and situational factors from the integrated model of response

to sport injury (Wiese-Bjornstal et al., 1998). Thus, the questions explored their individual top five mental skills identified through the OMSAT-3, their injury, situational factors, cognitive appraisals, and emotional and behavioural responses. The analysis of the first interview data helped generate interview questions for clarification purposes related to skill usage and further probing (e.g., "You mentioned that these skills helped you through transition out of the military. Can you elaborate on that for me?) that were specific to each participant who agreed to participate in a second interview. The lead researcher conducted all 12 interviews (4 of which were follow-up interviews) which lasted between 37 and 114 min (average 69 min). The verbatim transcripts resulted in 208 pages, double spaced transcripts. For feasibility reasons, the interviews were conducted either in person (n = 3), through zoom (n = 4), through Facetime (n =4), or via Skype (n = 1).

Data analysis

A mixed methods approach was used to explore what mental skills were used by complexly injured military members. The results of the OMSAT-3 informed each participant's individual interview guide in conjunction with the IMRSI. The OMSAT-3 was used to identify what mental skills were primarily used by each participant. A score of 16 or higher for each skill in the OMSAT-3 was considered to be a skill that was used by the participant. The interview data was then deductively analysed by using nodes in accordance with the skills from the OMSAT-3 (goal setting, imagery, etc.) and IMRSI (e.g., behavioural coping skills, physical outcomes, etc.) and inductively analysed to develop any additional mental skills. NVivo Transcription and NVivo 12 (Qualitative Solution and Researcher, 2018) were used to help transcribe and manage the interview data. The transcribed interviews were sent to each respective participant for member-validation (Maxwell, 2013) to ensure that their message was appropriately conveyed.

Following feedback from participants the lead researcher followed Braun et al.'s (2016) process for the interview data analysis, including (1) familiarization of the data set by reading and re-reading the transcripts, (2) peer reflections and coding review, (3) thematic development, which consisted of 50 different themes, some deductive (e.g., goal setting) and some inductive (e.g., self-awareness) (4) thematic organization and refining into themes of mental skills, factors, and processes informed by the integrated model of response to sport injury, and (5) final review. Following completion of the analysis of the individual data, a comparison of the findings across all participants was completed. Sixteen skills were identified or uncovered through the interview data (12 from the OMSAT-3 and 4 from the interview data) and are presented in Table 3. In order to answer the research question within the page limitations of this manuscript, four skills were reported according to the greatest number of nodes coded at each skill. Three of the skills reported were identified deductively from the OMSAT-3 and one skill was developed inductively from the interview data. While this was not the only theme that was found inductively, it was the only inductive theme used by all participants.

Quality

Four techniques were used to judge the quality of this study: width, coherence, resonance, and credibility. Burke (2016) proposed a relativist approach that uses various criteria to judge quality, which are contextually situated and therefore adaptable, rather than universal such as earlier lists of criteria, suggested, for example, by Lincoln and Guba (1985). For width, the numerous quotations in the findings, along with the discussions of these provide the reader the material to judge the evidence and its interpretation. For internal coherence, the use of the OMSAT-3 along with the interviews assisted in portraying a more defined picture of the participants' uses of mental skills during their rehabilitation. External coherence was sought by

interpreting the findings in relation to existing theories and literature, for example the literature on the mental skills used by athletes recovering from serious injury. The in-depth, and evocative descriptions of the participants around their recovery experiences and how they used mental skills can potentially give rise to resonance with readers. Lastly, member validation was conducted after the first interviews to provide the participants with the opportunity to reflect on and add/revise their data. As well, the second semi-structured interviews conducted with the four participants who agreed provide credibility as they engaged the participants in a discussion related to the interpretation of the first interviews.

Findings

Mental Skills

Table 2 illustrates a breakdown of all mental skills used and by whom they were used. Table 3 illustrates a breakdown of mental skills developed through coding as a result of being reported in the interview. Table 3 shows which participants spoke to each skill in their respective interview. The most coded four skills collectively used by all participants are presented below and accompanied by quotations regarding how the skills were used and struggles encountered. Participant numbers were assigned to participants. The data analysis of the interviews led to the identification of four additional mental skills used outside of the 12 stated in the OMSAT-3.

Table 2

OMSAT-3 Scores

Mental Skill	Participant							
	1	2	3	4	5	6	7	8
Goal setting	22	25	24	25	26	28	23	18

Confidence	24	28	26	28	23	25	27	28
Commitment	16	26	24	24	25	20	24	25
Stress Reactions	21	15	16	21	19	23	15	26
Fear Control	21	17	15	19	18	21	25	26
Relaxation	16	18	23	16	19	15	22	18
Activation	15	24	24	25	17	24	23	18
Focus	16	24	23	22	13	25	22	24
Refocus	15	18	22	18	22	15	22	24
Imagery	10	22	18	24	19	25	24	17
Mental Practice	12	25	20	21	22	23	21	17
Competition Planning	9	24	21	23	20	23	13	12

Table 3

Mental skills used by complexly injured military members

Mental Skill	Participant							
	1	2	3	4	5	6	7	8
Goal setting*	×	×	×	×	×	×	×	×
Confidence*	×	×	×	×	×	×	×	×
Commitment*	×	×	×	×	×	×	×	×
Motivation	×	×	×	×	×	×	×	×
Self-Awareness	×	×	×	×	×	×	×	×

Routine*	×	×	×		×	×	×	
Mental Toughness	×	×	×	×				×
Self-Talk	×	×	×		×			×
Activation*	×	×	×			×		
Fear Control*	×				×		×	×
Focus*		×	×		×		×	
Relaxation*		×		×	×			
Refocus*	×	×			×			
Imagery*			×		×	×		
Mental Practice*		×		×		×		×
Stress Reactions*		×						

Note. The asterisk denotes which skills were identified through the OMSAT-3.

Goal setting

Goal setting was the most coded mental skill across participants. All of the participants indicated it was vital on their road to recovery and important in giving them confidence to continue with the rehabilitation process.

> The hardest thing for me was accepting the fact that I was going to be different than how I left. How did I deal with it? I'm gonna say goal setting. Like I mentioned I wanted things to go back to as normal as possible for me. I learned all these small steps and small goals of walking on my own or walking upstairs or walking downstairs or doing all that stuff, that kind of set off a positive trend for me, mentally being able to overcome some

> of those issues that I was having, seeing who I was… that I hadn't changed a whole lot. (Participant 1)

The process goals set throughout the rehabilitation process varied. As mentioned by the participant above, one of his process goals was walking on his own, learning to walk upstairs. Performance goals mentioned by participants were related to competing at a specific sport either for the first time or again, completing a course, working through pain, and attending an event without aid. The outcome goal mentioned by all participants was getting back to work and what they were doing before their injury, moving up and into a new profession in the military, and performing their occupation at the level they were before, for their family, and future family. However, participants did encounter struggles with their goal achievement and consequently experienced temporary setbacks with their progression, their mood, and attitudes for a given day.

> I was down about not reaching a goal or feeling like it was going too slow, like it wasn't going to happen. And you know I'd be pretty clammed up and just like to myself those days. (Participant 3)

Two of the participants (3 & 6) wished they had someone throughout that time to assist with their goal setting.

> The physios and I, we kind of talked about goals but they were they were just physically related goals they weren't related to me or my own personal life… What's needed is someone to say here are some tools to be able to measure your progress against your goals. Here are some things to think about you know if you've suffered setbacks that sort of thing… What's missing is a program or someone to be able to see you, you're able to talk, and help get back into the military mindset to accomplish the mission of your recovery. (Participant 7)

Confidence

A second theme discussed unanimously by all participants was confidence. The sources of participants' confidence to get through their rehabilitation and to be successful were varied. One common source discussed by four out of the eight participants (1, 2, 4, and 6) involved past experiences and successes with past injuries, career progression, and personal achievements. Other sources of confidence came from achieving smaller goals throughout the rehabilitation process, trusting the rehabilitation team (physiotherapist, doctor, occupational therapist, and surgeons), and seeing other military members who had gone through a similar experience.

> Confidence… I saw a post on, I want to say Instagram or Facebook… A green beret… It was a picture of him, in Afghanistan with a prosthetic. I thought about it. I was just like "OK, I'll be that guy in Canada. If you can do it, I don't know why I can't do it". So, you can just have that in the back of your mind. And I found another guy on Facebook who had lost a leg and now does CrossFit. And I watched some of his videos and he talked about how hard it was for him. He voluntarily got his leg amputated because it wasn't working. So, in my head I thought, "well that's always an option" because they said the leg probably won't work. So, I was like "ok, cool. I'll just get a prosthetic because, regardless, I'm going to get back to work". It's just a different plan. And I was just like these guys can do it, I don't know why I can't do it. I'll just be a man who has a prosthetic! So, I'll try to push for that. (Participant 3)

One member, in particular mentioned having challenges with consistently maintaining confidence throughout rehabilitation. The fear of being released from the military was a significant roadblock for him to maintain confidence consistently with his rehabilitation progression and what he could do in the future.

> My fear was getting a medical release, and not being able to do the things I enjoy. So, like what am I gonna do if I get out? And the only thing I knew really was the military, because I'd been in the military for so long. So, what is there after the military So that was the main fear if I couldn't recover. The uncertainty of the future potentially not being able to do that stuff anymore if I didn't recovery (Participant 5)

Commitment

A third skill was the participants' commitment to reaching their end goal and to complete their rehabilitation program. They wanted to be able to go back to their job or progress in their career, perform for their family, their kids, and be happy. Participants mentioned this rehabilitation process being one of the hardest things they had ever done and despite setbacks they would keep pushing to recover.

> I've never committed to something so hard. I am going to get back to work. So, nothing was going to stop me. I was going to do everything I possibly could to do it. Basically, my life revolved around getting better. Which is pretty crazy that my family supported that because I'm sure I was a miserable person to be around some days, especially when I was in pain. (Participant 3)

Similarly seen with previously mentioned skills, participants' commitment wavered throughout the rehabilitation process.

> If my day was not going well then, I would really struggle which often resulted in a loss of productivity and that lead to a snowball effect, so then by the time that the end of the day came there would be an overwhelming feeling of negativity which often resulted in a drastic increase in pain and lost sleep. The rippling effects of this was that the next morning I was more tired and potentially in more pain than normal. (Participant 2)

Motivation

Motivation was a skill that was discussed throughout the interviews. One of the participants' motivators was keeping their eyes focused their "why" (Participant 2). The types of motivation varied; one of the most common types was intrinsic and specifically the participants motivation to stay in the military. Other motivators were fear of failing, or poor working environment, and wanting to recover so they could move on to another occupation within the military. A strong intrinsic motivator for one specific participant, particularly in the first year of rehabilitation was to regain autonomy. External motivators for three of the eight participants (2, 3, 6) was to be able to engage with their family and children. Yet another motivator for one of the participants that contributed to increasing their commitment was the team he left behind.

> I left some of them behind, a lot of them, and, you know, losing their leadership…. We're a tight team, so leaving them behind is always tough…. You feel guilty… Still do, actually, in many ways… about the people that died under my command as well. It is something that you have to live with…. The only thing you can do is to get back in the fight. And, you know, that kind of feeds my commitment in many ways. (Participant 7)

Another external motivator for three participants (3, 6, 7) was the notion of proving people wrong after they had been told they would not be returning to work or be able to continue training. They pushed through their rehabilitation to prove that they could. Lastly, participants were motivated by organizing themselves into a group, similar to what they would see being in a unit together, or on a course, or being deployed together. They were further motivated by seeing others with similar or more severe injuries pushing through their own rehabilitation.

