

Exploring Recreation and Sense of Community in the Canadian Military

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Abstract

Communities across North America are seeing a decline in participation in community services such as recreation. In relation to this decline, a decrease in feelings of community may be occurring as a result. The purpose of this quantitative study was to explore the relationship between recreation and sense of community at a single Canadian Armed Forces base. A total of 148 participants from a single Canadian Army Base completed a questionnaire on recreation participation and sense of community as it relates to military recreation programs and services. T-test and regression analyses were conducted. The sense of community factors, *voluntary action*, *common interest* and *administrative consideration* were significant within the Canadian Armed Forces. Future research should explore sense of community across all Canadian Armed Forces bases to further understand the role of recreation and sense of community across the Canadian Armed Forces and also include other variables (e.g. civilian organizations, leadership) that may contribute to military sense of community.

Keywords: benefits of recreation, Canadian Armed Forces, military recreation, recreation participation, sense of community

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Table of Contents

Abstract	ii
Acknowledgments	iii
CHAPTER 1	1
1.1 Introduction	1
1.1.1 Sense of Community	1
1.1.2 Military Community	2
1.1.3 Deployments and Relocations	3
1.2 Statement of the Problem	4
1.3 Objectives of the Study	4
1.4 Rationale	5
1.5 Delimitations	6
1.6 Limitations	7
1.7 Assumptions	7
1.8 Research Questions	7
1.9 Conclusion	8
1.10 Definition of Terms	8
C CHAPTER 2: REVIEW OF LITERATURE	11
2.1 Introduction	11
2.2 Canadian Armed Forces Background	11
Figure 1: Map of Canadian Armed Forces Bases	13
2.3 Current Canadian Research on the Canadian Armed Forces	14
2.4 Deployments	16
2.5 Post-Traumatic Stress Disorder	18
2.6 Benefits of Recreation Participation	19
2.7 Military Recreation	21
2.8 Sense of Community	26
2.10 Conclusion	36
CHAPTER 3: METHODOLOGY	38
3.1 Study Sample	38
3.2 Sample size and effect size	39
3.3 Instrumentation	39
3.4 Survey Development	39

3.4.1 Demographics	39
3.4.2 Sense of Community.....	41
3.5 Data collection	42
3.6 Ethics.....	43
3.7 Data analysis	43
3.8 Conclusion	44
CHAPTER 4: DATA ANALYSIS	45
4.1 Introduction.....	45
4.2 Response Rate and Data Screening.....	45
Table 4.1	47
4.4 Sense of Community descriptive scores	50
4.5 Confirmatory Factor Analysis.....	52
4.7 Reliability of Scales	53
4.8 T-Tests	53
4.8.1 T-Test Assumptions	54
4.8.2 T-Test Results	56
4.9 Regression Analysis.....	57
4.9.1 Assumptions of the Multiple Linear Regression	58
4.9.2 Summary of Regression Results	59
4.9 Summary of Findings.....	63
CHAPTER 5: DISCUSSION	65
5.1 Introduction.....	65
5.2.1 Model Testing: Confirmatory Factor Analysis/ Cronbach's Alpha.....	65
5.2.2 Research Question # 1	66
5.2.3 Research Question # 2	68
5.4 Sense of Community Summary	71
5.5 Military Research.....	72
5.6 Implications for Practice	75
5.7 Recommendations.....	78
Voluntary Action	80
5.8 Limitations and Challenges.....	80
5.10 Conclusion	85
References.....	88

Appendix A- Study Questionnaire.....	97
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List of Figures and Tables

Figures

Figure 1: Map of Canadian Armed Forces Bases	20
Figure 2: The Deployment Cycle.....	16
Figure 3: Sense of Community Membership Components	35
Figure 4: Sense of Community Dimensions	38

Tables

Table 1: Sense of Community Measurement Factors	41
Table 4.1: Frequencies for Canadian Military Personnel.....	55
Table 4.2: Frequency Scores for Spouse, Children and Residence Location.....	57
Table 4.3: Recreation Participation Frequency Scores.....	57
Table 4.4: Sense of Community Descriptive Scores	58
Table 4.5: Confirmatory Factor Analysis Measurement Model.....	61
Table 4.6: Skewness and Kurtosis Levels.....	63
Table 4.7: Homogeneity of Variance Levels for # of times / week.....	63
Table 4.8: Homogeneity of Variance Levels for # of hours / week.....	64
Table 4.9: T-test Results Comparing Recreation Participation Level on VA.....	65
Table 4.10: Sense of Community Multiple Regression Analysis Results.....	68
Table 4.11: Administrative Consideration Coefficients.....	69
Table 4.12: Common Interest Coefficients.....	70
Table 4.13: Voluntary Action Coefficients.....	71

CHAPTER 1

1.1 Introduction

Participating in recreation has many benefits for both individuals and communities (Bricker, Hendricks, Greenwood & Aschenbrenner, 2016; Canadian Parks and Recreation Association, 2015; Henderson et al., 2001; Mock et al., 2016; Parks and Recreation Ontario, 2009). Parks and Recreation Ontario states “that recreation and parks improve physical and mental health, reduce healthcare costs, provide positive choices for youth at risk, contribute to independent living among older adults and develop improved self-image” (2009, p. 4). Similarly, the National Framework for Recreation in Canada developed by the Canadian Parks and Recreation Association states that “people participate in recreational activities for fun, enjoyment, fitness and health, social interaction, creative expression, a desire to connect with nature, relaxation, and to enhance their quality of life” (2015, p. 8). Sport and recreation also have the ability to help individuals and community members gain a sense of community (Kerwin et al., 2015; Warner & Dixon, 2011; Warner et al., 2013). Since previous research supports the idea that recreation participation benefits individuals; it stands to reason that Canadian Armed Forces members may also benefit from recreation participation. Further, resiliency and improved well-being through recreation participation is important for military members as it will allow military personnel to be mission and combat ready. In summary, participation in recreation may lead to stronger feelings of community among members in the Canadian Forces and in turn may counteract the negative impacts that a military career may have on personnel.

1.1.1 Sense of Community

Sense of community has been a topic researched across various community contexts. These community contexts have included; volunteer opportunities, sport organizations, neighbourhoods, college campus recreation and public open spaces (Chavis & Pretty, 1999; Francis et al., 2012;

Kerwin et al., 2015; McMillan & Chavis, 1986; Warner & Dixon, 2011). However, very few studies have been conducted on the impact that recreation has on feelings of community among Canadian Armed Forces members (Cramm et al., 2015). Sense of community is broadly defined as the “feelings that members have of belonging, a feeling that members matter to one another and to the group, and a shared faith that member’s needs will be met through their commitment to be together” (McMillan & Chavis, 1986, p. 9). Sense of community includes four dimensions that help to understand community (membership, influence, integration and fulfillment of needs and shared emotional connection) (McMillan & Chavis, 1986). Much of the current research on sense of community is built upon McMillan and Chavis’s 1986 sense of community theory (Chavis & Pretty, 1999; Francis et al., 2012; Kerwin et al., 2015; McMillan & Chavis, 1986; Warner & Dixon, 2011; Warner et al., 2013). Present research has adapted the sense of community dimensions to fit the contexts of their studies (e.g. *administrative consideration, common interest, equity in administrative decisions, leadership opportunities, social spaces, competition and voluntary action*) (Kerwin et al., 2015, Warner & Dixon, 2011). Throughout all this work, however, is the idea that sense of community is greater when members are actively engaged in their communities leading to healthy relationships, supports, and places where individuals and/or groups can flourish in their community. Recreation can be the link between opportunities for engagement and civic participation and its benefits. In other words, participants in recreation can foster feeling of community.

1.1.2 Military Community

The Canadian Armed Forces has a mission of providing support services and community programs for both the member and their dependents (e.g. spouses and children). Within the Canadian Armed Forces, there are two distinct organizations that link opportunities for recreation with military members and families. The Canadian Forces Morale and Welfare Services (CFMWS)

and Military Family Services Program (MFSP) are two distinct organizations that provide programs and services to members and their families that enhance wellbeing and support families in times of need. Canadian Armed Forces members represent a significant portion of the Canadian population with bases located in every province and territory across the country. To date there are approximately 100 000 Canadian Armed Forces members enlisted as full-time and reserve members (DND, 2014). These members may live on a stationed base or in a surrounding community located within proximity to the stationed base. The CFMWS offers programs and services ranging from fitness, sport, recreation, to counselling, deployment support and even retail services. (CFMWS, 2016). The second organization, the MFSP, has a mandate to provide services such as childcare, child and youth programming, mental health support and deployment support (CFMWS, 2017). The intent of these programs and services is to build resiliency, wellbeing, and establish a support network to assist military members with the stressors and impacts associated with their career.

1.1.3 Deployments and Relocations

Military members are both positively and negatively impacted by their career. In particular, military members are required to move frequently throughout their career (Pittman & Bowen, 1994). The frequency that a military member relocates is on average every three to four years (Pittman & Bowen, 1994). In addition to frequent relocations, members are also impacted by deployments causing them to be away from their family for an extended period of time (Kohen, 1984; Pittman & Bowen, 1994; Shorcs & Scott, 2005; Cozza & Lerner, 2013). Absence from the family creates additional pressure on the household such as lack of leisure time, increasing job duties, and emotional distress (Shorcs & Scott, 2005; Taff et al., 2016; Yablonsky et al, 2016). Deployments and postings can negatively impact the military member (e.g. separation from family, increased stress, post-traumatic stress disorder (PTSD) and other mental health issues) leading to

a number of issues that members face as a result of their career. A growing body of research that suggests many military members are impacted by mental health issues (e.g. depression, suicidal thoughts and traumatic brain injuries) (Cozza & Lerner, 2013; Shores & Scott, 2005; Taff et al., 2016). Compounding these issues are inconsistent program offerings from base to base and the inability for members to access existing programs and services (Cramm et al, 2015). Facilitating recreation participation is one strategy that can be used to counteract such mental health issues and assist members in building resiliency to effectively carry out their role within the Canadian Armed Forces.

1.2 Statement of the Problem

Currently, many communities across North America are experiencing a decline in civic participation and disengagement from communities compared to the past (Francis et al., 2012; Putnam, 2001). This lack of community engagement is due to the impact of globalization, technological advancements and a decline in social capital (Francis et al., 2012; Putnam, 2001). Importantly, for this research the decline in civic participation has also been recognized across Canadian Armed Forces communities. Furthermore, the Canadian Armed Forces has seen a significant decline in members living on military bases across Canada (Cramm et al., 2015). It was reported that three quarters (80%) of Canadian Armed Forces members live off base (Cramm et al., 2015) and the Department of National Defence (2012) reported that 30.7% of members found it difficult to find and establish support networks and friends when moving to their new community due to relocation. This statistic alludes to the difficulties associated with being a military member and its impacts on their overall sense of community.

1.3 Objectives of the Study

Two objectives were developed to frame the purpose of this research study on the role of recreation and sense of community for Canadian Armed Forces members. The objectives are listed as follows:

1. To determine levels of recreation participation by Canadian Armed Forces members on a Canadian Army Base.
2. To investigate whether recreation participation relates to sense of community for Canadian Armed Forces members.

1.4 Rationale

A review of the literature discovered that little research on sense of community exists within the military community context. However, one of the conclusions by Bowen et al. (2001) on their study of sense of community among US military communities was the need for a model specific to military communities. There is a need to examine military communities in Canada to further understand the meaning of being connected to a military community and to further provide insight on the well-being of Canadian Armed Forces members (Bowen, 2001). Existing research by Bowen and colleagues provides insightful questions that help to guide the understanding of future research on military communities' feelings of community. In summary, research is needed in this area to understand the realities of military communities across Canada and to further understand the role that recreation participation plays in enhancing feelings of community. Lastly, an investigation into the recreation participation levels of Canadian Armed Forces members will assist in understanding the relationship between recreation participation and sense of community.

A study conducted by Cozza and Lerner (2013) found that a need for "a successful national public-health response for military connected-children and families requires policies that help military and civilian researchers – as well as communities and systems of care – communicate, connect, and collaborate with one another" (p. 8). In order to support this collaboration, it was

further suggested that programs and services offered in communities need to encompass and focus specifically on families and building resiliency. Additionally, this will assist in helping military members cope with the challenges of being a military member.

The Canadian Armed Forces community is a unique community that encompasses members that are full time regular force or reserve unit members. Military members may live in on-base housing which is located within close proximity to their work location and military service providers such as recreation. Members may also live in off-base housing that is located outside of the base community. This setting is unique because members have the opportunity to be a part of two communities. Members often refer to their base location as one community and the city/town that they live in, as their greater community. In terms of this study, members may encounter different feelings of community at the base community and their greater community. A similar situation may exist in a college setting where students can live on or off campus and may experience different feelings of community in each setting. For this reason, the scale and theory developed by Warner and Dixon (2011) was utilized in this study.

In conclusion, by focusing on the needs of the military member through measuring sense of community, contributions to the current literature on the benefits of recreation participation for military members will be established. Understanding the benefits of recreation participation will also assist in ensuring that the military member is combat ready to meet the mission and mandate set forth by the Canadian Armed Forces. This study is needed as there is a gap in Canadian literature with respect to recreation participation and sense of community among Canadian Armed Forces members and their communities.

1.5 Delimitations

This study will use a quantitative approach that will measure sense of community using the sense of community theory. This study will be delimited to current Canadian Armed Forces

members stationed at a single Canadian Army base and will not include participants at other Canadian Forces Bases in Canada and will not include out of country postings. Secondly, the study will be delimited to the relationship between a member's sense of community and recreation participation at their current Canadian Forces Base.

1.6 Limitations

Since, the study is confined to the Canadian Armed Forces, the results may not be applicable to other countries and their military systems due a variety of reasons such as; demographics, geographic locations, policies, system structures, and political implications.

1.7 Assumptions

The present study is based on the following assumptions:

- Military communities tend to have higher stresses in everyday life than civilian communities.
- Individuals who have lower feelings of sense of community tend to have fewer social networks and opportunities for engagement in their community.
- Living off a Canadian Forces Base contributes to a decline in sense of community for military members.

1.8 Research Questions

This study will test various hypotheses related to sense of community and its seven dimensions (*administrative consideration, common interest, competition, equity in administrative decisions, leadership opportunities, social spaces and voluntary action*) through the following research questions.

RQ1: Do recreation participants have higher levels of individual factors of sense of community than non-recreation participants in the Canadian military?

RQ2: Is there a relationship between frequency (# of times/week), duration (# of minutes), and activity type (sports, clubs, community events) of recreation participation and individual factors of sense of community in the Canadian military?

1.9 Conclusion

Existing research has focused on sport and sense of community but has yet to study sense of community in Canadian military communities (Kerwin et al., 2015; Warner & Dixon, 2011; Warner et al., 2013). The Canadian Armed Forces is a unique context to study sense of community because of its associated challenges (e.g. deployments, post-traumatic stress disorder, mental health, relocations). The challenges which face military members may negatively impact their overall sense of community. Sport and recreation participation has the ability to help individuals gain a sense of community (Kerwin et al., 2015; Warner & Dixon, 2011; Warner et al., 2013) and therefore, the need to connect and engage in community services (e.g. recreation programming and services) has the potential to lessen the negative aspects of military life (e.g. deployments, post-traumatic stress disorder, mental health, relocations), therefore warranting further investigation.

Investigating the role that recreation plays in enhancing a members' sense of community will help to inform members, families, stakeholders, and Canadian Armed Forces leaders on the importance of recreation participation. This study can also serve as a tool to assist military units with the implementation of recreation programs to help members meet the demands of their professional careers. Finally, this study will contribute to the sense of community literature.

1.10 Definition of Terms

Community can be described geographically and demographically, but also further includes the relationships between citizens that occur within place and space (McMillan & Chavis, 1986).

Community connections: refers to networks established through citizens being involved in their community of residency (Bowen et al., 2001).

Community participation: active and healthy participation by community members (Bowen et al., 2001).

Dependent: In the military culture, dependent is referred to as immediate family members living and legally supported by the military member. This includes spouses and children living in the house and/or individuals legally obligated to be taken care of by the military member.

Deployment: In the military setting, deployment is defined as operational missions and combat that take place outside the member's home front, often overseas. In return, deployments often impact the military member, the family, and the community as a whole (Yablonsky, Barbero, & Richardson, 2014). There are four stages in the deployment cycle that include pre-deployment, separation, transposition, and post-deployment. Members can be deployed at any time and the length of time a member is deployed can vary.

Morale and welfare programs (MWP): are programs and services offered by the military which range from healthcare, childcare, community programs, events, recreation, fitness, and sports.

Recreation: "recreation is the experience that results from freely chosen participation in physical, social, intellectual, creative and spiritual pursuits that enhance individual and community wellbeing" (Canadian Recreation and Parks Association, 2015, p. 8).

Relocations: occur when a military member and their family are posted from military base to another. These relocations usually occur every three to four years depending on the individual's career path (Pittman & Bowen, 1994).

Sense of community: "feeling that community members have of belonging, a feeling that members matter to one another and to the group, and a shared faith that member's needs will be met through their commitment to be together" (McMillan & Chavis, 1986, p. 9).

C H A P T E R 2: R E V I E W O F L I T E R A T U R E

2.1 Introduction

Community services such as; fitness, recreation and sport provide endless benefits to those community members who participate. It is important from an organizational standpoint to understand the benefits and impacts that these programs have on individuals and community members in order to make improvements to new and existing programs and services. Some benefits of recreation participation include; an overall enhanced physical and psychological wellbeing, development of social networks and community improvements (Brown, Peterson & Driver, 1991; Brown, 2016). These benefits also assist individuals and communities in developing and enhancing their overall sense of community. This chapter is organized into five sections which includes; (a) Canadian Armed Forces background, (b) recreation benefits, (c) military recreation and (d) sense of community.

2.2 Canadian Armed Forces Background

Men and women of the Canadian Armed Forces make the sacrifice every day to protect this nation. The Canadian Armed Forces has military members and their families stationed across the country and abroad. The members of this distinct organization have the responsibility of ensuring the goal of the Canadian Armed Forces is accomplished and that goal is to “support freedom, democracy, the rule of law, and human rights around the world” (Government of Canada a, 2016, para. 1). At the present time, there are over 100 000 active Canadian Armed Forces members, comprised of 68 000 regular forces members, 27 000 reserve members and 24 000 civilian employees (Government of Canada b, 2016). These members may live on or off base in military communities across the globe depending on their posting or deployment location. For these members to be mission and combat ready, military communities provide community services such as: recreation, sport, healthcare and support groups to ensure members achieve the mission

established by the Canadian Armed Forces. However, there is a vast difference among bases and communities with respect to the programs and services being offered. Within the Canadian Armed Forces, there are multiple divisions that support the morale and welfare of military members and their families.

The Canadian Forces Morale and Welfare (CFMWS) is a division of the Canadian Armed Forces that provides programs and services to enhance and support the needs of members and their families, so that the Canadian Armed Forces mission can be accomplished. The mandate of the CFMWS is “to enhance the morale and welfare of the military community, thus contributing to the operational readiness and effectiveness of the Canadian Armed Forces” (CFMWS, 2016, para.1). This organization is responsible for ensuring that members and families are supported through a variety programs and services offered across Canadian Armed Forces communities. The services offered through the CFMWS include; sports, fitness, recreation, health promotion, deployment support, childcare, financial services and retail services (CFMWS, 2016). More specifically, the CFMWS division that is responsible for providing fitness, recreation and sport programming is Personnel Support Programs (PSP). In addition to PSP, another agency that provides support and programming is the Military Family Resources Centre (MFRC). The MFRC is responsible for community programming and their aim is to support and enhance military family life. It is through these organizations that sense of community can be developed and enhanced to improve wellbeing across Canadian military communities.

It is important to highlight current demographics and statistics about the current state of the Canadian Armed Forces. There are multiple Canadian Forces Bases (CFBs) located across Canada (see **Figure 1**) and abroad (Department of National Defence, 2016). Across CFBs, there are opportunities live on base with programs and services offered to military members and their families. Within the Canadian Armed Forces community, there are a growing number of military

members and veterans who have been impacted by mental health and post-traumatic stress disorder (PTSD) (Brunet et al., 2015; Galloway, 2016; Veterans Affairs Canada, 2016). Veteran Affairs Canada (2016) reported that approximately 10% of Canadian Armed Forces members who have served in combat zones have been diagnosed with PTSD. In regard to mental health issues, it is reported that 1 in 5 Canadian Armed Forces members have experienced a mental health issue while serving for the Canadian Armed Forces (Veteran Affairs Canada, 2016). Community services such as recreation and sport can be used as an avenue to support members and help to overcome the stresses that are associated with being a military member.

Figure 1: Map of Canadian Armed Forces Bases



Since the 1990s, the Canadian Armed Forces has shifted demands significantly in many areas (Cramm et al., 2015). In particular, this shift has been in the areas of family structure, operational structure and policy development. Research has found that the greatest impacts affecting military families today are; relocations, deployments, risk, and separation as a result of the demands of the job (Cramm et al., 2016). Cramm et al. (2015) studied the current state of research in Canadian military families and found that very little research has been completed on the topic. Furthermore, most of the research completed to date has been used in collaboration with research from the United States Military. The American research is applicable to the Canadian

Armed Forces in essence, but more Canadian research needs to be conducted to understand the lives of Canadian Armed Forces members. Cramm et al. (2015) found that services offered across CFBs vary from base to base causing service and programming problems. Furthermore, Canadian Armed Forces members may need to access certain programs and services which are not always available across all Canadian Forces Bases. Cramm et al. highlighted that “research must also explore the knowledge and skills that educators, healthcare practitioners, and community partners require to effectively engage and support military families and ultimately create the foundation of evidence informed interventions and programming” (p. 10). Further, including additional community stakeholders may strengthen military communities across the Canadian Armed Forces. Cramm et al. concluded that further research needs to consider resiliency, program and service evaluation across the Canadian Armed Forces and the availability of programs and services across Canadian Armed Forces communities. These community services are intended to assist military members, families and communities with deployments, relocations, and the stress associated with every day military life.

2.3 Current Canadian Research on the Canadian Armed Forces

Four reports were released by the Canadian Department of National Defence (DND) from 2008 to 2013, which investigated many important areas pertaining to military members and family quality of life, deployments, relocations and military support programs and services (DND, 2008; DND 2010; DND 2012; DND, 2013). Most importantly these reports looked at the impact that the military had on individual and family life beyond the member’s career. From the four reports, the findings displayed various overlaps. For example, one of the findings from three of the reports revealed that support (e.g. information about services or support during deployments) was often informal through friends and family members rather than through Canadian Armed Forces services (DND, 2008; DND 2010; DND 2012). In addition to informal support systems, members found

that there was a lack of awareness for programs and services offered to members and their families on their designated base (DND, 2008; DND 2010; DND 2012). In contrast to the CDS making family a priority, one of the reports indicated that spouses and family members should be involved in military policy to assist the Military Chain of Command in understanding what it means to be a military member and part of a military family (DND, 2010). The reports concluded that family members have the most influential role on the career of the Canadian Armed Forces member and further research needs to focus on the support for military members and their families - an initiative that is being conducted through Canadian Forces Military Policy Review consultation processes (DND, 2008; DND, 2010, DND 2012).

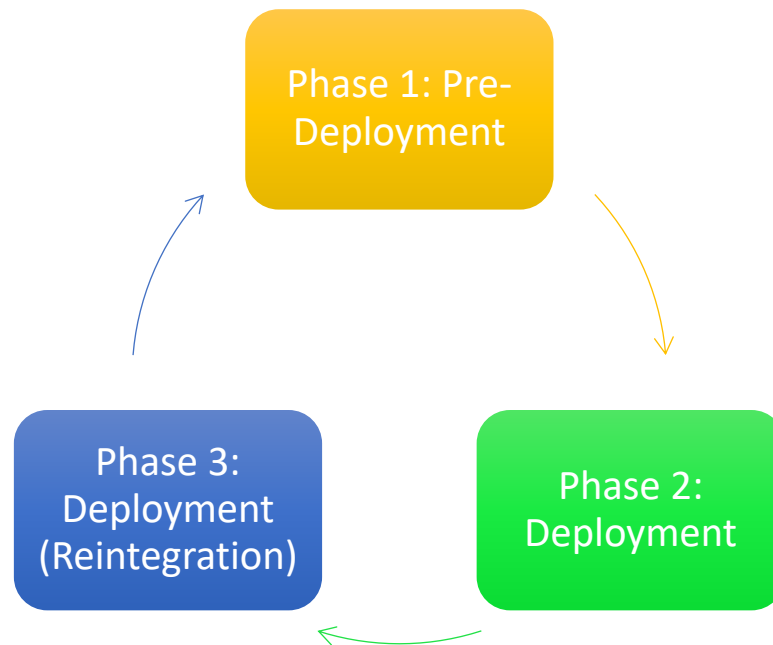
At the present time, the Canadian Armed Forces is working on the Defence Policy Review. The primary objective of the military policy review is “to refresh Canada’s national defence strategy” (DND, 2016, p. 3). This policy outlines many key priority areas of Canadian Armed Forces which include; equipment, operations, security and the quality of life of its members. For the purpose of this literature review, the priority area that will be explored pertains to quality of life and life enhancement for members and their families. One of the policy review consultation questions investigates “how can DND and the Canadian Armed Forces improve the way they support the health and wellness of military members?” (DND, 2016, p. 9). Furthermore, the feedback provided from this question found “that the Canadian Armed Forces was doing either a somewhat good job or somewhat poor job” (DND, 2016, p. 29). The Canadian Armed Forces is striving to ensure that the health and wellbeing of members is met, but additional resources and improvements need to be accounted for. In summary, more information is needed to understand how members are supported and if these support systems enhance military wellbeing and counteract the effects of the military life (e.g. deployments, remote communities and frequent relocations).

2.4 Deployments

Deployments are one of the job expectations that are part of being a military service member in the Canadian Armed Forces. Deployments can further be defined as operational missions and combat that take place outside the service members home front, which are often times overseas and in return, often impact the military member, the family, and the community as a whole (Yablonsky, Barbero, & Richardson, 2016.) As a result, deployments can place copious amounts of stress on the member, family members and the community during deployment. In addition, community services and programs provided by the military and the surrounding community may be accessed more by families during deployment. It is important to understand the cycle of deployment to gain a better understanding on how deployment may impact many areas of a military community such as community programs, community services, healthcare, spouses, and children.

There are three phases of the deployment cycle (**see Figure 2**) in the military service, which include pre-deployment, deployment, and post-deployment (e.g. commonly referred to as the reintegration phase) (DeVoe & Ross, 2012; Yablonsky et al., 2016). During each deployment phase, different feelings and stressors are felt by the member, spouses and child(ren).

Figure 2: The Deployment Cycle



Pre-deployment is the period where the individual is preparing to deploy, and members of the family prepare to say goodbye for a significant length of time (DeVoe & Ross, 2012). This stage can be emotional and difficult for all members, especially younger children of the deployed member. The pre-deployment stage prepares the family to face the challenges associated with the deployment phase. Community services (e.g. recreation) have a role to play during this phase.

The deployment phase is referred to as the separation phase and two specific events occur in this phase. The first event is that the deployed member has to maintain a relationship and parent from the warzone or training location. Challenges exist in maintaining a relationship depending on where the individual is deployed (DeVoe & Ross, 2012; Yablonsky et al., 2016). The second event in the deployed phase is described as the homestretch (DeVoe & Ross, 2012; Yablonsky et al., 2016). This stage is further described as the preparation phase to welcome the deployed member home. The third phase is the transposition phase which is where family members may have to make alterations to daily life events to fill the void of the deployed member (DeVoe & Ross, 2012; Yablonsky et al., 2016). This often means spouses and older children in the family will take on

additional household roles to maintain family needs until the member reintegrates back home. Again, community services (e.g. recreation) have a role to play during this phase for both the member and the family.

The last phase of the deployment cycle is the post-deployment phase. During this phase, the member reintegrates back into the home and community (DeVoe & Ross, 2012; Marek et al., 2015; Yablonsky et al., 2016). An important component of the post-deployment phase is that deployed members will have to reintegrate back into everyday life both at work and at home (DeVoe & Ross, 2012). Reintegration back into the community can be challenging for some members as feelings of isolation and social disconnection are common (Marek et al., 2015). Furthermore, studies recommend that greater supports may need to be in place depending on how smooth the transition back home is for the returning member (Marek et al., 2015; Yablonsky et al., 2016). Deployment places greater stress and demands on the member, family and greater military community, which can have negative consequences for military communities as a result. Again, when strong community services (including recreation) are in place, military members are better able to adjust.

2.5 Post-Traumatic Stress Disorder

Post-traumatic stress disorder (PTSD), depression and other mental health issues are a growing concern among military personnel worldwide. In particular, the Canadian Armed Forces has seen an increase in PTSD and mental health diagnosis since the beginning of combat missions in Afghanistan, Iran and Iraq (post 9/11). More specifically, the Canadian Armed Forces reports that 1 in 10 members who participated in combat during the events of 9/11 have been diagnosed with PTSD, while many cases have gone unreported due to associated stigmatization with PTSD (Galloway, 2016).

Canadian Armed Forces members are exposed to trauma in different forms throughout their military career and as a result some may develop PTSD. Further, PTSD is a growing concern because often times the diagnosis of PTSD includes other mental health issues such as; anxiety, anger, depression, insomnia, substance abuse and other social disorders (Brunet et al., 2015; Galloway, 2016; Marek & Moore, 2015; Mowatt et al., 2011). Specifically, Brunet and colleagues (2015) found that 85.6% of military members are exposed to at least one traumatic experience during their military career. Furthermore, the median finding in this study also found individuals witnessed three or more traumatic events during their career (Brunet et al. 2015). In summary, with growing rates of PTSD among Canadian Armed Forces personnel, proper supports need to be set in place to counteract symptoms of PTSD and other mental health diagnoses. Military recreation is one support system that can help counteract the impacts of the military lifestyle (e.g. relocation, deployment and PTSD) and increase a sense of community among members.

2.6 Benefits of Recreation Participation

Recreation programs and services provide numerous benefits that range from; physical, psychological, social and economic benefits. These benefits in return enhance overall wellbeing. It is important to note that each individual participant will experience these benefits differently (Bricker et al., 2016; Mock et al., 2016). Various studies have been conducted on the components that are enhanced through recreation participation. There are numerous benefits, but this review of literature is based on the work of various scholars (Bedimo-Rung, Mowen & Cohen, 2005; Bricker et al., 2016; Goldenberg, McAvoy & Klenosky, 2005; Hammitt, 2001; Henderson et al., 2001; Kaplan, 1995; Keith & Frawson, 1995; Lindsey, 2005; Lerner & Poole, 2005; Mantler & Logan, 2005; Mock et al. 2016; Sibthorp, Furman, Paisley, Gookin, & Schumann, 2008). It is important to note that the four benefits (physical, psychological, social and economic) are felt individually; are related to each other and have profound effects on the broader community.

Recreation participation can benefit multiple areas in regard to an individual's *physical health* and wellbeing. Multiple studies have found that recreation reduces chronic illnesses such as; obesity, heart disease, diabetes and cancer (Bedimo- Rung et al., 2005; Bricker et al., 2016; Henderson et al., 2001). Further, recreation participation promotes the development and continuation of building strong bones and muscles throughout all developmental stages. In relation to physical health, psychological benefits overlap with physical health and are strongly visible as an outcome of participating in recreation activities and programs.

Improved *psychological health* has shown significant benefits from participating in recreation programs and activities. Much of the research has found improvements in a variety of psychological domains (Bricker et al, 2016; Hammitt, 2000; Kaplan, 1995; Mantler & Logan, 2005; Mock et al., 2016). For example, individuals have reported that their mood and cognition improved, while feelings of depression, anxiety and stress decreased (Bricker et al. 2016; Hammitt, 2000; Kaplan, 1995; Mantler & Logan, 2005; Mock et al., 2016). Individuals were better able to cope with everyday life and had improved resiliency during difficult and stressful situations (Bricker et al. 2016; Hammitt, 2000; Kaplan, 1995; Mantler & Logan, 2005; Mock et al., 2016). Lastly, since many recreation contexts involve greenspace and parks, many individuals reported that these areas significantly improved their psychological health and wellbeing. Furthermore, key findings in this area found that individuals were able to escape everyday life which allows for the individual to return relaxed and restored from actively participating in recreation programming (Hammitt, 2000; Kaplan, 1995; Mantler & Logan, 2005). By feeling psychologically well from participating in recreation an individual will also benefit socially.

Social benefits are also experienced by individuals who participate in recreation. Two important benefits that are experienced by participating in recreation are the development of friendships and transferable skills that can extend beyond recreation programs and services

(Bricker et al., 2016; Goldenberg et al., 2005; Mock et al., 2016; Sibthorp et al., 2008). In addition, individuals are able to build social networks and bond through common interests in recreation. In summary, individuals are able to connect with other community members which allows for the development of relationships, growth, and enhanced wellbeing.