> So I just saw it as being on a course. When more military people showed up. I was like,

> well, there you go. We're on course, on course to be a more efficient officer. So, I had to be competitive. I had to be on my game, everything was about giving your most. It was PT in the morning, you know, eat lunch together that kind of mentality. (Participant 7)

> It was like being on another operational mission together, except the mission was to get better. I was beside a guy missing both legs and was cracking off 50 pushups, and there was absolutely no excuse for me not to do my rehab, right? So, having that inspirational environment really helped me to make that extra effort to overcome my self-doubt or lack of motivation at the time. (Participant 6)

Discussion

The purpose of this master's thesis was to explore what psychological skills were used by complexly physically injured military members who reported having successfully recovered. For the purposes of this research, successfully recovered was defined as returned to duty or transitioned to a meaningful civilian life. To the best of the authors' knowledge, this study was the first of its kind and is a starting point to understand more about what and how mental skills are used by injured military members. The following discussion examines the most coded four skills by the participating military members during their recovery.

Goal setting

All eight participants used goal setting frequently throughout their rehabilitation and reintegration at work. In the military, goal setting has been used to (a) improve scores and witness less failures on the Army Physical Fitness Test (APFT), (b) improve performance in military skills acquisition more quickly and beyond typical standards (Dewiggins et al., 2010; Meyer, 2018), and (c) improve physical performance specifically related to endurance and

improve ability to decrease negative thinking (Arthur et al., 2017). Soldiers who participated in an MST program where goal setting was applied also noticed carry-over of goal-setting usage into other areas of their occupation (Meyer, 2018).

Goal setting positively affected the current participants' progress throughout rehabilitation. As they achieved their process goals, their confidence in and commitment to recovering increased because they were performing successfully. Besemann (2018) reported assisting patients in developing their own goals not only enhanced self-efficacy but was an essential step in the recovery process and care of CAF members. However, as illustrated, there were struggles with unmet goals and it's resulting negative effect on the participant's mood on those specific days. Rock et al. (2002) reported that stressors such as setbacks in rehabilitation ensues varying mood and behavioural responses. Changes in mood due to setbacks was also supported by Bele et al. (2015), where they reported there was an increased need for social support during these periods of difficulty. Two of the participants discussed a desire for increased support to talk to, to provide strategies to employ with setbacks and to assist with getting back to a military mindset.

For the current study's participants, goal setting improved self-confidence, and adherence to a rehabilitation program, mirroring what others have found for those recovering from sport injuries (Christakou & Lavallee, 2009; Reese et al., 2012). Brinkman et al. (2020) reported setting one's own goals enhances rehabilitation adherence and self-efficacy as well as facilitates a sense of autonomy and regarding professional decisions. Goal setting can contribute to rehabilitation program adherence, confidence of recovery, and skill acquisition or reacquisition for military specific tasks.

Confidence

Precursors to developing confidence in returning to sport were noted as having trust in the rehabilitation provider, satisfaction of social support needs, and achievement of physical goals/clinical outcomes (Forsdyke et al., 2016). Participants in this study showed that confidence in rehabilitation providers affected confidence in their successful recovery. Reaching their short-term goals increased their confidence to continue with the rehabilitation program. Similarly, Coppack et al. (2012) found a relationship between increased self-efficacy and goal setting, and subsequently strong program adherence, amongst soldiers who were in a rehabilitation program for CLBP. Furthermore, Brewer et al (2003) reported that when patients discussed their self-efficacy and efficacy in the treatment protocol with healthcare providers, there was a strong association demonstrated with both clinic and home program adherence (as cited in Goddard et al, 2020). The participants' confidence was also fostered by looking to other soldiers who have gone through similar traumatic injury and looking at their own past experiences. Comparably, athletes value social support by other athletes who have suffered related injuries, as they are able to empathize, and have a sense of what the injured athlete is experiencing (Udry, 1997). To this end, the CAF created the Injured Soldiers Network (ISN), a peer-support network that links similarly injured soldiers with either currently serving or retired soldiers (Besemann, 2011).

Although confidence was a strong skill all participants exercised, it was not without some struggle. One of the participant's struggled with confidence when overcome with fearful thoughts of being released and his military career threatened. Confidence and injury rehabilitation have been associated with the degree of importance military members place on their job and related activities (Hammermeister et al., 2009). Helping injured soldiers realize the goal of returning to the military and fostering the importance of their job as soldier, could further cultivate the soldier's confidence throughout the recovery process. In a rehabilitation program, it

is important to promote the patient's efficacy in himself and the rehabilitation program. Goal setting can be an effective tool that should be included as a means to foster confidence.

Commitment/Motivation

Commitment was linked to participants' motivation (i.e., their "why"), such as their end-goal of returning to their work, being able to play with their kids, as well as being a good father and a good husband. According to Besemann et al. (2018), assisting injured soldiers find their "why" was one of the key factors affecting the outcome of CAF patients. Empowering soldiers to set goals towards achieving their "why" can be one element that drives human behaviour to excel beyond perceived limitations by physical conditions such as those seen in the current study's participants (Besemann et al., 2018).

Weiss (2021) used Scanlan et al. (1993) Sport Commitment Model (SCM) to investigate athlete's commitment to rehabilitation. Weiss (2021) reported that commitment to the athletes' rehabilitation program was attributed to their perceived investment in the rehabilitation program, referring to the time, energy, and effort. The current study's findings do not seem to support Weiss's (2021) findings. The current study's participants' commitment appears to be supported by valuable opportunities (Scanlan et al., 2016), previously known as involvement opportunities (Scanlan et al., 1993). Their commitment is supported by the opportunities they will have when they return to their occupation or the opportunity to be or continue to be a strong family support.

Commitment was also found to be associated with goal setting and confidence. The participants in the current study stayed more committed as their goals were met, leading to more confidence in reaching their outcome goal and consequently staying more committed. Te Wierke (2012), in a systematic review, found that athlete's having confidence in themselves and the rehabilitation process from an ACL injury facilitated a positive outcome by way of the athlete's

adherence. Furthermore, athletes who set goals had better adherence to their rehabilitation program, increased confidence, and more satisfaction with their progress. This could suggest a stronger commitment in accordance with Scanlan et al. (2016)'s SCM sport enjoyment and desire to excel constructs.

The participants struggled with their commitment at times which was reflected in their productivity and then motivation for that day or the following day. Zahariadis et al. (2006) stated that "psychological commitment may have behavioural consequences associated with individual motivation" (p. 406). For one participant in particular, his commitment was not always strong throughout his rehabilitation and his decrease in motivation some days affected how committed he was on harder days. As suggested by Weiss (2021), when the SCM was applied to a sport injury rehabilitation context, acknowledging the participant's investments, like their time, energy, and effort could help to increase the desire and commitment to continue even during obstacles or setbacks.

When discussing motivation, the types of motivation varied among the group of participants and varied between intrinsic and extrinsic motivators. Intrinsic motivation has been linked with rehabilitation adherence (Fisher & Hoisington, 1993; Marshall et al., 2012). For all participants, intrinsic motivation was unanimously related to staying in the military, whether this meant returning to their previous job or a different one. Another source of motivation for the participants was proving people wrong. Similarly, when looking at the social support sources of elite skiers recovering from a serious sport injury, even when informed by physicians that they most likely would not be returning to skiing, one athlete in particular set out to prove them wrong (Bianco, 2001). Both types of motivation, intrinsically wanting to return to their

occupation and extrinsically wanting to prove people wrong were seen working together to further foster their motivation.

Beyond wanting to prove people wrong, the motivation to return to their military occupation may stem from a sense of belonging such as that described in soccer players returning to play after ACL reconstruction (Kunnen et al., 2020). Players' motivation to return to play was linked to their desire to feel a sense of belonging and connectedness again with their team. Likewise, injured military members may be wanting a return to the relatedness with others; with reciprocal kinship ties, and a shared sense of duty, honour, purpose, and self-sufficiency (Albertson, 2019). This was seen in a couple of contexts. As illustrated by two of the participants, their motivation was also driven by the unit setting they created in the hospital. This is supported by Besemann (2011), who reported that unit members needed not only their family and friends but their unit members to improve motivation and morale and achieve a sense of cohesiveness among similarly injured soldiers. Alternately, for one participant, motivation was fed by the team he left behind while on deployment and leaving it without a leader. Unit cohesion has shown to be an influence on morale and health, especially under highly stressful conditions, like those experienced in combat (Bartone et al., 2009). This could suggest that this one particular participant's motivation was increased by the level of unit cohesion with the team he left behind. Defining the soldier's "why" and what that entails can encourage motivation and consequently commitment, help improve confidence, leading to meeting goals and bringing him or her closer to meeting rehabilitation goals.

Limitations

This study is not without limitations. One potential limitation was the difficulty in recruiting more than eight participants. The original plan to recruit through the Reconditioning

Department had limited success, perhaps due to the current number of complex injuries being serviced at the time. However, according to Guest, Bunce, and Johnson (2006), to understand common perceptions and experiences among a group of homogenous individuals, twelve interviews are recommended. Kuzel (1992) recommended six to eight interviews for a homogenous sample. Braun, Clarke, and Weate (2016) also recommended six interviews as minimal sample size for thematic analysis. Given that the eight participants were all military members whose injuries were tightly defined by the military as complex, the sample showed a high degree of homogeneity and data saturation was possible. A second limitation was that all the participants were male. It would be beneficial to explore how females use mental skills as Adler et al. (2015) found that women used mental skills more than men in a performance context.

Future research

As this was an exploratory study, there are many directions for future research. There are a number of theoretical frameworks that could be used to further explore the mental skills identified in this study. Protection motivation theory (Christakou & Lavallee, 2009) could be used to explore goal setting, confidence, commitment, and motivation, where the threat appraisal could be seen as the loss of their occupation and coping appraisal could be explored through the use of the previously mentioned MS. One theory that could be considered to help explore motivation and successfully recovering from an injury is personal investment theory. Personal investment theory "reflects the interactive role of situational and personal factors in predicting behaviour and assumes that personal incentives, sense-of-self beliefs, and perceived options can determine motivation in a specific situation" (Spetch & Kolt, 2001, p. 82).

Further research is needed to also understand the use of mental skills by those who have sustained non-complex injuries. Forty four percent of the regular force personnel sustained an acute or repetitive strain injury (Theriault et al., 2016). Using the OMSAT-3 or the development of a standardized psychometric instrument to determine all injured military member's use of mental skills in rehabilitation would be worthwhile for developing interventions. Future research could consider conducting a larger scale study investigating the mental skills that non-complex injured military members used throughout rehabilitation. It could also be advantageous to conduct the study while members are concurrently working through their rehabilitation programming. In addition, as recommended by Booth-Kewley et al. (2014), future research could include interventions with the skills uncovered in this study and other skills used in the rehabilitation of athletes. This could also be used to further understand mental skill usage of injured military members in rehabilitation and to further inform the need for mental skills interventions.

The current study demonstrated that the use of mental skills contributed to adherence to a rehabilitation program for injured military members. Thus, as suggested by Booth-Kewley et al. (2014), an intervention study is warranted to further explore this finding. When military members join the military, there is a significant investment in their training, the cost of training special operation or highly skilled military members can exceed $1 million per person (Cohen et al., 2005). McCrory et al. (2013) noted that mental skills training could have significant economic potential on the training of pilots, through reduction of course attrition and extra training requirements. Further mixed methods research could include the economic potential of using MST in all categories of military personnel.

Conclusion

The current study qualitatively identified common mental skills used by complexly injured military members. The findings are a preliminary exploration of mental skills used by military members to encourage adherence to their recovery and achievement of their goals. Five common mental skills were identified by all participants (i.e., goal setting, confidence, commitment, self-talk, and motivation). Although mental skills training and research has not been a common practice with military populations (Mattie et al., 2020), there are programs that have started to emerge and interventions that are being used. These findings propose that the military could benefit from MST and rehabilitative context.

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Additional Findings

Additional mental skills were identified and uncovered as important and were richly coded. These additional mental skills were: mental toughness, routines, self-awareness, relaxation, self-talk, fear control, focus, imagery, activation, mental practice, refocus, and stress reactions. The following reports on the results of the most richly coded of these skills and provides quotations to demonstrate their use.