Recreation programs and services also provide communities and individuals an opportunity to prosper economically. The *economic benefits* can be experienced at both the individual and community level. The relationship between recreation and economics are increased property value and the ability to attract individuals and businesses to the community (Bricker et al., 2016; Keith & Frawson, 1995; Lerner & Poole, 1999; Lindsey, 2005). In addition, individual economic benefits may include reduced absenteeism from work and an overall increased job performance and satisfaction.

In summary, through physical, psychological, social, and economic benefits associated with participating in recreation, the ultimate goal of building healthy communities and enhanced well-being for community members is possible. In conclusion, these four broad benefits of recreation participation help “support individuals and communities in achieving a higher standard of living” (Bricker et al., 2016, p. 67). These four benefits of recreation participation may also exist through recreation participation for military personnel.

2.7 Military Recreation

Recreation can play an important role in the lives of military members worldwide. Furthermore, recreation can be used as a tool to counteract the everyday stress of being a military member, while building resiliency and enhancing sense of community. In particular, United States military members and veterans are now “seeking alternative sources of treatment, and many recreation-based organizations (often community based, non-profits) have surfaced to help veterans adjust to community life, cope with disabilities, and control symptoms of mental health

conditions through participation in recreation” (Hawkins, Townsend & Garst, 2016, p. 58). Recreation has also been viewed by military members and veterans as having a strengths-based approach to service delivery (Hawkins et al, 2016). Furthermore, this strengths-based approach focuses on the individual developing skills to cope with everyday life leading to resiliency. In addition, various studies have been conducted on military recreation and its impact across bases worldwide, which have examined current members as well as injured and ill military members as a direct result of their military careers. The programs studied encompassed; outdoor recreation, fitness, military sports, outdoor excursions and clinical therapeutic recreation intervention programs which all have become increasingly popular after the events of 9/11 (Caddick & Smith, 2014; Hawkins et al., 2016; Hunt et al., 2014; Lundberg, Taniguchi & McGovern, 2016; Miller, Finn & Newman, 2014; Rogers et al, 2016; Taff et al., 2016).

Outdoor recreation has been used as a therapeutic tool to improve the well-being of individuals suffering from mental health issues such as; depression, traumatic brain injuries and PTSD. In particular, studies have been conducted on the impact of outdoor recreation and outdoors sports programs in military settings (Lundberg et al, 2016; Rogers et al., 2016). Both studies utilized a qualitative approach using phenomenology and grounded theory to find common themes among program participants. Furthermore, the studies both used programs designed for military members combating PTSD and depression and further examined the outcomes that these programs had on military members (Lundberg et al, 2016; Rogers et al., 2016). Both Lundberg and colleagues (2016) and Rogers and colleagues (2016) found that members felt feelings of belonging, growth, stress management, recreation skills, importance of recreation participation and being able to apply recreation beyond the program setting. These themes reiterate the importance of recreation within the military culture and context. Rogers and colleagues’ study further stated that “recreation may provide the context to regain and resume the confidence so engrained within

the culture of the military identity” (p. 222). Since, military members require competency and confidence to carry out their designated role within the military, members may be able to gain and enhance this through recreation participation while reaping the other benefits from recreation participation as a result.

In addition to outdoor recreation programming, nature-based therapy and outdoor excursions have become an increasingly popular non-traditional treatment method for PTSD and mental health (Dustin et al., 2011; Duvall & Kaplan, 2014; Mowatt et al., 2011). Nature based excursions are now being used as an alternative form of treatment over traditional methods (e.g. psychotherapy and narrative therapy) (Dustin et al., 2011; Duvall & Kaplan, 2014; Mowatt et al., 2011). Nature based excursions are being utilized over traditional methods due to the stigmatization military member associate with traditional methods. The following studies used planned nature-based excursions as a form of treatment for military members facing PTSD and other mental health issues. The outdoor excursions included; fly fishing, rafting, camping and hiking. The studies used narrative writing, interviews, and questionnaires to measure the individuals’ feelings before, during and after the excursion. The results of these studies consistently found that members had decreased feelings of loneliness and isolation, improved socialization, ability to bond and connect and most importantly they were able to establish friendships with other program participants (Dustin et al., 2011; Duvall & Kaplan, 2014; Mowatt et al., 2011). One key finding throughout the work was the fact that members reported that they were able to develop new skills that would allow them to continue participation beyond the program (Dustin et al., 2011; Duvall & Kaplan, 2014; Mowatt et al., 2011). In summary, nature-based excursions provide military members and veterans an opportunity to escape from everyday military life and also provide a space where individuals can improve their quality of life while

connecting with others who may be going through similar experiences (e.g. PTSD and other mental health issues).

In another study, yoga has become an increasing popular activity and with many reported benefits for participants. In particular, military organizations have started to utilize yoga as tool to reduce symptoms of PTSD and other stresses caused by military operations (Groll et al., 2016; Johnston et al., 2015). Groll and colleagues (2016) conducted the first study on yoga participation among Canadian Armed Forces members. Both studies investigated whether or not yoga reduced PTSD symptoms and improved mindfulness and resiliency. The studies were similar in methods that utilized multiple questionnaires (e.g. Combat Exposure Subscale, Traumatic Life Events, Beck Depression Index, PTSD CAPS Scale etc.) and measured the effectiveness of a 10 to 12-week long yoga intervention programs offered to members. Both studies found that members consistently reported improvements in depression, anger, overall mental health and reductions in pain (Groll et al., 2016; Johnston et al., 2015). The studies concluded that yoga programs can be beneficial for all military members and not just members battling PTSD and other mental health issues and further suggested that continuous participation is needed to measure the long-term benefits (Groll et al., 2016; Johnston et al., 2015).

In contrast to the previous studies, Taff and colleagues (2016) investigated the leisure perceptions of military members who had participated in combat using a qualitative approach. Taff et al. divided the study into three categories (facilitators of leisure, leisure constraints and the leisure benefits) and within each category, specific themes emerged that were related specifically to the military career. Similar to previous studies, Taff and colleagues found that in the leisure outcomes and facilitators of leisure categories, leisure participation enhanced military lifestyle, the military provided opportunities to participate and members were able to develop and build social networks (Lundberg et al, 2016; Rogers et al., 2016). In summary, there is support for the idea that

recreation is an important resource that can enhance wellbeing and overall military experience for members and families.

Similarly, Caddick & Smith (2014) conducted a study on the topic of physical activity and sport investigating two areas of wellbeing (subjective and psychological) using a systematic review and content analysis. Two key findings emerged from the study which concluded that sport and physical activity were directly linked to positive veteran wellbeing and secondly, sport and physical activity can be used therapeutically to combat symptoms of PTSD (Caddick & Smith, 2014).

Hunt and colleagues (2014) conducted a study on Morale, Welfare, and Recreation (MWR) programs in United States. The study was different from many previous studies as a S.W.O.T (strengths, weaknesses, opportunities and threats) analysis was conducted on a single military base in Key West, Florida (Hunt et al., 2014). The results of the analysis indicated that the base was doing well in terms of funding, facility management and community programming. The opportunities analysis found that improvements and development of new programs and services can be made possible through the availability of space on the base. One of the weaknesses was donations. The issue raised was that the base was unable to take donations due to the fact it was a government organization. In relation to weaknesses, the biggest threats to military MWR programming were outside community services that could potentially reduce usage rates on military bases and duplication of services. In regard to awareness of programs and services on the military base, many members were uninformed about what was happening within their base community. The study concluded that MWR programs positively impact military members, but more must be done to improve and promote the programs and services offered within military communities (Hunt et al., 2014).

Similarly, to Hunt and colleagues (2014) study, Miller and colleagues (2014) conducted a needs assessment of the surrounding community services offered within a military community such as healthcare, recreation, social work, etc. Four key areas were analyzed that included; professional practice, common assessment, treatment practices, competence and training. The key findings of the study were that 57% of community professionals had to refer military members to other services as they felt unskilled to meet their needs (Hunt et al., 2014). This resulted in the idea that communities which surround military bases need to be better informed about military life and culture. In addition, to these findings many communities were not ready to provide services to military members depending on the relationship the surrounding community had with the base. By establishing evidence and an understanding of community and how services such as recreation increase feelings of community, there is potential to assist in improving the wellbeing for military members.

2.8 Sense of Community

It is through community services such as recreation and sport that sense of community can be felt and enhanced by Canadian Armed Forces members and their families. There is a growing concern in society that community members are disconnected and experience a lack of involvement within their communities (Francis et al., 2012). More specifically, communities across the Canadian Armed Forces have seen a decline in military families living on or within close proximity to their stationed base due to the fact that 80% of members live off base in surrounding communities (Cramm et al., 2015). This has a significant impact on military neighbourhoods, programs, and services across the Canadian Armed Forces (Cramm et al., 2015). Furthermore, each Canadian Armed Forces base across the nation offers different programs and services and the surrounding community where the base is located also offers community programs

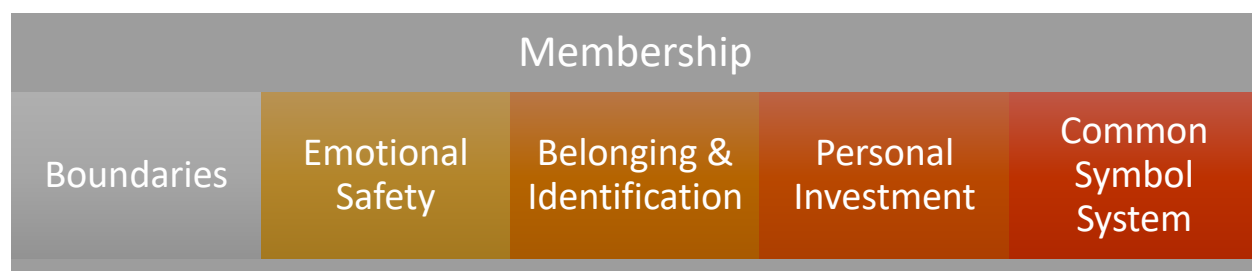
and services. This can be both beneficial and problematic for military families when trying to access community services.

The sense of community theory was first theorized by Seymour Sarason in 1974 (McMillan & Chavis, 1986). The most common theory and definition used today was further established by McMillan and Chavis (1986). Sense of community is a comprehensive theory that is used to understand different community contexts. It is important to understand the term community and how it is used to understand the theory of sense of community. Community can be defined in terms of geographic location and also by the relationships that occur within the space (McMillan & Chavis, 1986). Further, McMillan and Chavis define sense of community as the “feeling that members have of belonging, a feeling that members matter to one another and to the group, and a shared faith that members’ needs will be met through their commitment to be together” (p. 9). In summary, sense of community deals with how well individuals belong and feel about the community or neighbourhood in which they live. The sense of community theory is comprised of four specific dimensions that assist in understanding communities. These four dimensions include; membership, influence, integration and fulfillment of needs, and shared emotional connection. Each of the four dimensions are used to understand the specific dynamics about a community and how members feel about the community in which they live. Much of the current research on sense of community is built upon and adapted from McMillan and Chavis’s 1986 theory and framework (Cheng, 2004; Elkins et al., 2011a; Elkins et al., 2011b; Francis et al. 2012; Haines 2010, Henchy, 2011; Maya-Jariego & Armitage, 2007; Sonn et al., 1999; Wang et al., 2015; Warner, Kerwin, & Walker, 2013). These current studies will be discussed in terms of their research methodologies, results, similarities and implications.

Membership

The membership dimension in the sense of community theory is used to describe an individual's "feeling that one has invested part of oneself to become a member and therefore has a right to belong" (McMillan & Chavis, 1986, p. 9). Further, this means that individuals who invest their time in their community should feel accepted and welcomed within their community. Membership includes specific concepts which are comprised of; boundaries, emotional safety, belonging and identification, personal investment, and a common symbol system (see Figure 3) (McMillan & Chavis 1986).

Figure 3: Sense of Community Membership Components



In reality, this does not always occur and further creates the idea that people need to differentiate themselves and communities become visible as an 'us' and 'them' community, which creates boundaries in a community (McMillan & Chavis, 1986). Another component is emotional safety, which is a community members' feeling of safety within their community (McMillan & Chavis, 1986). The third principle of membership is belonging and identification, which is used to explain the idea that individuals should be able to find belonging to a particular group within their community (McMillan & Chavis, 1986). Personal investment also assists in defining membership as it relates to ones' emotional connection and ties to their community. The last element of membership is the common symbol system where members use symbols, rituals, and specific clothing to define and distinguish themselves from other groups within their community (McMillan & Chavis, 1986). Membership allows researchers and community members to understand belonging, safety, connectedness, and symbolism within a specific community.

Influence

Influence plays a role in how individuals interact and bond within their community. Influence deals with the idea that communities run efficiently and effectively when an individuals' beliefs and morals are recognized and valued (McMillan & Chavis, 1986). Furthermore, influence can also be described in two ways: individuals influence community and community influences its members (McMillan & Chavis, 1986). When community members feel they are accepted based on their belief systems, greater sense of community will result. Lastly, McMillan and Chavis (1986) stress the importance of establishing "communities that can appreciate individual differences" (p. 11-12). Influence is important in community settings as individuals come from many different beliefs systems, opinions and views, and therefore acceptance and appreciation need to be established within a community to move forward successfully.

Integration/fulfillment of needs

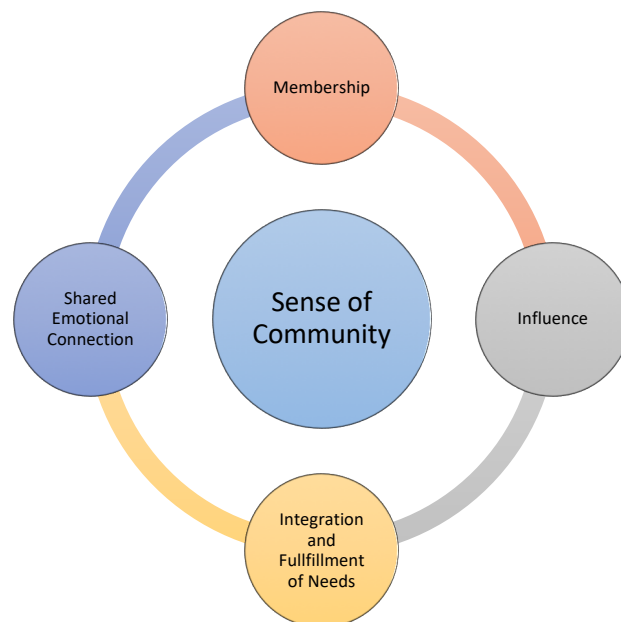
Integration and the fulfillment of needs is the understanding of both individual and community needs as a whole. This area relates to status within a community. McMillan and Chavis (1986) state that "people are attracted to others whose skills or competence can benefit them in some way" (p. 13). Further, community members will associate with those who will fulfill their needs and interests at the same time. McMillan and Chavis concluded that "a strong community is able to fit people together so that people meet others' needs while they meet their own." (p. 13). In summary, communities need to see the value in what individuals have to offer and direct them to the services or individuals who will also assist in fulfilling their needs to achieve feelings of community.

Shared emotional connection

The last dimension of the sense of community theory is shared emotional connection. Shared emotional connection is the idea that "strong communities are those that offer members

positive ways to interact, important events to share and ways to resolve them positively, opportunities to honor members, opportunities to invest in the community, and opportunities to experience a spiritual bond among members” (McMillan & Chavis, 1986, p. 14). In summary, all four dimensions of the sense of community theory help to identify community strengths and weaknesses and further allow researchers to understand how individuals feel towards their community. McMillan and Chavis (1986) concluded that “we must learn to use sense of community as a tool for fostering understanding and cooperation” (p. 20). McMillan and Chavis’s (1986) working definition of the sense of community theory is used widely throughout research today to understand community dynamics and the relationships that occur within the community domain.

Figure 4: Sense of Community Dimensions



Sense of community has not been a popular research topic within the military context. After an extensive review of literature only one article was dedicated specifically towards understanding sense of community in a military setting. Wang et al. (2015) studied sense of community among military spouses living in military communities in the United States. The study was adapted from McMillan and Chavis's 1986 scale and included two additional factors which were social support and effect. Social support was defined as "the behaviours of others who provide emotional support, guidance, practical assistance, financial assistance, and social interactions" (p. 165). Social support was used to depict the correlation between having a strong social support system (e.g. being directly linked to an individual or community) and having a strong sense of community. Affect was used to associate both positive and negative feelings of living as a military spouse in a military community. In addition to using McMillan and Chavis's sense of community scale, additional scales were used. The additional scales included the Ryff Scale of Psychological Well-being and the Social Support Behaviour Scale (Wang et al., 2015). The Ryff Scale in the study was used to measure environmental mastery specifically among military spouses. The Social Support Behaviour Scale was used to measure five items which were emotion, socialization, practical assistance, finance, and guidance (Wang et al., 2015).

The results of the study found that military support systems and agencies in the United States created and enhanced positive feeling associated with sense of community. Furthermore, this enhanced sense of community led military spouses to improve resiliency, which in return allowed them to better cope with the demands of being a military spouse (Wang et al., 2015). Based on the findings, Wang et al. (2015) recommend that "clinical and social welfare services for military spouses should therefore be designed to enhance positive affect and interaction with friends, so they feel more connected with the community and hence more in control of their environment" (p. 172). Support agents such as a friends and welfare programs provided by the

military play an extensive role in developing and improving sense of community for military members and their families. Wang et al. provided insight on how networking and collaborating among military community members can provide an avenue to positively cope with the stressors that are associated with military life. Wang et al. suggest future research assess military member needs and effectiveness of programs offered by military organizations.

Neighbourhood settings such as; parks, coffee shops, shopping centres and green space have been used as contexts to measure community members overall sense of community (Glynn, 1981; Maya-Jariego & Armitage 2007; Francis et al., 2012). Each study assessed individuals and their feelings towards the community in which they resided. Glynn (1981) conducted a study with individuals when they first migrated to the community and then repeated the study 36 months later. Maya-Jareigo and Armitage (2007) and Francis et al. (2012) analyzed sense of community across multiple communities and spaces. Both studies utilized McMillan and Chavis's 1986 sense of community scales to develop their study surveys. Glynn (1981) found that sense of community was experienced in three specific ways, which was similar to the work of Maya-Jariego and Armitage (2007) and Francis et al. (2012). The first way was the length of time individuals resided in the community (i.e. longer length of residency) equated to individuals being more comfortable within their community. Secondly, accessibility to community services and spaces had a significant impact on feelings of sense of community. The last finding suggested that the greater number of people an individual reported they knew, the better feelings they had toward their community (Glynn, 1981). In addition to the three findings, Maya-Jariego and Armiage and Francis et al.'s research found that the quality of the community spaces was significantly related to citizens' perceptions and feelings associated with their community. In summary, the three studies presented positive outcomes of sense of community, but suggest further research is needed to focus on negative associations that citizens have towards their communities and utilize a

network analysis to gain a better understanding how networks influence sense of community (Francis et al., 2012; Glynn, 1981; Maya-Jariego & Armitage 2007).

Much of the previous research in the sense of community area has not focused heavily on the sport context. Warner and Dixon (2011) studied sense of community among college athletes using a qualitative approach. Their study was conducted to further understand the prominent factors of community that would emerge from college athletes. This study was conducted since much of the previous sense of community literature had not focused on the sport context. After conducting interviews with twenty former college athletes, five prominent factors emerged (Warner & Dixon, 2011). The factors that were most prominent in the college sport setting included; administrative consideration, leadership opportunities, equity in administrative decisions, competition and social spaces (Warner & Dixon, 2011). It is through this study that the sense of community model has been further analyzed in other contexts which include; youth sport organizations and sport volunteers (Kerwin et al., 2015; Warner et al., 2013).

The Warner and Dixon (2011) model was further tested using youth sport organizations and sport volunteers (Kerwin et al., 2015; Warner et al., 2013). In both studies conducted by Warner and colleagues (2013) and Kerwin and colleagues (2015), researchers developed and tested their own sense of community measurement scale which was adapted from previous work (McMillan & Chavis, 1986; Warner, Dixon, & Chalip, 2012). The scales included seven factors; *administrative consideration, common interest, competition, equity in administrative decisions, leadership opportunities, social spaces, and voluntary action* (see Table 1 for factor definitions). Both studies utilized confirmatory factor analysis (CFA), descriptive statistics, and analysis of variances (ANOVAs) to test each factor item. In Warner et al.'s study, it was found that six out of the seven factors were supported. Voluntary action was not supported due to the nature of the population in the study (Warner et al., 2013). In Kerwin et al.'s study, it was found that five out of

six factors were significant and supported in the study. The factor that was non-significant was competition, to which Kerwin et al. expressed additional research was needed to further support the factor items. In summary, both models were supported, and it is suggested that the models be tested in other settings such as large sports organization and larger scale volunteer populations (Kerwin, 2015; Warner et al., 2013).

Table 1: Sense of Community Measurement Factors (Warner et al., 2013, p. 351)

Factor	Definition
Administrative Consideration	The expression of care, concern, and intentionality of administrators.
Common Interest	Group dynamics, social networking, and friendships that result from individuals being brought together by common interest.
Competition	The challenge to excel against both internal and external rivalries.
Equity in Administrative Decisions	Decisions that demonstrate all community members are treated equally.
Leadership Opportunities	Informal and formal opportunities that guide and direct others in the community.
Social Spaces	A common area or facility in which athletes could interact with one another.
Voluntary Action	Self-fulfilling and self-determining activities resulting from little to no external pressure or incentive.

Sonn, Bishop and Drew (1999) investigated sense of community from a cross-cultural perspective to understand community feelings as whole. It has been suggested that previous sense of community research has been too reliant on individual feelings of community. Cultural research has found that “the idea of shared history, symbols, and common stories are central to the process of community construction and the maintenance of community boundaries” (Sonn et al., 1999, p. 212). This further articulates that understanding a communities’ story will further help to understand a community members’ attachment and the role that sense of community plays within that specific community. This would include; understanding historical events, economics, demographics, and the culture of the community being researched. The sense of community model,

index, and scales used in previous research are still valid, but including cultural components of the target community will further support the research on that specific community. When studying sense of community, it needs to be context specific as each community is unique from one another. Furthermore, applying the sense of community model to a community needs to be designed specifically for that community, as the models are not entirely universal.

Various studies have been conducted on college campuses in the United States that assess students' sense of campus community based on their participation in campus recreation and other on-campus opportunities (Cheng, 2004; Henchy, 2011; Elkins et al. 2011a; Elkin et al. 2011b; Warner & Dixon, 2011). Campus communities are similar to military communities due to the fact individuals can live on site at the institution or off site in local communities. Studies on campus sense of community are built upon and adapted from the sense of community frameworks developed by McMillan and Chavis (1986). Many of the studies have found similar findings across college campuses.

Warner and Dixon (2011) examined sense of community and sport among college campuses utilizing a qualitative approach. The study found four connecting themes to McMillan and Chavis's 1986 work. The results found leadership opportunities ignited purpose, ownership, and influence. *Voluntary action* ignited autonomy, self-sufficiency, and self-motivation. In *competition* theme, it was found that students felt respected and threatened based on their gender. The last theme dealt with *common interest* where students felt their goals were accomplished and they were able to gain resiliency (Warner & Dixon, 2011). In contrast, Cheng (2004) investigated eight variables that included open environment, teaching and learning, residential experiences, intercultural programming, stress and loneliness, socialization and friendships. Of the eight variables measured, six out of eight were supported including: open environment, teaching and learning, social opportunities, positive relationships, school traditions, and assisting students in

need (Cheng, 2004). Both studies found similar results on the impacts that campus programming such as sport, recreation and volunteer opportunities had on students' overall feelings of campus sense of community. Additionally, it was recognized that a student's sense of community extended beyond classroom opportunities (Cheng, 2004; Warner & Dixon, 2011).

Elkins et al. (2013a) and Elkins et al. (2013b) studied sense of community using a 25-item scale adapted from the work of McMillan and Chavis (1986) and Cheng (2004). These two studies measured students' sense of community resulting from participating in sports and out of classroom opportunities. Elkins et al. (2013a) used six factors that included: purpose, open, just, disciplined, caring, and celebrative. Both studies were quantitative in nature using descriptive statistics, ANOVAs, and Exploratory Factor Analysis. Their findings suggested that students agreed with interests and values, staff was helpful, and students developed friendships through participating the programs on campus. In regard to feelings limiting their sense of community, it was reported that; parking, inaccessibility, schedule conflicts, living off campus, a lack motivation and lack of awareness were key indicators that lowered student feelings of sense of community towards their campus (Elkins et al. 2013a; Elkins et al. 2013b). Both studies were aligned and consistent with the findings from Cheng's (2004) study.

2.10 Conclusion

In summary, sense of community can be studied across multiple community contexts such as; parks, community centres, neighbourhoods, sports, recreation, volunteer opportunities, campus recreation and military settings (Cheng, 2004; Elkins et al. 2013a; Elkins et al. 2013b; Kerwin et al., 2015; McMillan & Chavis, 1986; Sonn et al. 1999; Warner & Dixon, 2011; Warner et al., 2013). Utilizing previous sense of community frameworks and scales serve as supportive resources and tools to extend further research. Since there is a lack of research on sense of community in military communities as outlined by Wang et al. (2015), it is beneficial to study the impact that

recreation participation has on Canadian Armed Forces members' sense of community. It is important to study the impact of recreation on sense of community across the Canadian Armed Forces to gain a better understanding of the impact that recreation participation has on Canadian Armed Forces members and their wellbeing, while reducing stressors associated with military. Based on the literature reviewed, the following two research questions will be examined; (1) Do recreation participants have higher levels of individual sense of community than non-recreation participants in the Canadian Military? And (2) Is there a relationship between frequency (# of times/week), duration (# of minutes), and activity type (sports, clubs, community events) of recreation participation and individual factors of sense of community in the Canadian military?

CHAPTER 3: METHODOLOGY

This study was conducted to investigate the role of recreation participation on feelings of community among Canadian Armed Forces members. The purpose of this chapter is to highlight the study design and methodology. The study used a quantitative approach with an adapted sense of community scale developed by Kerwin and colleagues (2015) who utilized the scale to measure feelings of community in the context of volunteers at a small-scale sporting event. This chapter is organized by five subsequent sections which include: (a) the study sample, (b) instrumentation, (c) data collection, (d) ethics and (e) data analysis.

The specific research questions were:

RQ1: Do recreation participants have higher levels of individual factors of sense of community than non-recreation participants in the Canadian military?

RQ2: Is there a relationship between frequency (# of times/week), duration (# of hours), and activity type (sports, clubs, community events) of recreation participation and individual factors of sense of community in the Canadian military?

3.1 Study Sample

The Canadian Armed Forces was approached about sponsoring a civilian research project related to understanding sense of community and recreation among Canadian Armed Forces members across Canada. After a thorough and lengthy ethics review process by the Department of National Defence and its various branches, the Department of National Defence made the decision to only allow the research to proceed if the data collection was limited to one site comprised of all three branches of the military working together. Such sites are referred to as “Purple Bases” because members may belong to the Army, Air Force or the Navy in the Canadian Forces. Their decision was made based on the military’s ethical protocols regarding civilian research and confidentiality. Therefore, the research sample was narrowed to a single Canadian Army Base

identified through the Army Research Office. Participants included individuals who were either employed as Regular Force (full-time members) or Canadian Armed Forces Reserve Unit members ranging from the age of 18 (age required to enlist as a military member in Canada) to 65 years old.

3.2 Sample size and effect size

The Canadian Armed Forces has approximately 60,000 full time and reserve members. The data site has 2000 members employed on base (either regular force or reserve unit members). The confidence level for this study was set at 95% and the confidence interval was set to 5. The sample size calculated for this study was generated using Survey System which is an online sample calculator which automatically generates sample size requirements based on target populations. For the reliability and validity of this study, a sample size of 200 participants was recommended.

3.3 Instrumentation

The study instrumentation (e.g. survey) was divided into three sections which were as follows; (1) demographics, (2) civic engagement, and (3) sense of community adapted by Kerwin and colleagues' 2015 sense of community scale. Each instrumentation section is discussed in more detail.

3.4 Survey Development

3.4.1 Demographics

The first section required participants to answer demographic questions. Respondents were asked to report; age, gender, current military status (Regular Force or Reserve Unit Member), rank in the military (Non-Commissioned Member (NCMs) or Officer ranking), and length of time served in the military [see **Appendix A**].

The next section asked participants about their recreation patterns. The purpose of this section was to further gain an understanding of each participant's recreation participation level to compare the response from the six sense of community dimensions. To develop a scale that measured recreation participation, the scale was adapted from the Statistics Canada study on *Physically Active Canadians* (2007) and from The Canadian Index of Wellbeing (2010) study on leisure, culture and time. The Canadian Index of Wellbeing study measured Canadian physical activity levels through leisure time, non-leisure time and exercise (Gilmour, 2007). To classify participant's categories, Gilmour (2007) conducted a questionnaire based on the Minnesota Leisure Time Physical Activity Questionnaire previously used in Folsom and colleagues (1986) study. The questionnaire asked participants about their leisure time participation levels over the past three months in specific activities (e.g. walking, gardening, home exercises, swimming, bicycling, jogging, dancing, weight training, golfing, exercise classes, aerobics, bowling, fishing, basketball, soccer, volleyball, ice skating, snow sports, hockey, baseball and tennis). For my study, I adapted the scale to fit the recreation activities and services offered by the Canadian Armed Forces.

In addition to the recreation activities used from Statistics Canada (2007), frequency of recreation participation was measured using a scale adapted from the Canadian Index of Wellbeing (2007). To measure frequency of participation, participants were asked how many times they participated in recreation activities on average each month (Canadian Index of Wellbeing, 2007). The scales used from the Canadian Index of Wellbeing (2007) provide sufficient validity and reliability as their methods have been used to test recreation participation levels on large populations (e.g. Canadian residents). Volunteering was measured using an adapted scale from Statistics Canada (2000). The question that was asked in this study was "if the Canadian Armed

Forces members have volunteered in the past year and where they volunteered (e.g. on base, off base or both)”.

3.4.2 Sense of Community

To measure participants’ feelings of community, the survey being utilized in this study was the seven-factor Sense of Community Scale which was adapted from Kerwin and colleagues (2015) previous SCS model within the context of sport volunteers. Kerwin and colleagues SCS model withheld under statistical testing and was well developed using Warner et al. (2013) established multidimensional SCS. In summary, this SCS model provides researchers with “an understanding of the individual’s sense of community” (Kerwin et al., 2015, p. 81), as a result of participating in recreation or not participating in recreation at their current Canadian Armed Forces base. The seven dimensions that were measured within the questionnaire were: (1) *administrative consideration*, (2) *common interest*, (3) *equity in administrative decisions*, (4) *leadership opportunities*, (5) *social spaces*, (6) *competition* and (7) *voluntary action* (Kerwin et al., 2015).

In addition to each category, participants were asked to provide a response for each of statements within each of the seven dimensions represented in adapted SCS of this study (see **Appendix A**). The statements from each of the sense of community dimensions were slightly modified from the previous model designed by Kerwin et al. (2015). More specifically, the modifications were completed to further provide statements that were specific to the context of the Canadian Armed Forces. For example, the following statement “leaders of my archery club care about me” (Warner et al., 2013, p. 354) was modified to “leaders of the Canadian Armed Forces care about their members”. The seven dimensions with predetermined statements included: *administrative consideration*, *common interest*, *equity of administrative decisions*, *leadership opportunities*, *social spaces*, *competition* and *voluntary action* (definitions of each dimension have been defined in **Table 1** presented earlier).

Respondents were asked to respond to the survey statements given a 4-point Likert Scale. For each statement, participants were asked to respond to the statement that best described their feelings and experiences within their Canadian Armed Forces community. The Likert scale was ranked as follows: not at all true (rank 1 on Likert scale), somewhat true (rank 2 on Likert scale), mostly true (rank 3 on Likert scale) and completely true (rank 4) on Likert scale. The 4-point Likert scale was chosen as Warner and colleagues (2013) highlighted within their study methodology that through the elimination of midpoints, we are able to increase the reliability and validity of the instrument. In addition to increasing the reliability and validity of the instrument, Brace (2013) recommends the use of balanced scales when measuring negative and positive attitudes using a Likert scale. The rationalization of this is because “if there are more positive than negative attitudes offered, then the total number of positive responses tends to be higher than would have otherwise been the case” (Brace, 2013, p. 57). By providing participants with four responses ranging from *not at all true* to *completely true*, we will gain a better understanding of the participant’s feelings of community and further account for consistent responses. In addition to the responses provided, by eliminating a midpoint on a scale, we reduce the chance for bias by including “two positive and two negative statements the respondents are not led in either direction” (Brace, 2013, p. 58). Lastly, Brace provides four issues that arise when using Likert scales, which include; order effect, acquiescence, central tendency and pattern answering. In conclusion, this study limited response options to four and allowed participants to decide on their own rather than being directed to a midpoint option, possibly leading to skewed or biased data.