Sixteen skills were used by the participants, as per the analysis of the OMSAT-3 and the interviews. Four of the most coded skills were goal setting, confidence, commitment, and motivation and were presented in the manuscript. The following presents other mental skills used that were not presented in the first manuscript due to page limitations. As was the case for those skills presented in the manuscript, these skills were developed through the analysis of the interview dataset (mental toughness, routines, and self-awareness). The order in which the skills are presented accords with the coded richness of the data collected from the participants, from most coded to least coded skill.

Mental Toughness

Mental toughness was a skill that was attributed to successful recovery. It was used when participants identified experiencing extreme difficulty throughout the rehabilitation process and how they manoeuvred getting back up or waking up the next morning and trying again.

> Never quit. You can't quit. You have to keep going, stay positive as much as you can. It's hard…. It's OK to have some bad days, but you have to keep as positive as you can and just keep going…. It comes down to mental fortitude and whatever you tell yourself mentally, and then everything else kind of follows. Mental fortitude is getting back up

> after every time you're knocked down, no matter what the circumstances. It is never quitting (P1)

The participants discussed the difficulty with physical pain, frustration with slow progress, or poor performances in rehabilitation. They attributed their attitudes of not giving up and pushing through the difficulty to mental toughness.

Routines

Routine was an important aspect of their rehabilitation. When they were in the hospital, some participants would group with other soldiers to create a schedule or routine with which they were familiar. This also met a need for need for belongingness they were missing by being removed from their units. Other participants used music, motivational videos, eating the same food repetitively, and included visits to their home units as part of their routines to help get activated for their rehabilitation session or stay focused on their workouts.

> I still woke up at five-thirty in the morning and went to the gym at six because I wanted to maintain a routine, and even though I couldn't do a fraction of what I normally could, I just did what I could. So even on the mornings where I did a little bit less, I still maintained that routine. So I didn't deviate from it, which I felt helped keep my confidence high (P2).

For many participants, the routine was a critical factor in successfully maintaining a schedule and having productive sessions or completing a not so productive day with a feeling of accomplishment because they could maintain their routine. Their routine was part of their activation for their rehabilitation sessions and workouts, which enabled them to return to the workforce successfully.

Self-Awareness

Self-awareness was a skill that was used by almost all participants. Participants recognized their body's responses to different sounds or reactions during rehabilitation and would rely on relaxation (e.g., breathing) to cope. Self-awareness was practiced both early in their recovery as well as later in the recovery. Self-awareness was used to give their body the rest it needed to continue with a rehabilitation session or know when their body had had enough that day.

> I had a lot of phantom limb pain. I had to learn how it behaved and how I could actually influence it. So, I learned the extent of the pain, learned that it was there for a reason, and how far I could go or push it. And then I learned how to control it or influence it with physical exhaustion and then live with it. (P7)

> When I started to really struggle, I talked my way through it well I was sort of letting the world stop spinning and then trying to be cognizant of the signs that my body was telling me…So I'd sit there I start to think, use my controlled breathing techniques and then try and refocus to go back out (P2).

Discussion of Additional Findings

This section discusses the use of the additional mental skills that were also richly coded in the analysis of the interview dataset, beyond those reported in the manuscript. It should be noted that while the skills are discussed separately, there is evidence of considerable overlap for instance between mental toughness, self-awareness, and relaxation.

Mental Toughness

Participants exhibited and claimed using mental toughness to get through the pain, frustration, and difficult rehabilitation periods. In accordance with Levy and colleagues' (2006)

findings, mentally tough athletes were better able to cope with pain during rehabilitation. Further to this, Levy et al. (2006) indicated that mentally tough athletes used direct coping strategies to ignore the pain and employed strategies like emotional control and relaxation. These findings complement the strategies reported by the participants, who demonstrated self-awareness when they noted using relaxation techniques like breathing to help cope with painful sessions.

One participant's appraisal of the pain enabled him to keep going as he saw his rehabilitation as a way of making progress, regardless of how small the improvement might have been; progress was progress. Gucciardi et al. (2020) reported that mental toughness was a behavioural perseverance factor for military members who completed a special forces selection. They stated that it is a key determinant of behavioural perseverance within goal-directed pursuits in an athletic context. Through my findings, mental toughness can be further applied to a military rehabilitation context.

Routines

The participants used pre-and post-rehabilitation routines, which facilitated the evaluation of their performances and was followed by necessary changes, if needed, to future routines of performance. The participants followed a schedule that helped them maintain a commitment to their rehabilitation program. The maintenance of a schedule contributed to a sense of accomplishment that was irrespective of their perceived success in the performance of a rehabilitation session. The sports literature suggests many benefits of pre-performance routines, some of which include improved concentration by encouraging athletes to focus thoughts on task-relevant cues and while reducing distraction, behavioural consistency in performance, and performers' ability to evaluate conditions and change their responses respectively (Cotterill, 2010; Moradi, 2020). Pre-performance routines in sport provide performers with a sense of

perceived control over emotions and environmental demands resulting in emotional regulation, especially with anxiety symptoms (Mesagno et al., 2015). Symptoms of anxiety may be felt during rehabilitation from injury (Mayland et al., 2014).

Post-rehabilitation routines, while not as thoroughly studied by the literature, were another essential step in the participants' recovery. Participants reported that completing their day with routine actions allowed them to feel a sense of accomplishment despite not having a productive or successful rehabilitation session. Similarly, Mesagno et al. (2015) reported the benefits of a post-performance routine in sport, which included affording a high level of confidence due to the sense of control gained using a process rather than outcome focus (Kingston & Wilson, 2009). Confidence and a sense of control were seen with participants in this study as they either started or completed their day with the same routine, allowing themselves to feel in control. In addition, a post-performance routine encouraged a greater sense of self-awareness through constructive reflection and adjustments for future performance (Mesagno et al., 2015). Pre-and post-rehabilitation routines were both used, and were vital steps and skills used for a successful recovery.

Self-awareness

The participants in the current study practiced self-awareness to identify when their body was experiencing distress from flashbacks or increased physical stress from the rehabilitation session, to recognize when they needed to take some time for themselves, or in rehabilitation when their training was too much, and they recognized a need for relaxation. In her dissertation, Lang (2015) found among a cohort of athletes who suffered a brain injury that self-awareness was linked to high levels of self-efficacy and a return to sport. Similarly, all eight participants in the current study either returned to their occupation, moved onto a more elite role in the military,

or self-reported a successful transition to a meaningful civilian life. Furthermore, Fischer et al. (2004) reported for patients who suffered brain trauma that having a realistic level of self-awareness was the key to successful recovery. Mindfulness is linked to self-awareness because mindfulness is the act of moment-to-moment awareness (Mistretta et al., 2017). Several sport studies have reported the effect of mindfulness and increased awareness with an increased ability to concentrate and relax during a performance, and better preparation to manage pain, fatigue, and negative thoughts (Mistretta et al., 2017; Petterson and Olson, 2017; Sappington & Longshore, 2015). The participants in this study practiced self-awareness, which enabled them to recognize their physical reactions like pain and fatigue and consequently react accordingly. Self-awareness is linked to mental toughness, elevated levels of self-confidence, and a return to sport (Mistretta et al., 2017), all of which are other skills identified by participants as contributing to their successful recovery and return to work.

General Discussion

The purpose of this master's thesis was to explore what psychological skills were used by complexly physically injured military members who reported having successfully recovered. For the purposes of this research, successfully recovered was defined as returned to duty or transitioned to a meaningful civilian life. Complex injuries require multiple health care providers in multiple settings for rehabilitation (Coleman, 2003). A mixed methods approach (Creswell, 2011) was used to explore what mental skills were used by complexly injured military members in rehabilitation. The analysis led to the identification of sixteen skills. The top four skills across all participants (i.e., goal setting, confidence, commitment, and motivation) were presented in a manuscript and the three additional findings (mental toughness, routines, and self-awareness) in the additional findings section. There were participants who struggled at times during their

rehabilitation with the use of these skills and the progress of their rehabilitation, which temporarily resulted in setbacks. They expressed a need for increased social support, especially during those difficult times. Overall, this research demonstrates that more research is needed to explore how mental skills can be used to help injured military members through their recovery and eventual transition out of the military.

Contributions to Literature

The findings in this master's thesis make several important contributions to the literature. First, to the best of the researcher's knowledge, this is the first investigation analyzing what mental skills are used by complexly injured military members who were successful in their recovery, being able to return to active duty or transitioning to civilian work. This investigation enhances our understanding of which mental skills were used and how these skills may benefit military members as they recovery from complex injury. Second, it provides a novel perspective of the participants' experience. It privileges the participants' perspectives and firsthand knowledge of what they endured rather than focusing on a clinical perspective. In reflecting on the findings, a primary conclusion that can be offered is the contribution of knowing which mental skills were used by those who have suffered a severe or complex injury as they recovered. A secondary conclusion is how a mental performance consultant might help enhance members' progress through rehabilitation and return to duty or transition from the military. The following section discusses the findings in relation to the literature on mental skills and severe injury rehabilitation and the use of mental skills in a military context with the guidance of mental performance consultants.

Mental Skills and Military Training at Basic Military Qualification

Mental skills have been used in a number of military contexts to attain a number of different objectives. Goal setting has been used to improve physical fitness scores, improve performance in military skills acquisition (DeWiggins et al., 2010; Meyer, 2018), and physical performance (Arthur et al., 2017). Confidence has been associated with the degree of importance military members place on their occupation, leading to improved levels of self-esteem in a rehabilitation setting (Hammermeister et al., 2009). Commitment has been seen as a strong contributor to mental toughness in a group of US Army soldiers (McGraw et al., 2012). Furthermore, soldiers who exhibited stronger mental skills use were found to be more intrinsically motivated to perform their occupation than those who had weaker mental skills use (McGraw et al., 2012). Mental toughness has been shown to improve in a group of elite British army recruits following a mental skills intervention (Fitzwater et al., 2018). Moreover, the experimental group of this British study also exhibited significantly improved performance than those who did not receive the intervention program (Fitzwater et al., 2018).

When an individual is accepted into the CAF, all members must attend basic military qualification (BMQ) training during which all occupations and elements (Army, Air Force, and Navy) are taught common military knowledge (DND, 2020). BMQ develops and fosters a military state of mind and conduct, mental and physical stamina, and necessary combat skills required for the profession. BMQ also lays the foundation for the military's fundamental values of duty, loyalty, integrity, and courage (DND, 2020). BMQ is 13 weeks long and provides the core skills and knowledge required to perform in a military environment (Fikretoglu et al., 2019). BMQ is difficult both mentally and physically (Fikretoglu et al., 2019), as is rehabilitation from a complex injury. The mental skills identified in this research enabled participants to successfully recover from a complex injury. These same skills, goal setting, confidence, commitment,

motivation, mental toughness, routines, and self- awareness can also be used to help improve performance (DeWiggins et al., 2010; Myer, 2018; Hammermeister et al., 2011; Gucciardi et al., 2020) at BMQ.

In a Canadian military context, Road 2 Mental Readiness (R2MR) is a mental health intervention that is a classroom-based program that provides resiliency training to soldiers at BMQ, leadership courses, and throughout deployment cycles of their career (Granek et al., 2019; Fikretoglu et al., 2019). The program consists of six mental health management skills (goal setting, self-talk, visualization, tactical breathing, attentional control, and psychological self-monitoring) with the intention of assisting individuals in managing the body's responses to stress and enhancing performance (Granek et al., 2019). The delivery ranges from 3 hours to 5 days in length, dependent on the audience (Fikretoglu et al., 2019).

Fikretoglu et al (2019) conducted a randomized control trial (RCT) of the R2MR program, which is now embedded into the BMQ curriculum. The R2MR intervention was delivered over a 160-minute classroom session by an R2MR instructor (former military member). One experimental group received this intervention, at week 2 of BMQ and a second experimental group at week 9 of BMQ. The outcomes showed some benefit regarding mental health service use, attitudes, intentions, and behaviours towards mental health service; however, there was no significant improvement in psychological functioning, resilience, or military performance. Recommendations were to distribute the teachings over multiple sessions and to have additional teaching of R2MR concepts. The findings of the current study suggest that the same mental skills that the CAF is aiming to teach new recruits are mental skills that are being used through rehabilitation. While there was no significant improvement in performance in the

study with R2MR curriculum, it can be seen that these skills are being used through difficult periods of rehabilitation in a military member's career.