3.5 Data collection

Canadian Armed Forces members were recruited through their DND e-mail and contacted by the Canadian Armed Forces sponsor. The software program “Simple Survey” was used to randomly distribute the questionnaire and collect data from the members.

3.6 Ethics

The study first adhered to the Research Ethics Board (REB) at Brock University followed by the Canadian Department of National Defence (DND) Social Science Research Review Board (SSRRB). Prior to taking part in the study, participants were asked to complete an online informed consent form which stated their rights as a participant and referenced the REB and SSRRB approvals. Furthermore, participants were given the opportunity to voluntarily revoke themselves from the study at any given point. Lastly, the questionnaires were completed online and upon completion participants were sent an e-mail confirmation and acknowledgement for participating in the study. Participants were also given the opportunity to request study results directly from the researcher upon completion of the study. All data were stored on a computer that was password protected to ensure confidentiality. Further, with respect to confidentiality, participants were not asked to reveal their names during the study and the surveys did not reveal the individual's identity and upon completion of the study, all data were destroyed as requested from the REB and SSRRB.

3.7 Data analysis

Upon completion of data collection, the data were downloaded from the on-line platform and inputted into the Statistical Package for the Social Sciences (SPSS) 24.0. The confidence level for this study was set at 95% and the confidence interval was set to 5. A t-test was used to answer the first research question and determine the relationship between recreation participants and non-recreation participants (independent variable) and the seven individual sense of community factors (dependent variable). To answer the second research question, a multiple linear regression analysis was used to determine the relationship between activity type (independent variable), frequency (independent variable), and duration (independent variable) of recreation participation and individual sense of community factors (dependent variables). The model equation for the regression analysis was:

Regression equation = b_1 (# of times) + b_2 (# of hours) + b_3 (total recreation activities) + b_4 (total community events) + b_5 (total combined activities) = 0

Prior to analysis, frequency tables were inspected for missing data in all variables. Prior to inferential testing, a confirmatory factor analysis was conducted using EQS software to determine the model fit for this study. The confirmatory factor analysis was used to assess construct reliability and validity of the sample (Kline, 2005). Kline (2005) suggests SRMR levels should be $p < .10$ and that a Comparative Fit Index (CFI) with a $p > .90$ is considered to fall within an acceptable range. A reliability analysis using Cronbach's Alpha was also conducted to further analyze if each of the seven factors were related. Kline (2005) suggests that each construct used on the scale should have an alpha greater than .70 to be deemed reliable for the study. Prior to inferential testing assumptions were tested.

3.8 Conclusion

In summary, this chapter highlighted how the study was conducted in terms of data collection, measurement scales, research questions, participants, ethics and the questionnaire (see Appendix A) that was used.

CHAPTER 4: DATA ANALYSIS

4.1 Introduction

This chapter will display the results generated by the data analyses. Multiple analyses were conducted using the questionnaire information collected. To better understand the population, descriptive statistics were conducted. To test the two research questions, inferential tests were run. The first research question was; do recreation participants have higher levels of individual sense of community factors than non-recreation participants in the Canadian Armed Forces? T-tests were used to answer research question #1. The second research question tested the following question: is there a relationship between frequency (# of times/ week), duration (# hours / week) and activity type (recreation or community events) of recreation participation and individual sense of community factors in the Canadian military? Multiple regression was used to answer research question #2.

4.2 Response Rate and Data Screening

Canadian Armed Forces members were sent the survey invitation through their work e-mail. Response rates of 100% are rarely achieved (Baruch & Holtom, 2008). Baruch and Holtom (2008) recommend a response rate of 48%. A total of 231 members were emailed the survey and a total of 148 participants from the selected Canadian Army Base completed the survey. The response rate for the study was 64%. Of the 148 surveys, 18 of the surveys were incomplete. Due to the small sample size, the 18 incomplete surveys were replaced using series means (Field, 2013). Upon completion of data collection, all data were inputted into Statistical Package for Social Sciences 24.0. Before analysis took place, frequency tables were inspected for missing data in all variables.

4.3 Descriptive Statistics

With the total number of participants, 148 surveys were completed from a Canadian Army Base to represent the Canadian Armed Forces. The descriptive statistics revealed that 75% (n=111) were male and 23.6% (n=35) were female (see Table 4.1 and 4.2). The gender ratio within this study is representative of the Canadian Armed Forces who report a gender split of 70% male and 30% female (DND, 2014). The average age of participants was 35 to 44 years. The Canadian Armed Forces categorizes rank into four categories which includes; Junior Non-Commission Member (NCM), Junior Officer, Senior NCM and Senior Officer. Of these participants, 39% (n=57) were Junior NCM, 13% (n=13) Junior Officer, 44.5% (n=65), Senior NCM and 3.4% (n=5) Senior Officer. Respondents were also asked to indicate their total length of service with the Canadian Armed Forces, and it was reported that 14.4% (n=21) served less than 5 years, 16.6% (n=24) served 6-10 years, 18.5% (n=27) served 11-15 years, 18.5% (n=27) served 16-20 years, 14.4% (n=21) served 21-25 years and 17.1% (n=25) served more than 26 years. In terms of position with the military, an overwhelming 93.2% (n=138) of respondents indicated they were a Regular Forces Canadian Armed Forces member and 6.8% (n=10) indicated they were a Reserve Member with the Canadian Armed Forces. It is important to note from a military standpoint that 68.5% (n=100) of participants indicated that they had a spouse and 60.7% (n=88) of their spouses resided with them. Of the participants, 54.1% (n=79) of the participants indicated that they had children and of those participants 41.8% (n=61) indicated that their children currently resided with them. Of the participants, only 25.3% (n=37) lived on base and while the other 73.3% (n=107) lived off base in surrounding communities. The sample data mirrors the Canadian Armed Forces in terms of gender (70% male and 30% female) and those living on and off base with the Canadian Armed Forces reporting 80% off base and 20% on base (Cramm et al., 2015).

Table 4.1*Frequencies for Canadian Military Personnel*

Characteristics	<i>N</i>	%
Gender		
Male	111	75.0
Female	35	23.6
Missing	2	
Age		
24 years and under	9	6.10
25-34 years old	43	29.1
35-44 years old	51	34.5
45-54 years old	38	25.7
55-64 years old	7	4.70
65 years +	0	0.0
Rank		
Junior NCM	58	39.2
Junior Officer	19	12.8
Senior NCM	66	44.6
Senior Officer	5	3.4
Length of Service with the Canadian Armed Forces		
< less than 5 years	21	14.2
6-10 years	25	16.9
11-15 years	27	18.2

16-20 years	27	18.2
21-25 years	22	14.9
26 years and greater	25	16.9
Position		
Regular Forces	138	93.2
Reserve Member	10	6.8

Table 4.2

Frequency Scores for Spouse, Children and Residence Location

Characteristics	<i>N</i>	%
Spouse		
Yes	102	68.9
No	44	29.7
Missing	2	1.4
Spouse living with them		
Yes	91	61.5
No	11	7.4
Children		
Yes	81	54.7
No	66	44.6
If their children reside with them		
Yes	63	42.6
No	17	11.5

Location of living residence

On base	37	25.0
Off base	109	73.6
Missing	1	0.7

To understand recreation participation, participants were asked to report the total number of times they participated in recreation each week and the total hours that they participated in recreation per week. On average, participants at this Canadian Armed Forces base location, participated in recreation 3.2 times per week ($M = 3.18$, $SD = 1.61$) for approximately 5.4 hours per week ($M = 5.41$, $SD = 4.8$). Participants were asked to describe the reason for participating in recreation based on the following choices: general health, occupational health or a combination of general and occupational health. On average, 64.9% participated in recreation for both general and occupational health reasons (see Table 4.3). When it came to the awareness of recreation services offered beyond the military base; 47.3% were aware of these programs and services, 21.6% were uninformed about these services and 31.1% were unsure of programs and services beyond their base community.

Table 4.3

Recreation participation frequency scores

Characteristics	<i>N</i>	%
Reason for participating		
General Health	19	12.8
Occupational Health	19	12.8
Both	96	64.9

Missing	14	9.5
Recreation Services Beyond Canadian Armed Forces Base		
Yes	70	47.3
No	32	21.6
Unsure	46	31.1

4.4 Sense of Community descriptive scores

McMillan and Chavis's (1986) sense of community theory was used to understand feelings of community among Canadian Armed Forces members. An adapted and updated sense of community scale was utilized to measure feelings of community (Kerwin et al., 2015). The sense of community scale was measured using a 4-point Likert scale which allows participants to rank their responses as follows: 1= Not at all true, 2= somewhat true, 3= mostly true and 4= completely true. These rankings were used to determine overall feelings of community using the seven factors of community (*administrative consideration, common interest, competition, equity in administrative consideration, leadership opportunities, social spaces and voluntary action*) (Kerwin et al., 2015). Mean scores for each sense of community question are displayed in the follow table (see Table 4.4).

Table 4.4

Sense of Community scale descriptive scores

CAF = Canadian Armed Forces

Statements	<i>M</i>	<i>SD</i>	<i>Skewness</i>	<i>Kurtosis</i>
<i>Administrative Consideration</i>				
1. Leaders of the CAF	2.67	.66	-.378	.189

care about their members.				
2. Leaders of the CAF support their members.	2.70	.64	-.392	.289
3. I feel comfortable talking openly with leaders of the CAF who run recreation programming.	2.80	.819	-.333	-.314
4. The leaders make me feel like a valued member of the CAF.	2.61	.79	-.411	-.218
<i>Common Interest</i>				
5. I share similar values in recreation as with other CAF members.	2.61	.769	-.142	-.293
6. I feel I belong when participating in military recreation programs and services as a CAF member.	2.71	.786	-.559	.077
7. Participating in recreation provides me with friends who share strong commitments to recreation within the CAF.	2.54	.904	-.181	-.728
<i>Equity in administrative decisions</i>				
8. Staff working for the CAF make decisions that benefit everyone when it comes to recreation programs and services.	2.38	.845	-.161	-.708
9. Staff working for the CAF make decisions that are fair when it comes to recreational programming and services.	2.50	.824	-.255	-.504
10. Staff working for the CAF consider everyone's needs when making decisions about recreation programs.	2.36	.853	-.123	-.747
<i>Leadership opportunities</i>				
11. I have influence over what recreation Programs and services are offered on my CAF Base.	1.73	.785	.630	-.759
12. If there is a problem with recreation Programs and services offered by the CAF, I have the opportunity to help to resolve it.	2.00	.840	.422	-.545
13. I have a say in what recreation programs and services go on within my CAF community.	1.83	.830	.774	.003
14. Being involved in recreation programs and services gives me opportunities to lead among the CAF.	2.28	.893	.055	-.850
<i>Social Spaces</i>				
15. When going to a recreational/community space	2.92	.690	-.200	-.101

on a CAF base, there are places I can interact with other members in the CAF.				
16. When going to a recreational/community space on a CAF base, I know I'll have an area where I can interact with other CAF members.	2.85	.795	-.252	-.412
17. The CAF creates places where I can interact with other members in the CAF.	2.85	.816	-.658	.228
18. The CAF provides me community spaces where I can interact with other CAF members.	2.84	.792	-.540	.139
<i>Competition</i>				
19. The competitiveness of the recreation offered on CAF bases helps me bond with other CAF members.	2.48	.889	-.022	-.707
20. The level of competition in recreation/sport in the CAF enhances my enjoyment.	2.33	.920	.010	-.901
21. Being involved in a highly competitive environment (Recreation, sports, CAF sports) is fun.	2.53	.879	-.141	-.654
<i>Voluntary Action</i>				
22. I am involved in CAF recreation because I want to be.	2.70	.955	-.330	-.775
23. Participating in CAF recreation never feels like a chore (or job).	2.53	.937	-.244	-.828
24. I participate in CAF recreation because of pressure from my family or friends.	1.51	.803	1.33	.545
25. I am not forced to be a member of CAF recreation.	2.78	1.01	-.486	-.821

4.5 Confirmatory Factor Analysis

Prior to inferential testing, a CFA was conducted using EQS software to determine the model fit for this study. The CFA was used to assess construct reliability and validity of the sample (Kline, 2005). For the purpose of this model, the robust method was used due to the small sample size in the study. The maximum likelihood estimation was conducted to help define the model. The goodness-of-fit indices revealed that the chi-square was significant ($\chi^2/df=1174.1$, $p = .000$). (See Table 4.5). The SRMR was within acceptable range (.05), as Kline (2005) suggests SRMR

levels should be $p < .10$. The Comparative Fit Index (CFI) was within an appropriate range (0.947), as Kline (2005) states that $p > .90$ is considered an acceptable range.

Table 4.5

Confirmatory Factor Analysis Measurement Model

Model	χ^2 (df)	SRMR	IFI	CFI
Seven Factor Model	1174.1(300)	0.054	0.948	0.947

4.7 Reliability of Scales

A reliability analysis using Cronbach's Alpha was also conducted to further analyze if each of the seven factors were related. Kline (2005) suggests that each construct used on the scale should have an alpha greater than .70 to be deemed reliable for the study. The seven-factor sense of community scale utilized in this study had an appropriate alpha score making it reliable in the context of this study. The sense of community scale utilized in this study had a reported Cronbach's Alpha score of .859. The Cronbach's Alpha score of .86 for *administrative consideration*. The Cronbach's Alpha score of .77 for *common interest*. The Cronbach's Alpha score of .92 for *equity in administrative decisions*. The Cronbach's Alpha score of .83 for *leadership opportunities*. The Cronbach's Alpha score of .90 for *social spaces*. The Cronbach's Alpha score of .84 for *competition*. The Cronbach's Alpha score of .70 for *voluntary action*. Since, the alpha scores are greater than .70, the sense of community scale demonstrates strong reliability for this study (Kline, 2005). Each factor of community is deemed reliable for the context of this study.

4.8 T-Tests

T-tests were used to answer research RQ 1: Do recreation participants have higher levels of individual factors of sense of community than non-recreation participants? An independent

samples t-test was utilized to understand two group means and how they may be statistically different from one another (Fields, 2013). For the purpose of this study, 14 independent samples t-tests were conducted. Seven t-tests were conducted to compare recreation amount (# of times/week) and individual sense of community factors. An additional, seven t-tests were conducted to compare recreation hours (# of hours/ week) and individual sense of community factors. For each test, groups were split and grouped by the midpoint of the data.

4.8.1 T-Test Assumptions

For each of the 14 t-tests, the following assumptions for the independent t-test were made (Field, 2013). The first assumption met was that the dependent variable was measured on a continuous scale. The second assumption was met due to the fact that the groups were categorical (non-participant and participant). The third assumption, independence of observations, was met because participants had no relationships between the groups. The fourth assumption was met as there were no significant outliers found within the data set. The dependent variables which were the individual factors of community (*leadership opportunities, common interest, equity in administrative decisions, administrative consideration, social spaces, competition and voluntary action*) were all normally distributed for each of the two groups (see Table 4.6). The skewness levels for the dependent variable were less than one, which are within the appropriate range as suggested by Field (2013). In terms of kurtosis, the levels were within the acceptable range as they were below the threshold of two (Field, 2013). In terms of the homogeneity of variances, all factors met this assumption for the number of times per week ($p > .05$) (Field, 2013) (see Table 4.6). For the homogeneity of variances, all the factors met this assumption ($p > .05$) except for *equity in administrative decisions* ($p = .011$) (see Table 4.7 and 4.8). For *equity in administrative decisions* no further analysis was conducted on this factor for number of times/week.