Similarly, the US military, to teach the use and value of mental skills in relation to performance and managing stressors, has established the CSF-PREP, now named Ready and Resilient (R2) programs, as well as the Center for Enhanced Performance (CEP) at West Point Military College (Barnicle, 2018). These programs vary from large classroom settings, smaller groups and one- to-one consulting sessions, and in the field applied training sessions. The aim is help "recruits to achieve excellence in the classroom, on the athletic field, and in military training" (Hammermeister et al., 2011, p. 6). The programs are also meant to proactively increase psychological strength, positive well-being, and physical performance in recruits (Barnicle, 2018). There has been an increased demand at military units for mental skills training resulting now in 20 CSF/R2 training centres with plans to expand the program to reserve units as well (Barnicle, 2018). These programs are taught by graduate and doctoral level educated non-military specialists who have been trained in sport, exercise, and performance psychology (Barnicle, 2018).

The US military conducted a similar RCT mental skills training (MST) with a group of 2500 basic combat training soldiers (Hammermeister et al., 2011). The MST (goal setting, self-talk, imagery, performance routines, relaxation) was embedded in their daily duties and the curriculum was delivered in 20 minutes sessions, 3-4 times per week for 10 weeks. The intervention was taught by a group of 15 "experienced instructors who have advanced degree in psychology-related fields" (Adler et al., 2015, p, 3). The aim of the study was to examine the use of mental skills, ratings of self-confidence, and physical performance (Adler et al., 2015). The results indicated increased use of mental skills, higher levels of self-confidence, and better

performance than the control group in military tasks (Adler et al. 2015). Additionally, it was of interest that women members benefitted the most from the MST in the areas of greater use of mental skills and improved physical performance on military tasks.

The above studies show that goal setting, self-talk, imagery, performance routines, relaxation, attention control, and psychological self-monitoring are mental skills that are being used to improve self-confidence and improve performance on military tasks in the field and in the classroom. In addition, these mental skills have also shown to change the attitudes and behaviours towards mental health and seeking mental health service. The current study's findings emphasize the use of these skills in a rehabilitation context and their use to assist members through the mental and physical difficulty of recovery from a complex physical injury. Given that we have seen the use of these mental skills in both a performance and rehabilitative context, it would be valuable to provide more in-depth training over a longer period of time to maximize the use of these mental skills in the field, classroom, and in rehabilitation. Proactive education and training on these mental skills (McGraw et al., 2012) should be taught in an expanded format during CAF BMQ by qualified mental performance consultants. It could also be advantageous to have continuing education at a unit level to further foster the high performance of our military members.

Mental Performance Consultants in Canadian Military Rehabilitation Setting

A physiological change in the body is often accompanied by a psychological change and vice versa (Hong et al., 2012). Injuries, particularly musculoskeletal injuries, are a significant problem in the military and are the leading cause of disability among military members (Kauffman et al., 2000). Forty-four percent of Canadian Armed Forces members sustain an acute or repetitive strain in a given year (Theriault et al., 2016). Given that mental skills are helpful

with rehabilitation adherence, improved performance, and increased confidence in one's ability to return to work or sport, it would be reasonable to start intentionally incorporating these skills into the rehabilitation programs of injured soldiers.

Military members have exhibited psychological factors associated with injury (e.g., depression; Hoyt et al., 2015) and expressed dissatisfaction with their care specifically related to the setbacks and length of time it takes to be fully recovered, fitness maintenance for their occupation, support from their chain of command, decreased unit cohesion, and decreased morale (Jennings et al., 2005). Moreover, Giusti (2018) reported problems for military members regarding mental readiness to return to their occupation without restriction and combat readiness. There appears to be a gap in the mental rehabilitation component of recovery for soldiers (Giusti, 2018). Being mentally prepared to return from injury has been characterized as a dynamic psychosocial process (Podlog et al., 2015).

Mental Performance Consultants (MPC) help clients develop and use mental and self-regulatory skills to optimize performance, involvement, enjoyment, personal development, and well-being in sport or other contexts (CSPA, 2021; Vealy et al., 2019). Mental performance is the use of mental, emotional, and social skills to optimize one's performance in various domains, including the military (Vealy et al., 2019) and injury rehabilitation setting (Waumsley & Katz, 2013). Some of the outcomes associated with such skills are reaching one's performance potential, improving recovery and regeneration, and rehabilitating from an injury (Canadian Sport Psychology Association, 2020). This usually involves a combination of individual and group work in which the general goal is to teach mental skills required to perform consistently in the individual's performance domain (Association of Applied Sport Psych, 2020).

While MPCs are not qualified to treat individuals who suffer from a mental health injury, MPCs can work collaboratively with mental health workers to facilitate not only recovery but facilitate improved performance cognitively and operationally with military tasks (Jensen et al., 2020). In the sport literature, interdisciplinary mental health care team models have recently demonstrated best practices in mental health support (Moesch et al., 2018). Whereby, MPCs, psychologists, psychiatrist, family physician, and psychotherapists work together leveraging the strengths and differences within a multidisciplinary team to provide the most comprehensive support available (Van Slingerland, et al., 2020).

Psychological interventions have enhanced the well-being of injured athletes, increased adherence to rehabilitation programs, and facilitated recovery from a sports injury (Rock & Jones, 2002). These interventions include goal setting, imagery, cognitive strategies, stress-inoculation training, progressive muscle relaxation, counselling (Rock & Jones, 2002), mindfulness, and stress management (Reese et al., 2012). Additionally, interventions can be used in a preventative role to mitigate mental health issues that may arise not only during rehabilitation but also from daily stressors which could eventually lead to mental health illness or injury, if not managed well (Davorean & Hwang, 2014; Wenzel et al., 2002). In the sport literature, the mental skills that are used to excel in sport performance share similarities with the mental skills used to cope with life stressors (Fogaca, 2021). Combining performance and mental health interventions has been suggested to better prepare athletes to use mental skills for performance by intentionally teaching and applying them in other areas of their lives (Fogaca, 2021). Focaga (2021) investigated the outcomes of a combined performance and mental health intervention in an athlete population to improve mental health outcomes, performance, and increased social support. The results indicated improved mental skill use, decreased levels of

anxiety, and encouragingly close to significant results regarding depression. This study demonstrates the usefulness of mental skills interventions not only for performance, but for mental health prevention as well.

The parallels between sport and military contexts allow us to suggest that the mental skills presented in this study can be further fostered through interventions to address difficulties related to setbacks in rehabilitation, subsequent confidence declines, struggles with commitment or motivation as seen with the current study's participants. Furthermore, interventions can be used to facilitate prevention of mental health injuries or illness.

Mental performance consultants can be a source of listening, emotional, and social support (Rock & Jones, 2002). As reported in the previous chapter, participants mentioned the desire to have someone to talk to throughout the rehabilitation process, especially during setbacks. Social support is an influential factor during the rehabilitation process of athletes (Fernandes et al., 2014). Furthermore, Conti et al. (2019) reported athletes confirming that social support during their recovery from a severe injury was important especially in an emotional, informational, and motivational capacity. Mental performance consultants can provide emotional, informational, and listening support for injured members (Reese et al., 2012), and enhance psychological well-being (Rock & Jones, 2002). In addition, social support has been positively associated with rehabilitation adherence. Thus, a mental performance consultant's increased ability to provide social support can assist with improved or continued rehabilitation adherence in sport (Brewer et al., 1991; Rock & Jones, 2002).

Integrated Model of Response to Sport Injury

Rock and Jones (2002) described the integrated model of response to sport as

> "a framework within which the impact of a counselling-skills intervention on rehabilitation might be understood. The model predicts that coping resources and social support availability affect postinjury cognitive responses such as perceptions of rehabilitation, emotional responses such as mood, and behavioural responses such as adherence to rehabilitation". (p. 285)

The IMRSI was used to inform the interview guide questions of this study regarding personal and situational factors. It was also used in the analysis of the interview data and coding interview nodes. Mental skills comprise some of the personal factors that contribute to an athlete's or military member's appraisal of the injury rehabilitation process. The IMRSI is robust framework for examining the cognitive, emotional, and behavioural process of injury rehabilitation. This study contributes to advancing the knowledge of personal factors with the cognitive appraisal process of injury rehabilitation.

Recommendations/Implications

The current study identified goal setting, confidence, commitment, motivation, self-awareness, routines, and mental toughness as mental skills that were used and helpful throughout rehabilitation in a military population. These mental skills could be further fostered through interventions conducted by mental performance consultants, who are also well positioned provide a source of social support, which was identified as an additional need by participants. While mental performance consultants are not qualified to provide counselling to those who have depression or other mental health injuries, they can help address the concerns associated with rehabilitation performance and mental readiness for military members when returning to work post-injury. Mental performance consultants can work collaboratively with mental health

professionals and physical health care providers to develop a complete holistic rehabilitation program.

Future Research

This master's research has revealed future areas of study related to mental skills usage and rehabilitation. The research aimed to explore what mental skills were used by complexly injured military members throughout rehabilitation. The model was used to inform the interview guide and data analysis. Mental skills are a contributing factor to the personal factors that affect how one processes the rehabilitation process. Future research could look to use the IMRSI and the findings from the current research to explore the meaning of and the cognitive, emotional, and behavioural responses of injured military members throughout rehabilitation. As suggested by Booth-Kewley et al. (2009), a mental skills intervention should be investigated and its impact on the rehabilitation experience; and on adherence, well-being, anxiety, and mental readiness of injured members returning to duty or transitioning out of the military.

Other areas of research could include how interventions affect women, specifically as Rock and Jones (2002) noted that women sought out additional listening support. It was also noted that women military members used mental skills differently in a performing context than their male counterparts (Adler et al., 2015). Moreover, women military members may have the experience of returning to duty following childbirth, which might be considered as similar to recovering from injury. In her dissertation, Armitage (2013) reported that women often felt that they were performing under pressure and would seek out understanding from others when they were completing the fitness test required to return to duty. There are many opportunities to further advance the research surrounding the rehabilitation process of military members. It is hoped that mental skills, the role of mental performance consultants in the rehabilitation process,

and interventions involving the use of mental skills continue to be studied, as there is a need to continue to expand the available knowledge of our military members.

Conclusion

Overall, the findings from this master's thesis contribute to the literature by providing empirical support about the mental skills and experiences of complexly injured military members, adding to Booth-Kewley and colleagues' (2009) findings regarding psychosocial predictors of military members returning to duty. The findings provide evidence of the mental skills (goalsetting, confidence, commitment, motivation, mental toughness, routines, and self-awareness) used by and seen to have contributed to the successful recovery of injured military members. Building on previous military research, this thesis provides a novel contribution to the literature. Based on the findings, several relatively simple changes in the support provided to complexly injured military members might have a significant impact on their recovery and return to function, an important economical and organizational factor for the forces. Future research should also examine the role that mental performance consultant can play in providing support.

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APPENDIX A

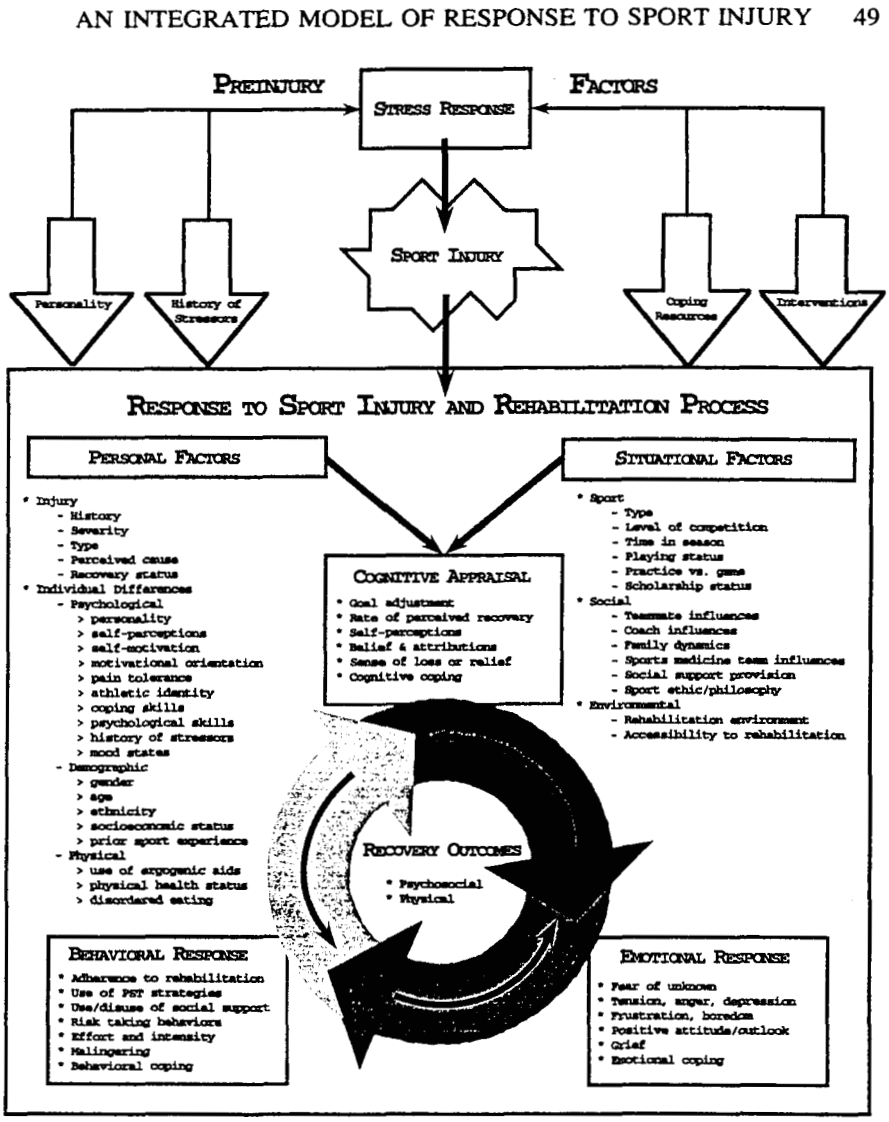

Figure 1. Integrated model of psychological response to the sport injury and rehabilitation process.

(Wiese-Bjornstal et al., 1998)

APPENDIX B

Interview Guide

Demographics (Personal Factors)

1. Age:

2. Gender: Male, Female, Other

(Situational Factors)

3. What is your trade in the military?

4. How long have you been in this trade?

5. How long have you been in the military?

OMSAT

6. What were your thoughts on the OMSAT-3 questionnaire?

7. Have you heard of those skills before (mental practice, imagery, relaxation, etc)?

    i. Where have you heard them before?

    ii. What courses have you taken where you learned about them and how to use them?

    iii. What course?

    iv. What skills did you learn?

Injury

8. When and where did you get injured?

9. Who were you with at the time of injury?

10. What was the diagnosis of your injury?

11. Had you ever, in your life in general, been injured before?

    i. If so, tell me about it?

    ii. Describe your rehabilitation from this previous injury for me.

12. How did your current injury happen?

13. Where did you complete your rehabilitation?

14. Describe the rehabilitation process for me.

    i. Tell me about your relationship with your healthcare providers?

    ii. How did you ensure successful rehabilitation from your injury?

    iii. In what ways do you consider yourself successfully recovered?

    iv. Do you feel like your previous injuries helped you through this last rehabilitation?

(Situational Factors)

15.What was the relationship like with your platoon members and commander (if injured on duty or deployed)?

16.What was your family situation like at the time of your injury?

17. Take me back to the time of injury, share with me your thoughts.

18. Take me back to the time when you started your rehabilitation, share with me your thoughts

(Psychological Skills)

19. If you learned mental skills from previously taken courses, did you use any of them throughout the rehabilitation process?

    i. Can you tell me about each skill and how you used them?

    ii. Based on the skills we've seen through the OMSAT-3, did you use any of those additional skills that you may not have originally been introduced to?

(Cognitive Appraisal)

20. What was the hardest thing you dealt with during rehabilitation?

    i. How did you overcome that?

21. Can you recall one of the difficult days you had and describe for me what happened, what you were thinking and feeling?

i. Can you take me through that type of day?

ii. How did you get yourself through it?

(Emotional response/behavioural response)

22. What about one of your more better or positive days?

i. Why was it better or more positive than others?

ii. Can you take me through that type of day?

iii. What was different between the two types of days?

iv. How would you feel emotionally on a good day and on a bad day?

v. How would your feelings on good days and bad days not only affect your behaviour in general, but also your rehabilitation on those given days?

23. Is there anything you would do on a regular basis to try and ensure success for any given day?

24.To what do you attribute your successful recovery?

25. Is there anything else you would like to tell me about your rehabilitation experience?

26. Would you like to participate in a second interview to tell more of your story?

Member-check Interview for 004

1. Tell me the story of your injury experience, through to your rehabilitation and into your successful transition back to duty/ to civilian life.

Follow up Questions

2. I know there's only so much you can say, if you can describe the situation, as best you can with how you can, and then yeah I guess the events leading up to the injury.

3. So when you were speaking about waking up after the two weeks you said something to the effect of that was your own issue that you had to deal with. Could you elaborate on that?

4. When you get back to work. You mentioned that you would stop by see the guys make sure that they knew that you were still here you were still part of the team just to kind of yeah let them know I'm still here. What did stopping by and seeing them and visiting, do for you.

5. So you kind of alluded to it already at the at the end how your focus has changed and how you and your workouts have changed like with the intention. In general this whole experience, how has it changed you as a person?

Member-check Interview for 003

1.You mentioned that these skills helped you through transition out of the military. Can you elaborate on that for me?

2. Can you give me an example of where confidence enabled you to push forward ie: achieving a goal and gaining confidence bc of that, and then how that affected your future performance

3. What fed your commitment? What was the driving force to keep you committed to driving back and forth to Ottawa every week, and keep pushing through the hard, painful, and frustrating sessions? (Wanted to be able to have a family and have fun with his future kids)

4. You mentioned that once you got to JPSU you weren't going to work anymore and you said in some ways it was very helpful..can you tell me in what ways it was helpful and in what ways it wasn't?

5. How did maintaining that routine contribute to keeping your confidence high?

6. How did being part of the military influenced your recovery process?

7. Did the "uniform" of the military or being a part of the military affect how you approached or went through rehab?

8. What was it about the putting on the uniform and being a part of "something bigger than yourself" do you miss or what did that make you feel? Did that affect your rehab process?

9. How is being a part of the civilian world differ from being a part of the military world?

Member-check interview for 006

1. Examples of goal setting for physical rehab and how would you pick away at the 5km run or being leaner?

2. Can you tell me how your fear of potentially getting released from the military hurt your confidence? In what ways?

3. How did your commitment boost your confidence? (see that goal, visualize the goal, and stay focused on getting better)

4. Did not being in wainwright during that ex that Col Bobbitt died have an affect on your rehab at all? Either positively or negatively?

5. How do your injuries bother you on a daily basis? And how do you work through that?

6. When did you join the unit you're with now? Training, selection, and course..how did you manage to push through those? What did you do, say, experience to help you not quit or be so effected by your injuries?

7. What was your relationship like with people at work while you were going through rehab? Did those relationships have an affect on your rehab? Either help or hinder?

8. As you progressed through your rehab, having those ups and downs along the way…what types of thoughts or feelings did you have?

9. Did you experience focussing problems when you were doing your rehab exercises? If so, how did you overcome that?

10. Did you enjoy shooting prior to the military? What was it about shooting that brought you enjoyment and a sense of calm?

11. As you were going through rehab and still being with your unit, Did that have an affect on your rehab? either positive or negative?

Member-check Interview 009

1.What contributed to your unwavering confidence when you woke up?

2. Why did you believe in yourself so strongly to get through this rehab? Had you gone through a really tough situation before that helped you believe in yourself?

3. When you first started rehab what were your goals? What was driving you and pushing you to get better? For what?

4. You mentioned having the right tools in your life that gave you stronger leverage to push through rehab.

5. You mentioned in that talking to yourself..what types of things would you say to yourself?

6. You said throughout rehab you were committed bc you committed to being happy…what is/or was happiness to you?

7. What makes you resilient?

8. Were there very many military members in the hospital with you during that first year of rehab? What was that like for you?

9. You said that when you were released from the hospital, you were on your own, you a lot of medication to take, you had a lot of appointments and the travel and it was quite something to manage especially on your own..how did you manage it?

10. During the “waiting” period in the hospital, in between surgeries, looking back now is there anything that could have helped you through this period…physically, mentally, or emotionally?

11. So you said you didn’t want to die, but you didn’t put pressure on your jugular…why not?

12. Is there anything else you would do everyday that would help you feel successful during your 1 year rehab?

APPENDIX C

Bracketing Interview

1. What is the theme of your thesis?
2. In what context will you be conducting your research?
3. What is your personal experience in your context of study?
4. What is your experience with an injury?
5. How has it affected your life?
6. Why do you work with injured military members?
7. Do you feel like you're qualified to work with injured military members?
8. Have you used psychological skills throughout recovery of an injury or a struggle you've experienced?
9. How did you use these psychological skills? Did they help with your recovery? How?
10. How has having a baby changed the way you look at life and perhaps how has it affected the way you look at your research?
11. How has being the spouse of a military member affected the way you look at your research and the process of your thesis project?
12. What are the challenges you anticipate facing during your research?
13. How are you going to minimize the negative outcomes of these challenges?
14. What do you intend to learn from the entire process
15. Why are you doing this research?
16. How do you plan on collecting and analyzing your data?
17. How will you monitor your assumptions throughout the process of research?

Bracketing Interview Transcription

I: Ok, then let's start, ok what is the theme of your thesis?

P: First of all I've totally forgotten the questions I gave you so it's like I'm hearing them for the first time again, um, ok, so, the theme of my thesis um well it's in sport psychology so I'll be looking at the psychological skills that military members use when going through rehab. Um, I'm still looking at what ah what context specifically um yeah like I'm trying to see if um, oooh I don't like recording myself [laugh], it's awkward, um so like yeah whether I interview members who are currently in physio um so it would be what they are currently using or retrospectively so once they are past physio and they are in my programming or even once they are past my programming and back to return to play type thing. Um where there's um like participating in Soldier On events like that organization I mentioned that provides activity opportunities to injured members to kinda help them ah rediscover what they are capable of and just like find uh new likes in activity. 'Cause some of their activities they won't be able to do anymore um so yeah gives them the opportunity to maybe find new sports.

I: Ok, good! So in what context will you be conducting your research?

P: Ok, well I kind of actually just talked about that so, either physio in exercise rehab or in the return to play um yeah [laugh].

I: Yeah, so, what is your personal experience in your context of study?

P: Um so I initially started um well I guess what lead me to where I am is I was working with a football team and we were coming up to our off season and I accepted a position with the agency that I currently work for in Afghanistan. And so I was working in the gym over there and because I was an athletic therapist I ended up volunteering in the hospital and was working with um injured Afghans whether they were local, army or police and the majority of them were amputees. There were a few burn victims, including babies, which really sucked. Um, but yeah that's where I first started and then uh through there I ended up getting the job I currently have which is working with injured soldiers um in the exercise part like once they are discharged from physio and at the beginning of my job it was a lot of amputees and now the population has changed to a lot more uh severe PTSD.

I: Yeah, ok, so what is your experience with an injury?