Table 4.6

Skewness and Kurtosis Levels

Variable	<i>Skewness</i>	<i>Kurtosis</i>
Administrative Consideration	-.130	.199
Common Interest	-.276	.450
Equity in Administrative Decisions	-.116	-.190
Leadership Opportunities	.736	.641
Social Spaces	-.238	.524
Competition	.129	-.003
Voluntary Action	-.055	.327

Table 4.7

Homogeneity of Variances for # of times per week

Levene's Test for Equality of Variances	<i>F</i>	<i>Sig.</i>
Administrative Consideration	.132	.717
Common Interest	.535	.466
Equity in Administrative Decisions	.159	.691
Leadership Opportunities	.437	.510
Social Spaces	.114	.736
Competition	.177	.675
Voluntary Action	.053	.818

Table 4.8

Homogeneity of Variances for # of hours per week

Levene's Test for Equality of Variances	<i>F</i>	<i>Sig.</i>
Administrative Consideration	1.284	.259
Common Interest	.211	.646
Equity in Administrative Decisions	6.59	.011
Leadership Opportunities	3.98	.050
Social Spaces	.268	.606
Competition	2.93	.089
Voluntary Action	3.06	.083

4.8.2 T-Test Results

The first t-test analyses investigated the weekly recreation amount (# of times/ week) with each of the seven factors of community. One factor of community was found to be significant, *voluntary action*. There was a significant difference in mean scores for recreation participants ($M=2.52$, $SD=.56$) and non-recreation participants ($M= 2.28$, $SD=.56$), $t = 2.49$, $p=0.014$ (see Table 4.9) and the sense of community factor, *voluntary action*. The results of the t-test indicate that those individuals who participated in recreation tended to report higher levels sense of community than non-participants in the *voluntary action* factor category. This suggests that recreation participants tend to have higher levels of sense of community when it comes to the voluntary action factor. *Administrative consideration, common interest, equity in administrative*

decisions, leadership opportunities, competition and social spaces found no significant differences ($p > .05$) among the two groups (< 3 times/week and > 3 times /week).

Table 4.9

T-test Results Comparing Recreation Participation Level on Voluntary Action

Recreation Amount	<i>n</i>	<i>Mean</i>	<i>SD</i>	<i>t</i>	<i>df</i>	<i>p</i>
< 3 times/ week	75	2.28	.56	2.49	146	.014*
>3 times/ week	73	2.52	.56			

* $p < .05$

To see if the way recreation participation was measured affected sense of community, further analyses were conducted with the recreation participation variable being calculated differently. A second analysis of seven t-tests was conducted to see if differences in recreation duration (# of hours/week) differed on each of the seven factors of community. *Administrative consideration, common interest, equity in administrative decisions, leadership opportunities, competition, social spaces and voluntary action* found no significant differences ($p > .05$) among the two groups (< 5 hours /week and > 5 hours /week). In conclusion, there were no statistical differences when recreation was measured in this way.

4.9 Regression Analysis

To answer the second research question, was there a relationship between frequency (# of times/week), duration (# of hours), and activity type (sports, clubs, community events) of recreation participation and individual factors of sense of community in the Canadian military, regression analyses were conducted.

A multiple linear regression allows the researcher to examine “the relationship of a collection of independent variables to a single dependent variable” (Aiken, West & Pitts, 2003, p. 483). Furthermore, a multiple linear regression is used to assess “how well a set of predictors taken as a whole account for the criterion” (Aiken, West & Pitts, 2003, p. 483). In addition, multiple regression analysis allows the researcher to understand the relationship of the independent variable and dependent variable at a certain point in time (Aiken, West & Pitts, 2003). For the purposes of this study, seven multiple linear regression models were used to explain the relationship between recreation activity types (independent variables), the recreation frequency (# of times/week and duration) (independent variable) and the seven sense of community factors (dependent variables). In summary, utilizing a multiple linear regression for this study allowed for further understanding of the independent variables and their specific impact on each of the seven sense of community factors.

4.9.1 Assumptions of the Multiple Linear Regression

The following assumptions must be met before running a multiple linear regression:

Linear Relationship

The first assumption is that the relationship between the independent and dependent variables must be linear (Fields, 2013). To check this assumption, multiple scatter plots were created. Each of the seven scatter plots confirmed they visually represented a linear relationship. Therefore, this study met the linear relationship assumption.

Independent Errors

The second assumption analyzes independent errors. To test this assumption, the Durbin-Watson Test was used and values can “vary between 0 and 4, with a value of 2 meaning that the residuals are uncorrelated” (Field, 2013, p. 311). Fields (2013) suggests values within this test be

between one and three. The results of the Durbin- Watson Tests in this study were within an acceptable range with values of one and two for the seven regression models. Therefore, this study met the assumption of independent errors.

Multicollinearity

Field (2013) suggests that multicollinearity should be analyzed by scanning the correlation matrix so see if any of variables are highly correlated with each other. Field further recommends that a correlation exists if the variables are correlated above .80 and .90. Field also states that the VIF score should be below 10. In this study the coefficients and VIF score of recreation hours, recreation amount, combined activities, total recreation activities and total community events were not highly correlated due to the fact their values were $<.90$. Therefore, this study met the assumption of multicollinearity.

Homoscedasticity

Homoscedasticity was analyzed to see if the residuals were constant within the data set (Field, 2013). This assumption was met for all seven models.

Normally Distributed Errors

To test this assumption, it is important to determine if “the residuals in the model are random, normally distributed variables with a mean of 0” (Field, 2013, p. 311). Cook’s distance was measured for each of the seven regression models. This assumption was met as all values were close to the threshold of 0.

4.9.2 Summary of Regression Results

The results of the seven regressions found that three of the models were significant predictors of higher levels of sense of community. Combined activities were a significant predictor of feelings towards *administrative consideration* ($p <.05$). Total recreation activities were a

significant predictor of feelings of *common interest*. *Voluntary action* was significantly predicted by the amount of recreation participation each week and the total community events participated in. Frequency, duration, recreation type (activities or events), total combined activities were not significant predictors of the following sense of community factors; *equity in administrative decisions*, *leadership opportunities*, *social spaces* and *competition* ($p > .05$) (see table 4.10). Each of the significant findings are further discussed.

Table 4.10

Sense of Community multiple regression findings

Model	<i>R</i>	r^2	<i>Adj. r²</i>	<i>F</i>
1 Administrative Consideration	.333	.111	.075	3.31*
2 Common Interest	.297	.088	.52	2.43*
3 EAD	.128	.016	.023	.417
4 Leadership Opportunities	.227	.052	.014	1.37
5 Social Spaces	.246	.060	.023	1.61
6 Competition	.219	.048	.010	1.27
7 Voluntary Action	.300	.090	.054	2.49*

* $p < .05$ **Administrative Consideration Summary of Findings**

A multiple linear regression was used to test if participants' recreation frequency and activity involvement significantly predicted *administrative consideration* among the Canadian Armed Forces population. The results indicated that the model was a significant predictor of the

administrative consideration factor, ($F(5, 126) = 3.134, p = .011$) with an R^2 of .111. This model further suggests that recreation accounts for 11% of the variability within the factor of *administrative consideration*. It was found that combined activities significantly predicted *administrative consideration* ($\beta = .178, p < .05$). Table 4.11 summarizes the results of the regression.

Table 4.11

Administrative Consideration Coefficients

IV	<i>B</i>	<i>SE B</i>	β
(Constant)	2.159	.196	*
Amount of rec/week	.025	.107	.023
Combined Activities	.025	.012	.178*
Total Rec Activities	.029	.018	.137
Total Comm Events	.080	.028	.250
Recreation Hours	.010	.013	.072

* $p < .05$

Common Interest

A multiple linear regression was used to test if *common interest* significantly predicted participants recreation frequency and activity involvement among the Canadian Armed Forces population. The results indicated that the model was a significant predictor of the *common interest* factor, ($F(5, 126) = 2.434, p = .038$) with an R^2 of .088. This model further suggests that recreation accounts for 8.8% of the variability within the factor of *common interest*. It was found that the

total recreation activities were a significant predictor of *common interest* ($\beta=.195$, $p<.05$). Table 4.12 summarizes the results of the regression.

Table 4.12

Common Interest Coefficients

IV	<i>B</i>	<i>SE B</i>	β
(Constant)	2.058	.226	
Amount of rec/week	.145	.124	.114
Combined Activities	.009	.014	.055
Total Rec Activities	.047	.021	.195*
Total Comm Events	.050	.032	.136
Recreation Hours	.026	.015	.168

* $p < .05$

Voluntary Action

A multiple linear regression was used to test if *voluntary action* significantly predicted participants recreation frequency and activity involvement among the Canadian Armed Forces population. The results indicated that the model was a significant predictor of the *voluntary action* factor, ($F(5, 126) = 2.495$, $p = .034$) with an R^2 of .090. This model further suggests that recreation accounts for 9% of the variability within the factor of *voluntary action*. It was found that the amount of recreation per week was a significant predictor of *voluntary action* ($\beta = .215$, $p < .05$). It was also found that the total community events were a significant predictor of *voluntary action* ($\beta = .182$, $p < .05$). Table 4.13 summarizes the results of the regression.

Table 4.13

Voluntary Action Coefficients

IV	<i>B</i>	<i>SE B</i>	β
(Constant)	1.812	.206	
Amount of rec/week	.250	.113	.215*
Combined Activities	.008	.013	.050
Total Rec Activities	.011	.019	.049
Total Comm Event	.060	.029	.182*
Recreation Hours	.018	.014	.123

* $p < .05$

Although the *administrative consideration, common interest and voluntary action* factors had significant regression models, it is important to note that there may be other predictors contributing to the overall prediction of sense of community given the low r^2 . Combined activities, total recreation activities, amount of recreation /week and total community events were significant predictors of the *administrative consideration, common interest and voluntary action*. Other predictors that were not accounted for could include variables such as morale and welfare services, civilian community programs and services, senior Canadian Armed Forces leadership and the location in which the base is positioned within the Canadian Armed Forces. In conclusion, recreation does play a role in military sense of community, but other predictors should be considered to further understand sense of community across the Canadian Armed Forces.

4.9 Summary of Findings

Multiple analyses were conducted to understand the individual sense of community factors and the role of recreation participation within the Canadian Armed Forces. The CFA confirmed that the Kerwin and colleague's (2015) sense of community scale was a reliable and valid scale within the context of the Canadian Armed Forces community. Secondly, the descriptive statistics of the participating base were a mirror image to the overall Canadian Armed Forces demographics. For the first research question, only one sense of community factor (*voluntary action*) was found to be statistically significant among recreation participants and non-participants. The second research question found that combined activities, total recreation activities, amount of recreation and total community events were significant predictors of *administrative consideration*, *common interest* and *voluntary action*. Given the low r^2 values however, other variables may predict feelings of community beyond recreation participation. The results of this study provide insights into the role of recreation in fostering sense of community among Canadian Armed Forces members.

CHAPTER 5: DISCUSSION

5.1 Introduction

This quantitative study investigated the relationships between recreation participation and sense of community in the context of the Canadian Armed Forces by utilizing McMillan and Chavis' (1986) sense of community theory as a framework for this study. An adapted sense of community scale was created by using Kerwin and colleagues' (2015) scale from a study conducted on sense of community in a small-scale sport volunteer context. To further understand these relationships, the use of t-tests (RQ 1) and multiple linear regressions (RQ 2) were utilized. The following research questions were answered: (1) do recreation participants have higher levels of individual factors of sense of community than non-recreation participants in the Canadian military? (2) Is there a relationship between frequency (# of times/week), duration (# of minutes), and activity type (sports, clubs, community events) of recreation participation and individual factors of sense of community in the Canadian military? This chapter will discuss the findings of this study in relation to previous literature and provide future areas of research on the topic of sense of community and military research.

5.2 Summary of Findings

5.2.1 Model Testing: Confirmatory Factor Analysis/ Cronbach's Alpha

A CFA was conducted to test the reliability and validity of the sense of community scale utilized within the context of the Canadian Armed Forces community. The CFA used a 7-factor model where each sense of community dimension was correlated. The results of the CFA revealed that the 25-item sense of community scale model fit within the context of a Canadian Armed Forces community. All seven individual factors of community were the appropriate fit for the Canadian Armed Forces context based on the outcomes of the CFA and Cronbach's Alpha analyses. In

comparison to other studies, a military context provides a robust setting because all seven factors loaded. For example, in other research, it was established through CFA that two sense of community factors (*voluntary action* and *competition*) had a lack of fit in both a volunteer and youth sport context (Kerwin et al., 2015; Warner et al., 2013). As a result of the CFAs, a 7-factor model was not used, but a 5-factor and 6-factor model respectively were employed in inferential testing (Kerwin et al., 2015; Warner et al., 2013).

5.2.2 Research Question # 1

This study aimed to understand the differences in recreation participation levels and individual sense of community factors. After conducting t-test analyses, only one significant difference in mean scores was found. *Voluntary action* was the only significant finding based on recreation participation levels (< 3 times/week and > 3 times/ week). This means that those members that participate in recreation were motivated on their own with little to no pressure from external influences such as Canadian Armed Forces leadership (Warner, et al., 2013). Conversely, those that do not participate as frequently may feel pressured to participate from Canadian Armed Forces leadership. This finding suggests that the obligation to participate in recreation comes from Canadian Armed Forces leadership and that participating in military recreation programs may be pursued for occupational purposes rather than for intrinsic reasons. This finding supports existing literature related to the *voluntary action* sense of community factor, which suggests that individuals participate freely beyond obligation (Warner et al., 2013). In other words, recreation participation should be self-determined and self-fulfilled, meaning individuals are self-motivated to participate (Lapointe & Perreault, 2012). Canadian Armed Forces members who do not participate as frequently may feel obligated to participate in military recreation rather than

participating in recreation on their own terms. This creates the idea that recreation needs to be positioned in a way that voluntarily invites participants to join. Encouraging recreation participation is a strategy that is worth pursuing by the Canadian Armed Forces because researchers have found that military recreation programs and services result in positive outcomes for active personnel as well as veterans (Hawkins et al., 2016). Such programs encourage members to disconnect from everyday life and allow individuals to find meaning in their lives beyond their role in the military. As a direct result of participating in these recreation focused programs and services, members can initiate their own recreational pursuits without feeling obligated to participate in recreation by military leadership.

Where my research differs from existing literature is with the number and type of significant sense of community factors. Kerwin and colleagues (2015) found significant findings for the following three factors; *common interest*, *EAD* and *social spaces*. Speculating as to why the work of Kerwin et al. was not supported in its entirety can perhaps be attributed to differences between military and sport settings. For example, the military environment can be described as very transient (e.g. postings, deployments and taskings) where members display a strong sense of comradery. In terms of the military *social spaces*, on-base recreation may be perceived as simply an extension of the workplace. In contrast, the sport setting tends to be more structured with established roles and a governing body that is responsible for the organizational decisions and operations in comparison to a recreational setting that tends to be informal and less structured (Kerwin et al., 2015). In summary, military personnel may not have enough time to build a bond or share spaces for interaction due to the structure of their positions (e.g. frequent relocations) and not having a governing body that is responsible for organizing recreation.

In terms of *Equity in Administrative Decisions*, there were no significant differences among groups which may indicate that both groups were treated the same when it comes to Canadian Armed Forces recreation programs. In contrast, Kerwin and colleagues (2015) found differences within the *equity in administrative decisions* factor was due to the small-scale environment of the volunteer context which allowed volunteers the opportunity for increased input. This may not be visible within my study due to the size of the Canadian Armed Forces and the idea that the larger the population within the organization, the greater the authority and less opportunity to be part of the planning and decision-making processes (Kerwin et al., 2015). Also, without a governing recreation board or committee, a structure did not exist to support recreation delivery. Although, these findings were different within the context of the Canadian Armed Forces, it is still important to understand why these trends are happening across sense of community research. In summary, this current study, while different from existing literature in some cases, does contribute to the sense of community research area.

5.2.3 Research Question # 2

The second research question analyzed the relationship between frequency, duration, activity type of recreation participation as predictors of the individual sense of community factors. The regression models used to answer research question two found three significant regression models that were predictors of the following sense of community factors; *administrative consideration*, *common interest* and *voluntary action*. The independent variables with sense of community factor in brackets were; 1) amount of recreation/week and total community events (*voluntary action*), 2) total recreational activities (*common interest*), and 3) combined activities (*administrative consideration*). Each are further discussed. The first significant model suggested that the amount of recreation per week (# of times per week) and total community events were

significant predictors for the *voluntary action* factor. *Voluntary action* encourages members to participate with little to no external pressure (Warner et al., 2013). The amount of recreation per week was a significant predictor of *voluntary action* because those that participate do so because of internal purposes and do not feel pressured from external factors such as Senior Canadian Armed Forces leadership. In terms of the total community events being a significant predictor of *voluntary action*, this outcome occurred because military personnel wanted to participate and engage in community events rather feeling obligated to participate. In summary, the more times an individual participated in recreation and community events, the better their feelings of community were within the *voluntary action* factor.

Secondly, total recreation activities participated in was a significant predictor of the sense of community *common interest* factor. Total recreation activities represent the total number of recreation activities participated in for each participant (e.g. hockey, aerobics, baseball, golf, tennis etc.). The total recreation activities variable was a significant predictor of the *common interest* factor due to members participating because of a shared interest for a certain activity and the bonds formed as a result of participating (Warner et al., 2013). When military personnel feel a common connection and bond to others in their environment, they are more likely to participate in recreational activities, leading to an increased sense of community in the *common interest* factor.