P: Um, I haven't had, thankfully, knock on wood [knock on table] a lot of injuries, um but the biggest I guess traumatic injury if you wanna call it that is actually when I gave birth to my daughter because it ended up being an emergency induction um I had developed a condition where my liver stopped functioning and I had bile that was circulating in my body which um women who have this typically get induced at thirty seven weeks and I was thirty nine like I was almost forty weeks and um the reason women get induced is because this condition can result in stillborns, so I was emergency induced so I was in labor for over 24 hours and then that didn't do anything so I um had to have a c section and the two things I did not want was for her to be born on April 1 and had to have a c section and so I was not mentally prepared for a c section at all

and um the amount of pain that I had afterwards was quite a bit and so that's the closest thing I cant relate to injury wise, like I've had injuries but nothing super traumatic. Um, so yeah that's the closest thing I, I've had.

I: Ok, well it's yeah, so how has this affected your life?

P: Uuuuuum at the beginning I couldn't talk about it without crying for like the first two, three months even four months and I think, to be honest I don't know why, I think maybe it was a combination of it was completely unplanned and not how I wanted to have a birth story. Um, or how I wanted my birth story to be like and yeah I think it was just really scary because, oh man, now I'm starting to tear up a bit. Um, I think just because when I realized that I had this condition I quickly associated with stillborns and it just panicked me that I was gonna lose my daughter. EW, um, sorry! [laugh, cry].

I: It's totally fine, yeah.

P: Um, yeah so it just scared me more than anything so yeah so anyways, I associated it with potentially losing my daughter and yeah just very much scared me [laughed].

I: Yeah that's uh I understand that completely, yeah. So moving on from that, um, why do you work with injured military members?

P: Um, because I felt that I was called to do this. I was working with athletes before and I absolutely loved it um but then after working in Afghanistan I was like this is what I want to do. Um, the fact that they represent our country and fight for our country um makes me prouder than anything um I've grown up in a military family, my dad was military, his dad was military, my husband is military so um, it there's a lot of um there's a big sense of pride in yeah being able to serve these people.

I: Um, yeah, ok, so uh do you feel like you're qualified to work with injured military members?

P: Um, at the risk of sounding cocky, I'm gonna say I sound confident but um yeah I do because I have um the qualifications on paper, like all the letters at the end of your name in order to fulfill the job requirements, but because I've had that experience overseas yeah I haven't been outside the wire and I haven't shot at people but I've been able to witness um the traumas of war and I myself experienced mental anguish, I don't know if anguish is the right word, but mental struggle um coming back from Afghanistan not that I had PTSD or anything like that but it was uh it was definitely a big struggle coming home, I guess it's um it's called, shoot um what is it called, um, something like transition anyways, something about like coming home and just like trying to reintegrate um because of the things that you've seen or the things that you've done um yeah, it's just it's yeah anyway[laugh], yup.

I: I get what you're saying

P: Yeah.

I: So um, Uh, ok have you used psychological skills throughout recovery of an injury or a struggle you've experienced?

P: Um so like I said like birth was the biggest thing I could relate to and to be honest I don't think I did, I mean yes I did use them not as effectively as I should have or could have or hoped that these military members do use them. There's a huge mental struggle being fit before and then no going through this whole post partum, trying to lose this baby fat season that is not easy and that plays a huge um I guess it's a big mental battle so anyways all that to say I did um but not positively for the majority of the time.

I: Cuz this is like psychological skills you used on yourself so if the injured military people would be using it you would teach them how to use them on themselves right?

P: So not for my study for my study I want to know what ones they are using and then on my own after my masters is completed I would like to develop an intervention program that um helps them to further develop the skills that they are using and then even potentially introduce new ones that may be that be helpful throughout recovery.

I: Ok, yeah. Gotcha. Ok, so how did you use these psychological skills and did they help you with your recovery and how?

P: Um, so the biggest one that I can think of that I used um was positive self-talk and goal setting. Um, the big one was goal setting because I had set goals to go for two twenty min- like at the very beginning of my um recovery I had made goals to go for two twenty minute walks a day. Ah just to get outside and start moving um the other one was positive self-talk although negative self-talk was pretty predominant um I did use positive self talk and that did help get me out the door to try and meet those goals and um and I guess just reaffirm my priority was that she ok and she was being fed and she was being cared for. And then by reaffirming that I was less hard on myself I beat myself up less.

I: So you feel like they helped?

P: Yeah, um, the biggest yeah-, definitely goal setting for sure- , even right now I'm still in "recovery" so to speak not so much from the c section anymore more just from birth ya know baby weight and all that stuff and goal setting has definitely helped.

I: Ok, good. And um how has having a baby changed the way you look at life and perhaps how has it affected how you look at your research?

P: Um, I am much more aware of what I do how I act how I react and what I say. Especially because just the other day she grabbed the remote and started pointing it at the tv like she was trying to change the channel, she's 9 months and I'm like oh my goodness! Um, we need to- , we just play music on the tv but even still like that just showed me like holy crap like she watches everything and she gonna mimick me and especially having a daughter I don't want her to ever doubt her capabilities or her worth and her value. Um, and so having a daughter has even changed how I even look at myself because she's gonna she's gonna imitate me and so I need to

demonstrate confidence and I guess pride, pride in myself in my work and value um how has it changed the way I look at my study? Um I don't know that it really has Um if anything doing my masters while having a baby at home and my husband being deployed so I'm the only parent here um I 100% suffer from mom guilt because I am constantly thinking about what's the next thing I need to do, I need to make sure I read this paper or whatever the case may be. Um, having said that I do realize and I am more aware of needing to be present when she's awake and playing and just taking in what we're doing and enjoying ya know being with her and watching her and teaching her and all that kind of stuff.

I: Yeah, kind of living in the moment.

P: Exactly.

I: Yeah, maybe like, what you do with your time to like when you read, you read and just more effective.

P: Yeah, I, yes and no. Um, when I'm busier, I'm much more effective and productive um, when I, like when I'm in the swing of school, then I definitely like I have my routine, I have everything planned out and scheduled out. Um, I guess loosely because it's all based on her. But, I have a goal everyday of reading one article or whatever the case is, um, where as when, like over the Christmas holidays, I was like eeeeeh I've got a lot of time, I'll get it done and I never got it done and so, yeah.

I: Yeah, I get what you're saying. Ok, so how has being a spouse of a military member affected the way you look at your research? And the process of your thesis project?

P: Um, it has made me feel like this is really important especially with the predominance of PTSD and how it's on the rise. Um, trying to-, I see-, I don't really see him struggle mentally, but we'll talk about what he goes through at work, and I was like, huh, would ya know this type of skill practicing this and learning how to apply it in that setting would that help? And he said 100% it would. So it just I guess validates um my study and my research and what I want to do with it. And makes me realize that this is important, not that I didn't think it was important before but it just reaffirms how important it is.

I: Next, what i-, uh, what are the challen, th-, ok I'll start over, what are the challenges you anticipate facing during your research?

P: Um, I think the biggest one is going to be um, the potential for people to either not wanna share their story with me because it was traumatic mechanism or 2 there's a negative reaction to them telling me their story. It's either a trigger for them or if they have a mental health injury, I'm sticking with physical injuries, but typically um there is a mental reaction with every physical action or, um injury. So, yah like the two big ones, that, that, that first one that I mentioned and then a negative reaction so either someone breaks down or gets angry or however they react, whatever their trigger is and however they react to that trigger than that that happening.

I: Ok, so um, how are you going to minimize the negative outcomes of these challenges?

P: So, I will have, I'm gonna need to contact, like we have mental health uh people up here on base, and so what I would like to do is touch base with them and be able to have someone that we can contact right away if there, if there's a need for it, um, and if there's no immediate need then at least to have someone that I can refer the people that I'm interviewing, to that they can go talk to um ya know, at the end of this or in a couple of weeks after we are done our, our interviews and they can go talk to them to help them with the mental side of things.

I: Yeah, yeah that sounds nice.

P: hhmm mm.

I: Uh, let's see, what do you intend to learn from the entire process?

P: Ok, that's a loaded question because in the process itself, how to critically analyse, how to write better, how to do better research, like the, the things you normally would learn through a masters program, like time management and all that kind of stuff. Um, but then I want to really the essence of my thesis is I want to know what psychological skills are used so that when I do go back to work and I am able to put together an intervention program that can be used in conjunction with their training program that I provide them so like their strength and conditioning program, there also can be a mental component to it that is completed 15 or 10 minutes before you start and then 10 minutes when they're done and try and get them to apply that in their everyday life while at work, at home, etc.

I: Yeah, uh, ok so and then, why are you doing this research?

P: Um, Because, I found that the members, first of all I love sport psychology um ever since my first degree I have wanted to do a masters in sport psychology so it was something that I have always wanted to do, so it was one of those bucket list items, um but then also too I have seen in training the members that I do the mental struggles that they have or even people just aren't even trying like the motivation isn't there or they give up so easily and they don't even bother showing up, or they sit off to the side. And I know the benefit that this strength program can have for them not only in their work place but at home in their family lie, um, yeah so I wanna be able to help them mentally to get back to where they were.

I: Yup, sounds good. Um, and then how do you plan and on collecting and analyzing your data?

P: So, I want to do semi structure interviews, I still need to figure how I'm going to recruit, I guess that's going to depend on the context of where I conduct my research. So yeah I'm going to do semi structured interviews maybe a focus group and then I'm going to analyse my data, I imagine it's going to be something like we're doing right now, um, and whatever else Dr. Camire has for us in store.

I: Ok, and last question, how will you monitor your assumptions throughout the process of the research? That's a hard one!

P: [laugh] yup. Um, I don't know. I guess just through this interview hopefully will identify where my biases will be and I should write them down and let my supervisor know so that maybe while she's proofreading or whatever my proposal and that kind of thing, she'll have in the back of her head where I'm coming from and what lens I'm looking at my study through and be able to pick up on, so I guess like yeah using my supervisor, my proofreaders, um, to keep an eye for looking for those biases, um, and I guess just self awareness and reminding myself before I start working on my project, ok, put, put these, not put these assumptions aside because I know we can't do that, but just try and keep them in check and really hear, hear the person and not try to manipulate things to meet my desires, let the members speak and yeah just, don't manipulate, yeah.

I: Yeah, sounds good. And you can probably use this interview too if you wanted and look back on what you said.

P: That's true.

I: Yeah, and get some ideas in your head.

P: Ok.

I: That was good.

P: Thank you.

Reflections of The Bracketing Interview

Introduction

I participated in a bracketing interview for my research topic in order to bring awareness to any assumptions or biases that may be present. The interview provided insight into the biases I have regarding military members and injury recovery. As a follow up we transcribed and analyzed our interviews. Through this exercise it was clarified why my daughter's birth would make me emotional every time I spoke about it for the first four months of her life. It also illuminated why I minimize myself in a performance and made me aware of insecurities that may be hindering these performances. The interview process itself was a learning experience with regards to what my participants will experience and how they may feel when answering personal and potentially traumatic questions for my research project. I am hopeful that by identifying my biases and weaknesses from this interview, I can now apply the very skills that I will be studying for my research to my own life.

Development

Experience

In order to prepare for my research, I was interviewed as well as conducted a bracketing interview. I was both an interviewer and an interviewee. The preparation for this assignment started in class as we were allotted time to prepare the questions that were going to be asked of us. These questions were used to identify and make us aware of the presuppositions and biases that we may have about our research topic. As I was thinking and writing the questions that would be asked of me, I was already preparing what my answers were going to be. I had written 18 questions that would enable me to discuss my personal experiences with an injury, my recovery, my experience with injured military, and my experience as a military spouse. The

questions also asked about the challenges that may arise in my research and how I would address those issues. Lastly, they asked what I intended to learn throughout the process, how I planned to carry out the process of research and data analysis, and why I wanted to do this research project.

The interviews were both conducted on a Wednesday evening and the questions were provided to the interviewer 24 hours in advance. I was the first one to be interviewed. After the first question was asked, I stumbled through my answer and instantly felt anxious. I felt pressure to sound smart, to use the proper terminology, and to come across as though I had everything figured out. I felt as though, as a classmate described in our discussion, I needed to perform for the microphone. The pressure to perform was accompanied by a lot of "ums", "ahs", and "ok sos". When answering questions I would start one sentence, and then start another and yet another without finishing the first two. I would answer questions too quickly because I thought if I answered questions quickly then it was indicative of how well I knew my topic. I also didn't want there to be a lot of silence following a question. I was uncomfortable with silence. I was uncomfortable because I felt that it showed weakness and lack of intelligence. I felt silence was seen as though I didn't know my topic and research project well. I have often felt this way throughout grad school thus far, being a mature student and not having done any academic reading or writing in 13 years. I have felt like I am at a disadvantage academically compared to my classmates, because I haven't been involved in academia for such a long time. Since I am a mature student, I have felt like there is an unsaid, albeit self-imposed, expectation to be proficient in all that is involved in reading and writing academically. This has been a steep learning curve, however it has been enjoyable.

Throughout my interview I did become more comfortable and less anxious as I was asked to discuss more of my personal experiences. I was more comfortable because I know it is my personal experiences over the last 13 years that does give me an advantage in how I can contribute to my research project. This was an important exercise for me to be involved in and I will need to do this again in order to know and understand what I will be asking of my participants. I want to understand what it is like to be asked the questions I would be asking them. This will help me to be able to relate to them and hopefully be able to provide some encouragement and comfort.

I was also much more comfortable as the interviewer. I have had quite a bit of experience interviewing and conducting verbal intakes for my job, as well as for my side home business of massage therapy. Having had the questions in advance was helpful as I was able to get an understanding of what the research topic was that I was going to be asking about. As an interviewer, I became aware of the importance of making my partner feel comfortable and empowered to share her story and assumptions. There was a bit of a language barrier, even though she spoke English very well. She did stumble and would search for the right words to say in order to get her point across. This caused me to reflect on how my future participants would feel in the same position, there may be a language barrier, or may be because of the nature of the injury and the mechanism of injury, it may be and will probably be more difficult for them to talk about their experience, especially talk about their feelings, thoughts, and emotions. Throughout this assignment, as the interviewer I wanted my partner to feel empowered and comfortable and feel that she had control over the interview even though I was the one asking the questions.

The process of transcription and analysis is new for me and I have never completed anything similar before. The transcription process itself was rather enjoyable actually, of which I was quite surprised. Prior to starting I thought it was going to be long and tedious. It was long, however it was relaxing. Throughout transcription I really noticed how much I said "um", "ah" and "ok so". As well, the sound of my voice is not what I thought I sounded like, it was froggy and as previously mentioned, I sounded like I was trying to sound smart and rehearsed. Throughout this process I did think of my research project and how much transcription there will be. I will admit I did find that intimidating and was already trying to plan what part of the day I would be able to do my transcription and still be able to spend my time with my daughter and husband. The transcription of my future participant's interviews will be a long process.

The analysis was something that I was not as familiar with or confident. I thought about the weekly readings we had to do and in grounded theory they conducted different types of coding. I did get anxious thinking about having to do coding because I do not know how to do that. Those thoughts of insecurity, self-doubt, and not feeling that I am up to the Masters' level standard surfaced again. Throughout my Masters I have had to constantly remind myself that this is a learning process. It is all a learning and re-learning process, reading and writing academically, research, analysis, critical thinking, etc. This whole process of interviewing, transcription, and analysis was a great introduction to what will be required of me for my research. It has also added fuel to the fire of excitement that I feel for my research project and given me a little more confidence in my capability as a Masters research student.

Lessons Learned

While in class, as I was thinking about the answers to the questions I prepared, our professor came to each pair to provide further direction and guidance on what questions could be

included in our bracketing guide. I was speaking to him about one question in particular and I had already felt anxious about answering that question in my interview. I actually had to stop speaking about it in class because I felt I was getting emotional. I was remembering about my experience with injured soldiers during my time in Afghanistan. I knew this interview was going to bring some emotions to the surface that I have not thought about for quite some time.

I deployed to Kandahar Airfield (KAF) Afghanistan as a civilian in November 2008 to 2009. I worked in the Canadian gym and also volunteered in the hospital providing acute exercise rehabilitation to injured Afghan police, army and Afghan Nationals. I haven't been emotional speaking about it since my return in 2009. Even now, I am unsure as to what made me emotional just last week when speaking of it. I think the fact that I would be challenging my own thoughts, feelings, and experiences through the bracketing interview and asking myself to truly reflect on the essence of what my deepest feelings were brought back the memories of what I saw and felt at the time of my deployment and upon my return. I had seen legs and arms that had been blown off of not only military and police forces, but also children. My first patient was a beautiful 12-year-old girl who had lost her right leg below the knee because an improvised explosive device (IED) detonated in front of her father's store. Another patient was an 8-year-old boy who lost both of his arms below the elbow because of an IED. There were Afghan detainees in the hospital that were being treated before their trial. It was a very emotionally conflicting and sad experience and to this day, and I believe in class, I still struggle with a personal argument about what are the "right" and/or "wrong" feelings.

When it came to participating in the interview, it wasn't that question that elicited an emotional response, but it was the question of what experiences have I had with an injury. I have had sports injuries before, but they weren't traumatic. It was the birth of my daughter that was

the most traumatic for me. I had to have an emergency induction because I had developed cholestasis. This is a condition where the liver stops' processing the body's bile and toxic bile is circulated in the body. Women who have this condition will get induced at 37 weeks because it can result in a stillborn. The induction wasn't successful and it resulted in a C-section. Following her birth, for the next three months I could not talk about her birth story without crying and I didn't know why, until this interview. I realized that I associated her birth story with the possibility of losing her. I thought maybe it was because I wasn't mentally prepared for a C-section and that is the most traumatic event I had experienced, but it wasn't. It was the going to the hospital, having the doctor tell me my blood work was a mess and I needed to have this baby tonight. I don't remember a time when I was so shaken and felt so out of control. It was one of, if not the scariest experiences I have had.

Throughout this process I also realized that I diminish or minimize what I am saying in order to protect myself. I found I was not confident in my answers and would respond with "I feel" or "I think" quite a bit. I have often done this in speaking engagements as well where I am teaching a group of clients, or athletes. I have often times started with a story or something similar that makes light of what I am going to talk about. I have realized that I am doing this to a certain extent to sabotage myself. If I present myself as not as serious or the information I'm passing on as "fluffy" then I don't have as far to fall. I won't be as humiliated if I am not taken as seriously because I am not committing to what I am saying whole heartedly, so I don't have as far to come back to join with what others believe. I will be safe and still be within the group's beliefs and won't be alone in what I'm saying or as vulnerable. Even as I write this reflection, I am realizing more how much I protect myself from humiliation or not being taken seriously. I am not confident to step out and really say what I believe and what I stand for. I think this stems

from a number of roots; my lack of confidence in my capabilities as a trainer, my lack of knowledge in the field of sport psychology, my lack of confidence as a Masters' student, the fear of not being taken seriously, even bigger picture, the fear of offending.

When I think about the areas that I will not stray from the pack or tip toe around certain topics, they are topics that I am not well versed, or topics where I don't think people will understand or agree, and they are topics that are political or sensitive, like religious beliefs. As a society we have become so afraid to offend and feel the need to be politically correct all the time. We don't want to hurt anyone; we don't want to offend because we have different beliefs or views on certain topics. We can still have a strong opinion or belief about a topic and we can respect one another's differences from a place of love and acceptance, why is this so hard for us to do? Our differences is what makes our world such an exciting place and a great learning experience.

Conclusion

The interview and this reflection paper brought a realization of emotions and thoughts that I didn't know were there and explanations for my behavior that I didn't understand. Insecurity and lack of confidence is the deepest root of it all, which is something that plagues our society and world. I realized that my experiences in Afghanistan, although I may be "over it", it still has an effect on me, and no doubt always will. I have grown as a Masters' student this last year and a half but still doubt my place here sometimes. My insecurities surface during times when it is important to show confidence and be strong in delivery. I am hopeful that as I continue to develop as a Masters' student and learn more about my research topic I am able to apply to my life the same skills that I hope my participants apply to their lives.

APPENDIX D-Ethics Approval

Université d'Ottawa

Bureau d'éthique et d'intégrité de la recherché

University of Ottawa

Office of Research Ethics and Integrity

CERTIFICAT D'APPROBATION ÉTHIQUE | CERTIFICATE OF ETHICS APPROVAL

Numéro du dossier / Ethics File Number	H-05-18-679
Titre du projet / Project Title	What Psychological Skills Injured Military Members Use Throughout Rehabilitation
Type de projet / Project Type	Thèse de maîtrise / Master's thesis
Statut du projet / Project Status	Approuvé / Approved
Date d'approbation (jj/mm/aaaa) / Approval Date (dd/mm/yyyy)	11/09/2018
Date d'expiration (jj/mm/aaaa) / Expiry Date (dd/mm/yyyy)	10/09/2019

Équipe de recherche / Research Team

Chercheur/Researcher	Affiliation	Role
Megan DONOVAN Principal/Principal Investigator	École des sciences de l'activité physique / School of Human Kinetics	Chercheur
Diane CULVER	École des sciences de l'activité physique / School of Human Kinetics	Superviseur/Supervisor

Conditions spéciales ou commentaires / Special conditions or comments

Université d'Ottawa

Bureau d'éthique et d'intégrité de la recherché

University of Ottawa

Office of Research Ethics and Integrity

The University of Ottawa Research Ethics Board, which operates in accordance with the *Tri-Council Policy Statement* (2014) and other applicable laws and regulations, has examined and approved the ethics application for the above-named research project.

Ethics approval is valid for the period indicated above and is subject to the conditions listed in the section entitled "Special Conditions or Comments". The "Renewal/Project Closure" form must be completed four weeks before the above-referenced expiry date to request a renewal of this ethics approval or closure of the file.

Any changes made to the project must be approved by the REB before being implemented, except when necessary to remove participants from immediate endangerment or when the modification(s) only pertain to administrative or logistical components of the project. Investigators must also promptly alert the REB of any changes that increase the risk to participant(s), any changes that considerably affect the conduct of the project, all unanticipated and harmful events that occur, and new information that may negatively affect the conduct of the project or the safety of the participant(s).

Le Comité d'éthique de la recherche (CÉR) de l'Université d'Ottawa, opérant conformément à l'*Énoncé de politique des Trois conseils* (2014) et toutes autres lois et tous règlements applicables, a examiné et approuvé la demande d'éthique du projet de recherche ci-nommé.

L'approbation est valide pour la durée indiquée plus haut et est sujette aux conditions énumérées dans la section intitulée "Conditions Spéciales ou Commentaires". Le formulaire « Renouvellement ou Fermeture de Projet » doit être complété quatre semaines avant la date d'échéance indiquée ci-haut afin de demander un renouvellement de cette approbation éthique ou afin de fermer le dossier.

Toutes modifications apportées au projet doivent être approuvées par le CÉR avant leur mise en place, sauf si le participant doit être retiré en raison d'un danger immédiat ou s'il s'agit d'un changement ayant trait à des éléments administratifs ou logistiques du projet. Les chercheurs doivent aviser le CÉR dans les plus brefs délais de tout changement pouvant augmenter le niveau de risque aux participants ou pouvant affecter considérablement le déroulement du projet, rapporter tout évènement imprévu ou indésirable et soumettre toute nouvelle information pouvant nuire à la conduite du projet ou à la sécurité des participants.

Germain ZONGO
Responsable d'éthique en recherche / Protocol Officer
Pour/For Daniel LAGAREC **Président(e) du/ Chair of the** Comité d'éthique de la recherche en sciences sociales et humanités / Social Sciences and Humanities Research Ethics Board.