Lastly, related to the *administrative consideration* factor, combined activities (recreation activities, community events and clubs) was a significant predictor. As a reminder, *administrative considered* is defined as “expression, care, concern and intentionality of administrators” (Warner et al., 2013, p. 351). Therefore, as more recreational activities were offered to military personnel, this was interpreted as care being shown by administrators. This further demonstrates that the military member felt supported beyond their role as a member (Warner & Dixon, 2011). My

research supports the work of Warner and colleagues (2013), who found three significant predictors within their regression model and concluded that *common interest*, *leadership opportunities* and *social spaces* were significant contributors to continued participation in youth sport.

5.3 Descriptive Data and Sense of Community Factors

In addition to analyzing and discussing the inferential data, it is important to discuss the overall means scores for each of the seven sense of community factors within the Canadian Armed Forces context. Most of the means scores for each factor of community were ranked low with mean scores below 2.9. The lowest performing factor out of the seven factors of community was the *leadership opportunities* factor, which should be an area of concern for the Canadian Armed Forces because *leadership opportunities* refer to members having a “voice” at their current base location and being given the opportunity to lead. Secondly, *voluntary action* scored low, which should be addressed by Canadian Armed Forces leadership because when it comes to recreation participation members should freely participate and not feel obligated or feel that recreation is a chore. In terms of *EAD* the findings of this study may indicate that decisions regarding recreation programs and services are made from the top down with very little room for members to participate in decisions making. In terms of *common interest* and *competition* these factors displayed neutral outcomes within the Canadian Armed Forces when it comes to recreation participation. On the higher end of the rankings *administrative consideration* (2.7) and *social spaces* (2.9) may be areas where the Canadian Armed Forces is doing well in terms of care, support and recreational spaces. However, the scale may not have given enough variability in the Likert scale to produce significant study outcomes. In summary, the low mean scores for each factor of community could be triggered by off-base organizations (e.g. civilian recreation programs and services). With low rankings of

community this may indicate a lack of awareness and promotion for military recreation programs and services.

5.4 Sense of Community Summary

Many of the findings and outcomes within the sense of community research suggest that sense of community is context specific (Hill, 1996; Hunt et al., 2014; Kerwin et al., 2015; Warner et al., 2013). The findings of the current study support the fact that “research strongly suggests that psychological sense of community is, to a significant extent, setting specific” (Hunt et al., 1996, p. 433). Further, within the military context, given it is such a controlled environment, there is less inconsistency with measurement. Since, this is the first study specifically using this model and scale, the findings may vary due to it being a different setting than a sport setting. The military setting is considered different from a sport context because of the way in which it is governed. The sport context is typically organized and governed by a board of directors that is responsible for decisions and operations of the organization. Within the military recreational setting, activities and programs are usually unstructured and informal with various members participating on an infrequent basis with little to no commitment attached to the activity or program. In contrast, sports settings tend to have structure with frequent interaction among team members and a time commitment that is expected as part of being a member of a sports team (e.g. practices and games). Furthermore, since Canadian Armed Forces recreation may be related to the members’ role, it creates a unique discussion related to whether participating in these programs feels more like their occupation (e.g. location of facilities, rank and leadership) and role within the Canadian Armed Forces than their enjoyment beyond the confines of their role within the Canadian Armed Forces.

Administrative consideration, voluntary action, and common interest were the prominent factors of community that were visible among the seven factors of community measured within

the current Canadian Armed Forces base used for this study. Although, recreation accounted for a small percentage of predicting community for these three factors creates a unique discussion of the relationship among each of these factors, as these factors are all related to personal and group cohesion. It is further important for the Canadian Armed Forces to focus on these three visible factors for several reasons. In terms of *administrative consideration*, the Canadian Armed Forces should further take in consideration the military lifestyle and what the individual and base needs as whole to successfully carry out their day to day role in the military which is supported by Warner and Dixon (2011), where they suggested administrators focus directly on life transitions for college students athletes. Secondly, *voluntary action* was prominent within the current site because members wanted to participate through their own initiation in comparison to youth sport where it is initiated by their parents (Warner et al., 2013). Lastly, *common interest* was visible within the military recreation context due personal interests and shared connections for the activities in which military personnel were participating in (e.g. sharing the same hobbies and interests). This is supported by Kerwin et al. (2015) where it was found volunteers participated because of their passion for volunteering and being able to connect to individuals who shared that passion for volunteering. In summary, *administrative consideration*, *voluntary action*, and *common interest* are the prominent factors felt within the Canadian Armed Forces as a direct result of participating in recreation and Canadian Armed Forces leadership should focus on these three factors to enhance recreational programs and services to build further feelings of community. Overall, my research indicates Canadian Armed Forces members needs are considered, they participate because they share a common bond and they are involved in recreation because they want to be.

5.5 Military Research

Military research on morale and welfare programming (e.g. recreation) is a new field of research (Cramm et al., 2015; DND, 2008; Hunt et al., 2015; Miller et al., 2014). Consistent with Cramm and colleagues' (2015) study, my research established that 25.3% of members live on base and 73.3% live off base. The implication of so many military personnel living off base might result in Canadian Armed Forces members using civilian community organizations (e.g. YMCAs, private gyms, community recreation facilities) in place of military programs and facilities, thus potentially decreasing sense of community among military personnel. However, there are additional factors that may explain the results. For example, in addition to accessing community recreation facilities, Canadian Armed Forces members may be unaware of the programs and services offered on-base by Canadian Armed Forces. As well, family is another factor that may impact recreation participation because those members with families may have different recreation patterns (e.g. passive or spectator-based leisure) than those members without families. These factors all play a significant role in understanding sense of community and thus may lead to inconsistent feelings on community on military bases.

The current study found that military personnel were engaged in recreation participation on average 5.4 hours each week. This is important because of the therapeutic benefits of recreation. Participating in recreation programs can reduce stressors associated with everyday military life. Many members were participating in recreation for both occupational and general health purposes. The reason to participate in recreation is further supported by Lundberg and colleagues' (2016) study where outdoor recreation was used to combat the effects of military job demand. There is evidence that recreation can foster three important outcomes for military veterans which are: [1] to "provide individuals with opportunities to develop significant social networks; [2] [to] facilitate a redefinition or further development of one's identity; [3] and [to] provide a sense of freedom of

constraints of an individual's current situation" (Lundberg et al., 2016, p. 415). Future recreation programs should foster programming based on the three outcomes to build resilient military communities because of the potential outcomes to support the operational readiness of the Canadian Armed Forces.

In addition to developing resiliency focused programming for Canadian Armed Forces personnel, there is a need to promote these programs once developed. To date there has only been one study conducted on sense of community within the military (Hunt et al., 2014). My study found that 52% of Canadian Armed Forces members were unaware or unsure of the services offered off base. This is consistent with Hunt and colleagues' (2014) study that found the usage of community organizations significantly impacted the use of recreation programs and services on base. Due to the fact the location of the base for this study was located within proximity to community services (e.g. YMCA, municipal recreation and private sector organizations), there may have been other civilian services available for Canadian Armed Forces members to access. Further, my research supports the work of Hunt and colleagues (2014) who identified the increased number of members living off base who may be accessing off base recreation programming. If members are aware of the programs and services offered on base, they may be more inclined to participate on base.

In addition to the awareness of programs, Hunt and colleagues' (2014) study found that military members were more likely to use surrounding community programs and services than the MWR programming on base. Similarly, within my study, the low ranks provided for each factor of community may indicate members are utilizing recreation programs and services beyond their base community. These low rankings also support the idea that members often seek services beyond their Canadian Armed Forces community through of informal channels (DND, 2008),

which leads to inconsistent messaging reinforcing the fact that many members were uninformed about what was happening within their base community (DND, 2008; Hunt et al., 2014). The low rankings each of the seven factors of community may indicate a lack of promotion for these MWR programs on Canadian Armed Forces bases.

Contributing to our understanding of military recreation is the work of Miller and colleagues (2014) who conducted a needs assessment on a military base and surrounding community. Their study found that many surrounding community organizations had to refer military members to other service providers. This is important for Canadian Armed Forces leadership to be aware of because communities surrounding military bases may not have adequate resources, skills or be equipped to meet the needs of military personnel. My study suggests that members are participating in services off base due to the low sense of community rankings and members indicating they participate in recreation beyond their base offerings (e.g. YMCA, private gym or municipal recreation programs and services). For all these reasons (e.g. being unaware, unsure, off base participation) recreation on base may not be reaching its full potential.

5.6 Implications for Practice

There are many insights that can be gained from this research for the Canadian Armed Forces. The results of this study should be taken into consideration by the Canadian Armed Forces, global military structures, recreational professionals, communities that surround military bases and researchers who study sense of community. The results of this study indicated that there is a significant difference in recreation frequency (# of times/week) in terms of the *voluntary action* factor. Although only one factor was significant, it is important to note that continued participation in recreation can lead to greater sense of community among Canadian Armed Forces members. As

managers in military settings, it is important that recreation continue to be advocated for and supported through resources. In addition, the current study also found three significant regression models that predicted sense of community (*administrative consideration, common interest and voluntary action*). Therefore, the Canadian Armed Forces should find additional ways to improve recreation participation starting with Canadian Armed Forces members being a part of the planning and decisions making process at their local base. One way to increase recreation engagement would be to focus on using a Community Engagement Program (Shariff et al., 2017). A Community Engagement Program has been utilized in the past by companies to engage all stakeholders in the planning and decision making to ensure the wellbeing of all stakeholders (e.g. employees, surrounding community) is being maintained (Shariff et al., 2017). Furthermore, the Canadian Armed Forces can increase recreation participation by focusing on partnering with other organizations that focus on enhancing wellbeing. Doing this will allow the Canadian Armed Forces “to mobilize more skills, resources and approaches” (Casey, Payne, Brown & Eime, 2009, p. 130) and engage Canadian Armed Forces members in participating in recreation programs and services. When members begin to have a collective voice, the Canadian Armed Forces will start to see more members involved in community programming such as recreation, community events and clubs at their local base. This will further enhance military member and family wellbeing, which is a current priority within the recent launch of the Defence policy strategy (DND, 2017).

Global military systems structure their organizations through the notion of rank. Within the Canadian Armed Forces, the rank system is organized into four structures; Junior Non-Commission Member, Junior Officer, Senior Non-Commission Member and Senior Officer. Members hold rank with high integrity and respect for their fellow soldiers. With respect to rank, often Canadian Armed Forces members feel that rank impacts their role outside of the military.

For example, a Junior NCM or Junior Officer may be treated differently by Senior Staff outside the confines of their work environment and may also feel they have to constantly demonstrate their rank on the playing field, which may deter Canadian Armed Forces members from participating in recreation opportunities. Rank should not impact or be a barrier when Canadian Armed Forces members participate in military recreation programs and services. Therefore, understanding the role of rank on recreation participation represents an important consideration to be addressed through recreation programming.

The findings of my research are well aligned with the recent development and the implementation of *Canada's Defence Policy* (2017) policy priority: "Well Supported, Diverse, Resilient People and Families". Further, a key point stressed with this priority is "to look to the future, we will also refocus our efforts on ensuring the entire Defence team has the care, services and support it require" (DND, 2017, p. 19). As a result of this work, the Canadian Armed Forces is developing a Total Health and Wellness Strategy with the goal to "consider psychosocial well-being in the workplace, the physical environment, and the personal health of members (including physical, mental, spiritual, and familial)" (DND, 2017, p.12). Ensuring that recreation is a fundamental aspect of the policy will allow resources to be dedicated to the enhancement of recreational opportunities for military personnel.

The importance of enhancing recreational opportunities for Canadian Armed Forces members is that participating in recreation can build resiliency (Bricker et al, 2016; Hammitt, 2000; Kaplan, 1995; Mantler & Logan, 2005; Mock et al., 2016). Further, the participation in recreation has the ability to decrease stress, anxiety, depression and PTSD symptoms leading to resilient individuals (Bricker et al. 2016; Hammitt, 2000; Kaplan, 1995; Mantler & Logan, 2005; Mock et al., 2016). When an individual develops resiliency, he/she is better able to cope with and overcome life's adversities (Mock et al., 2016). The strong connection between recreation

participation and mental and physical wellbeing should be recognized by the military so that continued support can be directed towards programs and services that build a prosperous community. A prosperous community is a community where members are well connected and given access to programs and services (e.g. recreation, healthcare, education) that they need to thrive (Putnam, 2001). This research strongly aligns with this Defence policy priority and the Canadian Armed Forces should invest research and planning into MWR programming that supports everyday military life across the Canadian Armed Forces. When this investment in recreation occurs, the Canadian Armed Forces may start to see members thrive within their base communities consistent with work intended to support operational readiness and mental readiness.

5.7 Recommendations

Three prominent sense of community factors that were visible within the military recreation context included; *administrative, common interest and voluntary action*. The following recommendations based on the findings of this study should be considered to increase recreation participation across Canadian Armed Forces bases:

Administrative Consideration

Based on the fact that 75% of the Canadian Armed Forces members at this site live off base many members may be accessing recreation programs and services off base. The Canadian Armed Forces should consider collaborating and partnering with organizations that are located within proximity to Canadian Forces Bases which would reinforce the idea of the *administrative consideration factor* because the formation of partnerships would ignite the care and concern of members from both the Canadian Armed Forces leadership and the leadership teams of the organizations that surround the existing Canadian Armed Forces Base. This would ensure that

members are supported and provided adequate programs and services that support the operational readiness of military members.

In a similar vein, based on the low sense of community scores and lack of awareness for military recreation programs and services, a committee should be formed on local Canadian Armed Forces sites to deal with recreation related issues. The formation of a committee on local Canadian Armed Forces site should invest their time in promoting recreation and its tie to enhancing wellbeing. The formation of a committee is directly linked to the *administrative consideration* factor. This committee would further build stronger relationships between members and administrators that are responsible for making decisions and policy making (Warner & Dixon, 2011).

Common Interest

Practical insights gained from the *common interest* sense of community factor in the military setting also supports the idea of a committee formation as this committee would bring individuals together that have a collective interest in ensuring that recreation is advocated for at their base community. Furthermore, based on the low percentage of Canadian Armed Forces members who were aware of on base recreational opportunities, a recommendation would be to develop a marketing strategy using social media platforms. While this might seem obvious the military has tended to discourage marketing recreation up into this point. However, this pattern may be slowly changing as Canadian Forces Morale and Welfare Services has recently adopted social media (e.g. Facebook) to promote their recreation programs and services to maximize target populations. The use of social media platforms would enhance the *common interest* factor due to the fact that members within these platforms often share similarities and these platforms provide an opportunity for members to engage (e.g. share information about community events on base).

Voluntary Action

Voluntary action was found to be a prominent factor of community within the Canadian Armed Forces. Based on this finding, it is recommended that Canadian Armed Forces leadership adopt an approach that encourages members to freely participate in recreation on their own initiation, rather than forcing participation. The outcomes from participating in recreation voluntarily are far greater than the outcomes that occur from forced participation. When recreation is promoted in a way that promotes voluntarily participation, greater feelings of community will be felt as a result of participation.

5.8 Limitations and Challenges

The purpose of this study was to understand the role that recreation participation played in enhancing sense of community among Canadian Armed Forces members. There have been several studies that have examined sense of community in sport and campus recreation settings (Cheng, 2004; Elkins et al., 2011a; Elkins et al., 2011b; Francis et al. 2012; Haines 2010, Henchy, 2011; Maya-Jariego & Armitage, 2007; Sonn et al., 1999; Wang et al., 2015; Warner, Kerwin, & Walker, 2013) but no research has investigated sense of community in the context of military recreation. This is also the first study to analyze sense of community in the Canadian Armed Forces specifically looking at recreation participation. A single site random sample was conducted at a single Canadian Armed Forces site which may limit findings to this specific base and bases that share similar demographics. Since sense of community is context specific, utilizing the results on a base that has different demographics (e.g. location, population and services offerings) may not be practical. Furthermore, the findings are limited to this base and bases with similar populations because each Canadian Armed Forces base is unique, and the programs and services offered on

bases may vary significantly. For example, a small sized base may have less program offerings than a large-scale base. In addition to program offerings and size of base, those bases that are remote may have challenges accessing services compared to those bases that are located in proximity to local programs and services. These factors may strongly impact feelings of community among Canadian Armed Forces personnel when it comes to military recreation programs and services.