The SSRRB approval statement for use with communication and informed consent statements is:

This research has been approved by the DND/CAF Social Science Research Review Board (SSRRB) in accordance with DAOD 5062-0 and 5062-1. The SSRRB Approval # is 1786/18F.

APPENDIX E

Department of Human Kinetics
University of Ottawa

PARTICIPANTS NEEDED FOR RESEARCH IN MENTAL SKILLS IN REHABILITATION OF PHYSICAL INJURY

We are looking for volunteers to take part in a study of
what mental skills were used by military members throughout rehabilitation of a complex physical injury.

As a participant in this study, you would be asked to: complete two online surveys approximately 15 minutes long each, and a two hour interview. You may be asked to participate in a follow up in-depth interview regarding the events, timelines, locations etc of your injury and rehabilitation.

Your participation would involve 1 session with a follow up email confirming what was discussed in the interview.
Each of which is approximately *120* minutes.

For more information about this study, or to volunteer for this study,
please contact:
Megan Donovan
School of Human Kinetics
at
xxx-xxx-xxxx or
Email:

This study has been reviewed by, and received ethics clearance through a University of Ottawa Research Ethics Committee.

APPENDIX F

Information Sheet

What: The current study is looking at what psychological or mental skills (such as goal setting, imagery, positive self-talk, etc) physically injured military members use throughout rehabilitation. The goal of the current study is to gain a better understanding of what skills are used throughout rehabilitation and use that data to develop an intervention program that may be used at the beginning of the rehabilitation phase.

Who: We are looking for currently serving or retired military members who were physically injured while on duty. The following is the inclusion criteria. All criteria must be met in order to participate in the study:

-Male or female aged 20-50, English speaking

-Have sustained a complex (requiring multiple health care providers in multiple settings and may have sustained a life changing injury that lead to the need for adapted activities of daily living).

-Have undergone physiotherapy and/or other rehabilitative treatment and recovered from his/her injury within the last 10 years.

-Have self-reported successfully returned to duty or transitioned to a meaningful and successfully civilian life.

How: Participants will need to complete two online surveys and participate in one two-hour recorded interview. A follow-up with ensue from the researcher with a transcript detailing the interview to ensure the researcher captured everything the participant wanted to say. Two participants may be asked to participate in a second interview approximately two to four hours in length.

Addition: Due to the discussion being a potentially sensitive subject there may be emotional and mental discomfort. There will be a list of mental health workers with their numbers and addresses provided to assist with any disturbances experienced. The participant may choose to not answer questions, and/or remove themselves from the study with no consequence.

Results/Data: Results will be used to report the most common psychological skills used by physically injured military members. It will also be used to inform the development of an intervention program for rehabilitation purposes. Data will be stored in a password protected computer as well the online surveys will be held on a protected database.

Benefits: Participants will be become more aware of what psychological skills were used to assist with rehabilitation to which they can be further developed for performance for work, sport, and life. Information gathered through this study will help inform future policy and development of programs to assist injured members throughout their rehabilitation.

APPENDIX G

Consent Form for Survey

Title of the study: What Psychological Skills Injured Military Members Use Throughout Rehabilitation

Principal Investigator(s) (Supervisor(s)):
Megan Donovan

Diane Culver
School of Human Kinetics
Faculty of Health Sciences
University of Ottawa
25, University Private
Ottawa, ON K1N 6N5
(613) 562-5800 ext.

Invitation to Participate: You are invited to participate in the abovementioned research study conducted by Megan Donovan who is being supervised by Dr. Diane Culver.

Participation: If you wish to participate in this study, please complete the attached survey. Your decision to complete and return this survey will be interpreted as an indication of your consent to participate. The survey should take you approximately 30 minutes to complete. You do not have to answer any questions that you do not want to answer.

Purpose of the Study: From this research we wish to: (a) what psychological skills were used by successfully recovered physically injured military members throughout rehabilitation (b) What stressors were present pre-injury (c) What were the outcomes of recovery from a previous injury (d) What psychological skills have they already been taught?

Benefits: Your feedback is very important as it may help enhance the quality and inform the development of an intervention program for those beginning and working through a rehabilitation program. Possible benefits of participation include having a better understanding of your experience through rehabilitation and how the skills you used help you successfully recover. Moreover, following the completion of the study, recommendations will be made for how rehabilitation practitioners use this data to help their current and future clients. There may be a risk of emotional or mental discomfort due to the sensitive nature of the topic of discussion. Phone numbers of veterans affairs counsellors will be provided to participants should they feel uncomfortable or the need to talk to a professional for further counsel.

Risks: Some questions may be sensitive in nature and may cause emotional or psychological discomfort. The participant may refuse to answer any questions that may cause such discomfort and may remove themselves from the interview and project at any time with no consequence.

Confidentiality and Anonymity: The information that you will share will remain strictly confidential and will be used solely for the purposes of this research. The only people who will have access to the research data are myself, Megan Donovan and my supervisor, Dr. Diane Culver. Your answers to open-ended questions may be used verbatim in presentations and publications but neither you (nor your organization) will be identified. In order to minimize the risk of security breaches and to help

ensure your confidentiality we recommend that you use standard safety measures such as signing out of your account, closing your browser and locking your screen or device when you are no longer using them / when you have completed the study. The information that you share will remain strictly confidential. The data collected will be used only for research and academic purposes, and your confidentiality will be protected. However, given the nature of some injuries and how high profile some members are or may have been throughout their rehabilitation, the researcher cannot guarantee that the member may be unrecognizable. **Anonymity** will be protected through the use of pseudonyms. In any research or academic report, pseudonyms will be used to identify you as a participant, and any identifying information you share will not be used.

Conservation of data: The data and analyses of the data will be kept at the University of Ottawa in both Megan Donovan and Dr. Diane Culver's locked offices on password protected computers, and will be kept for five years beginning once all data has been collected. At the end of the five years all the data will be deleted or destroyed.

Voluntary Participation**: You are under no obligation to participate and if you choose to participate, you may refuse to answer questions that you do not want to answer. Completion and return of the questionnaire by you implies consent. Please note this study is being conducted independently of the Canadian Armed Forces.**

Information about the Study Results: Results of this study may be published in academic and professional journals, and presented at conferences. Your identity however will not be revealed in any publications that may result from this study. Feedback about this study will be available through Megan Donovan at the phone number and email address given above.

I, _____, agree to participate in this research led by Megan Donovan and Dr. Diane Culver of the School of Human Kinetics from the Faculty of Health Sciences at the University of Ottawa.

_____ _____
(Participant's signature) (Date)

_____ _____
(Researcher's signature) (Date)

There are two copies of the consent form, one of which is mine to keep.

If you have any questions or require more information about the study itself, you may contact the researcher or his/her supervisor at the numbers mentioned herein.

If you have any questions with regards to the ethical conduct of this study, you may contact the Protocol Officer for Ethics in Research, University of Ottawa, Tabaret Hall, 550 Cumberland Street, Room 154, Ottawa, ON K1N 6N5, tel.: (613) 562-5387 or ethics@uottawa.ca.

Please keep this form for your records.

Thank you for your time and consideration.

Megan Donovan
20 July 2018

APPENDIX H

Consent Form for Interviews

Project Title: What psychological skills do injured military members use throughout rehabilitation.

Investigators:

Megan Donovan, BSc	Diane Culver, PhD
MA Candidate	Research Supervisor
School of Human Kinetics	School of Human Kinetics
	Montpetit 351
University of Ottawa	University of Ottawa
Tel: xxx-xxx-xxxx	Tel: 613 562-5800 ext.
Petawawa, ON K8H 0B2	125 University Pr.
	Ottawa, ON K1N 6N5

INVITATION

You are invited to participate in the abovementioned research study conducted by MA candidate Megan Donovan and Dr. Diane Culver of the University of Ottawa as part of Megan's MA thesis.

PURPOSE OF THE STUDY

The purposes of the study are to explore: (a) what psychological skills were used by successfully recovered physically injured military members throughout rehabilitation (b) What stressors were present pre-injury (c) What were the outcomes of recovery from a previous injury (d) What psychological skills have they already been taught?

WHAT'S INVOLVED

As a participant you will be asked to take part in two online surveys and an individual interview lasting approximately 60-120 minutes. Participants may be asked to participate in a follow up in-depth interview lasting approximately 120 minutes. One interview will involve questions regarding if you were injured before, how the recovery went, what mental skills have you been taught, and what mental skills did you use throughout your rehabilitation. The second interview will involve a deeper description of the events leading up to the injury and an opportunity for members to tell their story of what happened and what they did to overcome their injury and the hardships that ensued.

Each interview will be audio recorded and transcribed verbatim, and you will have the chance to edit and revise your responses.

POTENTIAL BENEFITS AND RISKS

Your feedback is very important as it may help enhance the quality and inform the development of an intervention program for those beginning and working through a rehabilitation program.

Possible benefits of participation include having a better understanding of your experience through rehabilitation and how the skills you used help you successfully recover. Moreover, following the completion of the study, recommendations will be made for how rehabilitation practitioners use this data to help their current and future clients. There may be a risk of emotional or mental discomfort due to the sensitive nature of the topic of discussion. Phone numbers of veterans affairs counsellors will be provided to participants should they feel uncomfortable or the need to talk to a professional for further counsel.

CONFIDENTIALITY AND ANONYMITY

The information that you share will remain strictly confidential. The data collected will be used only for research and academic purposes, and your confidentiality will be protected. However, given the nature of some injuries and how high profile some members are or may have been throughout their rehabilitation, the researcher cannot guarantee that the member may be unrecognizable. **Anonymity** will be protected through the use of pseudonyms. In any research or academic report, pseudonyms will be used to identify you as a participant, and any identifying information you share will not be used.

CONSERVATION OF DATA

The data and analyses of the data will be kept at the University of Ottawa in both Megan Donovan and Dr. Diane Culver's locked offices on password protected computers, and will be kept for five years beginning once all data has been collected. At the end of the five years all the data will be deleted or destroyed. A password protected drop box will be set up in your name where you will have access to your personal data and transcripts from the interview conducted.

VOLUNTARY PARTICIPATION

Your participation in this research is voluntary and you are free to withdraw or refuse to answer any questions you may be asked at any time and without any negative consequences. If you choose to withdraw from the study, your individual interviews will be destroyed, and information you share will not be used. Please note this study is being completed independently from the Canadian Armed Forces.

PUBLICATION OF RESULTS

Results of this study may be published in academic and professional journals, and presented at conferences. Your identity however will not be revealed in any publications that may result from this study. Feedback about this study will be available through Megan Donovan at the phone number and email address given above.

CONTACT INFORMATION AND ETHICS

If you have any questions about this study or require further information, please contact Megan Donovan or Dr. Diane Culver using the contact information provided above. If you have any comments or concerns about your rights as a research participant, please contact the Protocol Officer for Ethics in Research, University of Ottawa, Tabaret Hall, 550 Cumberland Street, Room 154, Ottawa, ON K1N 6N5 Tel.: (613) 562-5387 Email: ethics@uottawa.ca.

CONSENT

I agree to participate in this study described above. I have made this decision based on the information I have read in this Information-Consent Letter.

[ ] YES [ ] NO

I will have the opportunity to re-examine and modify, if necessary, the information that I have given. That is, at the end of my interview, I will be given the chance to remove or add to any portions of the interview. I will also receive a copy of my interview transcript and will be able to make additional changes before analysis begins.

Please note that additional security measures will be taken during this exchange of information. A password protected dropbox account will be set up in order for use to exchange transcripts, quotes, etc to ensure the security of your participation is upheld.

I would like to receive the material:

[ ] via e-mail or [ ] hard-copy traditional mail

E-mail address: _____ or

Mailing address: _____

I, _____, agree to participate in this research led by Megan Donovan and Dr. Diane Culver of the School of Human Kinetics from the Faculty of Health Sciences at the University of Ottawa.

_____ _____

(Participant's signature) (Date)

_____ _____

(Researcher's signature) (Date)

There are two copies of the consent form, one of which is mine to keep.