Another limitation to this study was the fact that the measurement of sense of community within the Canadian Armed Forces was limited to recreation participation on base. The study was limited to recreation participation on base due recreation being offered by a single government organization (e.g. Personnel Support Programs). Limiting the research to on base recreation may have significantly impacted the outcome of the study. For example, in Hunt and colleagues' (2014) work, they assessed both on base and off base programs and services using a needs assessment, thus providing a more comprehensive study of military programs and services. Further analyzing sense of community with other morale and welfare programming organizations (e.g. Military Family Resource Centre or YMCA) may allow for a better understanding of sense of community since many members live off base. Based on the results of this study, there are other variables that may contribute to sense of community in the Canadian Armed Forces given the regression model had low statistical output. Other variables that may contribute to predicting feelings of community in the Canadian Armed Forces include; civilian programs and services, members occupational role within the Canadian Armed Forces, place of residence (this may vary significantly based on relocation from one base to another) and political power. Assessing other contributing variables may have yielded different results for each factor of community.

An additional limitation of the study is the limited variability in the Likert Scale used. A 4-point Likert scale may have affected the outcome of the study (Westland, 2015) because utilizing a larger scale such as; a 7-point Likert scale, the results may have shown larger variabilities which may have resulted in additional significant results in both research questions. The use of the 5-point or 7-point Likert scale “may produce slightly higher mean scores relative to the highest possible attainable score” (Westland, 2015, p.119). In summary, it is important to consider these implications to improve practice and future areas of research in the area of Canadian Military, sense of community and recreation programming.

Additionally, policy has an influence on community involvement and ones’ feelings towards the community that they live in. Policy and political power may be a variable that impacts feelings of community within the context of the Canadian Armed Forces. In terms of political power and policy, Canadian Armed Forces members should be part of policy decisions and the planning process. In Thibault and Babiak’s (2006) study on athletes and policy, they suggest having sport organizations shift from an administrative power perspective to an athlete focused perspective. This athlete focused perspective specifically includes looking at needs and the opportunities to allow athletes to thrive (Thibault & Babiak, 2006). A similar shift would be beneficial in the military recreation setting and would help to reduce power struggles among members (e.g. rank) and how they view senior leadership. The military has started to engage Canadian Armed Forces members in the policy and decision-making processes through the launch of the 2017 Defence Policy (Total Health and Wellness Strategy). With continued involvement in policy decisions and implementations, the Canadian Armed Forces will start to see increased participation in recreation which will lead to increased participation and improvement in operational readiness.

5.9 Recommendations for Future Research

This was the first study conducted on sense of community within the Canadian Armed Forces from a recreation participation standpoint. The development of the scale for this study was adapted using previous validated scales in the context of sport (Kerwin et al., 2015; Warner et al., 2013). The scale was valid and reliable within the military context but further research on each factor of community and its relationship to the Canadian Armed Forces is needed. For example, future research could include rewriting each factor item to reflect the Canadian Armed Forces organization more closely by using military terminology. Rewriting each factor item to reflect the Canadian Armed Forces specifically may result in a better understanding of military sense of community since sense of community is context specific. Since there were other unknown contributing variables beyond recreation participation that predicted feelings of community, future research should incorporate those variables to further understand sense of community within the context of the Canadian Armed Forces. This would further expand the sense of community research area due to the fact it is context specific and often times research findings can only be generalized to the population studied (Hill, 1996). Given the fact that sense of community is context specific, understanding individual needs and identities within the Canadian Armed Forces may be one area to invest future research which could include researching social identity theory.

To further understand the military community, social identity theory may be another framework to use to further gain insight into the military community and recreational participation. Lock and colleagues (2012) explain that “the social identity theory was founded on the notion that individuals strive to join social categories which reflect positively on their self-concept” (p. 283). Social identity theory should be considered in future research as the Canadian Armed Forces has many organizations within it (e.g. Army, Air Force, Navy). Further, within each of these governing

organizations, the organizational structure, roles and operations are different from each other. Therefore, these identities and roles within the Canadian Armed Forces (e.g. Army, Air Force, Navy) create different meanings and experiences for each member. Social identity theory allows participants to provide researchers with reflection and meaning about their social identity within an organization that they identify with (Lock et al., 2012). By further understanding how a member self-identifies and reflects on their beliefs and interests within the Canadian Armed Forces beyond recreation participation may assist Canadian Armed Forces' leadership in improving areas of the Canadian Armed Forces that support operational readiness and mental readiness.

After researching a single site, it is recommended that future research on recreation participation and sense of community extend beyond a single site to include all Canadian Armed Forces bases across Canada which would allow researchers to further understand feelings of community across all bases. If this research was conducted it would serve as a tool that senior leadership could use to gain perspectives on how recreation is delivered and the gaps in feelings of community across Canadian Armed Forces bases. With the new Defence policy, my research further aligns with the strategy of 'Well Supported, Diverse, Resilient People and Families' due to the focus on enhancing wellbeing through MWR programming (DND, 2017). In summary, future research should include all Canadian Armed Forces members and their insights and encourage senior staff to advocate to policy makers about the importance of MWR programming and services and the strong connection that these services have to wellbeing and operational readiness within the military.

Finally, future research should extend beyond the military member to include the military family as a whole (Melton, Townsend & Hodge, 2018). Military family recreation is important to research because it will allow for a "deeper understanding of military family leisure experiences

and the process of systematically optimizing military family leisure experiences” (Melton, Townsend & Hodge, 2018, p. 603), which will further be able to support and raise awareness for family recreation and leisure that supports operational readiness. In terms of the new Defence Policy strategies this would align with the policy of ‘Well Supported, Diverse, Resilient People and Families’. Specifically, the DND (2017), has acknowledged that “military families are the strength behind the uniform” (DND, 2017, p. 28). Furthermore, “military families make an incredible contribution to the operational effectiveness of the Forces and must have access to the support and services they deserve, to cope with the unique challenges and stresses of military family life” (DND, 2017, p. 28). Further research studying sense of community within the Canadian Armed Forces to specifically include the family would seek to understand the importance of recreation participation within the Canadian Armed Forces and its relationship to operational readiness. In sum, focusing on the military family as a whole would allow for the development and improvement of new and existing MWR programs and services.

5.10 Conclusion

The purpose of this study was to explore recreation participation and sense of community within the Canadian Armed Forces. This study provides a unique contribution because the findings that were found were different from what was found in the sport setting. Within this setting *administrative consideration, common interest and voluntary action* were significant factors felt when it came to Canadian Armed Forces members feelings of community. This is particularly unique in this setting. This indicates members needs are considered, they participate because a common bond and they are involved in recreation because they want to be. These areas are unique for sense of community in military recreation moving forward because these three factors focus on group cohesion which plays a significant role in the structure and design of

military organizations. In terms of administrative consideration in this context members may be given less of voice compared to other settings due to rank being attached to the members status in the military. In terms of common interest, recreation in this setting may be based on the military career and the bond created through the military structure (e.g. comradery) compared to the sport context. Lastly, in terms of voluntary action members may not always voluntarily participate and feel as if they need meet the requirements of their occupational role, whereas in the sport and volunteer contexts individuals engage and participate through their own initiation.

Basic demographic statistics, inferential statistics and the 25-item adapted sense of community scale were analyzed using an online questionnaire. Through the t-test analysis, only one significant difference occurred which was *voluntary action*. The t-test findings are important as they suggest that recreation participation in the Canadian Armed Forces may be directly linked to an individual's occupation rather than an individual's enjoyment and escape from everyday stressors. The second analyses found three significant regression models (*administrative consideration, common interest and voluntary action*) but the model showed low performing predictors of the factors. This may indicate that other variables beyond recreation participation in the Canadian Armed Forces may be contributing to feelings of community. The variables that may also be predicting feelings of community in the military may include how long each Canadian Armed Forces member has been stationed at their current Canadian Armed Forces base because the length of time someone has invested in where they live has been shown to have a direct contribution to their feelings of community (Maya-Jariego & Armitage, 2007). Furthermore, distance away from family and friends may also be a contributing factor to feeling of community. Maya-Jariego and Armitage's (2007) study of immigrants found that distance away from loved ones may negatively impact an individuals' sense of community at their current

place of residence. Measuring time and distance within sense of community may further contribute to our understanding of feelings of community within the Canadian Armed Forces.

Both objectives of this study were accomplished. The first objective was to determine the levels of recreation participation by Canadian Armed Forces members across a Canadian Army base. This was achieved through the use of descriptive statistics which found that Canadian Armed Forces members participated in recreation on average 3.2 times per week and average of 5.4 hours each week. The second objective was to investigate whether recreation participation related to sense of community for Canadian Armed Forces members. This was achieved through conducting t-test and regression analyses.

Although, this was first study in the Canadian Armed Forces investigating sense of community and the role of recreation there is information that can be used to inform current research and professional practice. These findings and conclusions expand on the theory of sense of community in the recreation field (Kerwin et al., 2015; McMillan & Chavis, 1986; Warner et al., 2011; Warner et al., 2013) and also contributes to the field of military and Veterans health research. Moving forward, this study can be used a resource to further study sense of community within the military context. Military leadership, policy makers and MWR professionals can use these findings to raise awareness for MWR programs and services. Furthermore, professionals can use these findings to stress the importance of community and its positive impact on operational readiness within the military. In conclusion, MWR programs and services play an important role in the Canadian Armed Forces and the Canadian Armed Forces should continue to support these programs and services to better the lives of those that serve us.

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Appendix A- Study Questionnaire

Part A Demographics

The following section will require you to fill out brief demographics about yourself. All will be kept in confidence as per REB.

1. Gender:
☐ Male
☐ Female

☐ Other

2. Age

- ☐ 24 years and under
☐ 25-34 years
☐ 35-44 years

- ☐ 45-54 years
☐ 55-64 years
☐ 65 years and over

3. Do you have a spouse?

- ☐ Yes
☐ No

B) If yes, do they reside with you?

- ☐ Yes
☐ No

4. Do you have children?

- ☐ Yes
☐ No

B) If yes, do they reside with you?

- ☐ Yes
☐ No

5. Do you currently live on base?

- ☐ Yes
☐ No

6. Total Length of time served with the Canadian Armed Forces (Reg. Force or Res. Force)

- | | |
|--------------------------------------|--------------------------------------|
| <input type="checkbox"/> 0-5 years | <input type="checkbox"/> 16-20 years |
| <input type="checkbox"/> 6-10 years | <input type="checkbox"/> 21-25 years |
| <input type="checkbox"/> 11-15 years | <input type="checkbox"/> 26+ years |

7. Please indicate your current Canadian Armed Forces status:

- a. Regular force member
b. Reserve unit member

8. What is your military rank?

- ☐ Junior Non- Commissioned Member
☐ Junior Officer
☐ Senior Non- Commissioned Member
☐ Senior Officer

Part B: Recreation Participation

The following section will ask questions regarding your current level of recreation participation at your current Canadian Armed Forces Bases.

1. How many times per week do you participate in recreation?

- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4

- ☐ 5
- ☐ 6
- ☐ 7+

2. What is your best guess to how many hours you spend each week participating in recreation?
3. When you participate in recreation are you doing it for general health or for occupation health? (Participating recreation for occupational health reasons means doing this physically and mentally to meet the requirements of your job).

- ☐ General health
- ☐ Occupational health
- ☐ Both

4. Which activities do you participate in? (Please check all that apply)

- ☐ Walking
- ☐ Gardening
- ☐ Swimming
- ☐ Bicycling
- ☐ Jogging
- ☐ Running
- ☐ Weight training
- ☐ Dancing
- ☐ Golfing

- ☐ Bowling
- ☐ Fishing
- ☐ Basketball
- ☐ Soccer
- ☐ Aerobics
- ☐ Exercises classes (i.e. yoga, spin, Pilates)
- ☐ Ice Skating

- ☐ Hockey
- ☐ Baseball
- ☐ Snow sports (ski, snowboard, snow shoeing, dog sledding)

- ☐ Tennis
- ☐ Water sport
- ☐ Other _____

5. When your base host community events, which events do you participate in? Check all that apply.

- ☐ Terry Fox Run
- ☐ Base/ Wing Community Run
- ☐ Wellness Week
- ☐ Mess Socials
- ☐ June is Recreation Month
- ☐ Base/Wing Welcomes

- ☐ Holiday Events
- ☐ Sports Day in Canada
- ☐ Winter fest
- ☐ Unit Sports Days
- ☐ Unit Family Day Events
- ☐ Relay for life

☐ Other specify: _____

6. If you are involved in clubs, which clubs are you involved in? (Please check all that apply)

- | | |
|--|---|
| <input type="checkbox"/> Auto club | <input type="checkbox"/> Running Club |
| <input type="checkbox"/> Wood Hobby Club | <input type="checkbox"/> Rod and Gun Clubs |
| <input type="checkbox"/> Sailing Club | <input type="checkbox"/> Skeet and Shooting Clubs |
| <input type="checkbox"/> Saddle Club | <input type="checkbox"/> K9 Clubs |
| <input type="checkbox"/> Movie Club | <input type="checkbox"/> Other |
| <input type="checkbox"/> Flying Club | |

7. Are there recreation activities and services provided beyond your Canadian Armed Forces community offerings?

- ☐ Yes
☐ No
☐ Unsure

8. Over the past year have you volunteered?

- ☐ Yes
☐ No

If yes, have you volunteered on or off base?

- ☐ On base
☐ Off base
☐ Both

Part C SCS Scale

Please answer the following questions as truthfully as possible using the statement and scale provided (1- not true at all, 2- somewhat true, 3-mostly true and 4- completely true).

	Not True at All (1)	Somewhat True (2)	Mostly True (3)	Completel y True (4)
1. Leaders of the Canadian Armed Forces care about their members.	1	2	3	4
2. Leaders of the Canadian Armed Forces support their members.	1	2	3	4
3. I feel comfortable talking openly with leaders of the Canadian Armed Forces who run recreation programming.	1	2	3	4
4. The leaders make me feel like a valued member of the Canadian Armed Forces.	1	2	3	4
5. I share similar values in recreation as with other Canadian Armed Forces members.	1	2	3	4
6. I feel I belong when participating in military recreation programs and services as a Canadian Armed Forces member.	1	2	3	4
7. Participating in recreation provides me with friends who share strong commitments to recreation within the Canadian Armed Forces.	1	2	3	4
8. Staff working for the Canadian Armed Forces make decisions that benefit everyone when it comes to recreation programs and services.	1	2	3	4
9. Staff working for the Canadian Armed Forces make decisions that are fair when it comes to recreational programming and services.	1	2	3	4
10. Staff working for the Canadian Armed Forces consider everyone's needs when making decisions about recreation programs.	1	2	3	4
11. I have influence over what recreation programs and services are offered on my Canadian Armed Forces Base.	1	2	3	4
12. If there is a problem with recreation programs and services offered by the	1	2	3	4

Canadian Armed Forces, I have the opportunity to help to resolve it.				
13. I have a say in what recreation programs and services go on within my Canadian Armed Forces community.	1	2	3	4
14. Being involved in recreation programs and services gives me opportunities to lead among the Canadian Armed Forces.	1	2	3	4
15. When going to a recreational/community space on a Canadian Armed Forces base, there are places I can interact with other members in the Canadian Armed Forces.	1	2	3	4
16. When going to a recreational/community space on a Canadian Armed Forces base, I know I'll have an area where I can interact with other Canadian Armed Forces members.	1	2	3	4
17. The Canadian Armed Forces creates places where I can interact with other members in the Canadian Armed Forces.	1	2	3	4
18. The Canadian Armed Forces provides me community spaces where I can interact with other Canadian Armed Forces members.	1	2	3	4
19. The competitiveness of the recreation offered on Canadian Armed Forces bases helps me bond with other Canadian Armed Forces members.	1	2	3	4
20. The level of competition in recreation/sport in the Canadian Armed Forces enhances my enjoyment.	1	2	3	4
21. Being involved in a highly competitive environment (Recreation, sports, Canadian Armed Forces sports) is fun.	1	2	3	4
22. I am involved in Canadian Armed Forces recreation because I want to be.	1	2	3	4
23. Participating in Canadian Armed Forces recreation never feels like a chore (or job).	1	2	3	4

24. I participate in Canadian Armed Forces recreation because of pressure from my family or friends.	1	2	3	4
25. I am not forced to be a member of Canadian Armed Forces recreation.	1	2	3	4

Part D: Open Ended Section

Is there any information you would like to add about how the Canadian Armed Forces could improve military member wellbeing or recreational/sport programming?
